COMUNE DI MONTALTO DI CASTRO
PROVINCIA DI VITERBO

PROGETTO: MONTALTO

PROGETTO PER LA REALIZZAZIONE DI UN IMPIANTO DI PRODUZIONE DI ENERGIA ELETTRICA DA FONTE EOLICA DELLA POTENZA DI 43,2 MW E SISTEMA DI ACCUMULO DA 27,6 MW

RELAZIONE DI SHADOW FLICKERING

	GRUPPO DI PROGETTAZIONE	*IL TECNICO*
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REV.	*DATA*	*DESCRIZIONE*
0	*Settembre 2023*	*Prima emissione*
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REGIONE LAZIO

Regione Toscana

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1 Premessa

Il presente elaborato ha lo scopo di analizzare l'effetto di "*shadow flickering*" indotto dall'impianto eolico che si propone di realizzare nel Comune di Montalto di Castro (VT) con sistema storage e opere connesse anche nel Comune di Manciano (GR).
Lo *shadow flickering*, tradotto letteralmente come 'ombreggiamento intermittente', è l'espressione comunemente impiegata per descrivere l'effetto stroboscopico delle ombre proiettate dalle pale rotanti degli aerogeneratori eolici quando sussistono le condizioni meteorologiche opportune. La possibilità e la durata di tali effetti dipendono da una serie di condizioni ambientali, tra cui la posizione del sole, l'ora del giorno, il giorno dell'anno, le condizioni atmosferiche ambientali e la posizione della turbina eolica rispetto ad un ricettore sensibile.
L'impianto eolico oggetto di studio, avente una potenza nominale di circa 43,2 MW, è costituito da 6 aerogeneratori del tipo Vestas V172-7.2 MW 50/60Hz aventi una potenza individuale nominale di 7,2 MW, un diametro del rotore di 172 m e un'altezza al mozzo di 125 m. È inoltre previsto un sistema BESS di accumulo della potenza di 27,6 MW. La potenza nominale complessiva è, pertanto, pari a 70,8 MW.
La valutazione tecnica è effettuata con l'ausilio del software di simulazione specifico per la progettazione degli impianti eolici *windPRO*®, costituito da un insieme di moduli di elaborazione orientati alla simulazione di una serie di aspetti che caratterizzano le diverse fasi progettuali, inclusa la quantificazione del fenomeno di s*hadow flickering* mediante un modulo chiamato SHADOW.
All'interno della presente relazione è riportata:

- una breve descrizione tecnica del fenomeno di shadow flickering;
- una sintesi del quadro normativo di riferimento;
- la descrizione progetto in esame, con le posizioni delle turbine e loro caratteristiche tecniche;
- un'analisi dei recettori potenzialmente esposti al fenomeno in esame;
- la descrizione della metodologia seguita per l'analisi del fenomeno di shadow flickering;
- l'analisi dei risultati ottenuti, con allegati grafici e analitici di dettaglio che descrivono il fenomeno su ognuno dei ricettori e da parte di ognuna delle turbine per tutto l'anno solare.

2 Cenni sul fenomeno dello Shadow flickering

Lo shadow flickering, tradotto letteralmente come 'ombreggiamento intermittente', è l'espressione comunemente impiegata per descrivere l'effetto stroboscopico delle ombre proiettate dalle pale rotanti degli aerogeneratori eolici quando sussistono le condizioni meteorologiche opportune (Figura 1).
Il fenomeno si traduce in una variazione alternata di intensità luminosa che, a lungo andare, può provocare fastidio agli occupanti delle abitazioni le cui finestre risultano esposte al fenomeno stesso. Il fenomeno, ovviamente, risulta assente sia quando il sole è oscurato da nuvole o nebbia, sia quando, in assenza di vento, le pale del generatore non sono in rotazione.

Figura 1: Rappresentazione schematica del fenomeno dello shadow flickering (Fonte: EERE[1])

In particolare, le frequenze che possono provocare un senso di fastidio sono comprese tra i 2,5 ed i 20 Hz (Verkuijlen and Westra, 1984[2]), e, l'effetto sugli individui è simile a quello che si sperimenterebbe in seguito alle variazioni di intensità luminosa di una lampada ad incandescenza a causa di continui sbalzi della tensione della rete di alimentazione elettrica.
I più recenti aerogeneratori tripala operano ad una velocità di rotazione di molto inferiore ai 35 giri al minuto, corrispondente ad una frequenza di passaggio delle pale sulla verticale inferiore a 1.75 Hz, minore, quindi, della frequenza critica di 2.5 Hz riportata in letteratura. Inoltre, i generatori di grande potenza (dal MW in su) raramente superano la velocità di rotazione di 15 giri al minuto, corrispondente a frequenze di passaggio delle pale ampiamente minori di quelle ritenute fastidiose per la maggioranza degli individui. Secondo

[1] Energy Effficiency and Renewable Energy (EERE) https://www.energy.gov/eere/wind/articles/living-wind-energys-shadow

[2] Verkuijlen E, Westra CA. (1984) Shadow hindrance by wind turbines. Proceedings of the European wind Energy Conference, pp. 356-361

l'Associazione britannica di epilessia[3], le frequenze inferiori a 3Hz (equivalenti a 60 rpm per aerogeneratori tripala) non causano episodi di epilessia fotosensibile e le velocità di sfarfallio delle turbine eoliche moderne non sono in grado di causare crisi epilettiche.

[3] https://docs.wind-watch.org/Health_Impacts_Wind_Farms-NHS_Shetland.pdf
Karanikas N., et al. (2021) Occupational health hazard and risks in the wind industry, Energy Reports Volume 7, November 2021, pp. 3750-3759. Link: https://doi.org/10.1016/j.egyr.2021.06.066

3 Quadro normativo di riferimento

L'effetto di "Shadow Flickering" è più pronunciato alle latitudini settentrionali durante i mesi invernali. In particolare, nel Nord Europa, il sole splende in un angolo obliquo per più ore del giorno e più giorni l'anno. Alcuni paesi hanno adottato dei limiti relativi all'esposizione all'effetto in questione mentre in Italia, alla data di emissione del presente elaborato, non vi sono specifiche norme o linee guida che regolamentino i limiti di esposizione al fenomeno dell'ombreggiamento generato dagli impianti eolici, né una distanza massima oltre la quale è improbabile che si verifichi un impatto significativo sulla salute umana.
La valutazione dell'impatto generato dall'effetto di "Shadow Flickering" è stata quindi effettuata prendendo come riferimento le seguenti linee guida internazionali, le quali fissano limiti di esposizione entro i quali gli effetti del fenomeno sulla salute umana posso considerarsi trascurabili o nulli:

- Länderausschuss für Immissionsschutz "*Hinweise zur Ermittlung und Beurteilung der optischen Immissionen von Windenergieanlagen (WEA-Schattenwurf-Hinweise)*"[4] (Germania, 2002)
- Department of Energy and Climate Change "*National Policy Statement for Renewable Energy Infrastructure (EN-3)"*[5] (Regno Unito, 2011).

Le linee guida tedesche, le quali sono state adottate da diversi stati federati, stabiliscono due limiti per la durata dell'esposizione al fenomeno: il primo riferito a un periodo giornaliero e il secondo riferito a un periodo annuale. L'impatto dovuto all'ombreggiatura periodica presso ciascun ricettore non è considerato significativamente fastidioso se la durata astronomicamente massima possibile dell'ombreggiatura (scenario *Worst Case*), tenendo conto della valutazione cumulativa di tutti i contributi delle turbine eoliche nel rispettivo luogo di immissione ad un'altezza di riferimento di 2 m dal suolo, non supera le **30 ore per l'anno civile** e i **30 minuti giornalieri**.
Le linee guida inglesi individuano invece una distanza oltre la quale l'intensità dell'ombra delle pale rotanti delle turbine sia sufficientemente ridotta in modo da non avere un impatto significativo su eventuali edifici occupati, fissando tale limite a una distanza pari a **10 volte il diametro del rotore dell'aerogeneratore** che provoca l'effetto in esame.

[4] Le "Linee guida per l'identificazione e la valutazione dell'emissione ottica delle turbine eoliche" sono state emanate dal Comitato degli Stati per il controllo dell'inquinamento nel 2002.

[5] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/37048/1940-nps-renewable-energy-en3.pdf

4 Descrizione del progetto

4.1 Inquadramento territoriale

L'intervento in esame prevede la realizzazione di un nuovo parco eolico composto da 6 aerogeneratori a Nord dell'area urbana di Montalto di Castro (VT), ad una distanza di circa 6 km dal centro cittadino, ad una quota che varia da un minimo di circa 30 m s.l.m. ad un massimo di circa 80 m s.l.m. È inoltre prevista la realizzazione di un sistema di accumulo BESS e opere connesse nel Comune di Manciano (GR).
L'area oggetto di interesse risulta essere a destinazione prettamente agricola con presenza diversi fabbricati destinati perlopiù alle attività rurali svolte nella zona e ad uso abitativo.

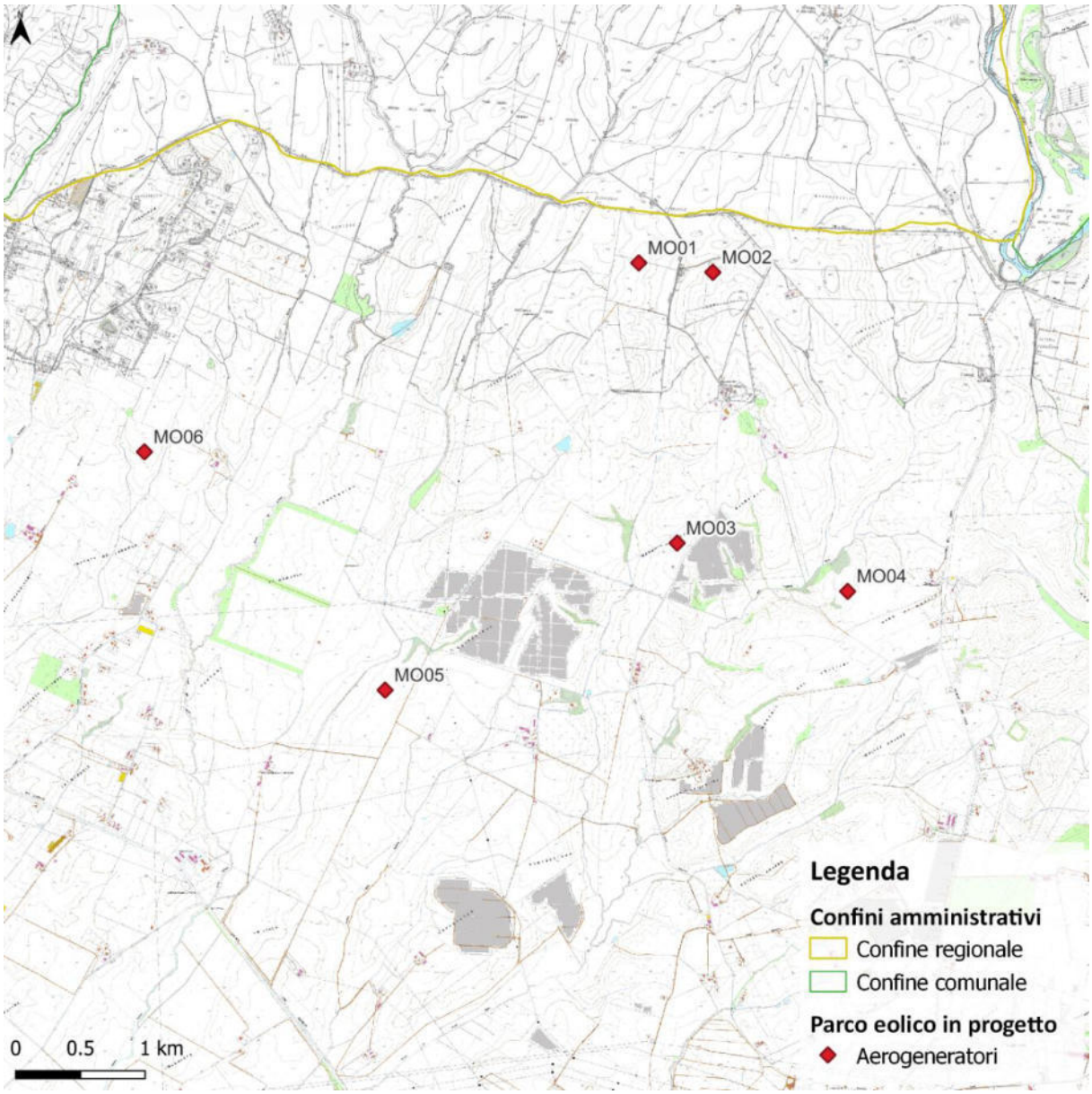


Figura 2: Layout dell'impianto eolico in progetto

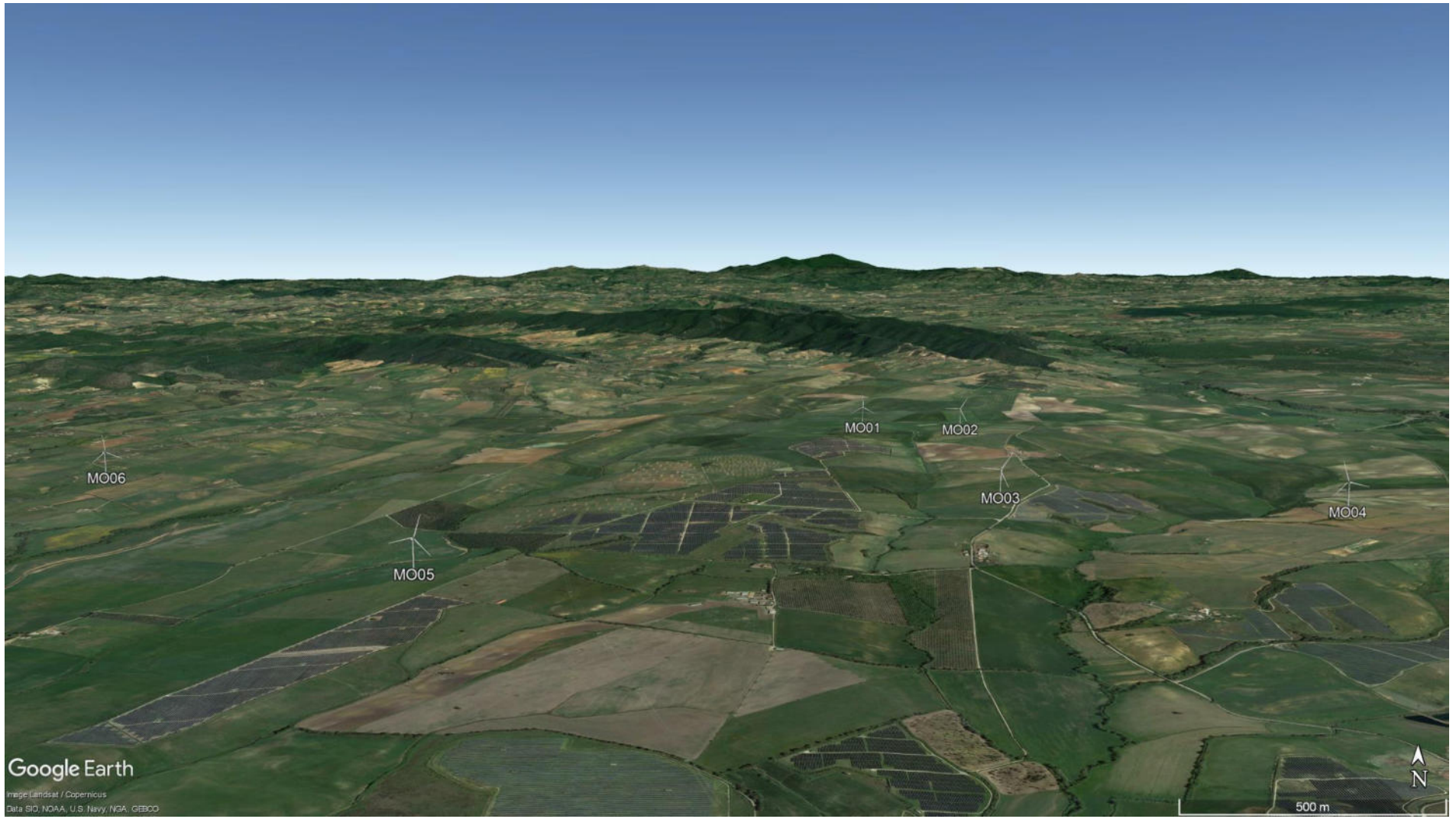


Figura 3: Layout 3D dell'impianto eolico in progetto

4.2 Caratteristiche tecniche e ubicazione degli aerogeneratori

I 6 aerogeneratori oggetto di studio, del tipo Vestas V172-7.2 MW 50/60Hz, presentano le seguenti caratteristiche:

Tabella 1. Caratteristiche tecniche degli aerogeneratori in progetto

Aerogeneratore Vestas V172-7.2 MW	
Potenza	7.200 kW
Velocità di avvio (cut in)	3 m/s
Velocità massima potenza	13.0 m/s
Velocità di arresto (cut out)	25 m/s
Numero di pale	3
Tipo di torre	Torre in acciaio tubolare
Altezza al mozzo (hub height)	125 m
Diametro del rotore	172 m
Area spazzata dal rotore	23.235 mq
Velocità di rotazione massima	12.1 rpm
Classe	IEC S
Frequenza	50-60 Hz

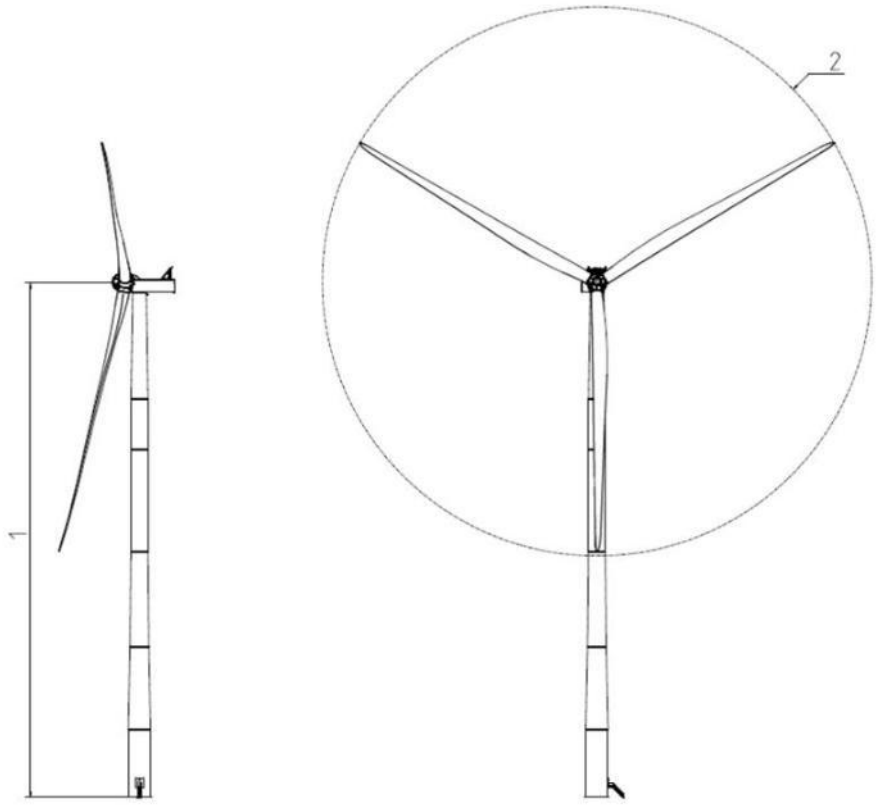


Figura 4: Dimensioni dell'aerogeneratore Vestas V172-7.2 MW

In Tabella 2 sono riportate le coordinate UTM WGS84 e la quota di ciascun aerogeneratore.

Tabella 2: Coordinate degli aerogeneratori in progetto

Aerogeneratore	Sistema di riferimento WGS 84 / UTM zone 33N – EPSG: 32633		Quota [m.s.l.m.]
	Y	X	
MO01	4703558,26	218885,13	80
MO02	4703485,60	219458,65	80
MO03	4701390,74	219182,27	60
MO04	4701016,93	220501,49	70
MO05	4700253,05	216922,46	30
MO06	4702096,48	215060,65	50

4.3 Analisi dei recettori presenti nell'area

Allo scopo di valutare l'effetto di shadow flickering indotto sugli edifici da parte dell'impianto eolico in progetto, sono stati individuati i recettori potenzialmente sensibili presenti nel raggio di 1720 m da ciascun aerogeneratore in progetto. Tale areale, in accordo con quanto stabilito dalle linee guida inglesi "*National Policy Statement for Renewable Energy Infrastructure (EN-3)"* (§3) corrisponde all'inviluppo delle aree buffer circolari di raggio pari a 10 volte il diametro del rotore degli aerogeneratori in progetto (pari a 172 m), con centro coincidente con le postazioni delle WTG in oggetto.
All'interno dell'areale di studio evidenziato in Figura 5 sono stati individuati 314 recettori aventi la seguente destinazione d'uso:

Tabella 3: Destinazione d'uso dei recettori presenti nell'area di indagine

Destinazione d'uso	N°
A2 – Abitazioni di tipo civile	30
A3 - Abitazioni di tipo economico	42
A4 - Abitazioni di tipo popolare	1
A7 - Abitazioni in villini	33
C2 - Magazzini e locali di deposito	98
C7 - Tettoie chiuse od aperte	8
D10 – Fabbricati ad uso agricolo	44
F2 - Fabbricati fatiscenti, ruderi	3
F3 - Unità in corso di costruzione	1
NC	54
Totale	***314***

Nell'allegato "Schede dei recettori censiti", a cui si rimanda per maggiori dettagli, per ciascun recettore sono riportate le seguenti informazioni:

- Codice univoco di identificazione;
- Coordinate geografiche x e y (WGS 84 /UTM zone 33N – EPSG: 32633);

- Comune di appartenenza;
- Destinazione d'uso catastale, ricavata dalla consultazione del canale telematico SISTER dell'Agenzia delle Entrate[6];
- Destinazione d'uso presunta dall'analisi delle immagini satellitari di Google Earth®;
- Distanza minima del recettore dall'aerogeneratore più vicino;
- Sintesi dei risultati dell'analisi di shadow flickering.

[6] https://www.agenziaentrate.gov.it/portale/web/guest/agenzia/amministrazione-trasparente/servizi-erogati/carta-servizi/i-nostri-servizi/area-identificazione-del-contribuente/sister

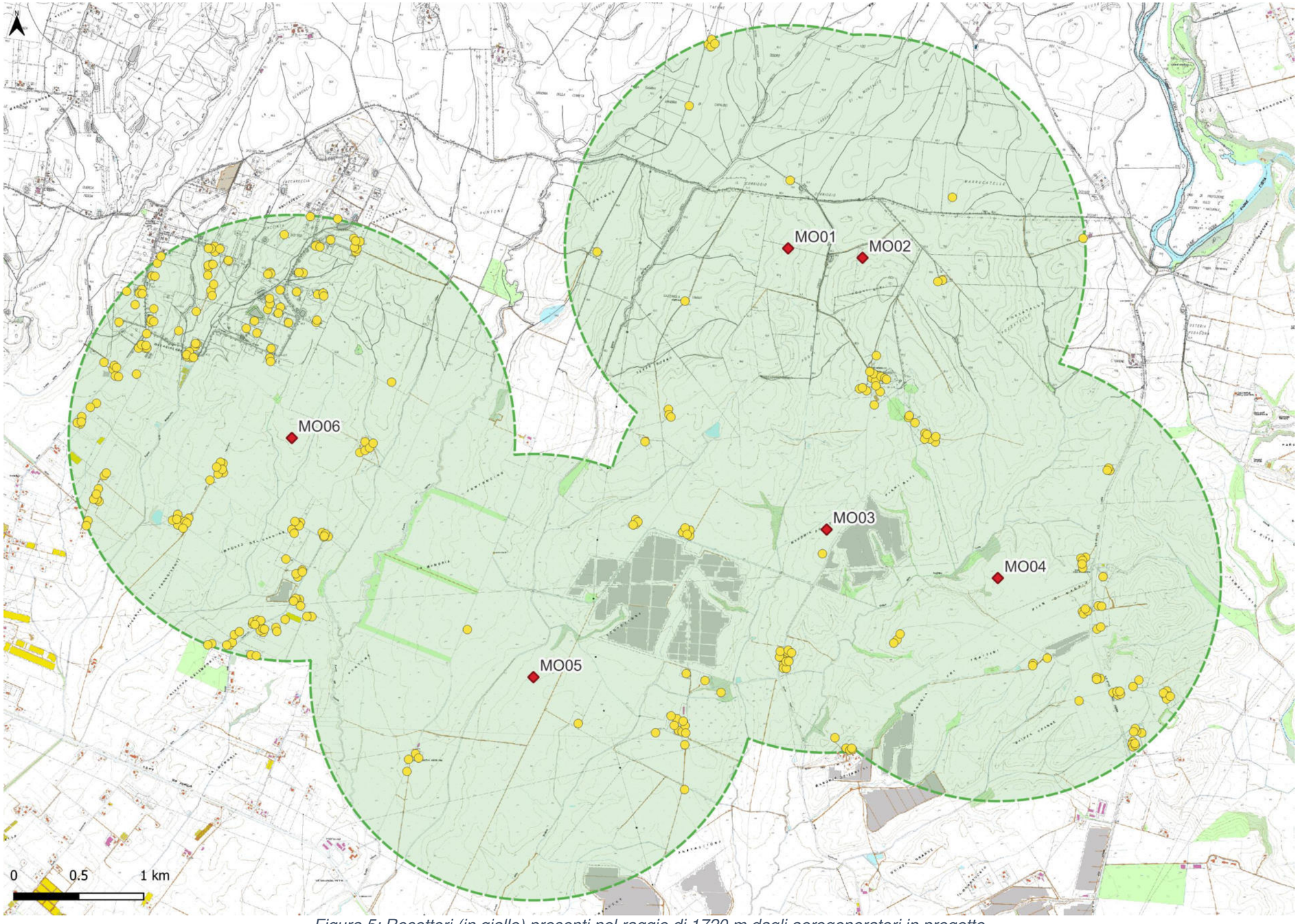


Figura 5: Recettori (in giallo) presenti nel raggio di 1720 m dagli aerogeneratori in progetto

4.4 Impianti eolici esistenti ed in autorizzazione

Al fine di valutare gli impatti cumulativi generati dall'impianto eolico proposto con le altre iniziative che insistono sul medesimo territorio è stato effettuato un censimento degli impianti eolici in esercizio e in corso di autorizzazione nel raggio di 1.720 m dall'area di intervento. Tale distanza, pari a 10 volte il diametro del rotore degli aerogeneratori in progetto, rappresenta il limite oltre il quale le linee guida inglesi (§3) considerano che l'intensità dell'ombra delle pale rotanti delle turbine sia sufficientemente ridotta e, pertanto, l'impatto dello shadow flickering su eventuali edifici occupati possa essere considerato non significativo.
Gli aerogeneratori in esercizio sono stati individuati attraverso l'analisi delle immagini satellitari di Google Earth®, mentre l'elenco degli impianti in corso di autorizzazione è stato ricavato consultando:

- la sezione Valutazione Impatto Ambientale della Regione Lazio[7]: in particolare, sono stati analizzati gli elenchi dei progetti soggetti a VIA nel 2018 (aggiornato al 17/01/2023), 2019 (aggiornato al 01/12/2022), 2020 (aggiornato al 16/05/2023), 2021 (aggiornato al 24/01/2023), 2022 (aggiornato al 03/01/2023) e 2023 (aggiornato al 23/01/2023);
- la sezione VAS-VIA-AIA del Ministero dell'Ambiente e della Sicurezza Energetica (MASE)[8] in data 09/08/2023.

Dall'analisi effettuata risulta che nel raggio di 1.720 m dagli aerogeneratori in progetto non sono presenti impianti eolici in esercizio. Le pale più prossime distano oltre 10 km in direzione Nord-Est dall'aerogeneratore MO02 e, pertanto, l'impatto cumulato di shadow flickering sui recettori considerati nel presente studio può essere considerato nullo.
Con riferimento agli impianti in corso di autorizzazione, nell'areale in esame sono stati individuati n. 3 impianti eolici. In Tabella 4 sono riassunte le principali informazioni dei progetti proposti, mentre in Figura 6 è rappresentata l'ubicazione degli aerogeneratori.
Si precisa che per tali impianti è stata indicata la posizione degli aerogeneratori presentata all'avvio del procedimento ma non sono stati considerati nell'analisi degli impatti cumulati in quanto, come indicato nel webinar tenuto da ISPRA nel marzo 2021[9], "*nello studio di impatto ambientale, in merito agli impatti cumulativi, dovrebbero essere considerati gli interventi realizzati e quelli autorizzati. Per quanto riguarda i progetti in corso di valutazione da parte dell'autorità competente, non ha senso che un proponente, a conoscenza della presentazione dell'istanza e quindi della procedura in corso, ne valuti l'impatto cumulativo ancor prima di essere certo della loro autorizzazione.*"

[7] https://www.regione.lazio.it/cittadini/tutela-ambientale-difesa-suolo/valutazione-impatto-ambientale
[8] https://va.mite.gov.it/it-IT
[9] https://www.isprambiente.gov.it/files2021/eventi/studi-impatto-ambientale/faq-webinar-1-del-3-marzo-2021.pdf

Tabella 4: Informazioni relative ai progetti di impianti eolici con procedimento in corso e conclusi nell'intorno di 1720m dall'area d'intervento.

ID	Comune	Proponente	Progetto	N° WTG	Procedimento	Stato procedimento	Minima distanza dalle WTG in progetto
7	Montalto di Castro (VT)	Orta Energy 8 srl	Realizzazione impianto eolico potenza 28,8 MWp in loc. Vaccareccia, Puntone, La Viola	4	Verifica di VIA	Concluso. Progetto rinviato a VIA	748 m da MO05
7	Montalto di Castro (VT)	SKI 36 S.r.l.	Progetto per la costruzione e l'esercizio di un impianto eolico composto da 5 aerogeneratori da 6,6 MW ciascuno per una potenza complessiva di 33 MW e di un sistema di accumulo elettrochimico da 18 MW sito nel Comune di Montalto di Castro (VT) e opere connesse nei Comuni di Montalto di Castro (VT) e Manciano (GR). Codice pratica MYTERNA n. 202200780	5	VIA (PNIEC-PNRR)	Istruttoria tecnica CTPNRR-PNIEC in corso	183 da MO02
12	Manciano (GR)	Wind Italia s.r.l.	Progetto per la realizzazione di un impianto eolico di potenza nominale 48 MW da realizzarsi in comune di Manciano (GR), loc. Montauto	8	VIA (PNIEC-PNRR)	Istruttoria tecnica CTPNRR-PNIEC in corso	627 da MO01

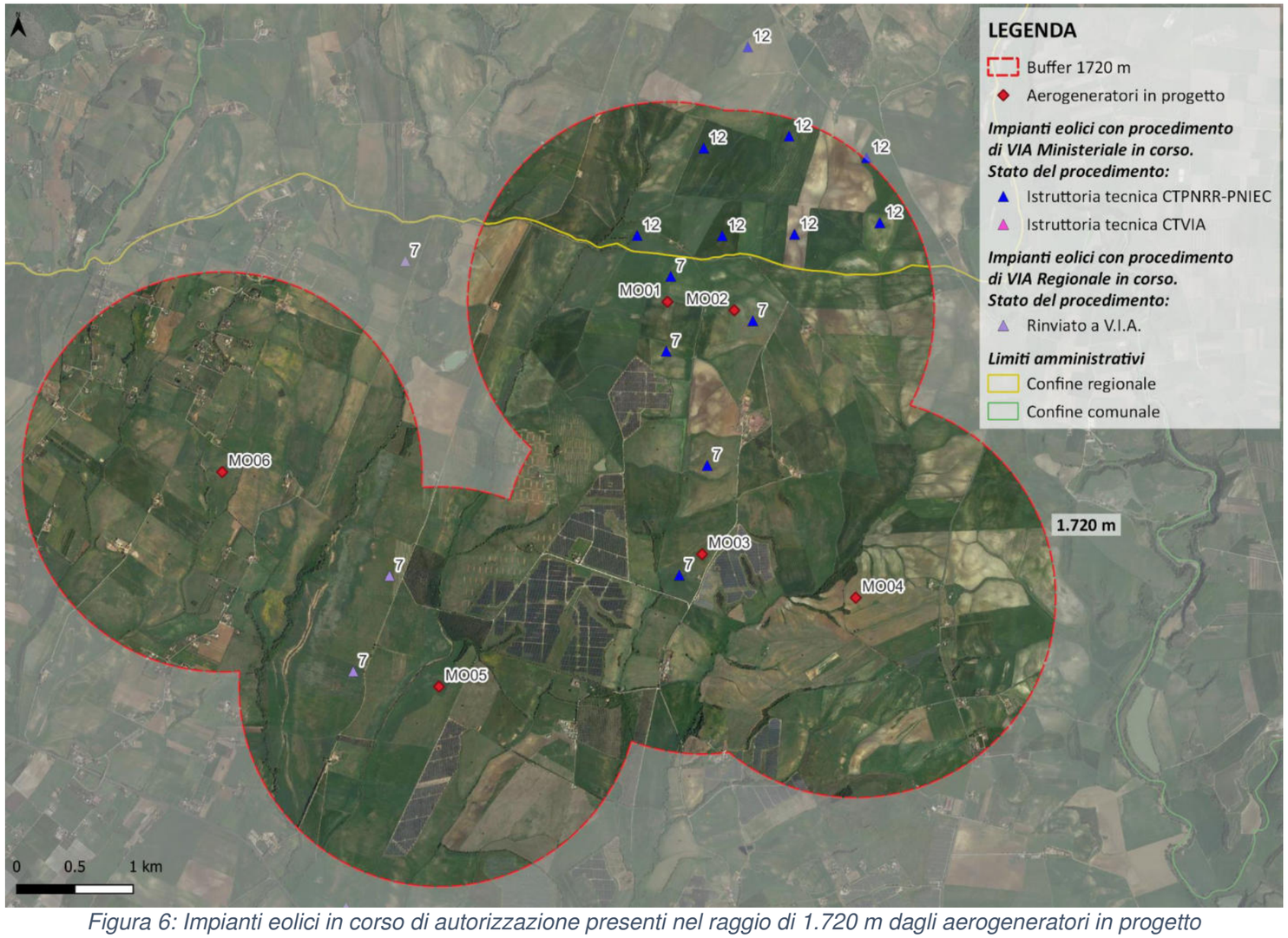


Figura 6: Impianti eolici in corso di autorizzazione presenti nel raggio di 1.720 m dagli aerogeneratori in progetto

5 Metodologia di calcolo dell'effetto Shadow flickering

L'analisi dell'impatto da *shadow flickering* prodotto dall'impianto eolico in esame è stata effettuata con l'ausilio del software di simulazione specifico per la progettazione degli impianti eolici *windPRO*®[10], costituito da un insieme di moduli di elaborazione orientati alla simulazione di una serie di aspetti che caratterizzano le diverse fasi progettuali.
L'analisi si basa sull'impiego di un modello digitale del terreno dell'area oggetto di progettazione, sulle posizioni (E, N, quota) degli aerogeneratori e dei recettori sensibili, nonché sui dati che correlano la posizione del sole nell'arco dell'anno con le condizioni operative delle turbine nello stesso arco di tempo.
Per la valutazione dell'evoluzione dell'ombra e del flickering, in particolare, è stato utilizzato il modulo SHADOW, il quale consente di analizzare la posizione del sole nell'arco di un anno per identificare i tempi in cui ogni turbina può proiettare ombre sulle finestre delle abitazioni vicine.

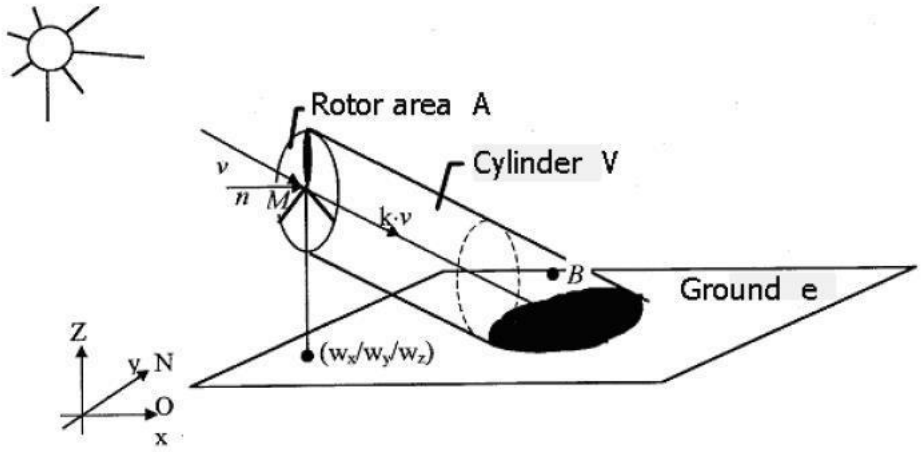


Figura 7: Schema di calcolo del modulo SHADOW di windPRO®

In particolare, il modello permette di:

- calcolare il potenziale per le ombre intermittenti alle finestre delle abitazioni;
- mostrare un calendario grafico ("*Calendar Graph*") degli eventi di flickering, dove le aree colorate indicano il periodo in cui è possibile il verificarsi del fenomeno. Sull'asse delle ascisse sono riportati i giorni dell'anno e sull'asse delle ordinate l'ora del giorno (ora solare).
- mostrare un elenco dettagliato ("*Calendar Time*") di ciascun evento di ombreggiamento (ora di inizio, di fine, durata del fenomeno, aerogeneratore/i coinvolti, etc.);
- creare mappe di impatto potenziale che mostrano le ore d'ombra intermittente per l'intero parco eolico o per le singole macchine (curve di isodurata) nell'arco dell'anno.

Il modulo SHADOW di *windPRO*® permette di valutare l'impatto dello shadow flickering in due modalità definite rispettivamente "Worst Case" e "Real Case".

[10] https://www.emd-international.com/windpro/

5.1 Modalità "Worst Case"

Nella modalità "*Worst Case*" il calcolo delle ore di ombreggiamento viene effettuato nelle condizioni più sfavorevoli possibili, in quanto viene assunto che:

- il sole splende per tutta la giornata, dall'alba al tramonto (cioè si è sempre in assenza di copertura nuvolosa);
- l'aerogeneratore è in movimento alla massima frequenza ed in moto continuo (impianto è quindi in funzione per 8760 ore l'anno);
- il piano di rotazione delle pale è sempre perpendicolare alla direttrice sole-aerogeneratore;

Sulla base di tali assunzioni, si evince come la modalità definita "Worst Case" sia rappresentativa di una condizione puramente teorica, e costituisca lo scenario peggiore possibile.

5.1.1 Dati di input

Per simulare ciascun evento di ombreggiamento nel software sono stati inseriti i \seguenti dati di input:

- il modello digitale del terreno (DTM) TINITALY 1.1[11], avente risoluzione di 10 m, per tenere conto dell'altimetria della zona;

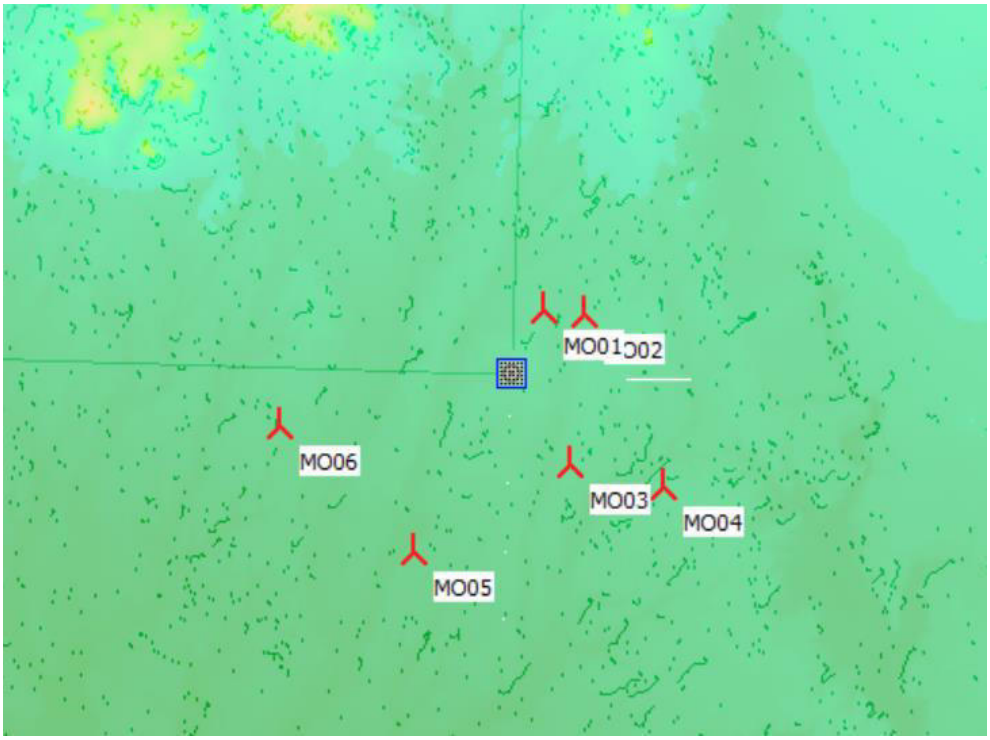


Figura 8: DTM nell'area di progetto estratto dal software windPRO®

[11] Tarquini S., I. Isola, M. Favalli, A. Battistini, G. Dotta, (2023). TINITALY, a digital elevation model of Italy with a 10 meters cell size (Version 1.1). Istituto Nazionale di Geofisica e Vulcanologia (INGV). https://doi.org/10.13127/tinitaly/1.1.

- la posizione geografica degli aerogeneratori e le loro caratteristiche dimensionali, riassunte nel paragrafo §4.2;
- la posizione geografica dei ricettori, rappresentata in Figura 9, e la relativa disposizione delle finestrature (dimensioni e orientamento).
  A fini cautelativi, poiché per alcuni recettori sono presenti turbine su più lati del recettore stesso, tutti i recettori considerati sono stati considerati in modalità "Green house". In tale modalità non viene indicato l'orientamento delle singole finestre dei recettori, ma si considera il recettore come se tutte le pareti esterne fossero esposte al fenomeno di shadow flickering. Con riferimento alla dimensione delle finestre, si precisa che la larghezza e l'altezza delle finestre sono stati impostati rispettivamente pari a 1,2 m e 1,5 m, con altezza da terra pari a 1 m.

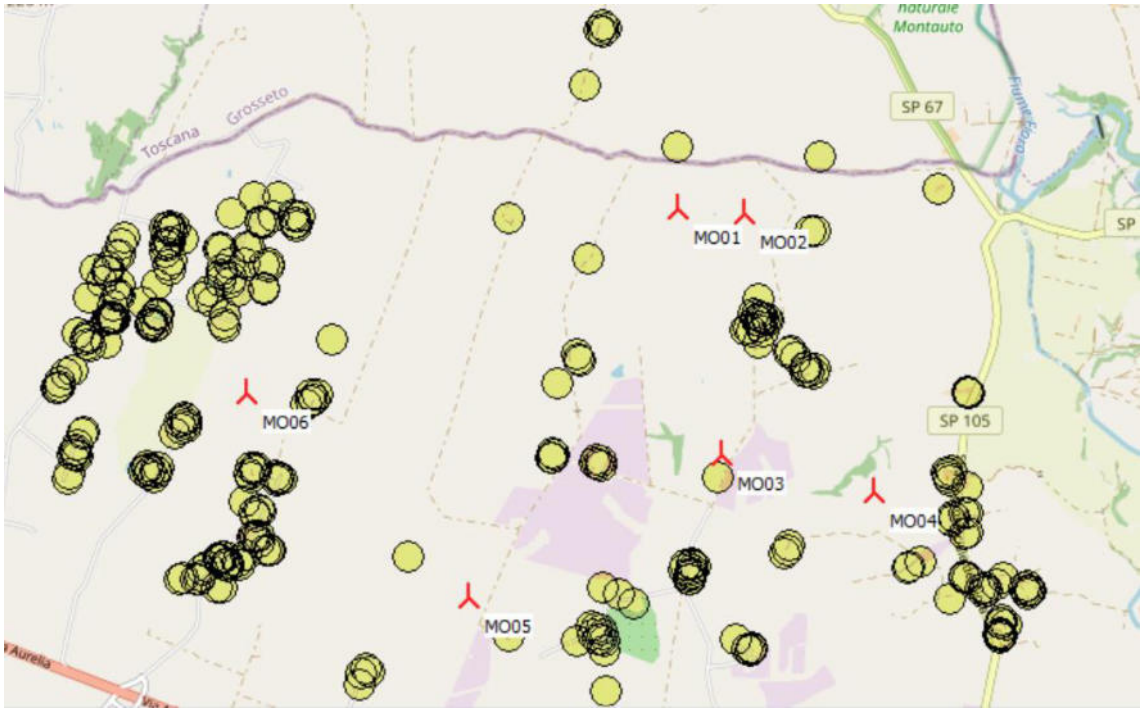


Figura 9: Disposizione planimetrica degli aerogeneratori in progetto e dei recettori

A vantaggio di sicurezza si precisa, inoltre, che è stata trascurata la presenza degli alberi e di eventuali altri ostacoli che, intercettando l'ombra prodotta dagli aerogeneratori, potrebbero ridurre o annullare l'effetto del flickering.
Per l'esecuzione della simulazione sono stati fissati i seguenti parametri:

- altezza minima del sole sull'orizzonte pari a 3°;
- risoluzione di calcolo: 1 m
- raggio d'influenza massimo: 2 km dal punto di installazione dell'aerogeneratore;
- altezza del punto di vista (ZVI) rispetto la superficie del suolo: 2,5 m
- altezza del punto di vista dell'osservatore rispetto la mappa: 1,5 m

5.2 Modalità "Real Case" con piena operatività dell'impianto

Nella modalità definita "*Real Case*" viene valutata una durata del fenomeno di shadow flickering più realistica in quanto, a differenza del caso precedente, viene considerata:

- la possibile presenza di manto nuvoloso;
- la possibile assenza di vento (vengono quindi considerate le reali ore di funzionamento delle turbine nell'arco di un anno);
- il possibile orientamento del rotore in direzione non ortogonale alla congiungente ricettore-sole.

Si precisa che nella modalità "Real Case" non sono state considerate le reali ore di funzionamento delle turbine nell'arco di un anno in funzione della direzione del vento.

La presenza di manto nuvoloso è stata quantificata sulla base della probabilità mensile di presenza di radiazione solare, espressa come ore di sole medie giornaliere per mese dell'anno. I valori ricavati, riportati in Tabella 5, sono stati estratti dal database di dati meteo-climatici interno al software windPRO® e si riferiscono alla stazione di Vigna di Valle, distante 65 km dall'area di progetto (Figura 10).

Tabella 5: Ore di sole giornaliere medie mensili ricavate dalla banca dati della stazione meteo-climatica "Vigna di Valle"

Gen	Feb	Mar	Apr	Mag	Giu	Lug	Ago	Set	Ott	Nov	Dic
3,98	4,87	5,46	6,60	8,30	9,30	10,54	9,73	7,82	6,08	4,48	3,95

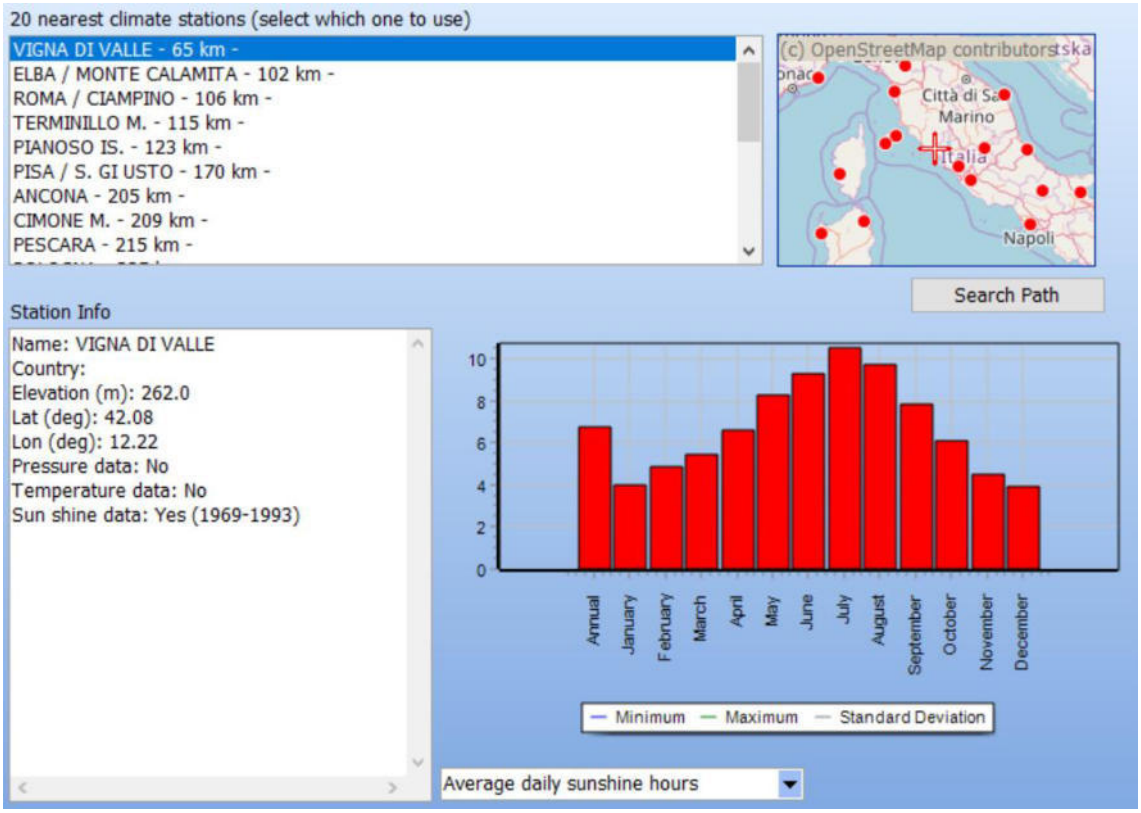


Figura 10: Stazione meteo-climatica presa a riferimento nella modalità di calcolo "Real case"

Considerando la presenza di manto nuvoloso si evince come la modalità “Real Case” sia più realistica rispetto alla modalità “Worst Case”, ma comunque non ancora pienamente rappresentativa dell’effettivo fenomeno di ombreggiamento che si ottiene nella realtà, in quanto non tiene conto dell’effettiva operatività dell’impianto nell’arco dell’anno in funzione della direzione del vento e della presenza di eventuali ostacoli (alberi, ecc.) che possono ridurre o annullare l’effetto di shadow flickering.

5.2.1 Dati di input

Per simulare ciascun evento di ombreggiamento nel software sono stati inseriti i seguenti dati di input:

- il modello digitale del terreno (DTM) TINITALY 1.1, avente risoluzione di 10 m, per tenere conto dell’altimetria della zona;
- la posizione geografica degli aerogeneratori e le loro caratteristiche dimensionali, riassunte nel paragrafo §4.2;
- la posizione geografica dei ricettori, rappresentata in Figura 9, e la relativa disposizione delle finestrature (dimensioni e orientamento). A fini cautelativi, poiché per alcuni recettori sono presenti turbine su più lati del recettore stesso, tutti i recettori considerati sono stati considerati in modalità “Green house”. Con riferimento alla dimensione delle finestre, si precisa che la larghezza e l’altezza delle finestre sono stati impostati rispettivamente pari a 1,2 m e 1,5 m, con altezza da terra pari a 1 m.
- la probabilità mensile di presenza di radiazione solare, espressa come ore di sole medie giornaliere per mese dell’anno (Tabella 5). Tali valori si riferiscono alla stazione di Ancona, distante 112 km dall’area di progetto (Figura 10), e sono stati estratti dal database di dati meteo-climatici interno al software windPRO®.

Analogamente alla modalità Worst case, per l’esecuzione della simulazione sono stati fissati i seguenti parametri:

- altezza minima del sole sull’orizzonte pari a 3°;
- risoluzione di calcolo: 1 m
- raggio d’influenza massimo: 2 km dal punto di installazione dell’aerogeneratore;
- altezza del punto di vista (ZVI) rispetto la superficie del suolo: 2,5 m;
- altezza del punto di vista dell’osservatore rispetto la mappa: 1,5 m.

6 Risultati

6.1 "Worst Case"

In Figura 11 sono rappresentati i risultati ottenuti in modalità "Worst case", mentre in Tabella 6 sono riassunte le durate totali del fenomeno di shadow flickering per ogni ricettore espresse in ore/anno, giorni/anno e ore/giorno. Si precisa che i valori espressi in ore/anno e ore/giorno superiori ai limiti presi come riferimento (pari a 30 ore/anno e 30 minuti/giorno) sono stati evidenziati in rosso.

Figura 11: Rappresentazione dell'ombreggiamento indotto dagli aerogeneratori in progetto nell'area in esame nella modalità "Worst case"

Tabella 6: Durata del fenomeno di shadow flickering per ogni recettore nella modalità Worst case

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
1	D10	**109:47**	154	**01:04**
2	D10	**127:37**	150	**01:08**
3	D10	00:00	0	00:00
4	D10	00:00	0	00:00
5	D10	00:00	0	00:00
6	NC	04:49	24	00:16
7	D10	10:29	36	00:26
8	NC	09:30	35	00:25
9	C2	14:05	46	00:27
10	NC	09:09	33	00:25
11	C2	00:00	0	00:00
12	NC	23:13	44	**00:40**
13	NC	**87:38**	90	**01:10**
14	NC	**31:26**	49	**00:48**
15	NC	00:00	0	00:00
16	NC	00:00	0	00:00
17	C2	00:00	0	00:00
18	C2	00:00	0	00:00
19	C2	**145:42**	150	**01:15**
20	A3	**104:07**	121	**01:10**
21	C2	00:00	0	00:00
22	C7	00:00	0	00:00
23	C2	00:00	0	00:00
24	C2	00:00	0	00:00
25	NC	12:53	36	00:29
26	C2	00:00	0	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
158	A2	03:20	18	00:15
159	A3	**58:50**	77	**00:59**
160	A2	24:13	80	00:25
161	A2	23:33	74	00:25
162	A3	13:33	54	00:25
163	F3	19:00	52	00:26
164	A3	10:38	38	00:26
165	C2	12:57	39	00:25
166	A7	28:31	58	**00:35**
167	A7	00:00	0	00:00
168	NC	00:00	0	00:00
169	D10	00:00	0	00:00
170	A7	00:00	0	00:00
171	A7	00:00	0	00:00
172	A7	00:00	0	00:00
173	C2	00:00	0	00:00
174	A3	00:00	0	00:00
175	NC	00:00	0	00:00
176	C2	00:00	0	00:00
177	C2	00:00	0	00:00
178	A2	00:00	0	00:00
179	C2	00:00	0	00:00
180	A7	05:10	26	00:18
181	A3	00:00	0	00:00
182	D10	00:00	0	00:00
183	A2	00:00	0	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
27	A3	00:00	0	00:00
28	C2	00:00	0	00:00
29	D10	**34:35**	62	**00:40**
30	NC	00:00	0	00:00
31	D10	06:30	24	00:20
32	A3	24:32	50	**00:36**
33	NC	**39:30**	62	**00:49**
34	C2	**58:34**	76	**00:59**
35	NC	00:00	0	00:00
36	C2	21:57	56	**00:35**
37	C7	24:11	58	**00:37**
38	C2	**52:53**	98	**00:41**
39	D10	24:36	64	**00:34**
40	D10	22:49	62	**00:33**
41	D10	25:12	63	**00:35**
42	D10	17:04	62	00:24
43	D10	14:44	53	00:24
44	NC	00:00	0	00:00
45	NC	00:00	0	00:00
46	NC	00:00	0	00:00
47	NC	00:00	0	00:00
48	C2	01:43	22	00:06
49	NC	00:00	0	00:00
50	NC	**38:57**	99	**00:35**
51	C2	**87:44**	99	**01:09**
52	C2	**83:47**	100	**01:06**
53	F2	**70:57**	88	**01:03**
54	A3	00:00	0	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
184	D10	00:00	0	00:00
185	A2	00:00	0	00:00
186	A3	06:07	28	00:20
187	C7	**104:36**	136	**01:05**
188	A7	15:30	43	**00:32**
189	A3	19:40	54	**00:32**
190	C2	19:42	53	**00:33**
191	C2	21:13	59	**00:32**
192	A7	11:29	37	00:27
193	C2	00:00	0	00:00
194	C2	00:00	0	00:00
195	A3	21:48	80	00:24
196	A2	22:39	75	00:24
197	D10	13:56	53	00:23
198	NC	12:33	47	00:23
199	A2	22:58	73	00:24
200	D10	20:40	83	00:24
201	C2	00:00	0	00:00
202	C2	00:00	0	00:00
203	C2	00:00	0	00:00
204	C2	00:00	0	00:00
205	A2	00:00	0	00:00
206	C2	00:00	0	00:00
207	C2	00:00	0	00:00
208	NC	00:00	0	00:00
209	A2	00:00	0	00:00
210	A2	00:00	0	00:00
211	C2	00:00	0	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
55	NC	**96:44**	110	**01:00**
56	D10	**53:42**	73	**00:56**
57	C2	**54:07**	74	**00:52**
58	D10	10:34	36	00:26
59	D10	10:37	38	00:21
60	D10	00:00	0	00:00
61	C7	00:00	0	00:00
62	NC	00:00	0	00:00
63	A3	00:00	0	00:00
64	A3	00:00	0	00:00
65	A7	00:00	0	00:00
66	A7	00:00	0	00:00
67	C2	00:00	0	00:00
68	A2	00:00	0	00:00
69	C2	00:00	0	00:00
70	A2	00:00	0	00:00
71	A7	00:00	0	00:00
72	A7	00:00	0	00:00
73	A3	00:00	0	00:00
74	A7	00:00	0	00:00
75	C2	00:00	0	00:00
76	C2	00:00	0	00:00
77	A7	00:00	0	00:00
78	A7	00:00	0	00:00
79	A3	00:00	0	00:00
80	D10	02:51	18	00:12
81	C2	14:30	48	00:26
82	C2	16:48	55	00:27

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
212	A3	00:00	0	00:00
213	A7	00:00	0	00:00
214	A3	00:00	0	00:00
215	C2	00:00	0	00:00
216	A3	00:00	0	00:00
217	C2	00:00	0	00:00
218	A3	00:00	0	00:00
219	A7	09:33	34	00:24
220	A7	00:00	0	00:00
221	A2	00:00	0	00:00
222	C2	00:00	0	00:00
223	A3	00:00	0	00:00
224	C2	00:00	0	00:00
225	A2	00:00	0	00:00
226	A7	00:00	0	00:00
227	A7	00:00	0	00:00
228	C2	00:00	0	00:00
229	C2	00:00	0	00:00
230	D10	00:00	0	00:00
231	A7	00:00	0	00:00
232	A3	00:00	0	00:00
233	C2	00:00	0	00:00
234	NC	11:24	38	00:22
235	A2	00:00	0	00:00
236	A7	00:00	0	00:00
237	A7	00:00	0	00:00
238	A7	15:01	42	**00:31**
239	A7	00:00	0	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
83	A3	13:38	42	00:28
84	A3	08:43	32	00:24
85	A2	08:01	31	00:23
86	C2	08:03	31	00:23
87	A2	07:43	30	00:23
88	C2	08:06	32	00:23
89	A2	15:39	51	00:27
90	NC	**95:06**	92	**01:14**
91	A3	**37:40**	55	**00:51**
92	NC	**104:04**	100	**01:13**
93	NC	**57:57**	69	**01:03**
94	NC	**81:57**	88	**01:07**
95	NC	00:00	0	00:00
96	C2	10:50	37	00:26
97	C2	00:00	0	00:00
98	C2	00:00	0	00:00
99	A3	11:21	37	00:27
100	A2	00:00	0	00:00
101	A7	24:29	86	00:30
102	C2	17:42	54	00:30
103	A2	16:34	52	00:29
104	C7	18:20	56	**00:31**
105	C2	26:47	66	00:30
106	A2	25:31	62	00:30
107	A3	**44:07**	72	**00:42**
108	C2	**38:24**	66	**00:42**
109	C2	**38:38**	66	**00:41**
110	A3	**54:43**	94	**00:42**

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
240	D10	00:00	0	00:00
241	D10	00:00	0	00:00
242	NC	00:00	0	00:00
243	D10	14:21	51	00:24
244	A2	14:43	50	00:26
245	C7	00:00	0	00:00
246	C7	29:22	85	**00:32**
247	D10	00:00	0	00:00
248	D10	00:00	0	00:00
249	C2	00:00	0	00:00
250	A2	00:00	0	00:00
251	F2	00:00	0	00:00
252	A4	00:00	0	00:00
253	A2	00:00	0	00:00
254	D10	**83:15**	142	**00:50**
255	D10	06:00	28	00:19
256	NC	00:00	0	00:00
257	A3	00:00	0	00:00
258	NC	00:00	0	00:00
259	C2	00:00	0	00:00
260	D10	00:00	0	00:00
261	A2	00:00	0	00:00
262	C2	00:00	0	00:00
263	NC	00:00	0	00:00
264	C2	14:25	48	00:26
265	A3	10:54	37	00:26
266	A7	00:00	0	00:00
267	A2	00:00	0	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
111	C2	**56:25**	96	**00:42**
112	C2	**53:20**	98	**00:41**
113	NC	**52:46**	88	**00:41**
114	C2	**53:00**	95	**00:41**
115	C2	00:00	0	00:00
116	A7	00:00	0	00:00
117	A3	00:00	0	00:00
118	A3	00:00	0	00:00
119	A3	00:00	0	00:00
120	C2	00:00	0	00:00
121	A2	00:00	0	00:00
122	A3	00:00	0	00:00
123	A7	00:00	0	00:00
124	NC	00:00	0	00:00
125	C2	00:00	0	00:00
126	A7	00:00	0	00:00
127	A7	00:00	0	00:00
128	A3	00:00	0	00:00
129	A3	00:00	0	00:00
130	A2	00:00	0	00:00
131	C2	**49:25**	89	**00:47**
132	NC	20:43	48	**00:36**
133	C2	23:47	51	**00:38**
134	NC	23:12	50	**00:38**
135	NC	21:10	48	**00:36**
136	C2	22:38	51	**00:37**
137	C2	09:39	37	00:24
138	D10	21:07	72	00:26

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
268	A7	00:00	0	00:00
269	D10	00:00	0	00:00
270	D10	00:00	0	00:00
271	D10	00:00	0	00:00
272	NC	00:00	0	00:00
273	C2	00:00	0	00:00
274	D10	00:00	0	00:00
275	C2	24:05	50	**00:35**
276	C2	00:00	0	00:00
277	C2	00:10	4	00:03
278	D10	**51:55**	84	**00:49**
279	C2	**98:09**	120	**00:58**
280	A3	**63:18**	91	**00:49**
281	C2	00:00	0	00:00
282	C2	00:00	0	00:00
283	C2	00:00	0	00:00
284	NC	00:00	0	00:00
285	C2	00:00	0	00:00
286	C2	00:00	0	00:00
287	NC	00:00	0	00:00
288	NC	00:00	0	00:00
289	C2	00:00	0	00:00
290	D10	16:51	59	00:25
291	D10	22:50	82	00:25
292	NC	06:15	28	00:20
293	NC	05:55	27	00:20
294	C2	00:00	0	00:00
295	NC	00:00	0	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
139	C2	09:54	35	00:25
140	D10	19:57	78	00:26
141	C2	10:08	34	00:26
142	C2	10:21	35	00:26
143	C2	09:44	33	00:26
144	D10	20:15	80	00:27
145	C2	00:00	0	00:00
146	C2	00:00	0	00:00
147	C2	00:00	0	00:00
148	C2	00:00	0	00:00
149	D10	20:27	45	**00:34**
150	A3	11:43	34	00:27
151	D10	00:00	0	00:00
152	NC	**57:09**	91	**00:51**
153	C7	**59:35**	77	**01:00**
154	C2	**90:54**	105	**00:59**
155	A2	**93:51**	116	**00:57**
156	A3	**55:40**	81	**00:50**
157	A3	**57:45**	76	**00:59**

ID Recettore	Dest. uso catastale	Shadow Flickering – WORST CASE		
		Ore/Anno	Giorni/Anno	Max ore/Giorno
296	NC	00:00	0	00:00
297	NC	00:00	0	00:00
298	NC	00:00	0	00:00
299	A7	00:00	0	00:00
300	C2	13:51	42	00:28
301	C2	15:55	50	00:30
302	NC	17:12	54	00:29
303	NC	18:58	56	**00:31**
304	F2	19:11	58	**00:31**
305	C2	26:26	62	**00:31**
306	A3	00:00	0	00:00
307	C2	**57:59**	94	**00:43**
308	C2	00:00	0	00:00
309	A3	00:00	0	00:00
310	C2	00:00	0	00:00
311	C2	00:00	0	00:00
312	NC	00:00	0	00:00
313	C2	00:00	0	00:00
314	NC	00:00	0	00:00

Dai risultati si evince che, in modalità “Worst case”, il fenomeno di shadow flickering interessa 138 dei 314 recettori considerati.
Per la maggior parte dei recettori l’ombreggiamento indotto dagli aerogeneratori possiede durate inferiori ai limiti annuali e giornalieri, mentre presso 69 recettori si verificano superamenti di tali valori. In particolare:

- presso 25 recettori il fenomeno dello shadow flickering si verifica per valori inferiori al limite annuale di 30 h, ma viene superato il limite giornaliero pari a 30 minuti. Si precisa, tuttavia, che tale limite giornaliero viene superato di pochi minuti, al massimo 10;
- presso 44 recettori si verificano superamenti del limite annuale e giornaliero. Di questi si precisa che 10 recettori risultano essere ad uso abitativo, mentre i restanti sono ruderi, locali di deposito, tettoie o edifici uso agricolo dove la presenza di persone è giustificata per scopo lavorativo e, in ogni caso, limitata ad alcune fasce orarie. Il recettore maggiormente interessato dal fenomeno di shadow flickering è il n. 19 (locale di deposito rappresentato in Figura 12), per il quale è stato ottenuto un valore di ombreggiamento annuale pari a 145:42 ore e massimo giornaliero pari a 01:15 ore.

Figura 12: Recettore n. 19 evidenziato in rosso (a sinistra) ed estratto della mappa di impatto potenziale nello scenario worst case (a destra)

In Tabella 7 sono riassunte le durate totali del fenomeno di shadow flickering indotte da ciascun aerogeneratore in progetto, dalla quale risulta che:

- la maggior parte degli aerogeneratori producono fenomeni di ombreggiamento per durate superiori a 200 h/anno, ad eccezione delle turbine MO01 e MO03 a cui sono associate durate del fenomeno in esame pari a 66:17 h/anno e 111:10 h/anno rispettivamente;
- gli aerogeneratori MO04 e MO06 causano i maggiori fenomeni di ombreggiamento, con durate rispettivamente pari a 307:14 h/anno e 516:12 h/anno.

Tabella 7: Durata totale del fenomeno di shadow flickering indotta da ciascun aerogeneratore sui recettori

Aerogeneratore	Shadow Flickering – WORST CASE (h/anno)
MO01	66:17
MO02	285:40
MO03	111:10
MO04	307:14

Aerogeneratore	Shadow Flickering – WORST CASE (h/anno)
MO05	215:15
MO06	516:12

È opportuno sottolineare che i risultati riportati nel presente paragrafo sono ampiamente cautelativi in quanto sono rappresentativi di condizioni di shadow flickering che nella realtà non hanno alcuna possibilità di verificarsi. Infatti, nella modalità "*worst case*" il calcolo delle ore di ombreggiamento viene effettuato nelle condizioni più sfavorevoli possibili (il sole splende per tutta la giornata, il piano di rotazione delle pale è sempre perpendicolare alla direttrice sole-aerogeneratore, l'aerogeneratore è sempre operativo).
Inoltre nel modello i recettori sono stati considerati esposti al fenomeno in maniera omnidirezionale (modalità "green house") e si è trascurata la presenza di vegetazione o di altri ostacoli in grado di "intercettare" l'ombra degli aerogeneratori.

Per maggiori dettagli si rimanda agli allegati "Risultati dello Shadow Flickering" e "Mappa di impatto potenziale del fenomeno di shadow flickering – Worst Case".

6.1.1 Analisi dei recettori con criticità

In questo paragrafo viene effettuata un'analisi dei fenomeni di ombreggiamento indotti dagli aerogeneratori in progetto che presentano superamenti dei valori limite annuali e/o giornalieri. I risultati riportati in Tabella 8 sono stati estratti dagli allegati "Calendar Graph per recettore" e dal "Calendar Time per recettore" della presente relazione a cui si rimanda per maggiori dettagli.

Tabella 8: Risultati del calcolo del fenomeno di shadow flickering ottenuti per singolo recettore nella modalità Worst Case

ID Recettore	Dest. uso catastale	Dest. uso presunta	Periodi dell'anno con Shadow Flickering ([1])	Turbine che producono Shadow Flickering	Shadow Flickering – WORST CASE		
					Ore/anno	Giorni/anno	Max ore/giorno
1	D10	Agricola	6 apr - 6 sett (0:01-1:04)	MO01, MO02	**109:47**	154	**01:04**
2	D10	Agricola	8 apr - 4 sett (0:05-1:08)	MO01, MO02	**127:37**	150	**01:08**
12	NC	Tettoia	31 mag – 13 lug (0:06-0:40)	MO06	23:13	44	**00:40**
13	NC	Magazzino	8 mag – 5 ago (0:10-01:10)	MO06	**87:38**	90	**01:10**
14	NC	Magazzino	28 mag – 15 lug (0:06-0:48)	MO06	**31:26**	49	**00:48**
19	C2	Rimessa	8 apr - 4 sett (0:19-1:15)	MO06	**145:42**	150	**01:15**
20	A3	Abitazione	3 apr – 1 giu (0:08-1:10) 11 lug – 9 set (0:05-1:10)	MO06	**104:07**	121	**01:10**
29	D10	Agricola	2 gen – 21 gen (0:11-0:38) 21 nov - 31 dic (0:11-0:40)	MO03	**34:35**	62	**00:40**
32	A3	Abitazione	1 gen – 15 gen (0:09-0:33)	MO03	24:32	50	**00:36**

ID Recettore	Dest. uso catastale	Dest. uso presunta	Periodi dell'anno con Shadow Flickering ([1])	Turbine che producono Shadow Flickering	Shadow Flickering – WORST CASE		
					Ore/anno	Giorni/anno	Max ore/giorno
			27 nov - 31 dic (0:09-0:36)				
33	NC	Tettoia	15 mar – 14 apr (0:14-0:49) 29 ago – 28 sett (0:16-0:49)	MO04	**39:30**	62	**00:49**
34	C2	Rimessa	3 mar – 9 apr (0:05-0:59) 3 sett – 10 ott (0:15-0:59)	MO04	**58:34**	76	**00:59**
36	C2	Rimessa	15 apr – 12 mag (0:02-0:35) 1 ago – 28 ago (0:01-0:35)	MO05	21:57	56	**00:35**
37	C7	Tettoia	14 apr – 12 mag (0:03-0:36) 1 ago – 29 ago (0:02-0:37)	MO05	24:11	58	**00:37**
38	C2	Rimessa	4 mag – 9 ago (0:04-0:41)	MO05	**52:53**	98	**00:41**
39	D10	Agricola	24 apr – 25 mag (0:03-0:34) 19 lug – 19 ago (0:01-0:34)	MO05	24:36	64	**00:34**
40	D10	Agricola	24 apr – 24 mag (0:03-0:33) 20 lug – 19 ago (0:01-0:33)	MO05	22:49	62	**00:33**
41	D10	Agricola	21 apr – 21 mag (0:03-0:35) 22 lug – 22 ago (0:02-0:35)	MO05	25:12	63	**00:35**
50	NC	Diruto	21 apr – 14 mag (0:03-0:29) 27 mag – 14 lug (0:03-0:35) 30 lug – 22 ago (0:02-0:28)	MO02 MO01 MO02	**38:57**	99	**00:35**
51	C2	Rimessa	22 mar – 9 mag (0:11-1:09) 3 ago – 21 set (0:08-1:09)	MO06	**87:44**	99	**01:09**
52	C2	Diruto	30 mar – 18 mag (0:09-1:06) 25 lug – 13 sett (0:14-1:05)	MO06	**83:47**	100	**01:06**
53	F2	Diruto	24 mar – 6 mag (0:11-1:02) 7 ago – 19 sett (0:14-1:03)	MO06	**70:57**	88	**01:03**

ID Recettore	Dest. uso catastale	Dest. uso presunta	Periodi dell'anno con Shadow Flickering ([1])	Turbine che producono Shadow Flickering	Shadow Flickering – WORST CASE		
					Ore/anno	Giorni/anno	Max ore/giorno
55	NC	Tettoia	28 apr – 15 ago (0:12-1:00)	MO04	**96:44**	110	**01:00**
56	D10	Diruto	19 feb – 26 mar (0:12-0:56) 17 set – 23 ott (0:09-0:56)	MO04	**53:42**	73	**00:56**
57	C2	Diruto	1 gen – 27 gen (0:11-0:52) 15 nov – 31 dic (0:11-0:52)	MO02	**54:07**	74	**00:52**
90	NC	Tettoia	7 mag – 6 ago (0:15-01:14)	MO06	**95:06**	92	**01:14**
91	A3	Abitazione	25 mag – 18 lug (0:09-0:51)	MO06	**37:40**	55	**00:51**
92	NC	Tettoia	3 mag – 10 ago (0:14-01:13)	MO06	**104:04**	100	**01:13**
93	NC	Diruto	18 mag – 25 lug (0:06-01:03)	MO06	**57:57**	69	**01:03**
94	NC	Magazzino	9 mag – 4 ago (0:07-01:07)	MO06	**81:57**	88	**01:07**
104	C7	Tettoia	16 gen – 12 feb (0:01-0:31) 30 ott – 26 nov (0:02-0:30)	MO06	18:20	56	**00:31**
107	A3	Abitazione in uso	1 gen – 26 gen (0:13-0:42) 16 nov – 31 dic (0:13-0:42)	MO06	**44:07**	72	**00:42**
108	C2	Magazzino	1 gen – 23 gen (0:09-0:41) 19 nov – 31 dic (0:09-0:42)	MO06	**38:24**	66	**00:42**
109	C2	Magazzino	1 gen – 23 gen (0:11-0:41) 19 nov – 31 dic (0:11-0:41)	MO06	**38:38**	66	**00:41**
110	A3	Abitazione	1 gen – 6 feb (0:03-0:42) 5 nov – 31 dic (0:06-0:41)	MO06	**54:43**	94	**00:42**
111	C2	Rimessa	1 gen – 7 feb (0:13-0:42) 4 nov – 31 dic (0:13-0:42)	MO06	**56:25**	96	**00:42**
112	C2	Rimessa	1 gen – 8 feb (0:09-0:41) 3 nov – 31 dic (0:10-0:41)	MO06	**53:20**	98	**00:41**
113	NC	Rimessa	1 gen – 3 feb (0:08-0:41) 8 nov – 31 dic (0:09-0:41)	MO06	**52:46**	88	**00:41**
114	C2	Rimessa	1 gen – 3 feb (0:08-0:41)	MO06	**53:00**	95	**00:41**
131	C2	Diruto	6 gen – 18 feb (0:08-0:47) 24 ott – 31 dic (0:02-0:47)	MO06	**49:25**	89	**00:47**

ID Recettore	Dest. uso catastale	Dest. uso presunta	Periodi dell'anno con Shadow Flickering ([1])	Turbine che producono Shadow Flickering	Shadow Flickering – WORST CASE		
					Ore/anno	Giorni/anno	Max ore/giorno
132	NC	Abitazione non in uso	27 mar – 19 apr (0:04-0:36) 24 ago – 16 set (0:06-0:36)	MO03	20:43	48	**00:36**
133	C2	Rimessa	30 mar – 23 apr (0:11-0:38) 20 ago – 14 set (0:01-0:38)	MO03	23:47	51	**00:38**
134	NC	Abitazione non in uso	25 mar – 18 apr (0:08-0:38) 25 ago – 18 set (0:09-0:38)	MO03	23:12	50	**00:38**
135	NC	Abitazione non in uso	23 mar – 15 apr (0:02-0:36) 28 ago – 20 set (0:06-0:36)	MO03	21:10	48	**00:36**
136	C2	Rimessa	28 mar – 21 apr (0:03-0:37) 21 ago – 15 set (0:04-0:37)	MO03	22:38	51	**00:37**
149	D10	Agricola	1 gen – 13 gen (0:02-0:31) 30 nov – 31 dic (0:11-0:34)	MO03	20:27	45	**00:34**
152	NC	Abitazione	14 apr – 28 mag (0:06-0:51) 15 lug – 29 ago (0:04-0:51)	MO04	**57:09**	91	**00:51**
153	C7	Tettoia	19 feb – 28 mar (0:14-01:00) 15 set – 23 ott (0:13-0:50)	MO04	**59:35**	77	**01:00**
154	C2	Rimessa	30 apr – 12 ago (0:08-0:59)	MO04	**90:54**	105	**00:59**
155	A2	Abitazione	25 apr – 18 ago (0:15-0:57)	MO04	**93:51**	116	**00:57**
156	A3	Abitazione in uso	12 mag – 31 lug (0:03-0:50)	MO04	**55:40**	81	**00:50**
157	A3	Abitazione	22 feb – 28 feb (0:14-0:44) 1 mar – 31 mar (0:05-0:59) 13 set – 20 ott (0:10-0:59)	MO04	**57:45**	76	**00:59**
159	A3	Abitazione	26 feb – 28 feb (0:11-0:28) 1 mar – 4 apr (0:14-0:59) 8 set – 16 ott (0:01-0:59)	MO04	**58:50**	77	**00:59**
166	A7	Abitazione in uso	1 gen – 19 gen (0:09-0:34) 23 nov – 31 dic (0:09-0:35)	MO06	28:31	58	**00:35**
187	C7	Diruto	1 gen – 27 gen (0:10-01:05) 15 ott – 31 dic (0:15-01:05)	MO05	**104:36**	136	**01:05**

ID Recettore	Dest. uso catastale	Dest. uso presunta	Periodi dell'anno con Shadow Flickering ([1])	Turbine che producono Shadow Flickering	Shadow Flickering – WORST CASE		
					Ore/anno	Giorni/anno	Max ore/giorno
188	A7	Abitazione non in uso	13 mar- 2 apr (0:05-0:32) 10 set – 1 ott (0:02-0:32	MO05	15:30	43	**00:32**
189	A3	Abitazione	19 apr – 15 mag (0:03-0:29) 29 lug – 24 ago (0:04-0:32)	MO05	19:40	54	**00:32**
190	C2	Rimessa	16 apr – 11 mag (0:04-0:29) 1 ago – 27 ago (0:04-0:32)	MO05	19:42	53	**00:33**
191	C2	Rimessa	24 apr – 22 mag (0:04-0:32) 21 lug – 19 ago (0:01-0:32)	MO05	21:13	59	**00:32**
238	A7	Abitazione in uso	10 feb – 2 mar (0:06-0:30) 12 ott – 1 nov (0:05-0:31)	MO06	15:01	42	**00:31**
246	C7	Tettoia	3 mag – 14 giu (0:02-0:32) 29 giu – 9 ago (0:04-0:31)	MO05	29:22	85	**00:32**
254	D10	Diruto	1 gen – 2 mar (0:05-0:50) 12 ott- 31 dic (0:06-0:50)	MO01, MO02 MO01, MO02	**83:15**	142	**00:50**
275	C2	Rimessa	1 gen – 15 gen (0:10-0:33) 27 nov – 31 dic (0:10-0:35)	MO03	24:05	50	**00:35**
278	D10	Agricola	14 apr – 25 mag (0:08-0:49) 19 lug – 29 ago (0:11-0:49)	MO04	**51:55**	84	**00:49**
279	C2	Diruto	23 apr – 20 ago (0:14-0:58)	MO04	**98:09**	120	**00:58**
280	A3	Abitazione in uso	7 mag – 5 ago (0:05-0:49)	MO04	**63:18**	91	**00:49**
303	NC	Tettoia	15 gen – 11 feb (0:02-0:31) 31 ott – 27 nov (0:02-0:31)	MO06	18:58	56	**00:31**
304	F2	Diruto	13 gen – 10 feb (0:02-0:31) 1 nov – 29 nov (0:02-0:31)	MO06	19:11	58	**00:31**
305	C2	Magazzino	1 gen – 21 gen (0:09-0:30) 21 nov – 31 dic (0:09-0:31)	MO06	26:26	62	**00:31**
307	C2	Rimessa	1 gen – 6 feb (0:12-0:43) 5 nov – 31 dic (0:14-0:43)	MO06	**57:59**	94	**00:43**

ID Recettore	Dest. uso catastale	Dest. uso presunta	Periodi dell'anno con Shadow Flickering ([1])	Turbine che producono Shadow Flickering	Shadow Flickering – WORST CASE		
					Ore/anno	Giorni/anno	Max ore/giorno
([1]) Periodo dell'anno in cui il recettore è soggetto al fenomeno di shadow flickering (hh:mm - hh:mm) = (Durata minima giornaliera dell'ombreggiamento - Durata massima giornaliera dell'ombreggiamento							

Dall'analisi dei 69 recettori in cui si registrano superamenti del limite annuale e/o giornaliero risulta che:

- presso 25 recettori il valore limite annuale di 30 ore viene rispettato, ma viene superato il limite giornaliero (pari a 30 minuti) per pochi minuti, al massimo 10. Si precisa che la maggior parte degli edifici individuati risultano essere ruderi, locali di deposito, tettoie o edifici uso agricolo dove la presenza di persone è giustificata per scopo lavorativo e, in ogni caso, limitata ad alcune fasce orarie, mentre gli edifici ad uso abitativo sono 8 (ID 32, 132, 134, 135, 166, 188, 189) e il valore limite viene superato per al massimo 8 minuti.
- presso 44 recettori si verificano superamenti del limite annuale e giornaliero. Di questi si precisa che 10 edifici sono classificati come abitazioni (ID 20, 91, 107, 110, 152, 155, 156, 157, 159, 280), mentre i restanti sono ruderi, locali di deposito, tettoie o edifici uso agricolo dove la presenza di persone è giustificata per scopo lavorativo e, in ogni caso, limitata ad alcune fasce orarie. Il recettore maggiormente interessato dal fenomeno di shadow flickering è il n. 19 (locale di deposito rappresentato in Figura 12), per il quale è stato ottenuto un valore di ombreggiamento annuale pari a 145:42 ore e massimo giornaliero pari a 01:15 ore, mentre quello ad uso abitativo è il n. 20 (Figura 13), situato ad una distanza minima di 558,4 m dall'aerogeneratore MO06, per il quale è stato ottenuto un valore di ombreggiamento annuale pari a 104:07 ore e massimo giornaliero pari a 01:10 ore.

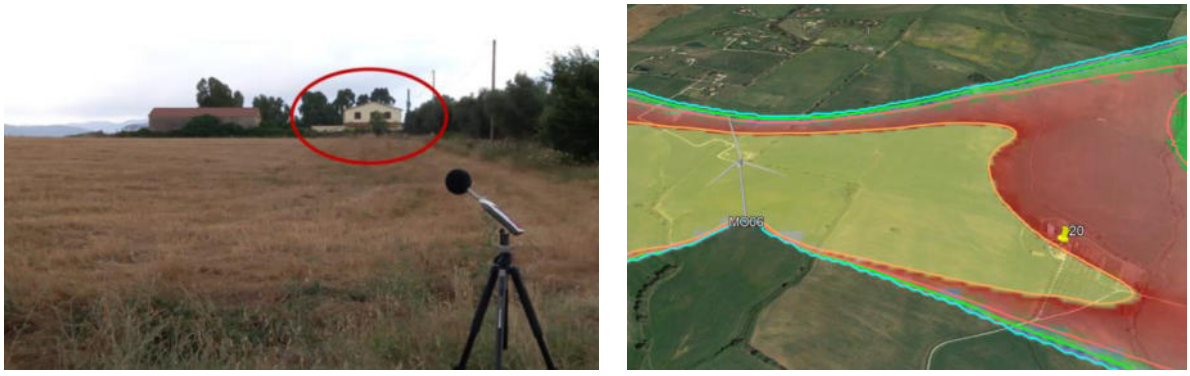


Figura 13: Recettore n. 20 evidenziato in rosso (a sinistra) ed estratto della mappa di impatto potenziale nello scenario worst case (a destra)

Dalla "Mappa di impatto potenziale del fenomeno di shadow flickering – Worst Case" allegata alla presente relazione è possibile osservare la presenza di 5 gruppi di edifici maggiormente impattati dal fenomeno di shadow flickering:

- il gruppo di recettori identificati con i codici 107 108, 109, 110, 111, 112, 113, 114 e 307 (tutti locali adibiti a deposito ad eccezione dell'edificio n.110 destinato a civile

abitazione), presso i quali il fenomeno di ombreggiamento è causato dall'aerogeneratore MO06 e si verifica tra novembre e inizio febbraio;

- il gruppo di recettori identificati con i codici 13, 14, 90, 91, 92, 93 e 94 (tutti locali adibiti a deposito o tettoie ad eccezione dell'edificio n. 91 destinato a civile abitazione), presso i quali il fenomeno di ombreggiamento è causato dall'aerogeneratore MO06 e si verifica tra maggio e inizio agosto;
- il gruppo di recettori identificati con i codici 19, 20, 51, 52 e 53 (tutti locali adibiti a deposito o diruti ad eccezione dell'edificio n. 20 destinato a civile abitazione), presso i quali il fenomeno di ombreggiamento è causato dall'aerogeneratore MO06 e si verifica tra aprile e settembre per i recettori 19 e 20 e nei periodi marzo-maggio e agosto-settembre per i restanti edifici;
- il gruppo di recettori identificati con i codici 55, 152, 154, 155, 156, 278, 279 e 280 (tutti locali adibiti a deposito o diruti ad eccezione degli edifici n. 152, 154, 155 e 280 destinati a civile abitazione), presso i quali il fenomeno di ombreggiamento è causato dall'aerogeneratore MO04 e si verifica prevalentemente tra aprile e agosto;
- il gruppo di recettori identificati con i codici 34, 56, 153, 157 e 159 (tutti locali adibiti a deposito, tettoie o diruti ad eccezione degli edifici n. 157 e 159 destinati a civile abitazione), presso i quali il fenomeno di ombreggiamento è causato dall'aerogeneratore MO04 e si verifica prevalentemente nei periodi febbraio- aprile e settembre-ottobre.

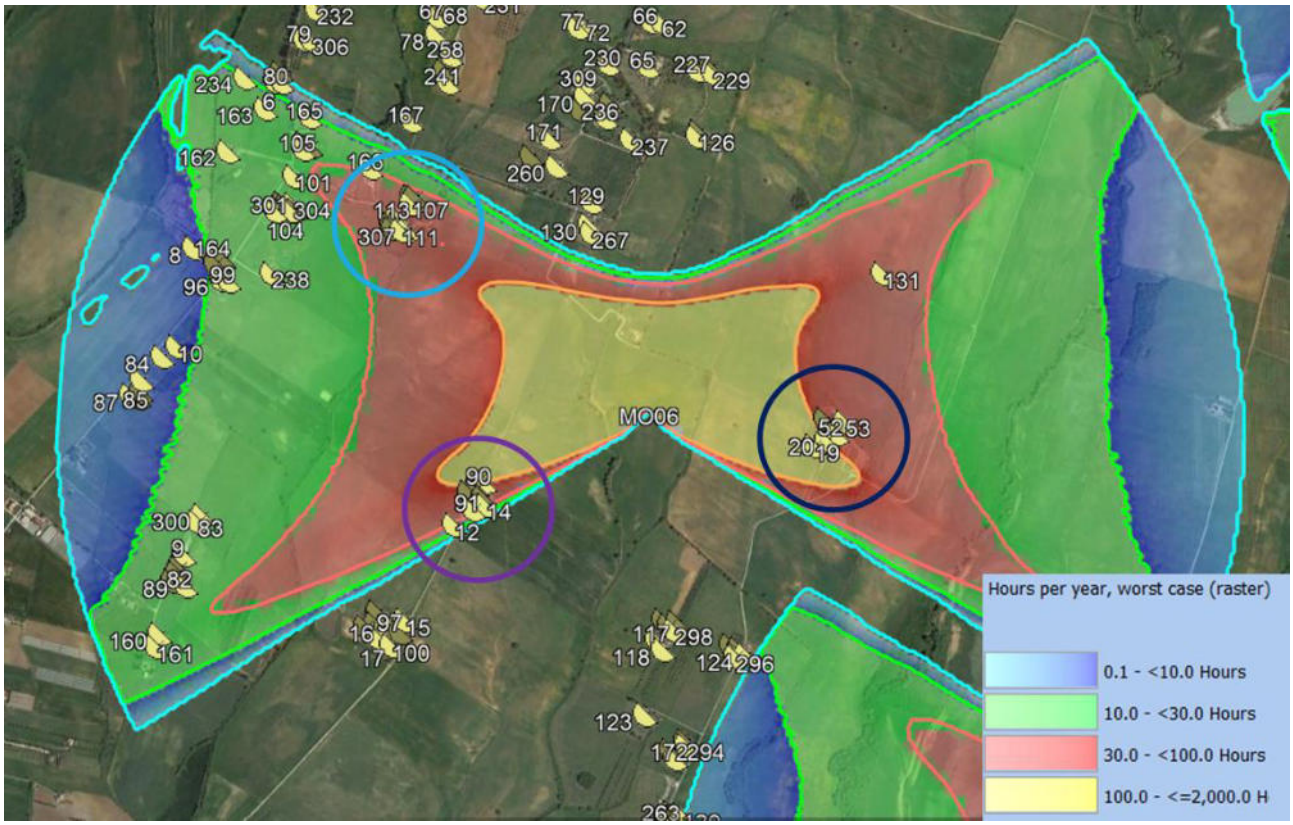


Figura 14: Gruppi di ricettori maggiormente interessati dal fenomeno di shadow flickering indotto dall'aerogeneratore MO06

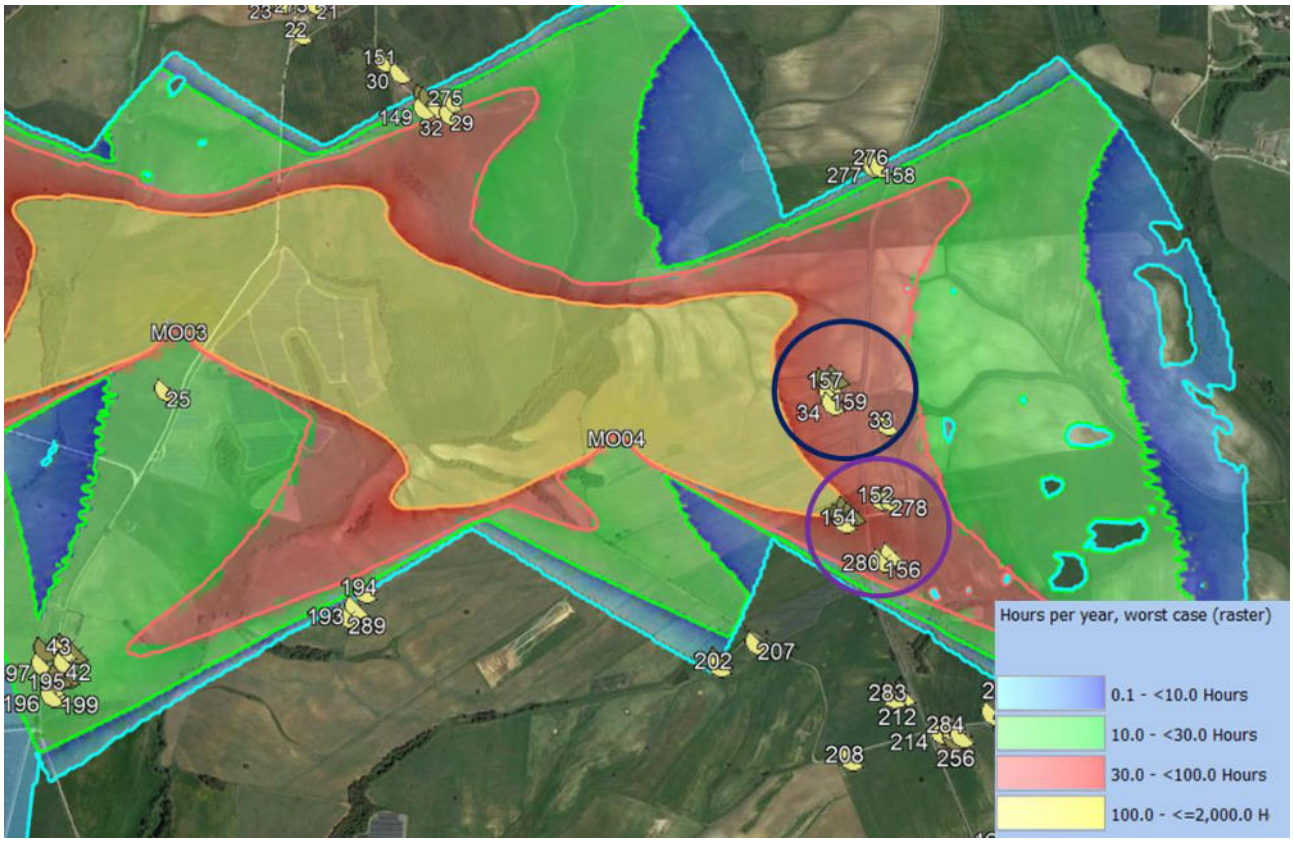


Figura 15: Gruppi di ricettori maggiormente interessati dal fenomeno di shadow flickering indotto dall'aerogeneratore MO04

6.1.2 Analisi per singola turbina

In Tabella 9 sono riportati i risultati del fenomeno di shadow flickering per ciascun aerogeneratore contenuti negli allegati "Calendar Graph per WTG" e nel "Calendar Time per WTG" della presente relazione a cui si rimanda per maggiori dettagli.
Dall'analisi dei risultati si evince quanto segue:

- L'aerogeneratore MO01 produce fenomeni di ombreggiamento per una durata complessiva pari a 66:17 h/anno (valore più basso tra le turbine in progetto), specialmente nel mese di aprile e tra giugno e ottobre. I ricettori maggiormente impattati dalla turbina in esame sono 5: tre possiedono destinazione ad uso agricolo e i restanti risultano essere diruti;
- L'aerogeneratore MO02 produce fenomeni di ombreggiamento per una durata complessiva pari a 285:40 h/anno, specialmente nei periodi di maggio- agosto e novembre-gennaio. I ricettori maggiormente impattati dalla turbina in esame sono 7: quattro possiedono destinazione ad uso agricolo e i restanti risultano essere diruti;
- L'aerogeneratore MO03 produce fenomeni di ombreggiamento per una durata complessiva pari a 111:10 h/anno, specialmente nel mese di aprile e tra novembre e gennaio. I ricettori maggiormente impattati dalla turbina in esame sono 19: cinque ad uso abitativo e i restanti risultano essere prevalentemente locali adibiti a deposito o ad uso agricolo;

- L’aerogeneratore MO04 produce fenomeni di ombreggiamento per una durata complessiva pari a 307:14 h/anno, specialmente nel periodo tra maggio e luglio e nei mesi di novembre, gennaio e febbraio. I ricettori maggiormente impattati dalla turbina in esame sono 29: dieci sono abitazioni, mentre i restanti risultano essere diruti, tettoie, locali adibiti a deposito o ad uso agricolo;
- L’aerogeneratore MO05 produce fenomeni di ombreggiamento per una durata complessiva pari a 215:15 h/anno, specialmente nel periodo tra maggio e luglio e nei mesi di marzo e settembre. I ricettori maggiormente impattati dalla turbina in esame sono 18: dieci sono abitazioni, mentre i restanti risultano essere diruti, tettoie, locali adibiti a deposito o ad uso agricolo;
- L’aerogeneratore MO06 causa, insieme alla turbina MO04 i maggiori fenomeni di ombreggiamento per una durata complessiva pari a 516:12 h/anno, specialmente nel periodo tra aprile e agosto e nei mesi di novembre e gennaio. La turbina in esame, in particolare, genera fenomeni di ombreggiamento sul maggior numero di recettori, pari a 64: 25 sono abitazioni, mentre i restanti risultano essere diruti, tettoie, locali adibiti a deposito o ad uso agricolo;

Tabella 9: Risultati del calcolo del fenomeno di shadow flickering ottenuti per singolo aerogeneratore nella modalità Worst Case

Aerogeneratore		Mese												Totale annuo	Recettori soggetti a Shadow Flickering dalla turbina
		Gen	Feb	Mar	Apr	Mag	Giu	Lug	Ago	Set	Ott	Nov	Dic		
MO01	Durata Shadow (hh:mm)	-	06:12	01:09	13:52	01:18	15:48	06:25	08:58	06:00	06:34	00:01	-	66:17	1, 2, 50, 58, 254
	N° giorni Shadow	-	19	7	30	6	30	16	20	16	20	1	-	165	
MO02	Durata Shadow (hh:mm)	44:11	05:22	02:58	15:53	38:49	25:44	31:27	33:58	02:06	00:56	30:56	53:20	285:40	1, 2, 50, 57, 59, 254, 255
	N° giorni Shadow	31	10	14	18	31	30	31	30	8	6	30	31	270	
MO03	Durata Shadow (hh:mm)	22:57	04:46	03:55	13:05	-	-	-	06:06	11:10	03:09	13:03	32:59	111:10	29, 31, 32, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 149, 150, 275
	N° giorni Shadow	30	18	13	23	-	-	-	12	24	10	28	31	189	
MO04	Durata Shadow (hh:mm)	-	06:23	43:47	21:58	44:39	49:43	50:44	25:25	40:40	20:35	-	03:20	307:14	25, 33, 34, 42, 43, 48, 55, 56, 152, 153, 154, 155, 156, 157, 158, 159, 195, 196, 197, 198, 199, 200, 243, 277, 278, 279, 280, 290, 291
	N° giorni Shadow	-	10	31	30	31	30	31	31	30	23	-	18	265	
MO05	Durata Shadow (hh:mm)	25:05	24:44	10:50	10:44	20:18	17:12	19:44	14:36	11:57	17:19	29:16	13:30	215:15	36, 37, 38, 39, 40, 41, 180, 186, 187, 188, 189, 190, 191, 192, 219, 246, 292, 293
	N° giorni Shadow	31	28	29	27	31	30	31	29	29	30	30	31	356	
MO06	Durata Shadow (hh:mm)	44:14	28:14	17:18	45:44	67:22	64:41	69:53	56:28	27:42	15:56	48:10	30:30	516:12	6, 7, 8, 9, 10, 12, 13, 14, 19, 20, 51, 52, 53, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 96, 99, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 131, 160, 161, 162, 163, 164, 165, 166, 234, 238, 244, 264, 265, 300, 301, 302, 303, 304, 305, 307
	N° giorni Shadow	31	28	31	30	31	30	31	31	30	31	30	31	365	

6.2 "Real Case" con piena operatività dell'impianto

In Figura 16 sono rappresentati i risultati ottenuti in modalità "Real case" con piena operatività dell'impianto, mentre in Tabella 10 sono riassunte le durate totali del fenomeno di shadow flickering per ogni recettore espresse in ore/anno. Si precisa che i valori superiori al limite annuale preso come riferimento, pari a 30 ore/anno, sono stati evidenziati in rosso.

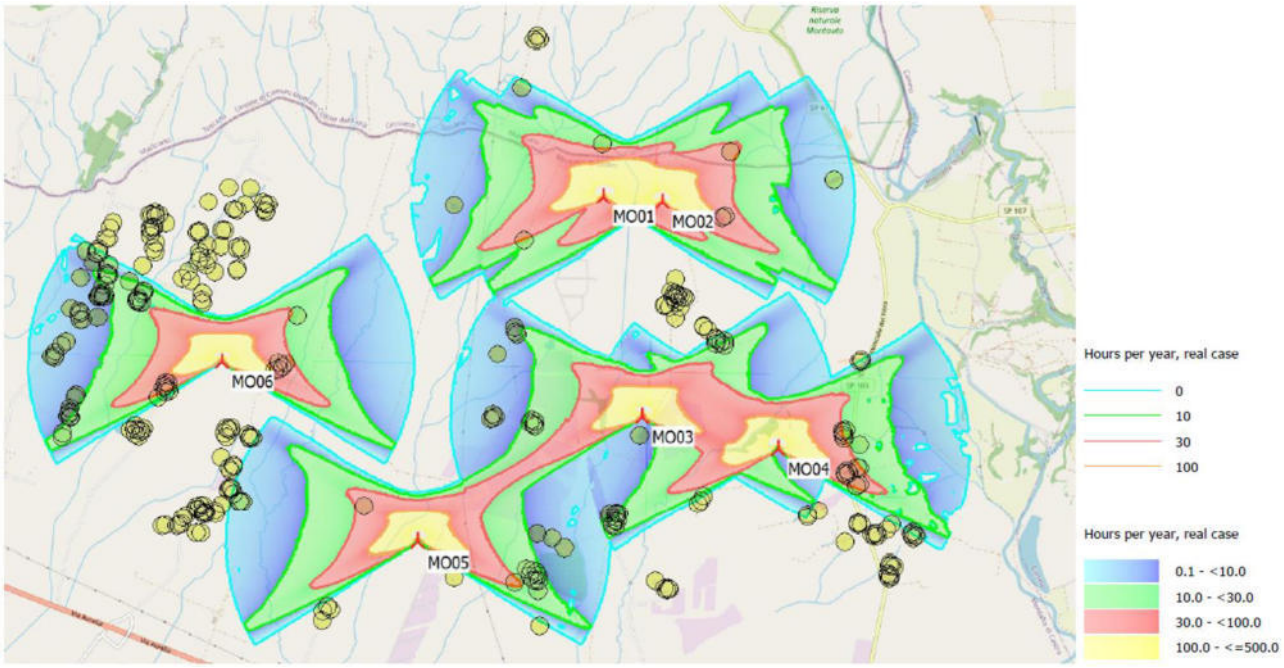


Figura 16: Rappresentazione dell'ombreggiamento indotto dagli aerogeneratori in progetto nell'area in esame nella modalità "Real case"

Tabella 10: Durata del fenomeno di shadow flickering per ogni recettore nella modalità Real case con piena operatività

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
1	D10	**68:44**
2	D10	**80:15**
3	D10	00:00
4	D10	00:00
5	D10	00:00
6	NC	02:04
7	D10	05:17
8	NC	04:48
9	C2	08:50
10	NC	04:50
11	C2	00:00
12	NC	14:42
13	NC	**55:48**
14	NC	19:56
15	NC	00:00
16	NC	00:00
17	C2	00:00
18	C2	00:00
19	C2	**90:56**
20	A3	**63:49**
21	C2	00:00
22	C7	00:00
23	C2	00:00
24	C2	00:00
25	NC	06:57
26	C2	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
158	A2	01:26
159	A3	**31:06**
160	A2	15:28
161	A2	15:01
162	A3	05:57
163	F3	08:10
164	A3	05:22
165	C2	05:34
166	A7	12:17
167	A7	00:00
168	NC	00:00
169	D10	00:00
170	A7	00:00
171	A7	00:00
172	A7	00:00
173	C2	00:00
174	A3	00:00
175	NC	00:00
176	C2	00:00
177	C2	00:00
178	A2	00:00
179	C2	00:00
180	A7	02:36
181	A3	00:00
182	D10	00:00
183	A2	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
27	A3	00:00
28	C2	00:00
29	D10	14:55
30	NC	00:00
31	D10	02:48
32	A3	10:33
33	NC	21:48
34	C2	**31:28**
35	NC	00:00
36	C2	13:30
37	C7	14:50
38	C2	**33:42**
39	D10	15:32
40	D10	14:24
41	D10	15:48
42	D10	10:56
43	D10	09:23
44	NC	00:00
45	NC	00:00
46	NC	00:00
47	NC	00:00
48	C2	01:03
49	NC	00:00
50	NC	24:31
51	C2	**51:12**
52	C2	**50:16**
53	F2	**41:18**

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
184	D10	00:00
185	A2	00:00
186	A3	03:04
187	C7	**47:50**
188	A7	08:24
189	A3	12:12
190	C2	12:07
191	C2	13:23
192	A7	06:16
193	C2	00:00
194	C2	00:00
195	A3	13:56
196	A2	14:27
197	D10	08:52
198	NC	07:59
199	A2	14:38
200	D10	13:14
201	C2	00:00
202	C2	00:00
203	C2	00:00
204	C2	00:00
205	A2	00:00
206	C2	00:00
207	C2	00:00
208	NC	00:00
209	A2	00:00
210	A2	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
54	A3	00:00
55	NC	**61:31**
56	D10	27:48
57	C2	23:24
58	D10	05:54
59	D10	04:33
60	D10	00:00
61	C7	00:00
62	NC	00:00
63	A3	00:00
64	A3	00:00
65	A7	00:00
66	A7	00:00
67	C2	00:00
68	A2	00:00
69	C2	00:00
70	A2	00:00
71	A7	00:00
72	A7	00:00
73	A3	00:00
74	A7	00:00
75	C2	00:00
76	C2	00:00
77	A7	00:00
78	A7	00:00
79	A3	00:00
80	D10	01:13

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
211	C2	00:00
212	A3	00:00
213	A7	00:00
214	A3	00:00
215	C2	00:00
216	A3	00:00
217	C2	00:00
218	A3	00:00
219	A7	05:17
220	A7	00:00
221	A2	00:00
222	C2	00:00
223	A3	00:00
224	C2	00:00
225	A2	00:00
226	A7	00:00
227	A7	00:00
228	C2	00:00
229	C2	00:00
230	D10	00:00
231	A7	00:00
232	A3	00:00
233	C2	00:00
234	NC	04:54
235	A2	00:00
236	A7	00:00
237	A7	00:00

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
81	C2	09:11
82	C2	10:41
83	A3	08:18
84	A3	04:40
85	A2	04:20
86	C2	04:22
87	A2	04:11
88	C2	04:23
89	A2	09:57
90	NC	**60:33**
91	A3	23:55
92	NC	**66:16**
93	NC	**36:52**
94	NC	**52:10**
95	NC	00:00
96	C2	05:28
97	C2	00:00
98	C2	00:00
99	A3	05:43
100	A2	00:00
101	A7	10:40
102	C2	07:57
103	A2	07:29
104	C7	08:16
105	C2	11:34
106	A2	11:00
107	A3	19:04

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
238	A7	07:34
239	A7	00:00
240	D10	00:00
241	D10	00:00
242	NC	00:00
243	D10	09:08
244	A2	09:21
245	C7	00:00
246	C7	18:49
247	D10	00:00
248	D10	00:00
249	C2	00:00
250	A2	00:00
251	F2	00:00
252	A4	00:00
253	A2	00:00
254	D10	**37:20**
255	D10	03:11
256	NC	00:00
257	A3	00:00
258	NC	00:00
259	C2	00:00
260	D10	00:00
261	A2	00:00
262	C2	00:00
263	NC	00:00
264	C2	09:07

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
108	C2	16:34
109	C2	16:40
110	A3	23:50
111	C2	24:37
112	C2	23:19
113	NC	22:54
114	C2	23:07
115	C2	00:00
116	A7	00:00
117	A3	00:00
118	A3	00:00
119	A3	00:00
120	C2	00:00
121	A2	00:00
122	A3	00:00
123	A7	00:00
124	NC	00:00
125	C2	00:00
126	A7	00:00
127	A7	00:00
128	A3	00:00
129	A3	00:00
130	A2	00:00
131	C2	22:27
132	NC	11:47
133	C2	13:45
134	NC	13:07

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
265	A3	05:30
266	A7	00:00
267	A2	00:00
268	A7	00:00
269	D10	00:00
270	D10	00:00
271	D10	00:00
272	NC	00:00
273	C2	00:00
274	D10	00:00
275	C2	10:21
276	C2	00:00
277	C2	00:04
278	D10	**32:12**
279	C2	**62:11**
280	A3	**40:19**
281	C2	00:00
282	C2	00:00
283	C2	00:00
284	NC	00:00
285	C2	00:00
286	C2	00:00
287	NC	00:00
288	NC	00:00
289	C2	00:00
290	D10	10:46
291	D10	14:36

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
135	NC	11:51
136	C2	13:00
137	C2	04:43
138	D10	09:08
139	C2	05:24
140	D10	08:40
141	C2	05:34
142	C2	05:40
143	C2	05:21
144	D10	08:48
145	C2	00:00
146	C2	00:00
147	C2	00:00
148	C2	00:00
149	D10	08:47
150	A3	05:02
151	D10	00:00
152	NC	**35:33**
153	C7	**30:55**
154	C2	**57:52**
155	A2	**59:34**
156	A3	**35:26**
157	A3	**30:08**

ID Recettore	Dest. uso catastale	Shadow Flickering – REAL CASE (Ore/Anno)
292	NC	03:08
293	NC	02:58
294	C2	00:00
295	NC	00:00
296	NC	00:00
297	NC	00:00
298	NC	00:00
299	A7	00:00
300	C2	08:24
301	C2	07:16
302	NC	07:42
303	NC	08:31
304	F2	08:34
305	C2	11:24
306	A3	00:00
307	C2	25:16
308	C2	00:00
309	A3	00:00
310	C2	00:00
311	C2	00:00
312	NC	00:00
313	C2	00:00
314	NC	00:00

Dai risultati si evince che, nella modalità "Real case" con piena operatività dell'impianto, il fenomeno di shadow flickering interessa 138 dei 314 recettori considerati.
Per la maggior parte dei recettori l'ombreggiamento indotto dagli aerogeneratori possiede durate inferiori al limite annuale, mentre presso 27 recettori si verificano superamenti del valore di 30 h/anno. Di questi si precisa che 7 edifici (ID 20, 152, 155, 156, 157, 159 e 280) sono adibiti a civile abitazione, mentre i restanti sono ruderi, locali di deposito, tettoie o edifici uso agricolo dove la presenza di persone è giustificata per scopo lavorativo e, in ogni caso, limitata ad alcune fasce orarie.
Il recettore maggiormente interessato dal fenomeno di shadow flickering è il n. 19 (locale di deposito rappresentato in Figura 12), per il quale è stato ottenuto un valore di ombreggiamento annuale pari a 90:56 ore, mentre quello ad uso abitativo è il n. 20 (Figura 13), situato ad una distanza minima di 558,4 m dall'aerogeneratore MO06, per il quale è stato ottenuto un valore di ombreggiamento annuale pari a 63:49 ore.
In Tabella 11 sono riassunte le durate totali del fenomeno di shadow flickering indotte da ciascun aerogeneratore in progetto. Dall'analisi dei risultati si evince che tutti gli aerogeneratori producono fenomeni di ombreggiamento di durata inferiore a 300 h/anno e, analogamente alla modalità "worst case", i valori maggiori sono associati alle turbine MO04 e MO06.

Tabella 11: Durata totale del fenomeno di shadow flickering indotta da ciascun aerogeneratore sui recettori nella modalità "Real case" e piena operatività dell'impianto

Aerogeneratore	Shadow Flickering – REAL CASE (h/anno)
MO01	38:47
MO02	153:02
MO03	53:18
MO04	181:21
MO05	114:35
MO06	290:03

È opportuno sottolineare che i risultati ottenuti nella modalità "Real Case", anche se più realistici rispetto a quelli ottenuti nella modalità "Worst Case", non sono ancora pienamente rappresentativi dell'effettivo fenomeno di ombreggiamento che si ottiene nella realtà, in quanto i recettori sono stati considerati esposti al fenomeno in maniera omnidirezionale (modalità "green house") ed è stata trascurata l'effettiva operatività dell'impianto nell'arco dell'anno in funzione della direzione del vento e la presenza di eventuali ostacoli (alberi, ecc.) che possono ridurre o annullare l'effetto di shadow flickering.
Per maggiori dettagli si rimanda agli allegati "Risultati dello Shadow Flickering" e "Mappa di impatto potenziale del fenomeno di shadow flickering – Real Case con piena operatività dell'impianto".

6.2.1 Confronto con modalità "Worst Case"

In Tabella 12 sono riportate le durate annuali del fenomeno di shadow flickering a cui sono soggetti i recettori ottenute nella modalità "Worst Case" e "Real Case" con piena operatività dell'impianto". Confrontando i risultati è possibile osservare che nello scenario "Real case", con impianto in continuo movimento, la durata del fenomeno di ombreggiamento indotto dagli aerogeneratori in progetto viene ridotta in percentuale variabile dal 35 al 60%.

Nella modalità “Worst case” il limite annuale di 30 ore viene superato presso 44 recettori (la maggior parte locali di deposito, tettoie edifici uso agricolo o diruti e 10 edifici ad uso abitativo), mentre nella modalità “Real case” con impianto sempre attivo il numero di recettori si riduce a 27. Di questi si precisa che 7 edifici (ID 20, 152, 155, 156, 157, 159 e 280) sono adibiti a civile abitazione, mentre i restanti sono ruderi, locali di deposito, tettoie o edifici uso agricolo dove la presenza di persone è giustificata per scopo lavorativo e, in ogni caso, limitata ad alcune fasce orarie.

Tabella 12: Durate annuali del fenomeno di ombreggiamento a cui è soggetto ogni recettore nelle due modalità simulate e relativo confronto

ID Recettore	Dest. uso catastale	Dest. uso presunta	Shadow Flickering (Ore/Anno)		Riduzione del fenomeno di Shadow Flickering
			Worst Case	Real Case	
1	D10	Agricola	**109:47**	**68:44**	-37%
2	D10	Agricola	**127:37**	**80:15**	-37%
6	NC	Tettoia	04:49	02:04	-57%
7	D10	Agricola	10:29	05:17	-50%
8	NC	Tettoia	09:30	04:48	-49%
9	C2	Rimessa	14:05	08:50	-37%
10	NC	Rimessa	09:09	04:50	-47%
12	NC	Tettoia	23:13	14:42	-37%
13	NC	Magazzino	**87:38**	**55:48**	-36%
14	NC	Magazzino	**31:26**	19:56	-37%
19	C2	Rimessa	**145:42**	**90:56**	-38%
20	A3	Abitazione	**104:07**	**63:49**	-39%
25	NC	Agricola	12:53	06:57	-46%
29	A3	Abitazione	**34:35**	14:55	-57%
31	A3	Abitazione	06:30	02:48	-57%
32	C2	Rimessa	24:32	10:33	-57%
33	NC	Tettoia	**39:30**	21:48	-45%
34	C2	Rimessa	**58:34**	**31:28**	-46%
36	C2	Rimessa	21:57	13:30	-38%
37	C7	Tettoia	24:11	14:50	-39%
38	C2	Rimessa	**52:53**	**33:42**	-36%
39	D10	Agricola	24:36	15:32	-37%
40	D10	Agricola	22:49	14:24	-37%
41	D10	Agricola	25:12	15:48	-37%
42	D10	Agricola	17:04	10:56	-36%
43	D10	Agricola	14:44	09:23	-36%
48	C2	Rimessa	01:43	01:03	-39%
50	NC	Diruto	**38:57**	24:31	-37%
51	C2	Rimessa	**87:44**	**51:12**	-42%
52	C2	Diruto	**83:47**	**50:16**	-40%
53	F2	Diruto	**70:57**	**41:18**	-42%
55	NC	Tettoia	**96:44**	**61:31**	-36%

ID Recettore	Dest. uso catastale	Dest. uso presunta	Shadow Flickering (Ore/Anno)		Riduzione del fenomeno di Shadow Flickering
			Worst Case	Real Case	
56	D10	Diruto	**53:42**	27:48	-48%
57	C2	Diruto	**54:07**	23:24	-57%
58	D10	Agricola	10:34	05:54	-44%
59	D10	Agricola	10:37	04:33	-57%
80	D10	Agricola	02:51	01:13	-57%
81	C2	Rimessa	14:30	09:11	-37%
82	C2	Deposito	16:48	10:41	-36%
83	A3	Abitazione	13:38	08:18	-39%
84	A3	Abitazione	08:43	04:40	-46%
85	A2	Abitazione in uso	08:01	04:20	-46%
86	C2	Rimessa	08:03	04:22	-46%
87	A2	Abitazione in uso	07:43	04:11	-46%
88	C2	Abitazione in uso	08:06	04:23	-46%
89	A2	Abitazione	15:39	09:57	-36%
90	NC	Tettoia	**95:06**	**60:33**	-36%
91	A3	Abitazione	**37:40**	23:55	-37%
92	NC	Tettoia	**104:04**	**66:16**	-36%
93	NC	Diruto	**57:57**	**36:52**	-36%
94	NC	Magazzino	**81:57**	**52:10**	-36%
96	C2	Rimessa	10:50	05:28	-50%
99	A3	Abitazione	11:21	05:43	-50%
101	A7	Abitazione in uso	24:29	10:40	-56%
102	C2	Magazzino	17:42	07:57	-55%
103	A2	Abitazione in uso	16:34	07:29	-55%
104	C7	Tettoia	18:20	08:16	-55%
105	C2	Magazzino	26:47	11:34	-57%
106	A2	Abitazione in uso	25:31	11:00	-57%
107	A3	Abitazione in uso	**44:07**	19:04	-57%
108	C2	Magazzino	**38:24**	16:34	-57%
109	C2	Magazzino	**38:38**	16:40	-57%
110	A3	Abitazione	**54:43**	23:50	-56%
111	C2	Rimessa	**56:25**	24:37	-56%
112	C2	Rimessa	**53:20**	23:19	-56%
113	NC	Rimessa	**52:46**	22:54	-57%
114	C2	Rimessa	**53:00**	23:07	-56%
131	C2	Diruto	**49:25**	22:27	-55%
132	C2	Rimessa	20:43	11:47	-43%
133	C2	Rimessa	23:47	13:45	-42%
134	C2	Rimessa	23:12	13:07	-43%
135	C2	Rimessa	21:10	11:51	-44%
136	C2	Rimessa	22:38	13:00	-43%
137	C2	Diruto	09:39	04:43	-51%

ID Recettore	Dest. uso catastale	Dest. uso presunta	Shadow Flickering (Ore/Anno)		Riduzione del fenomeno di Shadow Flickering
			Worst Case	Real Case	
138	C2	Rimessa	21:07	09:08	-57%
139	D10	Agricola	09:54	05:24	-45%
140	D10	Agricola	19:57	08:40	-57%
141	D10	Agricola	10:08	05:34	-45%
142	D10	Agricola	10:21	05:40	-45%
143	D10	Agricola	09:44	05:21	-45%
144	D10	Agricola	20:15	08:48	-57%
149	NC	Abitazione non in uso	20:27	08:47	-57%
150	NC	Abitazione non in uso	11:43	05:02	-57%
152	NC	Abitazione	**57:09**	**35:33**	-38%
153	C7	Tettoia	**59:35**	**30:55**	-48%
154	C2	Rimessa	**90:54**	**57:52**	-36%
155	A2	Abitazione	**93:51**	**59:34**	-37%
156	A3	Abitazione in uso	**55:40**	**35:26**	-36%
157	A3	Abitazione	**57:45**	**30:08**	-48%
158	A2	Abitazione	03:20	01:26	-57%
159	A3	Abitazione	**58:50**	**31:06**	-47%
160	A2	Abitazione	24:13	15:28	-36%
161	A2	Abitazione	23:33	15:01	-36%
162	A3	Abitazione in uso	13:33	05:57	-56%
163	F3	Abitazione	19:00	08:10	-57%
164	A3	Abitazione in uso	10:38	05:22	-50%
165	C2	Abitazione in uso	12:57	05:34	-57%
166	A7	Abitazione in uso	28:31	12:17	-57%
180	A7	Abitazione in uso	05:10	02:36	-50%
186	A3	Abitazione in uso	06:07	03:04	-50%
187	C7	Diruto	**104:36**	**47:50**	-54%
188	A7	Abitazione non in uso	15:30	08:24	-46%
189	A3	Abitazione	19:40	12:12	-38%
190	C2	Rimessa	19:42	12:07	-38%
191	C2	Rimessa	21:13	13:23	-37%
192	A7	Abitazione in uso	11:29	06:16	-45%
195	A3	Abitazione in uso	21:48	13:56	-36%
196	A2	Abitazione in uso	22:39	14:27	-36%
197	D10	Agricola	13:56	08:52	-36%
198	NC	Agricola	12:33	07:59	-36%
199	A2	Abitazione in uso	22:58	14:38	-36%
200	D10	Agricola	20:40	13:14	-36%
219	A7	Abitazione in uso	09:33	05:17	-45%

ID Recettore	Dest. uso catastale	Dest. uso presunta	Shadow Flickering (Ore/Anno)		Riduzione del fenomeno di Shadow Flickering
			Worst Case	Real Case	
234	NC	Abitazione in uso	11:24	04:54	-57%
238	A7	Abitazione in uso	15:01	07:34	-50%
243	D10	Agricola	14:21	09:08	-36%
244	A2	Abitazione in uso	14:43	09:21	-36%
246	C7	Tettoia	29:22	18:49	-36%
254	D10	Diruto	**83:15**	**37:20**	-55%
255	D10	Agricola	06:00	03:11	-47%
264	C2	Rimessa	14:25	09:07	-37%
265	A3	Abitazione in uso	10:54	05:30	-50%
275	NC	Abitazione non in uso	24:05	10:21	-57%
277	C2	Rimessa	00:10	00:04	-60%
278	D10	Agricola	**51:55**	**32:12**	-38%
279	C2	Diruto	**98:09**	**62:11**	-37%
280	A3	Abitazione in uso	**63:18**	**40:19**	-36%
290	D10	Agricola	16:51	10:46	-36%
291	D10	Agricola	22:50	14:36	-36%
292	NC	Diruto	06:15	03:08	-50%
293	NC	Rimessa	05:55	02:58	-50%
300	C2	Rimessa	13:51	08:24	-39%
301	C2	Magazzino	15:55	07:16	-54%
302	NC	Rimessa	17:12	07:42	-55%
303	NC	Tettoia	18:58	08:31	-55%
304	F2	Diruto	19:11	08:34	-55%
305	C2	Magazzino	26:26	11:24	-57%
307	C2	Rimessa	**57:59**	25:16	-56%

Abbattimenti dello shadow flickering compresi tra il 40% e il 50% sono stati ottenuti anche per ciascuna turbina in progetto (Tabella 13).

Tabella 13: Durate annuali del fenomeno di shadow flickering indotte da ciascun aerogeneratore sui recettori nelle due modalità simulate e relativo confronto

Aerogeneratore	Shadow Flickering (Ore/Anno)		Riduzione del fenomeno di Shadow Flickering
	Worst Case	Real Case	
MO01	66:17	38:47	-41%
MO02	285:40	153:02	-46%
MO03	111:10	53:18	-52%
MO04	307:14	181:21	-41%
MO05	215:15	114:35	-47%
MO06	516:12	290:03	-44%

7 Conclusioni

Il presente elaborato è stato svolto a supporto del progetto per la realizzazione di un impianto eolico per la produzione di energia da fonte rinnovabile situato a Nord dell'area urbana di Montalto di Castro (VT), ad una distanza di circa 6 km dal centro cittadino, ad una quota che varia da un minimo di circa 30 m s.l.m. ad un massimo di circa 80 m s.l.m. Il progetto prevede la realizzazione di un sistema storage e opere connesse anche nel Comune di Manciano (GR).
Nella relazione è illustrata, previo inquadramento dell'area oggetto di intervento, l'analisi dell'effetto di "*shadow flickering*" indotto dall'impianto eolico in esame effettuata in due modalità: "Worst case" e "Real case con piena operatività dell'impianto".
I risultati dello studio effettuato in modalità "WORST CASE" indicano che il fenomeno di ombreggiamento interessa 138 dei 314 recettori considerati. Per la maggior parte dei recettori l'ombreggiamento indotto dagli aerogeneratori possiede durate inferiori ai limiti annuali e giornalieri, mentre presso 69 recettori si verificano superamenti di tali valori. Nello specifico:

- presso 25 recettori il valore limite annuale di 30 ore viene rispettato, ma viene superato il limite giornaliero (pari a 30 minuti) per pochi minuti, al massimo 10;
- presso 44 recettori si verificano superamenti del limite annuale e giornaliero. Di questi si precisa che 10 edifici sono abitazioni (ID 20, 91, 107, 110, 152, 155, 156, 157, 159, 280), mentre i restanti sono ruderi, locali di deposito, tettoie o edifici uso agricolo dove la presenza di persone è giustificata per scopo lavorativo e, in ogni caso, limitata ad alcune fasce orarie. Il recettore maggiormente interessato dal fenomeno di shadow flickering è il n. 19 (locale di deposito), per il quale è stato ottenuto un valore di ombreggiamento annuale pari a 145:42 ore e massimo giornaliero pari a 01:15 ore, mentre quello ad uso abitativo è il n. 20, situato ad una distanza minima di 558,4 m dall'aerogeneratore MO06, per il quale è stato ottenuto un valore di ombreggiamento annuale pari a 104:07 ore e massimo giornaliero pari a 01:10 ore.

Analizzando le durate totali del fenomeno di shadow flickering indotte da ciascun aerogeneratore in progetto, risulta che:

- la maggior parte degli aerogeneratori producono fenomeni di ombreggiamento per durate superiori a 200 h/anno, ad eccezione delle turbine MO01 e MO03 a cui sono associate durate del fenomeno in esame pari a 66:17 h/anno e 111:10 h/anno rispettivamente;
- i recettori maggiormente impattati dagli aerogeneratori MO01 e MO02 risultano essere tutti edifici ad uso agricolo o diruti;
- gli aerogeneratori MO04 e MO06 causano i maggiori fenomeni di ombreggiamento, con durate rispettivamente pari a 307:14 h/anno e 516:12 h/anno.

Le durate di shadow flickering ottenute nel "Real Case con piena operatività dell'impianto" si sono ridotte presso tutti i recettori con percentuali variabili tra il 35 e il 60%. I risultati mostrano che, rispetto alla modalità "Worst case", il numero di recettori presso cui si verifica il superamento del limite annuale di 30 ore si riduce da 44 a 27. Di questi si precisa che 7 edifici (ID 20, 152, 155, 156, 157, 159 e 280) sono adibiti a civile abitazione, mentre i restanti

sono ruderi, locali di deposito, tettoie o edifici uso agricolo dove la presenza di persone è giustificata per scopo lavorativo e, in ogni caso, limitata ad alcune fasce orarie.
Abbattimenti dello shadow flickering compresi tra il 40% e il 50% sono invece stati ottenuti per ciascuna turbina in progetto.
È opportuno sottolineare che i risultati ottenuti nella modalità "Real Case con piena operatività dell'impianto", anche se più realistici rispetto a quelli ottenuti nella modalità "Worst Case", non sono ancora pienamente rappresentativi dell'effettivo fenomeno di ombreggiamento che si ottiene nella realtà, in quanto i recettori sono stati considerati esposti al fenomeno in maniera omnidirezionale (modalità "green house") ed è stata trascurata l'effettiva operatività dell'impianto nell'arco dell'anno in funzione della direzione del vento e la presenza di eventuali ostacoli (alberi, ecc.) che possono ridurre o annullare l'effetto di shadow flickering.

Inoltre, va sottolineato che il reale disturbo del fenomeno è fortemente legato alla velocità di rotazione del rotore delle turbine. Gli aerogeneratori dell'impianto in esame hanno una velocità di rotazione massima pari a 12,1 giri/minuto, valore nettamente inferiore alla soglia di 60 rpm che rappresenta la frequenza massima raccomandata al fine di ridurre al minimo i fastidi e soddisfare le condizioni di benessere.

In conclusione, in base alle considerazioni sopra riportate, l'effetto dello shadow flickering causato dagli aerogeneratori in progetto nei confronti dei ricettori presenti nelle medesime aree può essere considerato di media-bassa entità.

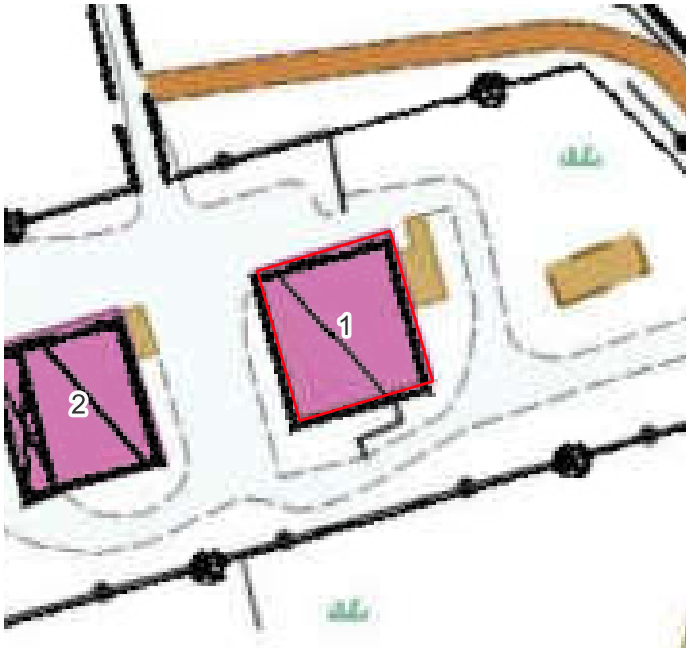
Allegato 1

Schede dei recettori censiti

RECETTORE n° 1

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703312.338
	X 220074.566
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	109
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO02
Distanza minima dalla WTG (m)	626.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

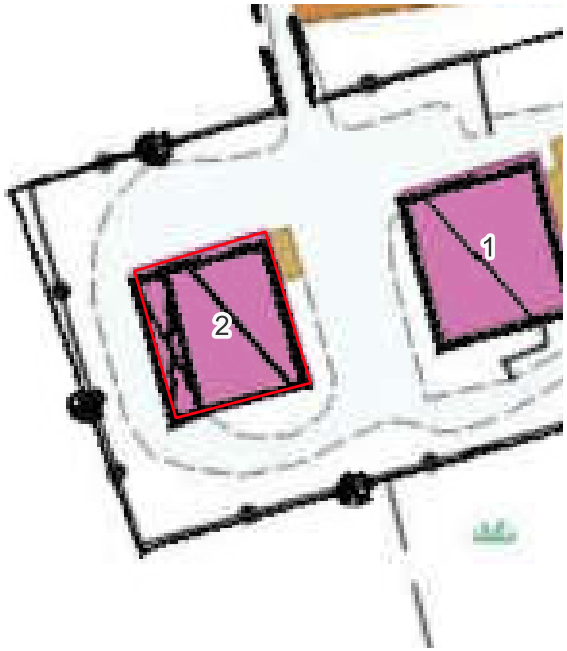
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**109:47**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:04**
Real Case - Ombreggiamento Ore/anno	**68:44**	**Worst Case - Ombreggiamento Giorni/anno**	**154**

RECETTORE n° 2

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703302.054
	X 220039.062
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	107
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO02
Distanza minima dalla WTG (m)	595.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

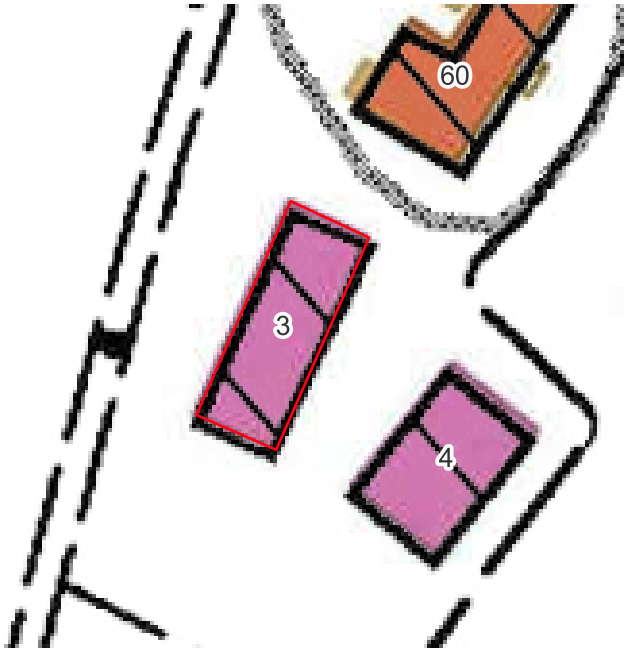
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**127:37**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:08**
Real Case - Ombreggiamento Ore/anno	**80:15**	**Worst Case - Ombreggiamento Giorni/anno**	**150**

RECETTORE n° 3

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4705130.167
	X 218269.922
Comune	Manciano
Foglio catastale	0269
Particella catastale	133
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO01
Distanza minima dalla WTG (m)	1672.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

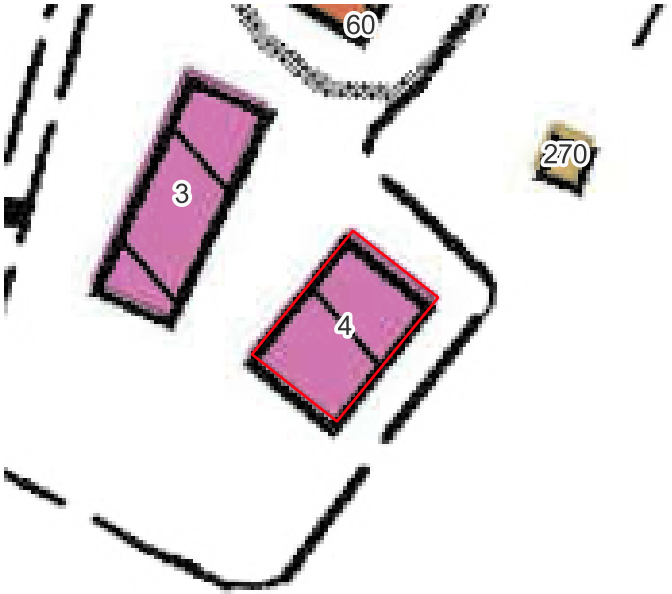
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 4

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4705112.683
	X 218291.505
Comune	Manciano
Foglio catastale	0269
Particella catastale	119
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO01
Distanza minima dalla WTG (m)	1651.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

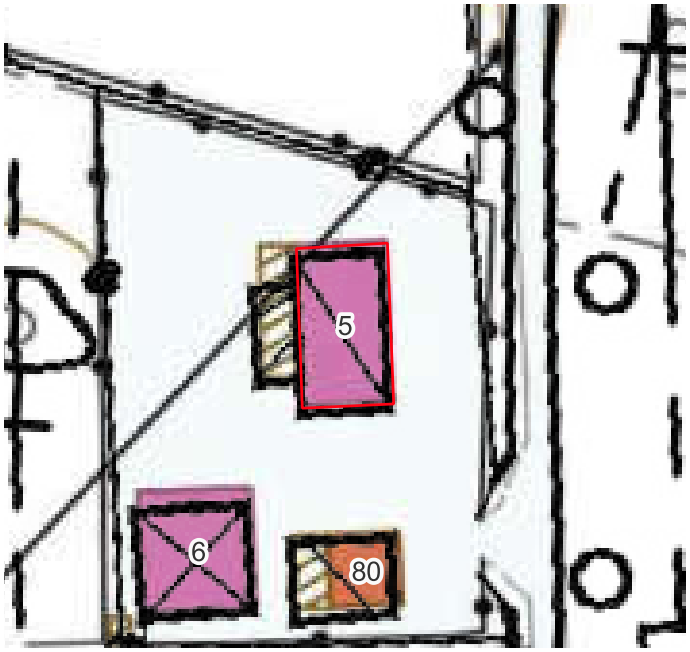
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 5

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703241.094
	X 213904.793
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	615
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1613.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

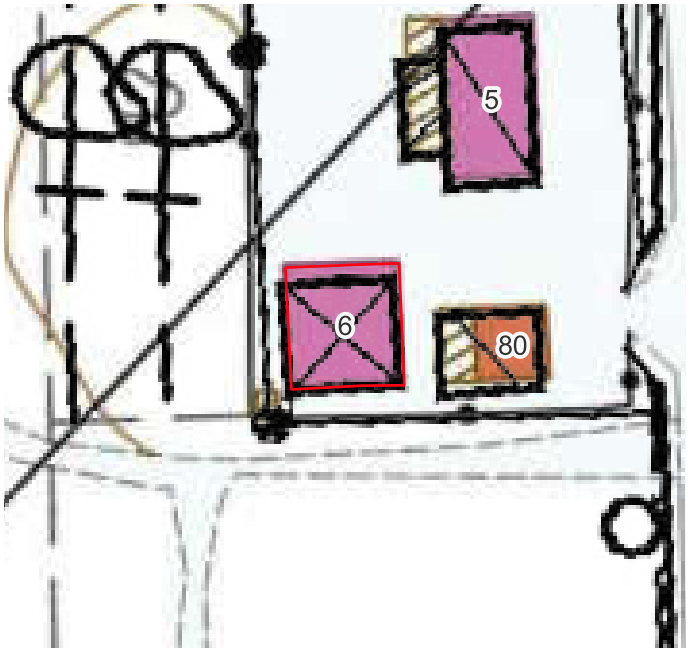
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 6

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703211.171
	X 213885.413
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	616
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1607.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

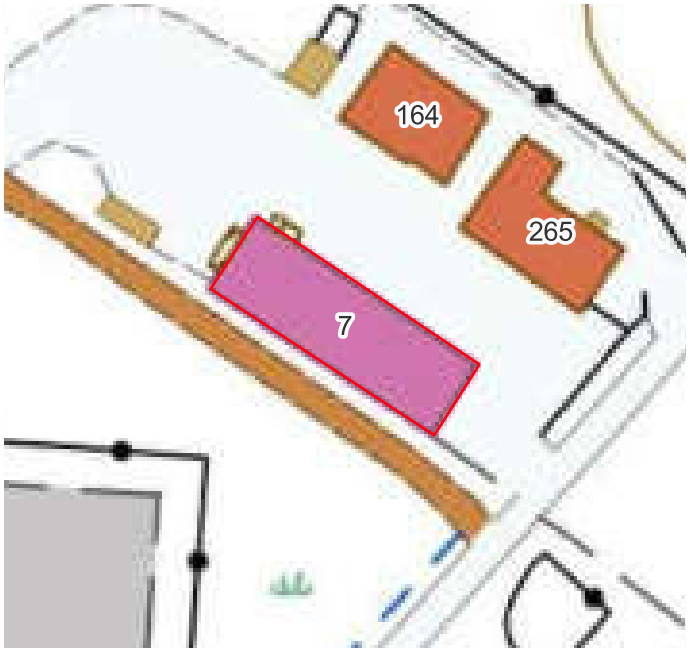
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**04:49**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:16**
Real Case - Ombreggiamento Ore/anno	**02:04**	**Worst Case - Ombreggiamento Giorni/anno**	**24**

RECETTORE n° 7

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702627.269
	X 213682.347
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	498
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1457.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**10:29**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**05:17**	**Worst Case - Ombreggiamento Giorni/anno**	**36**

RECETTORE n° 8

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702680.165
	X 213612.818
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	498
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1548

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**09:30**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**04:48**	**Worst Case - Ombreggiamento Giorni/anno**	**35**

RECETTORE n° 9

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701704.935
	X 213570.061
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	576
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1529.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**14:05**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:27**
Real Case - Ombreggiamento Ore/anno	**08:50**	**Worst Case - Ombreggiamento Giorni/anno**	**46**

RECETTORE n° 10

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702364.347
	X 213555.246
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	491
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1515.6

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**09:09**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**04:50**	**Worst Case - Ombreggiamento Giorni/anno**	**33**

RECETTORE n° 11

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701506.961
	X 214181.017
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1032.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 12

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701771.664
	X 214429.666
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	340
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	690.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

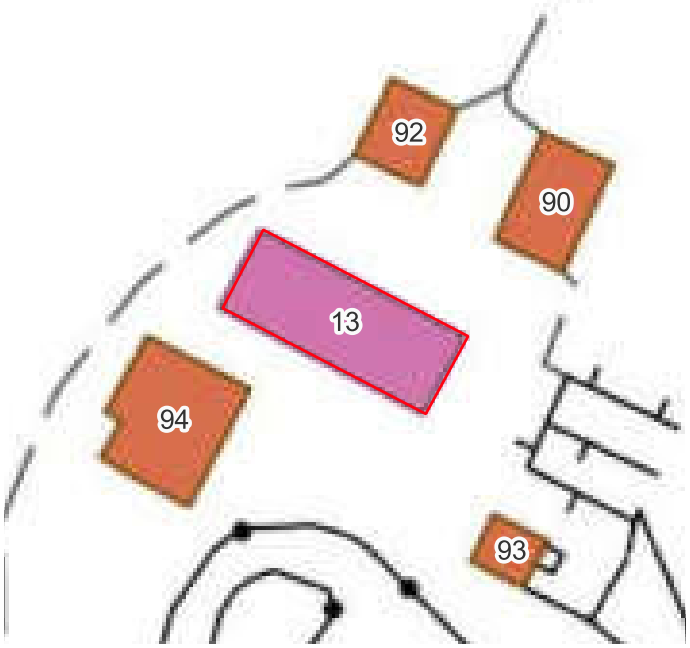
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**23:13**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:40**
Real Case - Ombreggiamento Ore/anno	**14:42**	**Worst Case - Ombreggiamento Giorni/anno**	**44**

RECETTORE n° 13

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701885.319
	X 214502.752
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	342
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	581.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

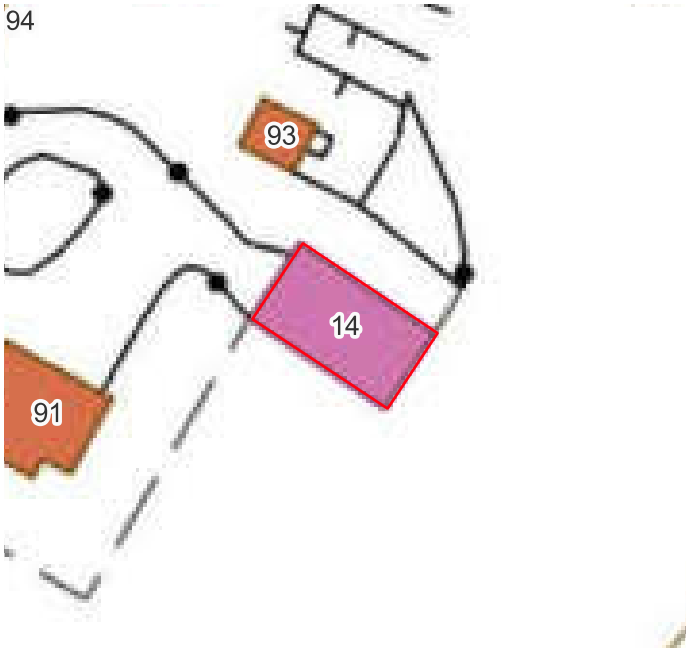
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**87:38**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:10**
Real Case - Ombreggiamento Ore/anno	**55:48**	**Worst Case - Ombreggiamento Giorni/anno**	**90**

RECETTORE n° 14

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701829.864
	X 214533.226
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	342
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	580.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**31:26**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:48**
Real Case - Ombreggiamento Ore/anno	**19:56**	**Worst Case - Ombreggiamento Giorni/anno**	**49**

RECETTORE n° 15

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701478.866
	X 214266.571
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	990.7

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 16

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701459.437
	X 214207.922
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1051.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

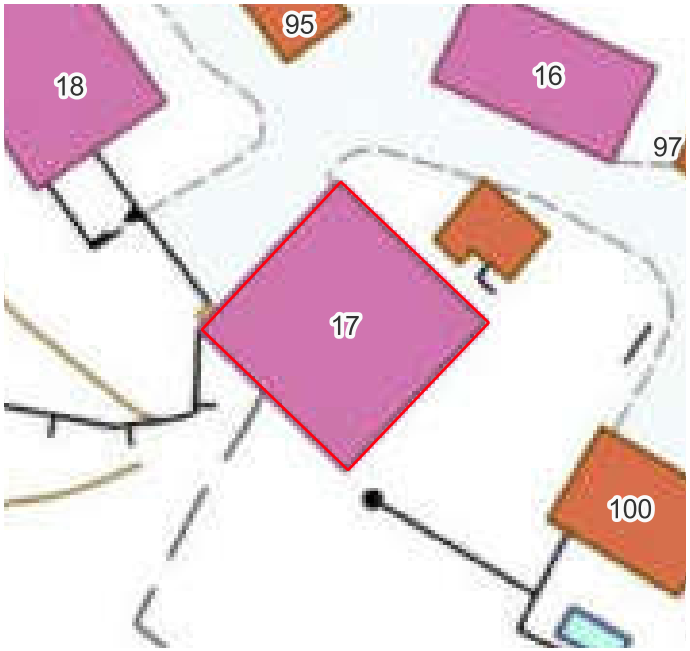
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 17

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701426.069
	X 214181.266
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1089.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

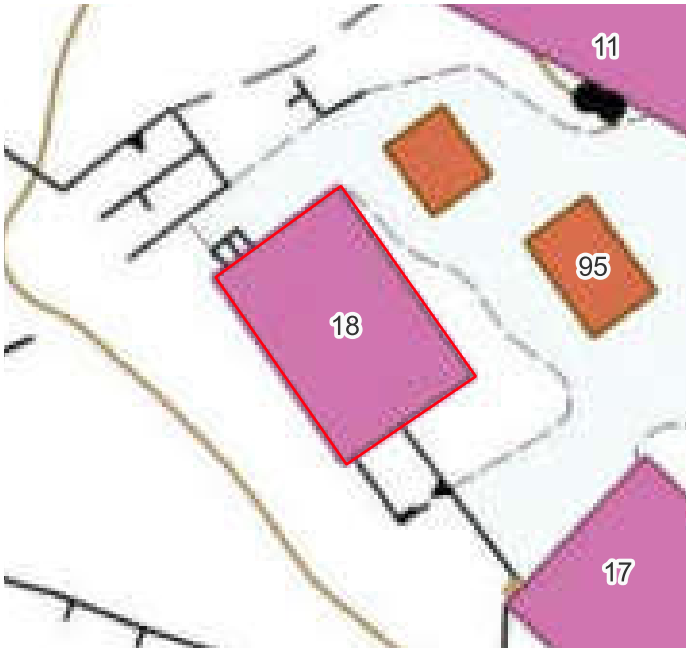
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 18

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701462.365
	X 214140.666
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1106.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

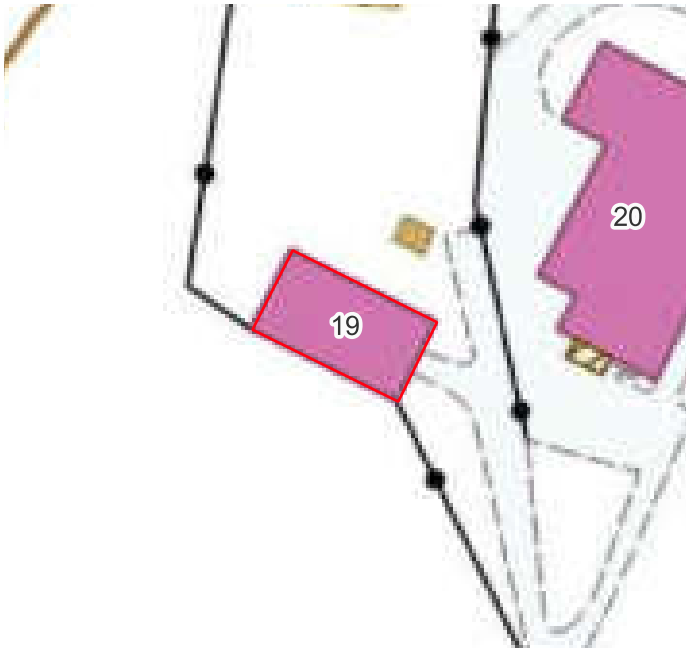
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 19

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701984.826
	X 215583.958
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	222
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	522.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

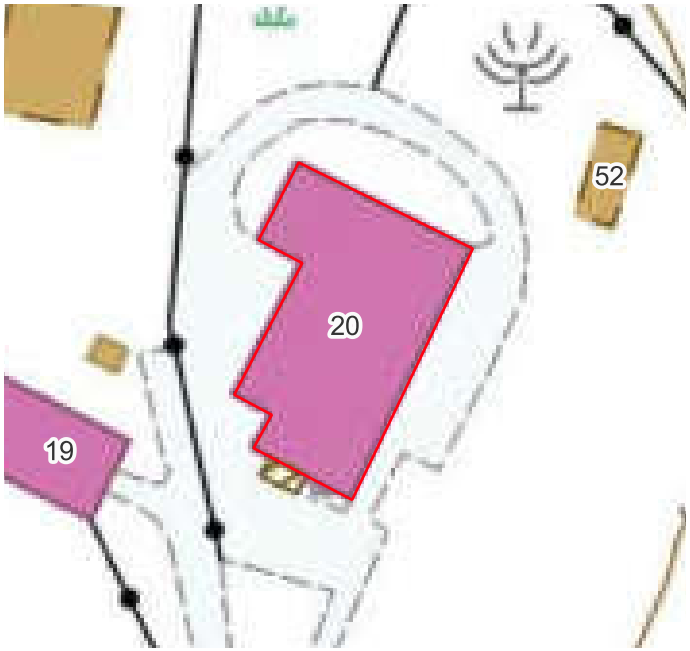
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**145:42**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:15**
Real Case - Ombreggiamento Ore/anno	**90:56**	**Worst Case - Ombreggiamento Giorni/anno**	**150**

RECETTORE n° 20

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702000.524
	X 215624.382
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	157
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	558.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

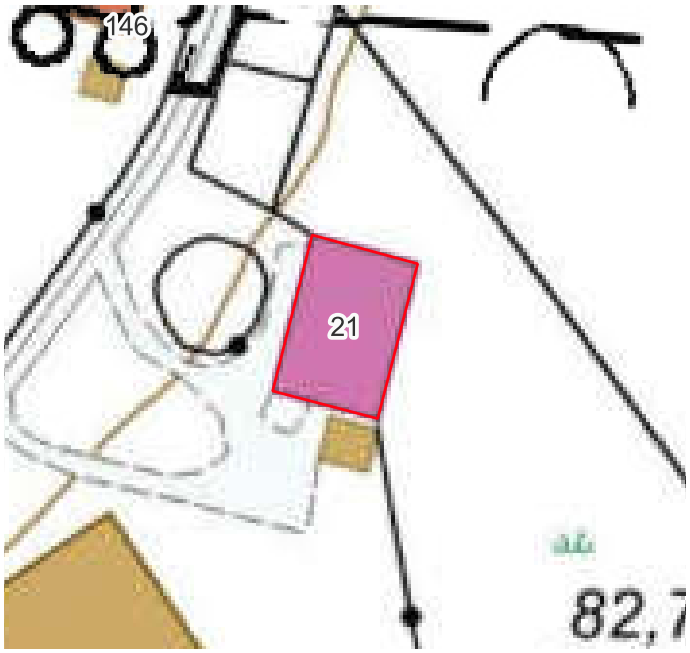
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**104:07**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:10**
Real Case - Ombreggiamento Ore/anno	**63:49**	**Worst Case - Ombreggiamento Giorni/anno**	**121**

RECETTORE n° 21

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702453.343
	X 219594.842
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	18
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	1028

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

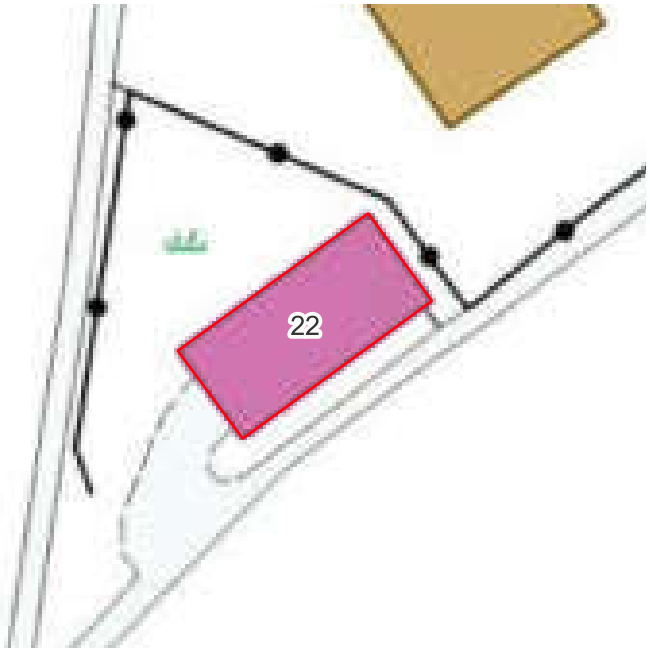
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 22

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702351.054
	X 219549.423
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	190
Destinazione d'uso (catastale)	C7
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1010.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 23

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702460.573
	X 219489.369
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	104
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	1014.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

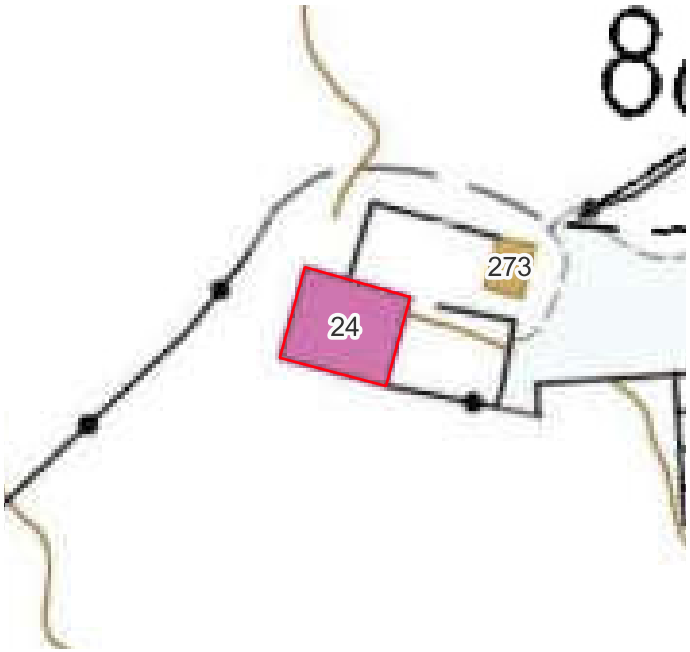
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 24

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702476.031
	X 219435.738
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	104
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	1001.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 25

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701204.587
	X 219149.671
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	158
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	178.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

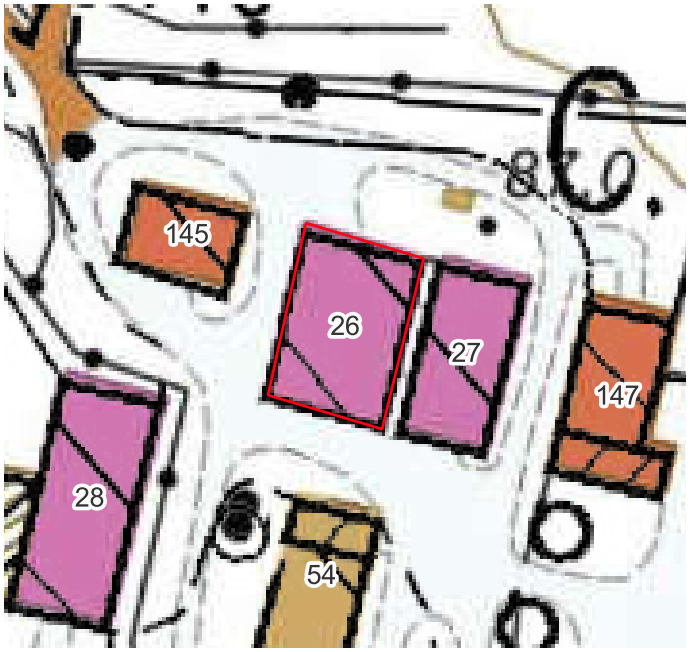
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**12:53**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:29**
Real Case - Ombreggiamento Ore/anno	**06:57**	**Worst Case - Ombreggiamento Giorni/anno**	**36**

RECETTORE n° 26

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702579.659
	X 219564.852
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	18
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	897.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 27

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702576.098
	X 219580.894
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	18
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO02
Distanza minima dalla WTG (m)	904.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

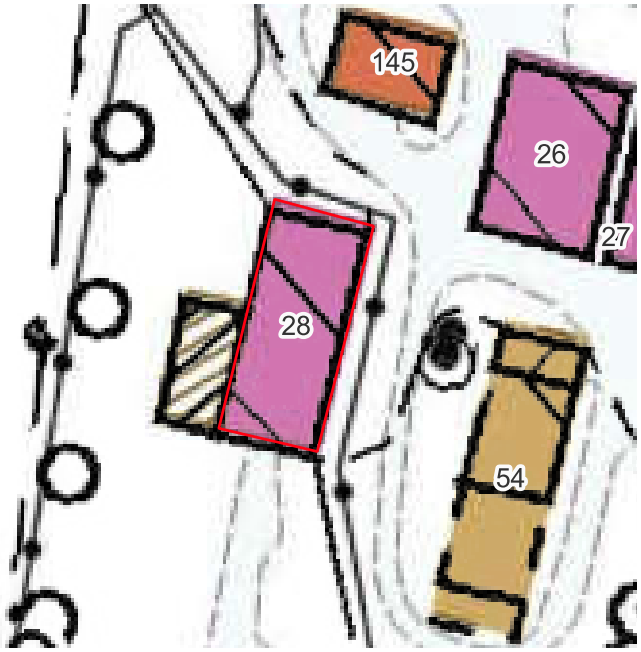
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 28

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702556.942
	X 219531.034
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	104
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	914

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

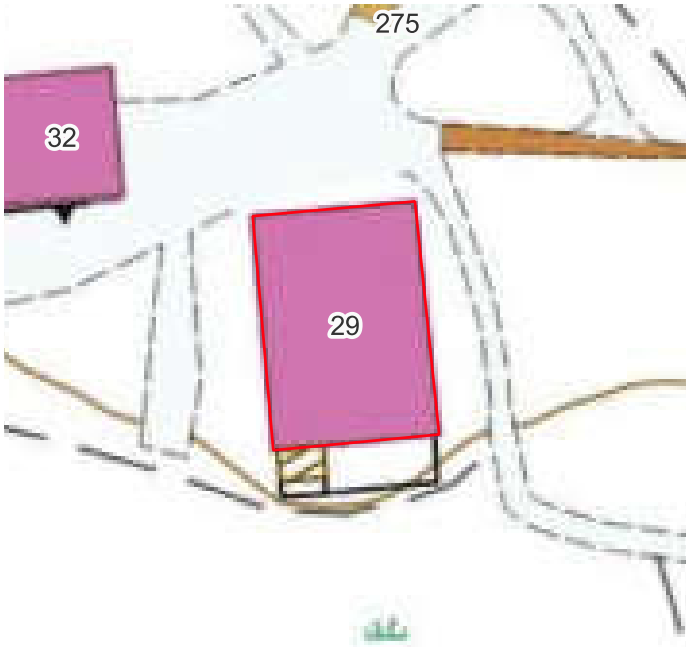
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 29

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702064.919
	X 220019.526
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	200
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1056.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**34:35**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:40**
Real Case - Ombreggiamento Ore/anno	**14:55**	**Worst Case - Ombreggiamento Giorni/anno**	**62**

RECETTORE n° 30

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702213.915
	X 219862.887
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	194
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Diruto
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1050.7

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

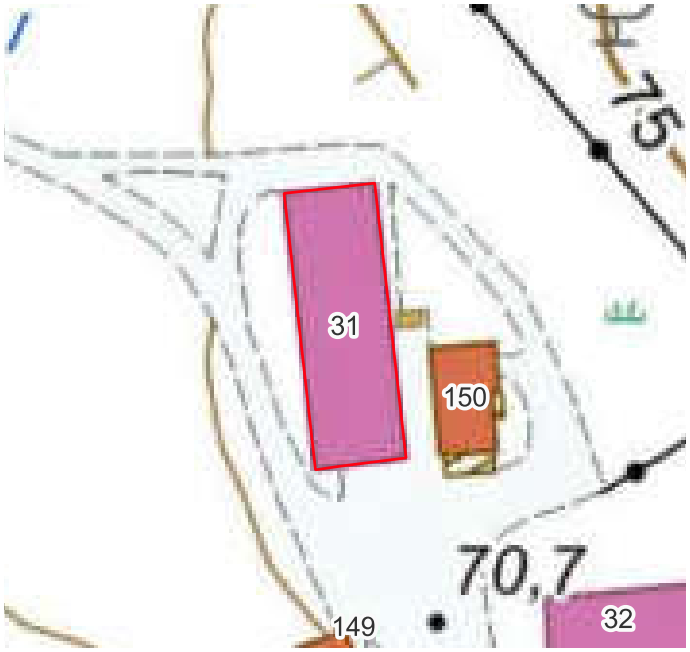
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 31

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702132.884
	X 219939.391
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	194
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1043.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

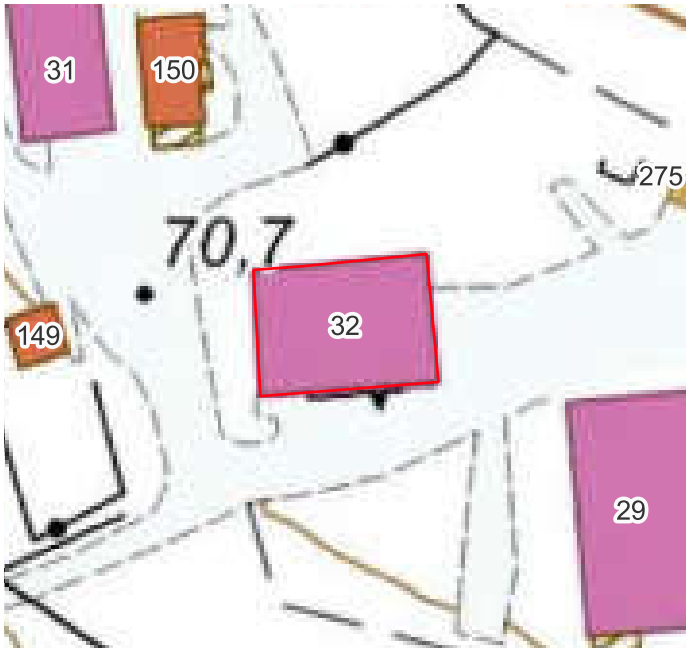
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**06:30**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:20**
Real Case - Ombreggiamento Ore/anno	**02:48**	**Worst Case - Ombreggiamento Giorni/anno**	**24**

RECETTORE n° 32

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702089.573
	X 219977.955
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	199
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1043.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

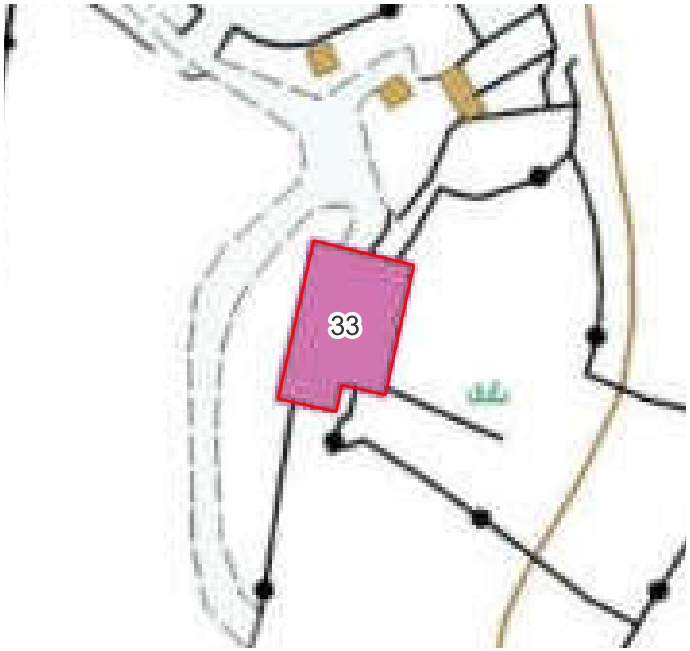
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**24:32**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:36**
Real Case - Ombreggiamento Ore/anno	**10:33**	**Worst Case - Ombreggiamento Giorni/anno**	**50**

RECETTORE n° 33

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701026.952
	X 221312.18
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	71
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO04
Distanza minima dalla WTG (m)	801.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**39:30**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:49**
Real Case - Ombreggiamento Ore/anno	**21:48**	**Worst Case - Ombreggiamento Giorni/anno**	**62**

RECETTORE n° 34

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701094.274
	X 221156.079
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	59
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	646.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**58:34**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:59**
Real Case - Ombreggiamento Ore/anno	**31:28**	**Worst Case - Ombreggiamento Giorni/anno**	**76**

RECETTORE n° 35

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699896.018
	X 217267.294
Comune	Montalto di Castro
Foglio catastale	0018
Particella catastale	138
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Agricola
WTG più vicina	MO05
Distanza minima dalla WTG (m)	481.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

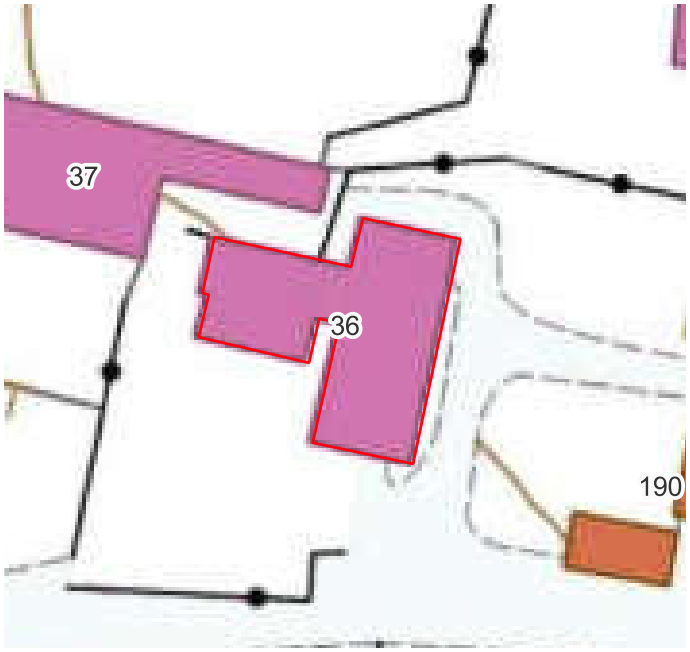
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 36

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699932.648
	X 218027.943
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	271
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1130.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

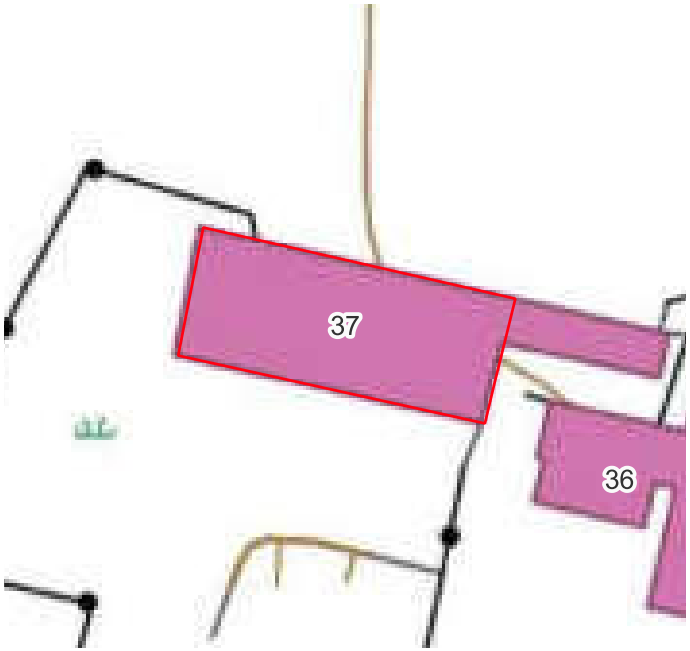
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**21:57**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:35**
Real Case - Ombreggiamento Ore/anno	**13:30**	**Worst Case - Ombreggiamento Giorni/anno**	**56**

RECETTORE n° 37

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699954.425
	X 217983.2
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	271
Destinazione d'uso (catastale)	C7
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1079.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

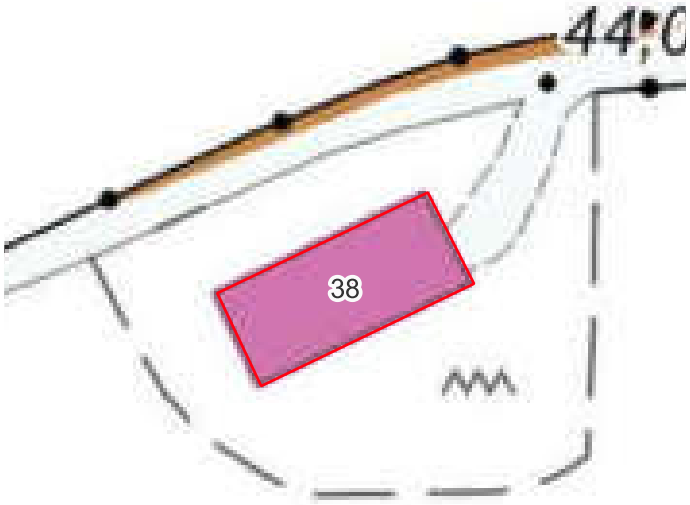
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**24:11**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:37**
Real Case - Ombreggiamento Ore/anno	**14:50**	**Worst Case - Ombreggiamento Giorni/anno**	**58**

RECETTORE n° 38

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699824.438
	X 217863.218
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	274
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1018.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

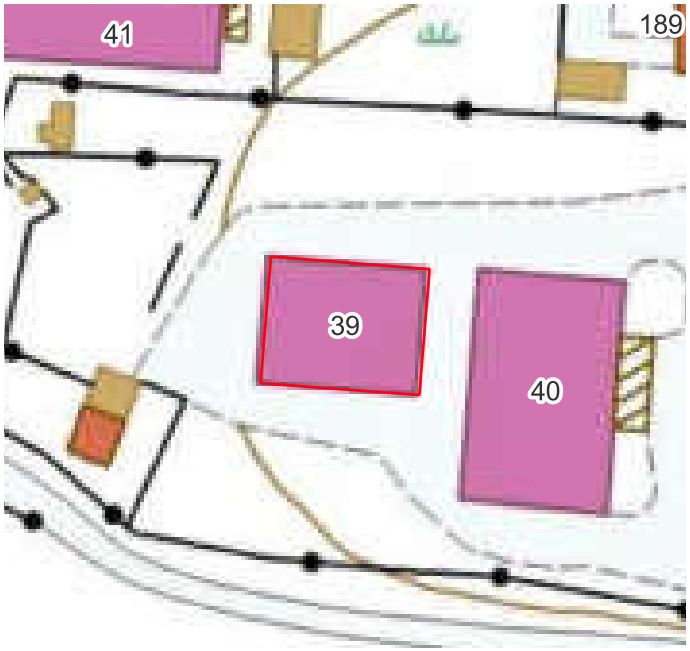
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**52:53**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:41**
Real Case - Ombreggiamento Ore/anno	**33:42**	**Worst Case - Ombreggiamento Giorni/anno**	**98**

RECETTORE n° 39

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699840.652
	X 218041.202
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	279
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1179.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

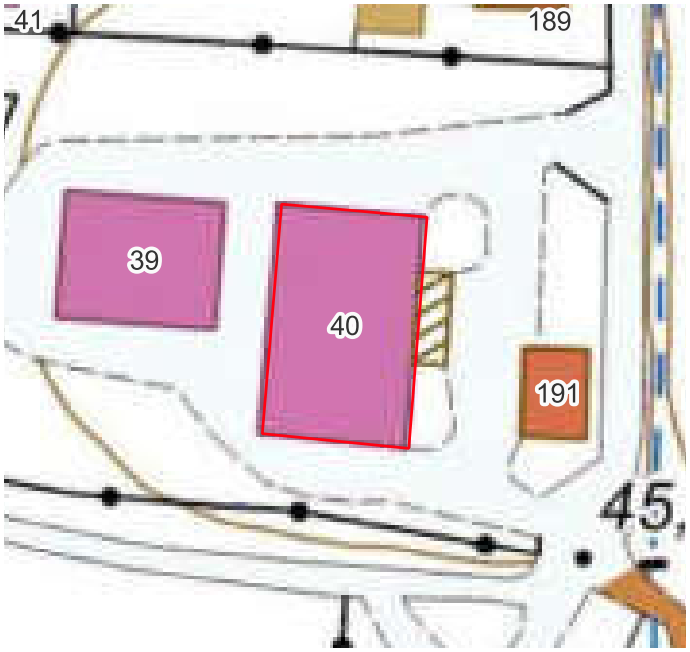
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**24:36**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:34**
Real Case - Ombreggiamento Ore/anno	**15:32**	**Worst Case - Ombreggiamento Giorni/anno**	**64**

RECETTORE n° 40

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699832.003
	X 218067.759
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	279
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1206.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

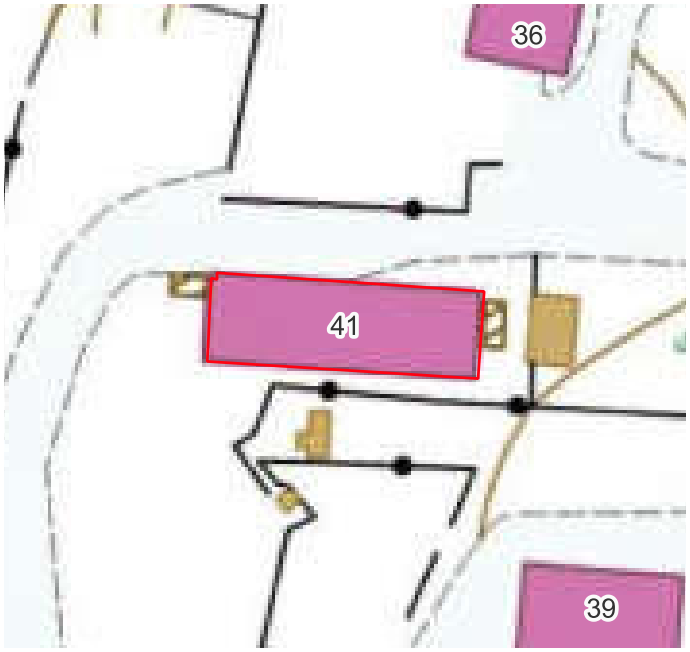
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**22:49**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:33**
Real Case - Ombreggiamento Ore/anno	**14:24**	**Worst Case - Ombreggiamento Giorni/anno**	**62**

RECETTORE n° 41

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699881.309
	X 218007.283
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	271
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1127.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**25:12**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:35**
Real Case - Ombreggiamento Ore/anno	**15:48**	**Worst Case - Ombreggiamento Giorni/anno**	**63**

RECETTORE n° 42

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700408.917
	X 218883.805
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	134
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1003.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

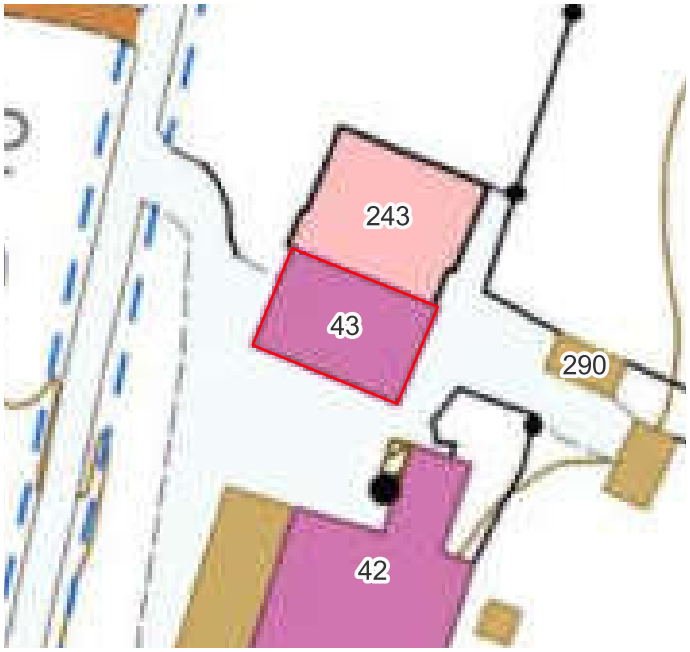
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**17:04**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**10:56**	**Worst Case - Ombreggiamento Giorni/anno**	**62**

RECETTORE n° 43

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700446.175
	X 218880.372
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	134
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	983.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**14:44**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**09:23**	**Worst Case - Ombreggiamento Giorni/anno**	**53**

RECETTORE n° 44

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699823.193
	X 221609.917
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	205
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1617.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 45

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699837.978
	X 221571.112
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	204
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1578.7

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 46

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699857.012
	X 221560.024
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	203
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1560.6

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 47

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699757.584
	X 221542.074
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	146
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1621.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 48

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700146.879
	X 221803.246
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	211
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1553.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**01:43**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:06**
Real Case - Ombreggiamento Ore/anno	**01:03**	**Worst Case - Ombreggiamento Giorni/anno**	**22**

RECETTORE n° 49

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703533.138
	X 215554.903
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	407
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1505.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

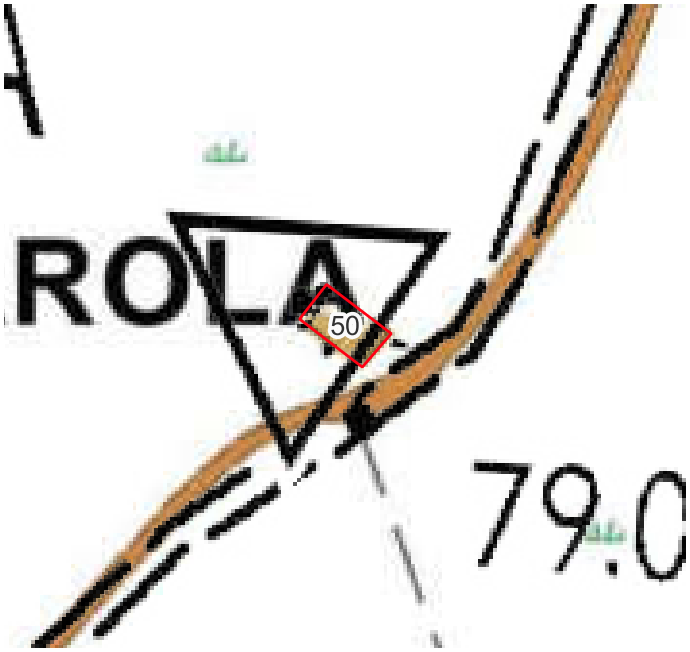
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 50

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703152.029
	X 218090.466
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	5
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Diruto
WTG più vicina	MO01
Distanza minima dalla WTG (m)	887

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

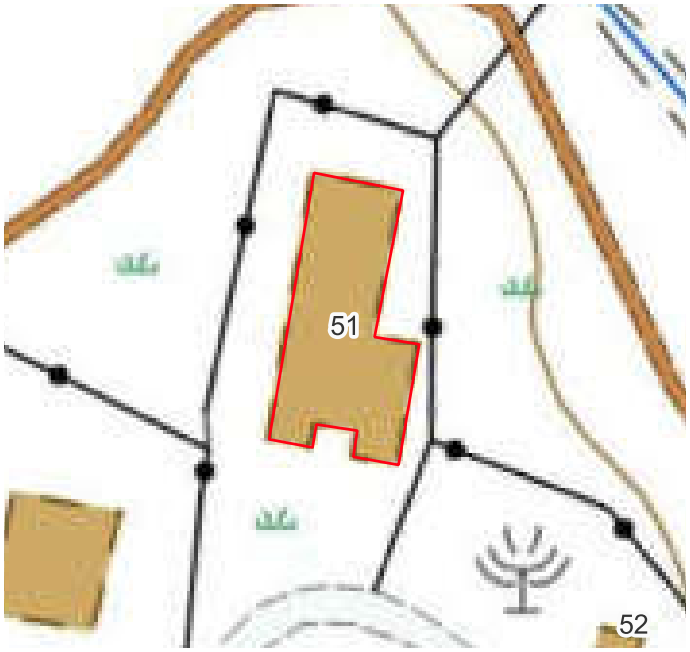
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**38:57**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:35**
Real Case - Ombreggiamento Ore/anno	**24:31**	**Worst Case - Ombreggiamento Giorni/anno**	**99**

RECETTORE n° 51

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702066.923
	X 215624.265
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	157
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	555

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

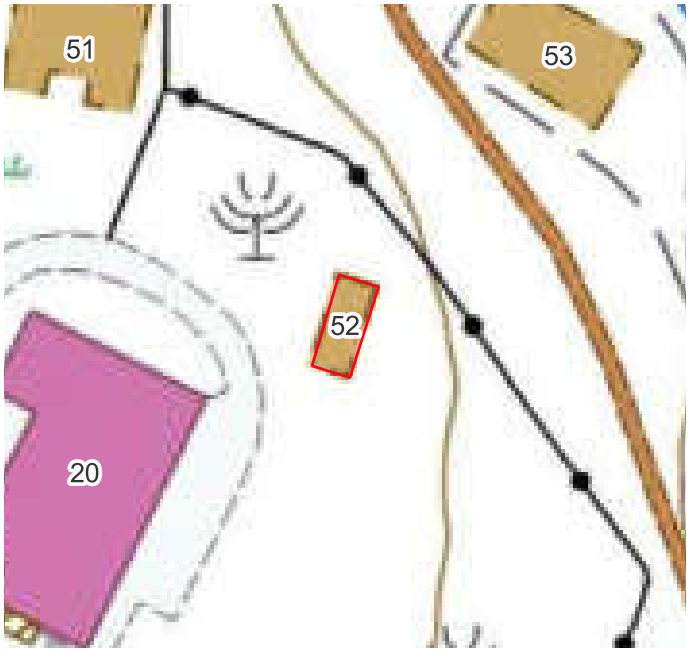
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**87:44**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:09**
Real Case - Ombreggiamento Ore/anno	**51:12**	**Worst Case - Ombreggiamento Giorni/anno**	**99**

RECETTORE n° 52

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702020.335
	X 215659.36
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	157
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO06
Distanza minima dalla WTG (m)	599.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**83:47**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:06**
Real Case - Ombreggiamento Ore/anno	**50:16**	**Worst Case - Ombreggiamento Giorni/anno**	**100**

RECETTORE n° 53

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702056.355
	X 215687.459
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	156
Destinazione d'uso (catastale)	F2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO06
Distanza minima dalla WTG (m)	616

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

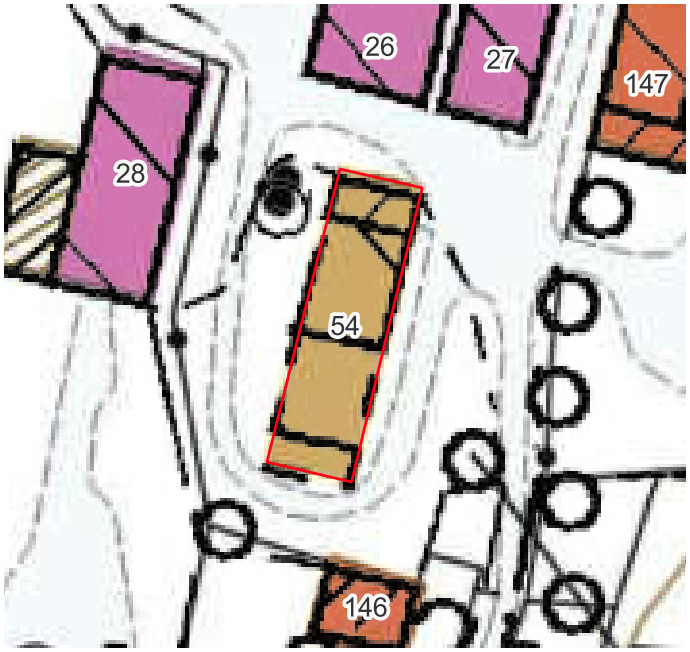
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**70:57**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:03**
Real Case - Ombreggiamento Ore/anno	**41:18**	**Worst Case - Ombreggiamento Giorni/anno**	**88**

RECETTORE n° 54

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702536.783
	X 219559.422
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	18
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO02
Distanza minima dalla WTG (m)	932.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 55

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700758.549
	X 221152.996
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	57
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO04
Distanza minima dalla WTG (m)	688.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**96:44**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:00**
Real Case - Ombreggiamento Ore/anno	**61:31**	**Worst Case - Ombreggiamento Giorni/anno**	**110**

RECETTORE n° 56

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701176.895
	X 221177.329
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	11
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Diruto
WTG più vicina	MO04
Distanza minima dalla WTG (m)	683.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

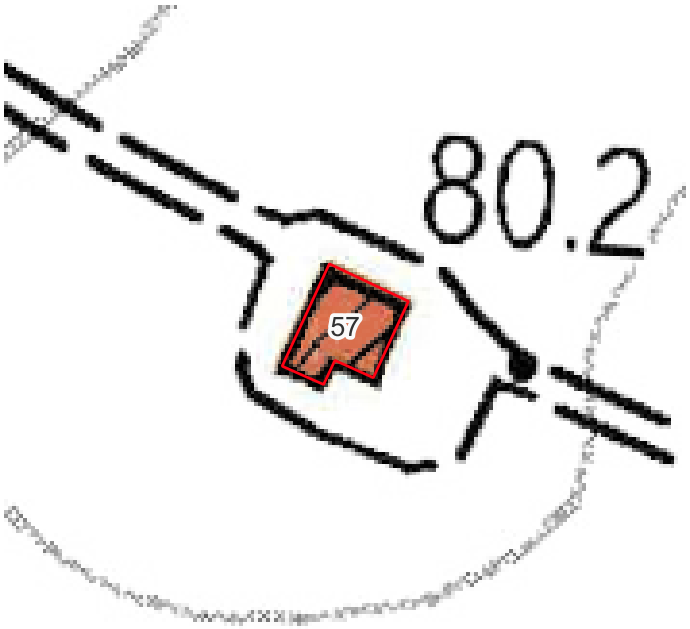
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**53:42**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:56**
Real Case - Ombreggiamento Ore/anno	**27:48**	**Worst Case - Ombreggiamento Giorni/anno**	**73**

RECETTORE n° 57

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4704082.661
	X 218900.853
Comune	Manciano
Foglio catastale	0269
Particella catastale	117
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO01
Distanza minima dalla WTG (m)	516.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

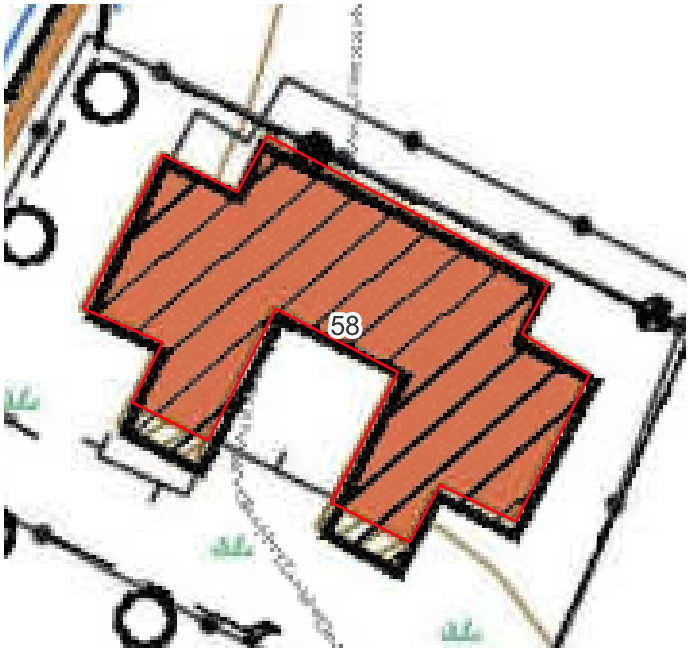
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**54:07**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:52**
Real Case - Ombreggiamento Ore/anno	**23:24**	**Worst Case - Ombreggiamento Giorni/anno**	**74**

RECETTORE n° 58

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703530.884
	X 217412.693
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	180
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO01
Distanza minima dalla WTG (m)	1439.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

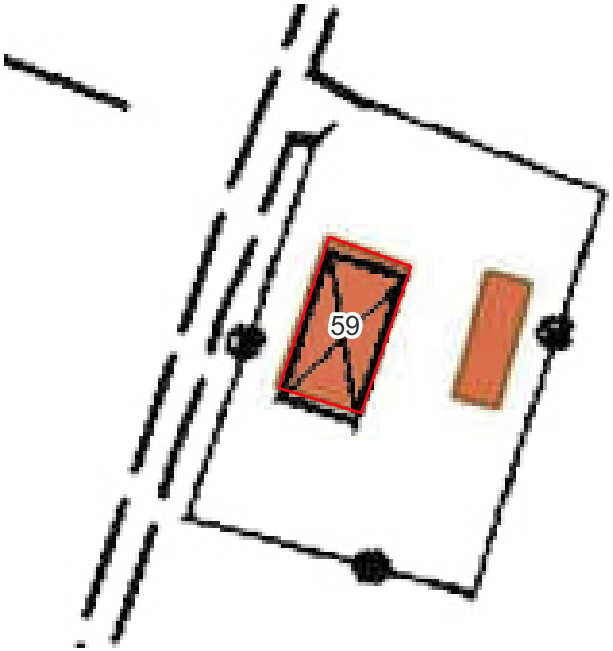
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**10:34**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**05:54**	**Worst Case - Ombreggiamento Giorni/anno**	**36**

RECETTORE n° 59

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4704657.001
	X 218122.569
Comune	Manciano
Foglio catastale	0269
Particella catastale	130
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO01
Distanza minima dalla WTG (m)	1326

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

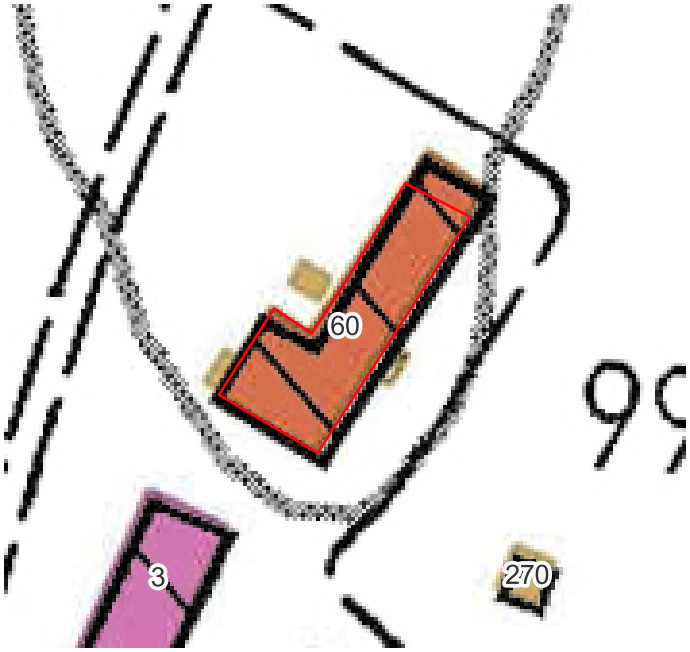
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**10:37**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:21**
Real Case - Ombreggiamento Ore/anno	**04:33**	**Worst Case - Ombreggiamento Giorni/anno**	**38**

RECETTORE n° 60

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4705168.36
	X 218296.563
Comune	Manciano
Foglio catastale	0269
Particella catastale	139
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO01
Distanza minima dalla WTG (m)	1698.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

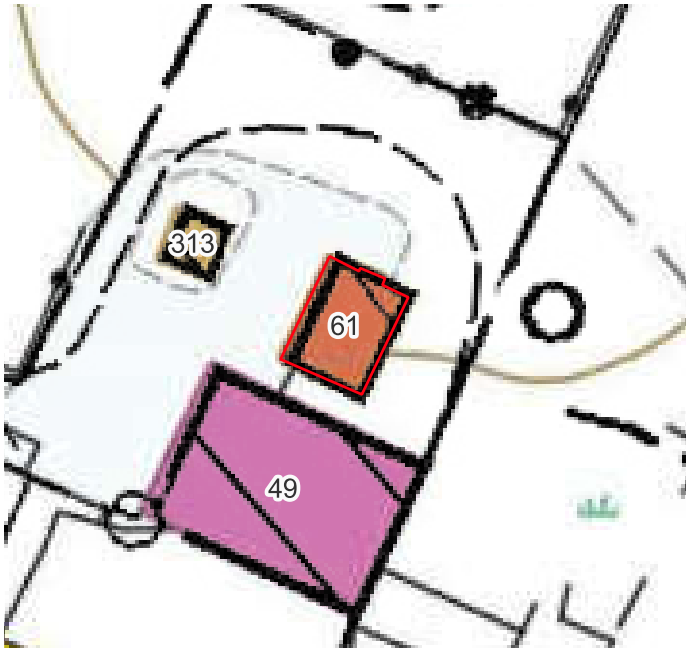
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 61

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703554.681
	X 215563.136
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	660
Destinazione d'uso (catastale)	C7
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1533.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 62

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703368.394
	X 215148.691
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	328
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Deposito/Box
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1268.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 63

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703585.355
	X 215253.093
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	189
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1494.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

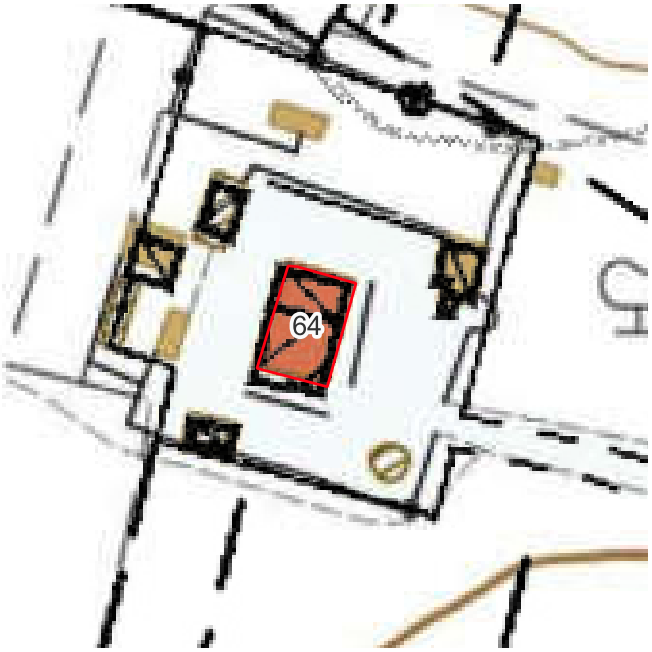
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 64

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703802.777
	X 215203.314
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	544
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1703.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

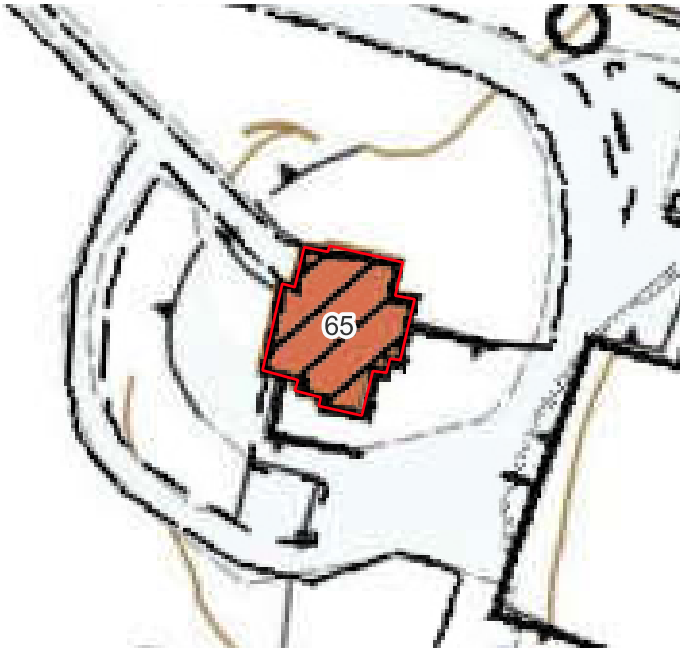
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 65

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703222.929
	X 215097.993
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	300
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1114.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

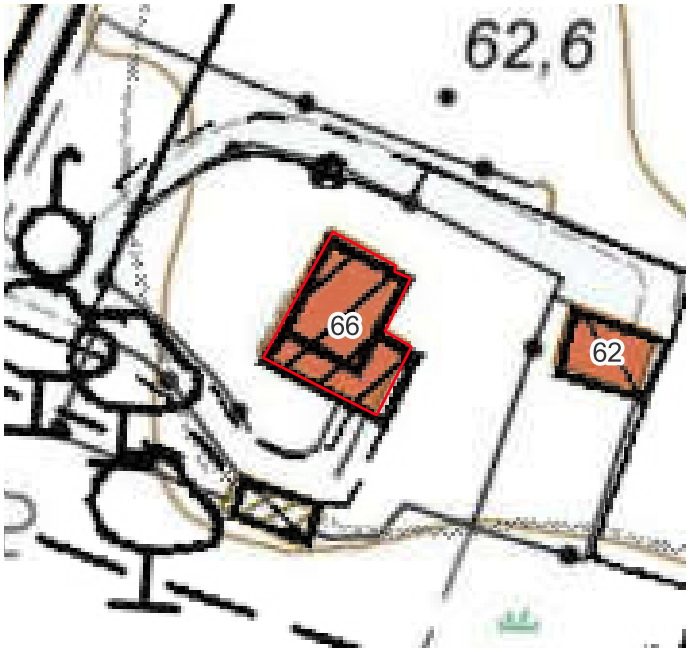
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 66

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703371.928
	X 215113.978
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	79
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1264.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 67

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703409.169
	X 214417.678
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	324
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1454.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 68

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703434.552
	X 214435.123
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	321
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1469.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

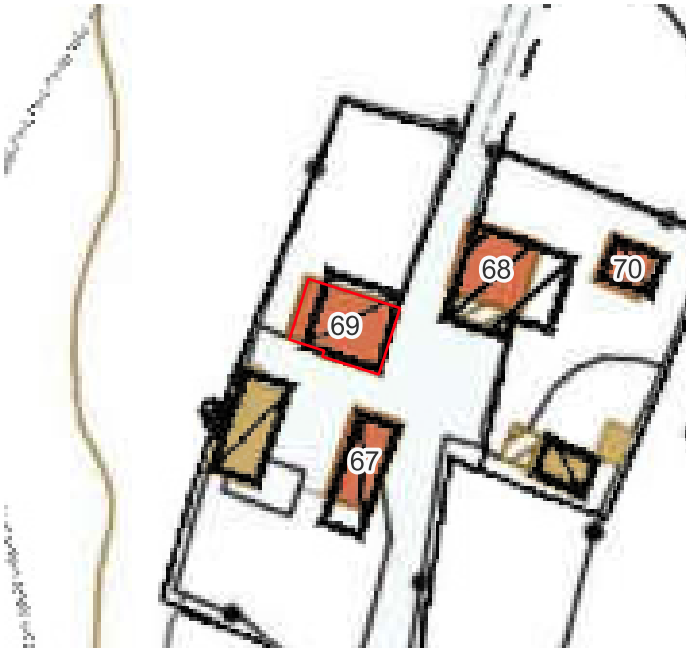
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 69

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703427.092
	X 214415.083
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	319
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1470.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

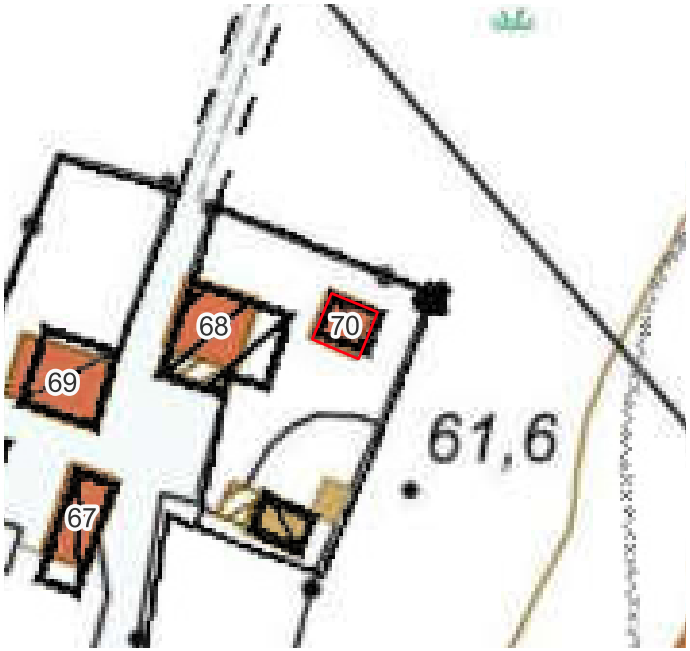
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 70

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703434.615
	X 214452.49
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	486
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1464.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

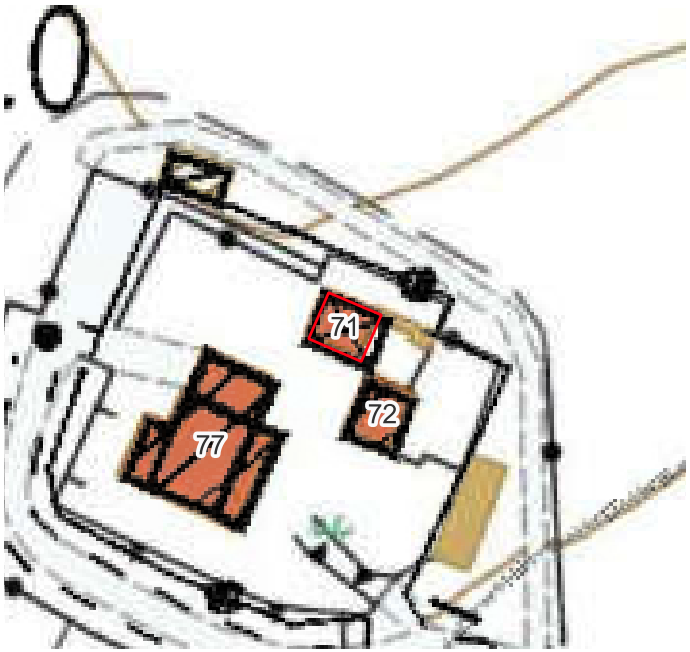
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 71

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703374.516
	X 214893.54
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	75
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1283.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

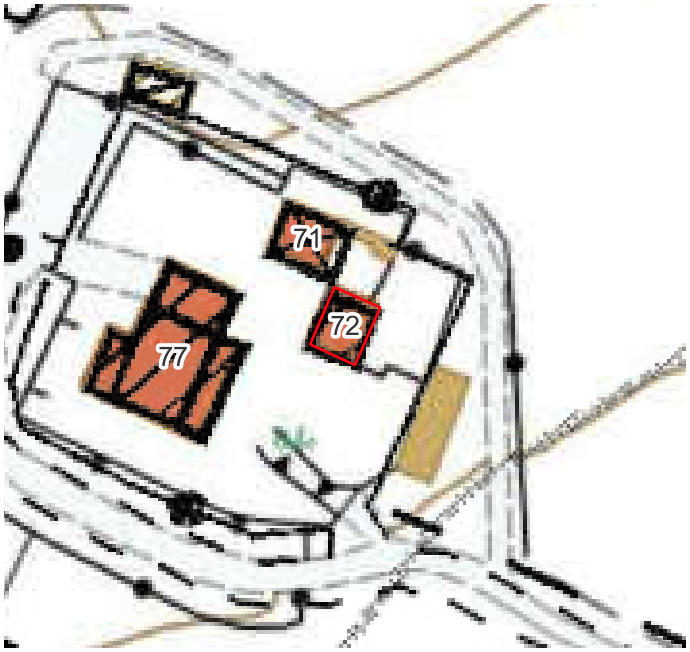
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 72

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703362.96
	X 214898.481
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	75
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1270.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

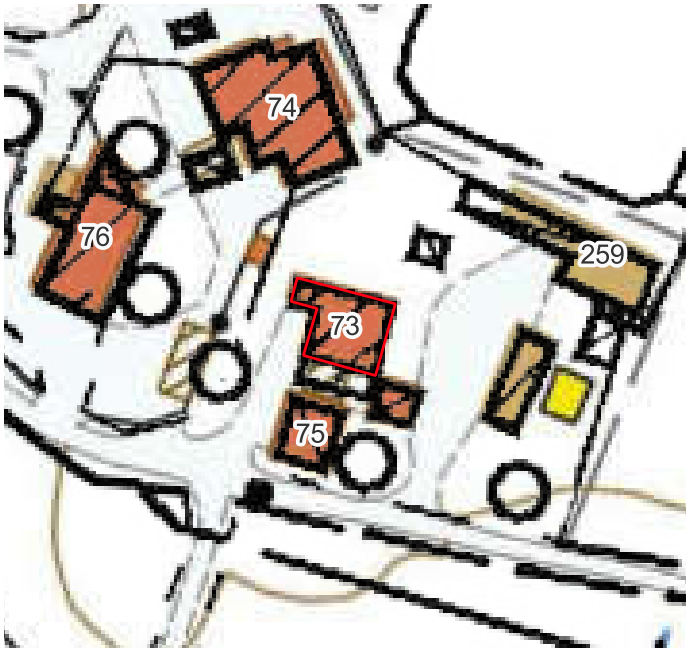
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 73

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703545.108
	X 214472.513
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	69
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1554.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

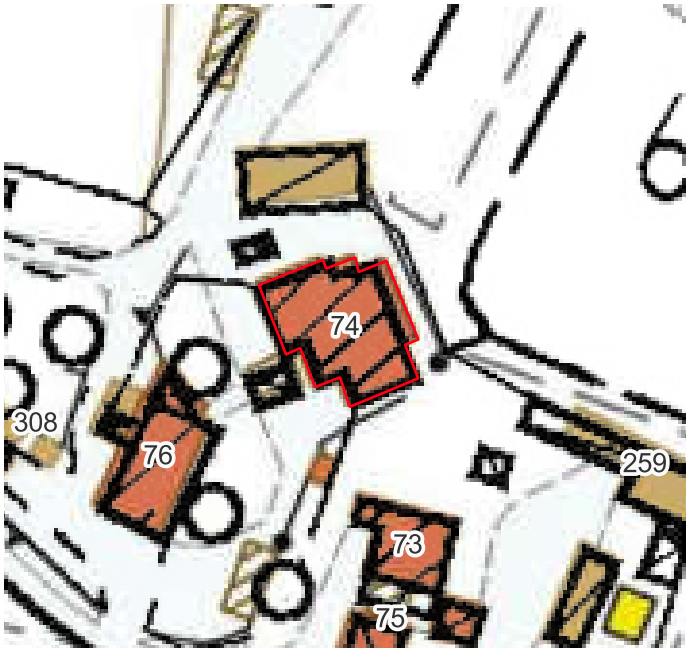
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 74

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703574.018
	X 214464.205
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	655
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1582.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

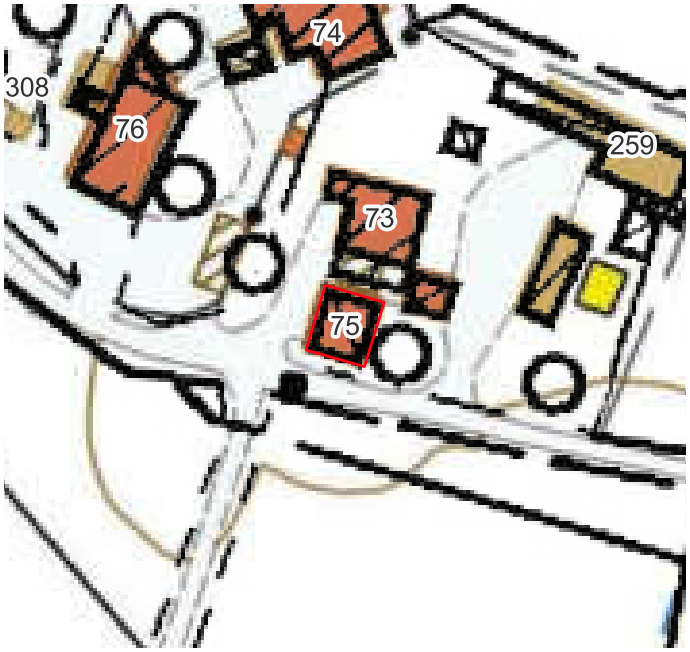
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 75

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703530.853
	X 214467.925
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	69
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Box
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1545.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

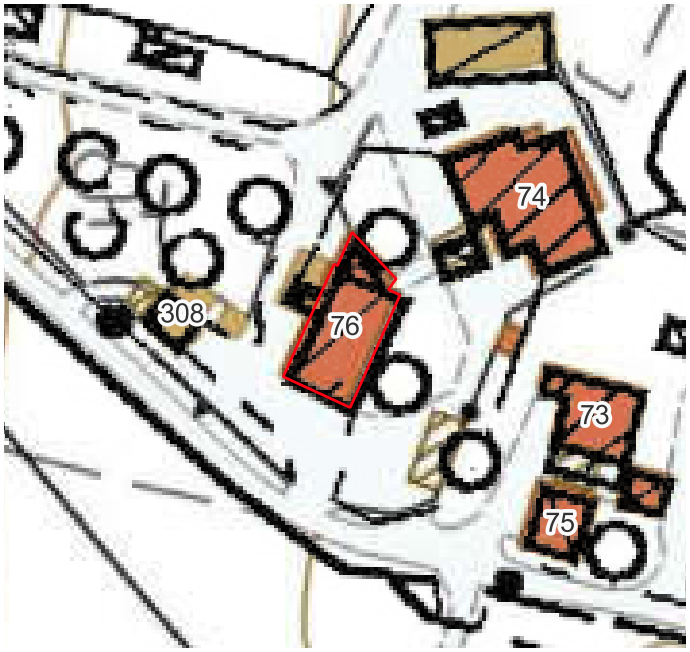
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 76

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703556.906
	X 214439.466
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	255
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1575.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

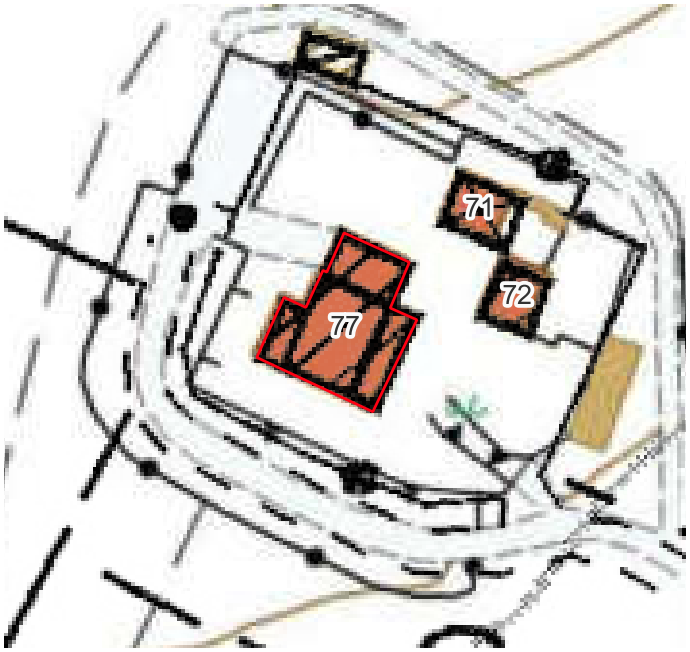
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 77

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703358.86
	X 214875.712
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	75
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1263.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

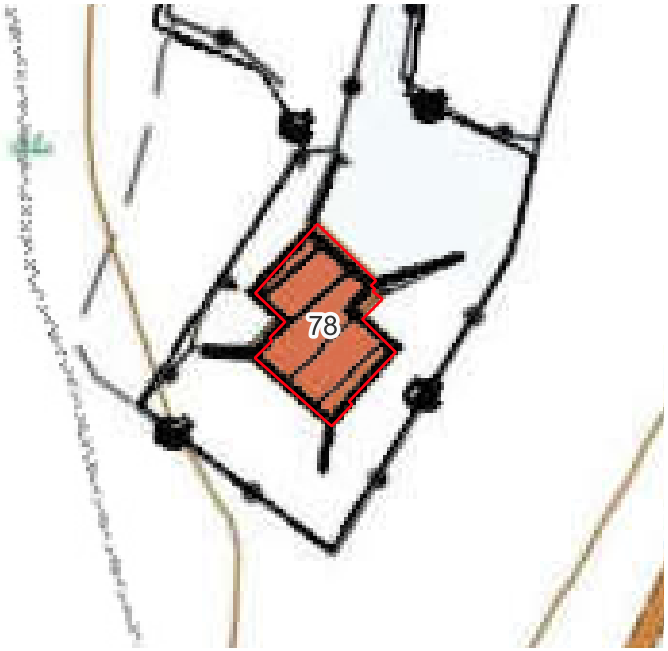
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 78

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703351.13
	X 214413.232
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	318
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1398.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

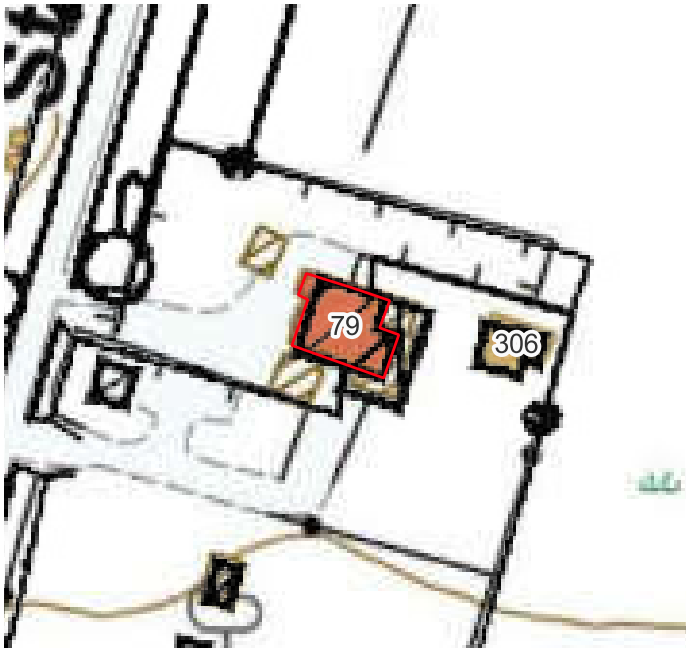
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 79

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703345.81
	X 213983.124
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	274
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1640.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

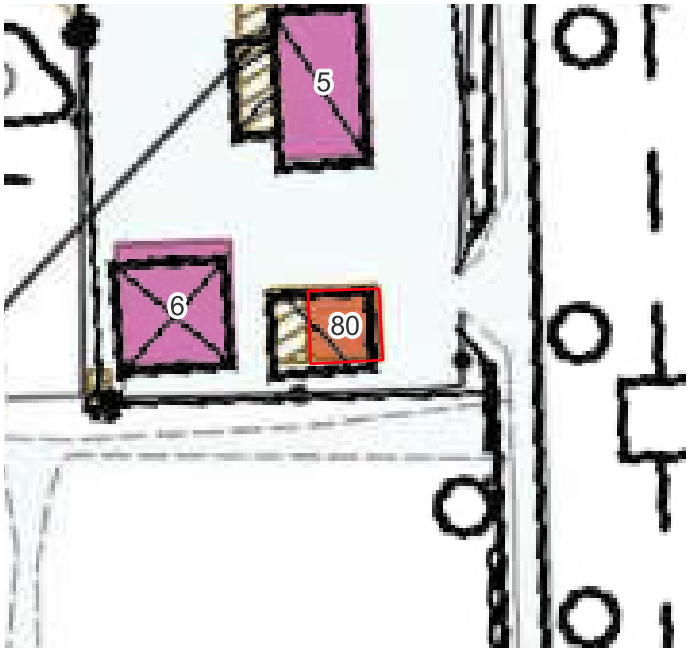
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 80

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703208.556
	X 213907.608
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	616
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1594.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

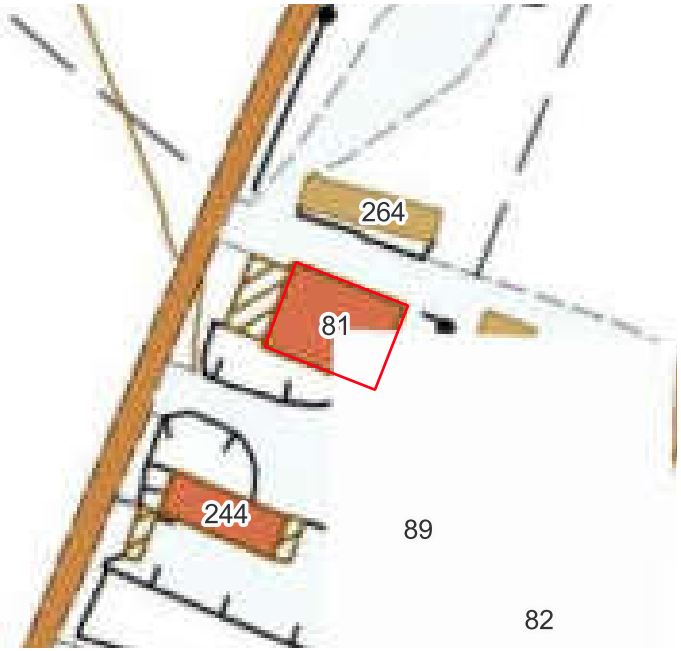
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**02:51**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:12**
Real Case - Ombreggiamento Ore/anno	**01:13**	**Worst Case - Ombreggiamento Giorni/anno**	**18**

RECETTORE n° 81

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701648.615
	X 213547.968
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	567
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1566.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**14:30**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**09:11**	**Worst Case - Ombreggiamento Giorni/anno**	**48**

RECETTORE n° 82

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701608.03
	X 213574.35
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	364
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Deposito
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1558.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**16:48**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:27**
Real Case - Ombreggiamento Ore/anno	**10:41**	**Worst Case - Ombreggiamento Giorni/anno**	**55**

RECETTORE n° 83

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701806.631
	X 213615.136
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	625
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1466.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**13:38**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:28**
Real Case - Ombreggiamento Ore/anno	**08:18**	**Worst Case - Ombreggiamento Giorni/anno**	**42**

RECETTORE n° 84

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702333.672
	X 213507.975
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	489
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1562.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**08:43**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**04:40**	**Worst Case - Ombreggiamento Giorni/anno**	**32**

RECETTORE n° 85

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702261.287
	X 213441.413
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	593
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1617.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**08:01**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:23**
Real Case - Ombreggiamento Ore/anno	**04:20**	**Worst Case - Ombreggiamento Giorni/anno**	**31**

RECETTORE n° 86

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702204.552
	X 213431.587
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	477
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1621.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**08:03**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:23**
Real Case - Ombreggiamento Ore/anno	**04:22**	**Worst Case - Ombreggiamento Giorni/anno**	**31**

RECETTORE n° 87

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702213.915
	X 213406.398
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	477
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1647.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

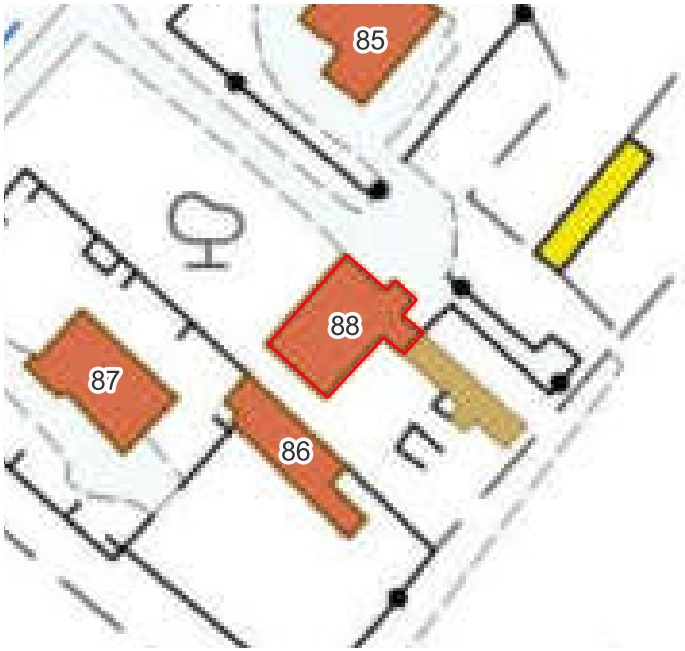
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**07:43**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:23**
Real Case - Ombreggiamento Ore/anno	**04:11**	**Worst Case - Ombreggiamento Giorni/anno**	**30**

RECETTORE n° 88

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702221.165
	X 213438.104
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	594
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1615.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**08:06**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:23**
Real Case - Ombreggiamento Ore/anno	**04:23**	**Worst Case - Ombreggiamento Giorni/anno**	**32**

RECETTORE n° 89

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701621.639
	X 213558.841
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	253
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1562.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

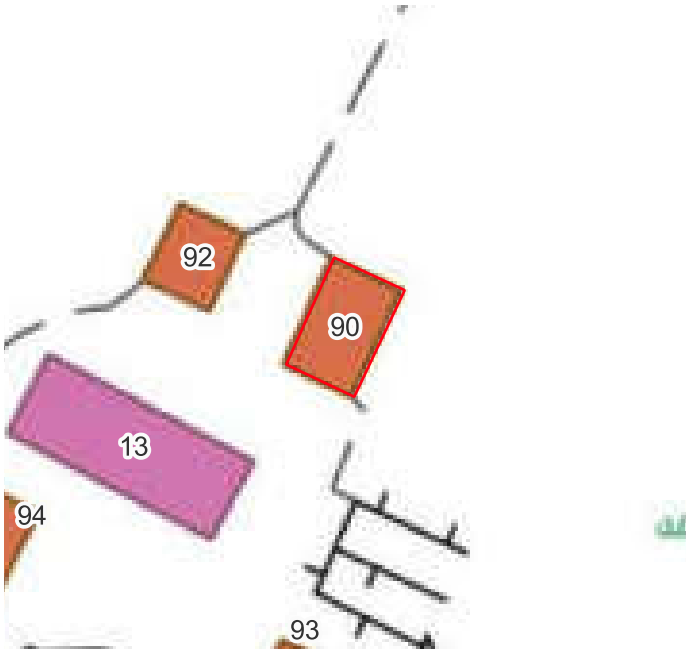
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**15:39**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:27**
Real Case - Ombreggiamento Ore/anno	**09:57**	**Worst Case - Ombreggiamento Giorni/anno**	**51**

RECETTORE n° 90

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701901.165
	X 214530.722
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	342
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	555.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

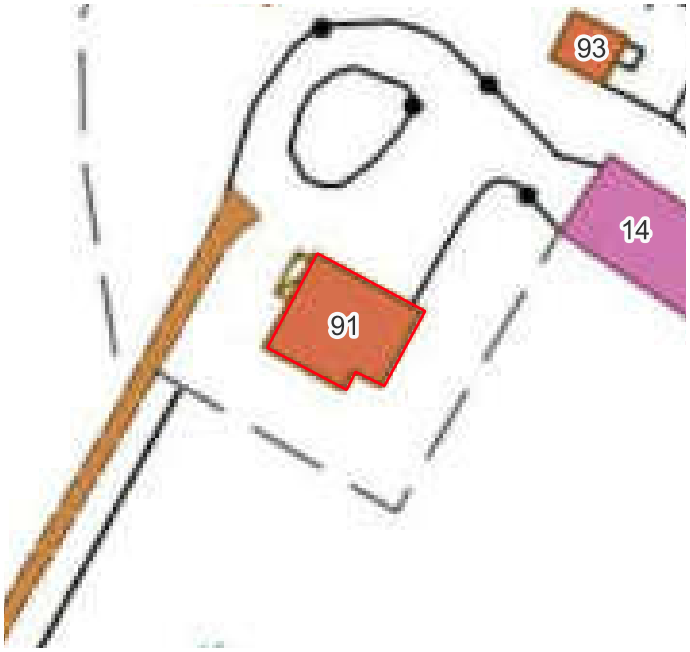
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**95:06**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:14**
Real Case - Ombreggiamento Ore/anno	**60:33**	**Worst Case - Ombreggiamento Giorni/anno**	**92**

RECETTORE n° 91

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701818.322
	X 214492.201
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	343
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	622.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

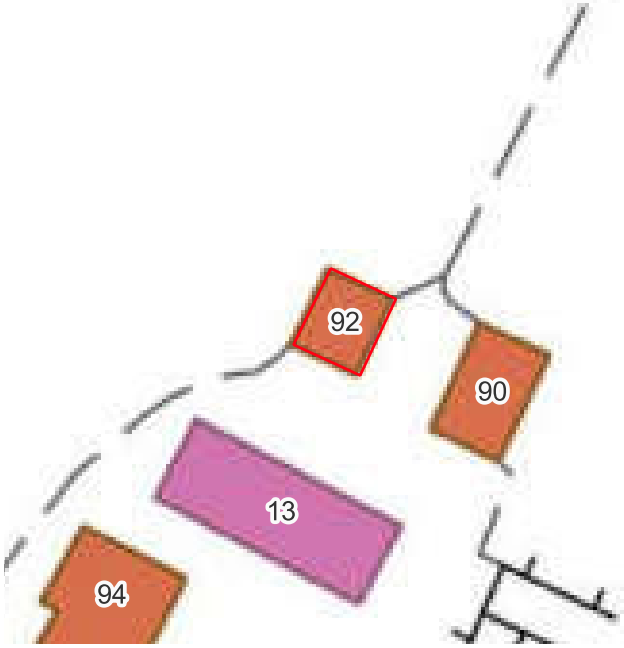
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**37:40**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:51**
Real Case - Ombreggiamento Ore/anno	**23:55**	**Worst Case - Ombreggiamento Giorni/anno**	**55**

RECETTORE n° 92

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701910.379
	X 214511.215
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	341
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	572.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

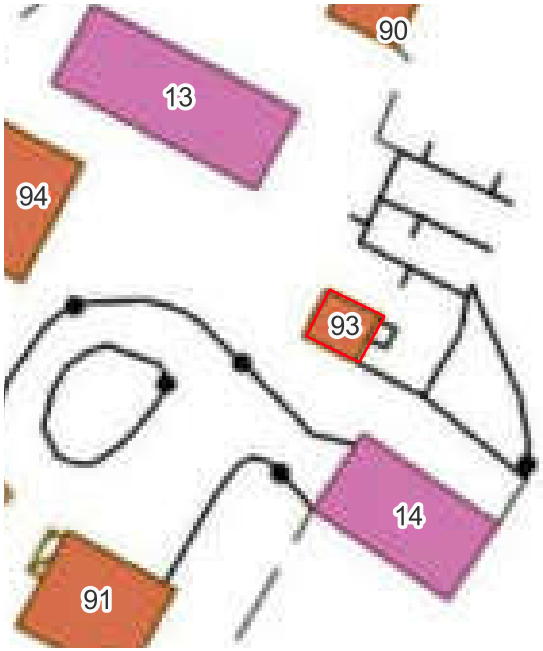
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**104:04**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:13**
Real Case - Ombreggiamento Ore/anno	**66:16**	**Worst Case - Ombreggiamento Giorni/anno**	**100**

RECETTORE n° 93

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701855.056
	X 214524.826
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	342
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Diruto
WTG più vicina	MO06
Distanza minima dalla WTG (m)	582.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

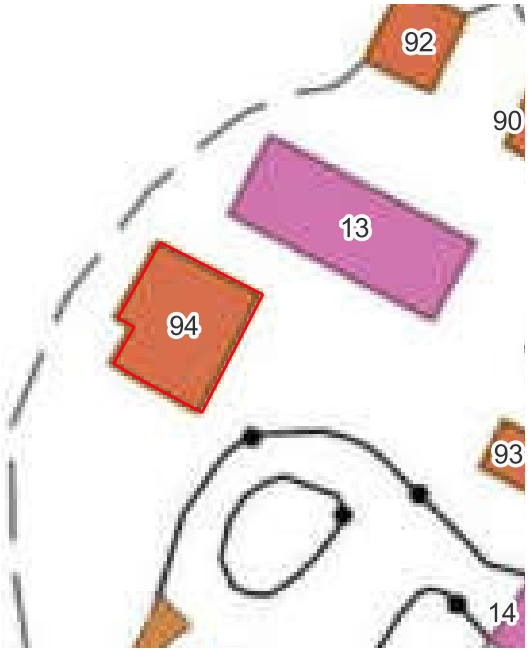
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**57:57**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:03**
Real Case - Ombreggiamento Ore/anno	**36:52**	**Worst Case - Ombreggiamento Giorni/anno**	**69**

RECETTORE n° 94

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701872.372
	X 214480.181
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	341
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	610.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

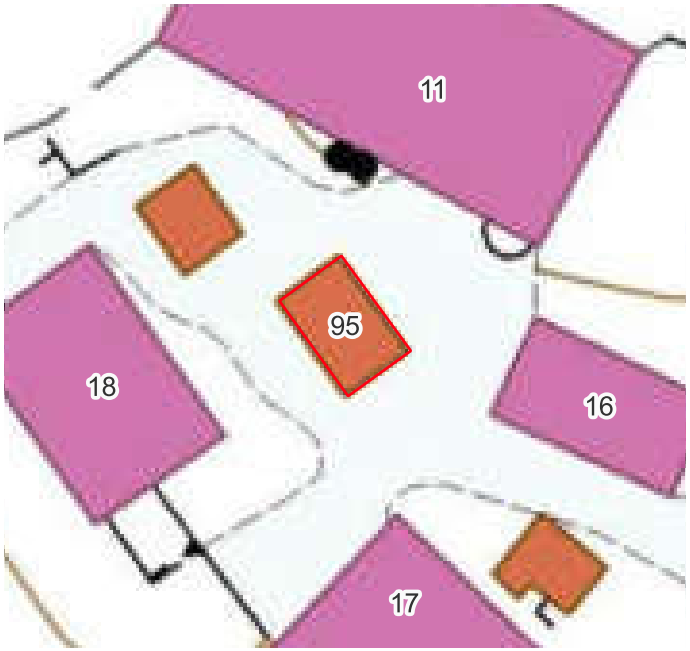
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**81:57**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:07**
Real Case - Ombreggiamento Ore/anno	**52:10**	**Worst Case - Ombreggiamento Giorni/anno**	**88**

RECETTORE n° 95

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701470.205
	X 214173.49
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1080.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

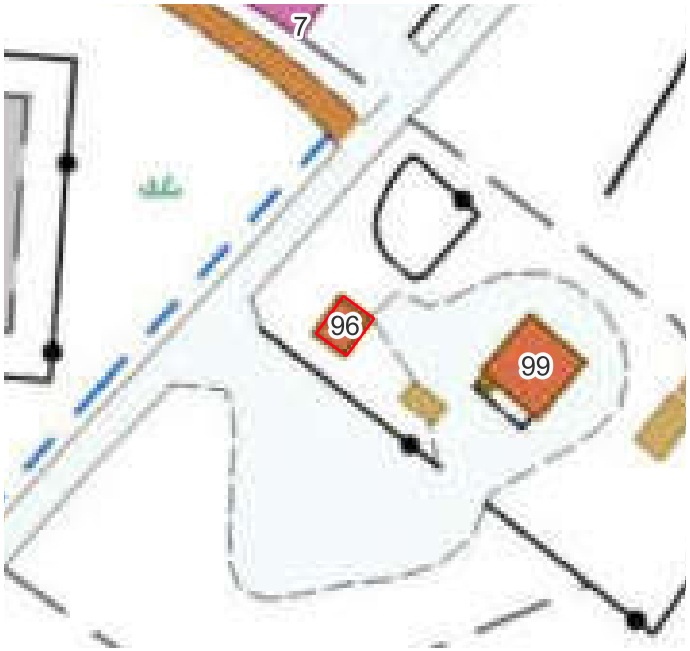
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 96

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702574.682
	X 213699.695
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	681
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1438.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**10:50**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**05:28**	**Worst Case - Ombreggiamento Giorni/anno**	**37**

RECETTORE n° 97

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701452.069
	X 214237.562
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1032

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 98

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701441.148
	X 214251.35
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1030

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 99

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702569.327
	X 213724.93
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	681
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1409.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

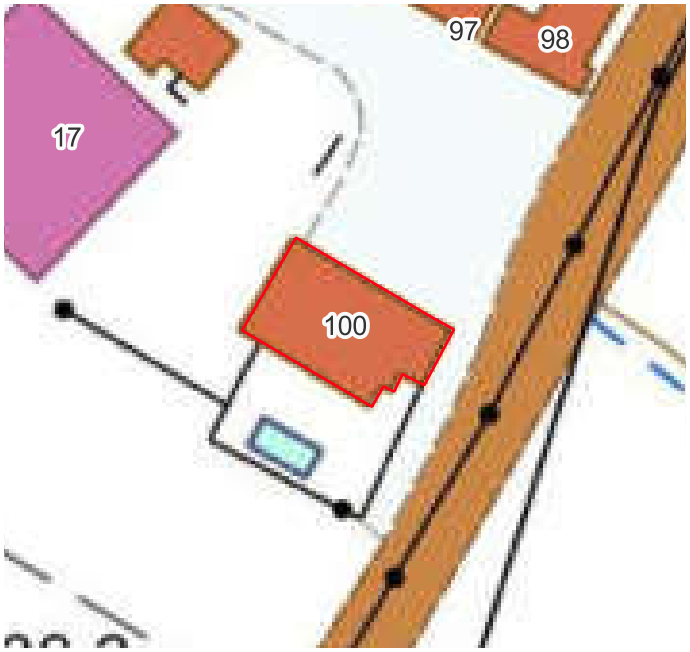
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**11:21**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:27**
Real Case - Ombreggiamento Ore/anno	**05:43**	**Worst Case - Ombreggiamento Giorni/anno**	**37**

RECETTORE n° 100

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701401.022
	X 214222.084
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	386
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1078

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

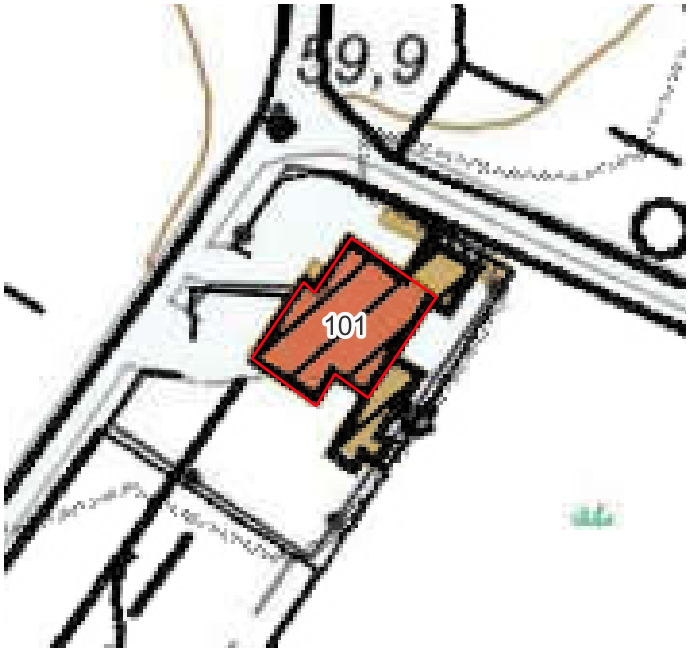
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 101

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702900.201
	X 213942.027
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	611, 612
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1368.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

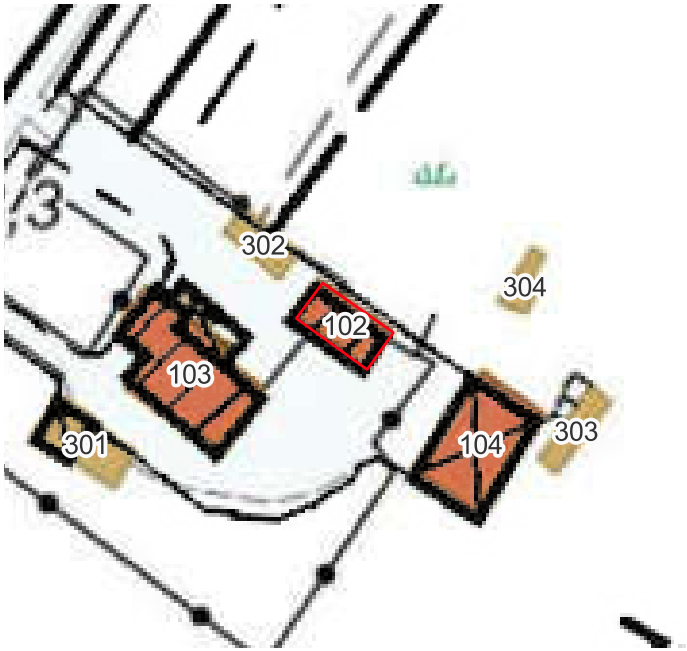
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**24:29**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:30**
Real Case - Ombreggiamento Ore/anno	**10:40**	**Worst Case - Ombreggiamento Giorni/anno**	**86**

RECETTORE n° 102

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702805.044
	X 213912.86
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	234
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1342.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

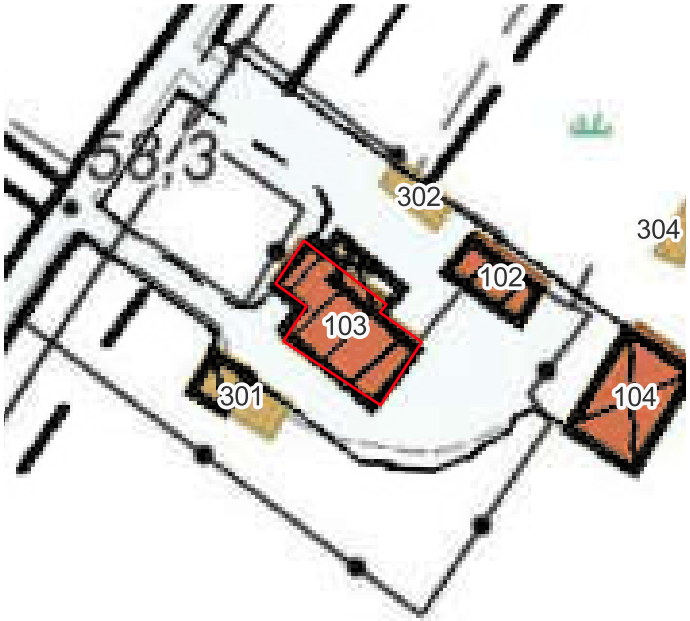
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**17:42**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:30**
Real Case - Ombreggiamento Ore/anno	**07:57**	**Worst Case - Ombreggiamento Giorni/anno**	**54**

RECETTORE n° 103

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702798.61
	X 213892.264
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	94
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1352.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

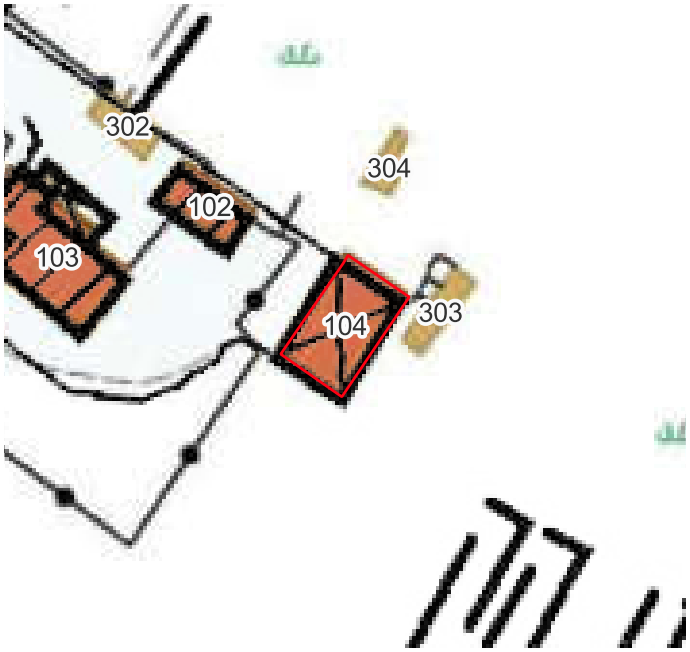
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**16:34**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:29**
Real Case - Ombreggiamento Ore/anno	**07:29**	**Worst Case - Ombreggiamento Giorni/anno**	**52**

RECETTORE n° 104

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702789.3
	X 213930.821
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	265
Destinazione d'uso (catastale)	C7
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1319.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

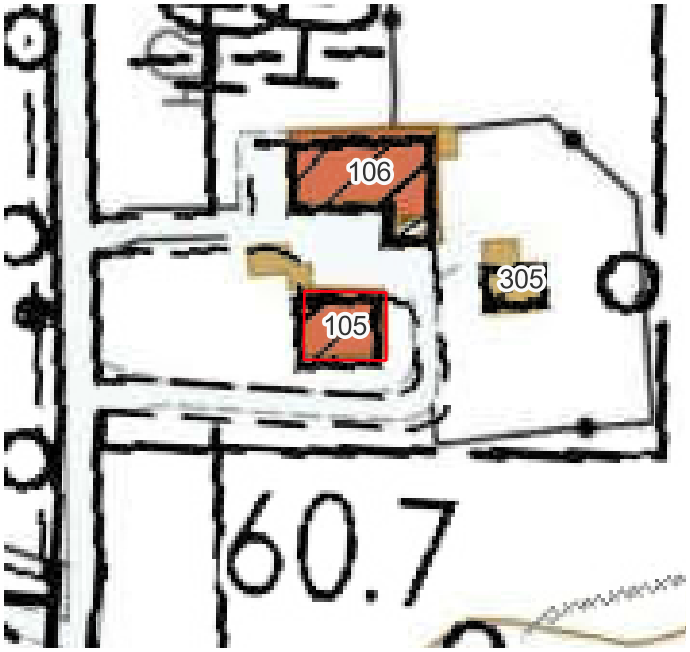
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**18:20**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:31**
Real Case - Ombreggiamento Ore/anno	**08:16**	**Worst Case - Ombreggiamento Giorni/anno**	**56**

RECETTORE n° 105

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702987.688
	X 213973.187
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	551
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1398.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

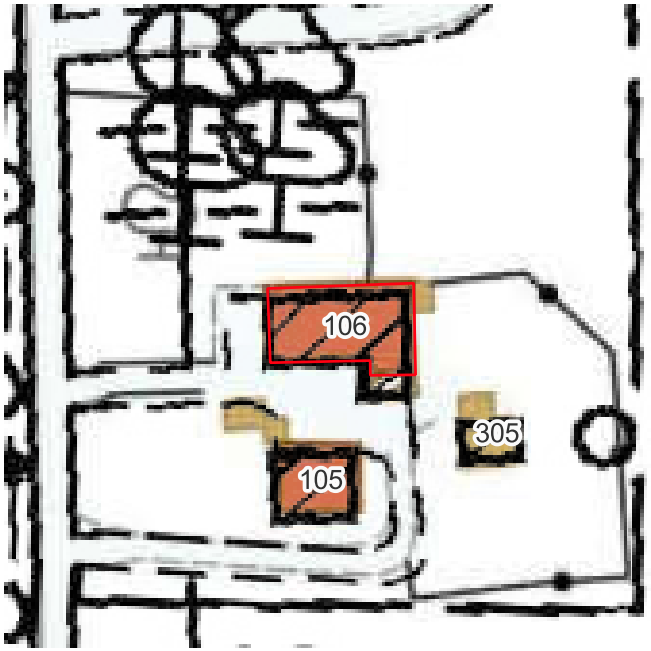
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**26:47**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:30**
Real Case - Ombreggiamento Ore/anno	**11:34**	**Worst Case - Ombreggiamento Giorni/anno**	**66**

RECETTORE n° 106

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703008.073
	X 213976.384
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	85
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1404.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

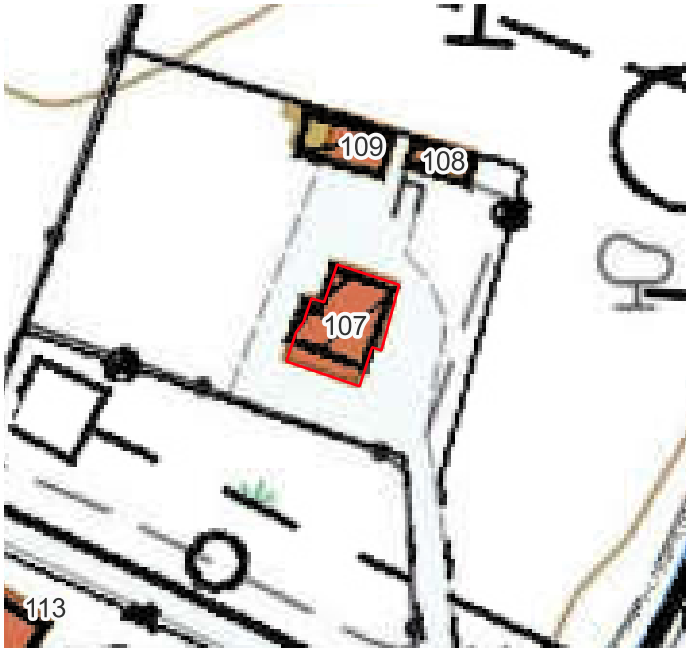
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**25:31**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:30**
Real Case - Ombreggiamento Ore/anno	**11:00**	**Worst Case - Ombreggiamento Giorni/anno**	**62**

RECETTORE n° 107

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702801.505
	X 214316.173
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	337
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1017.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

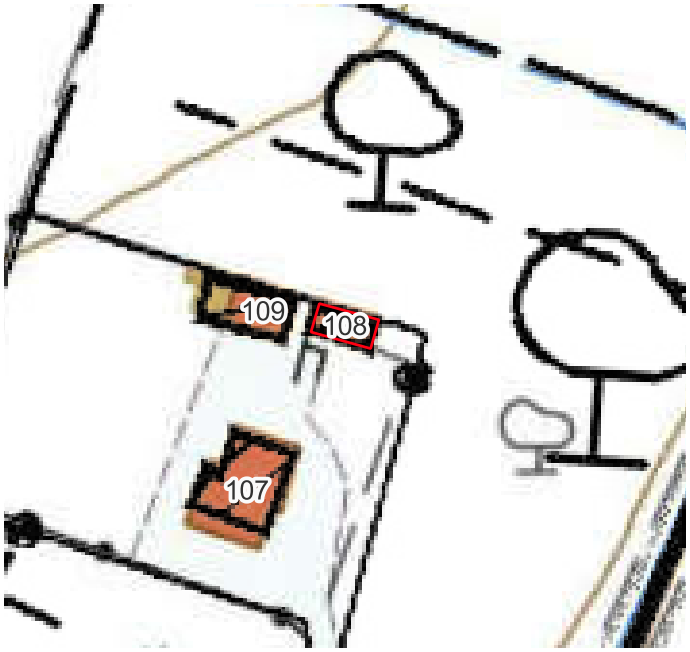
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**44:07**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:42**
Real Case - Ombreggiamento Ore/anno	**19:04**	**Worst Case - Ombreggiamento Giorni/anno**	**72**

RECETTORE n° 108

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702823.286
	X 214329.178
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	337
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1026

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

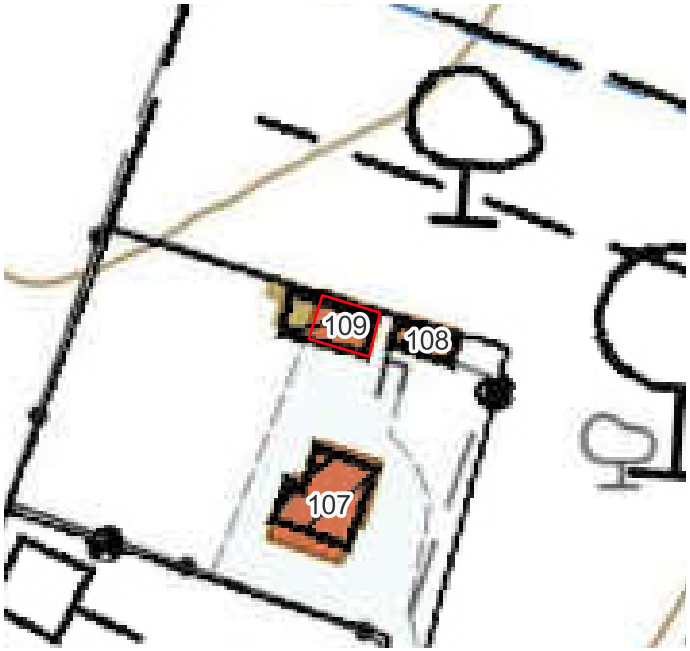
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**38:24**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:42**
Real Case - Ombreggiamento Ore/anno	**16:34**	**Worst Case - Ombreggiamento Giorni/anno**	**66**

RECETTORE n° 109

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702825.218
	X 214318.324
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	337
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1034.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

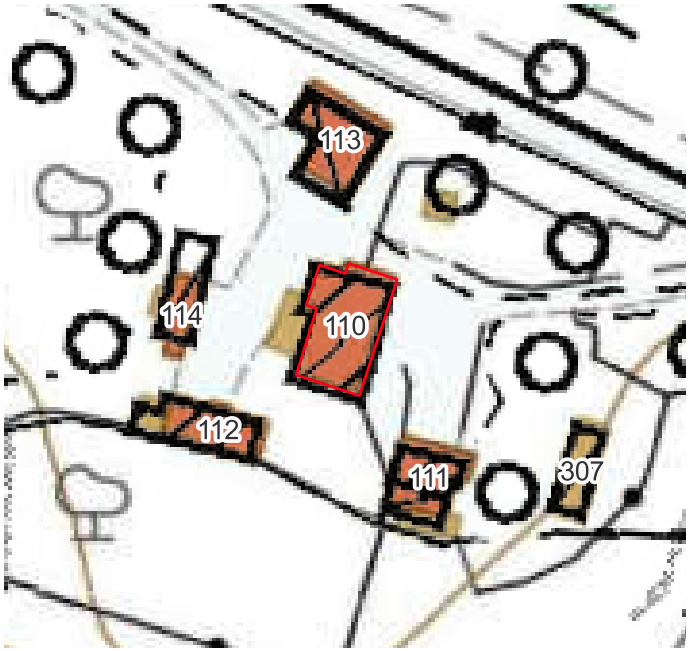
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**38:38**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:41**
Real Case - Ombreggiamento Ore/anno	**16:40**	**Worst Case - Ombreggiamento Giorni/anno**	**66**

RECETTORE n° 110

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702736.647
	X 214271.411
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	565
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1008.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

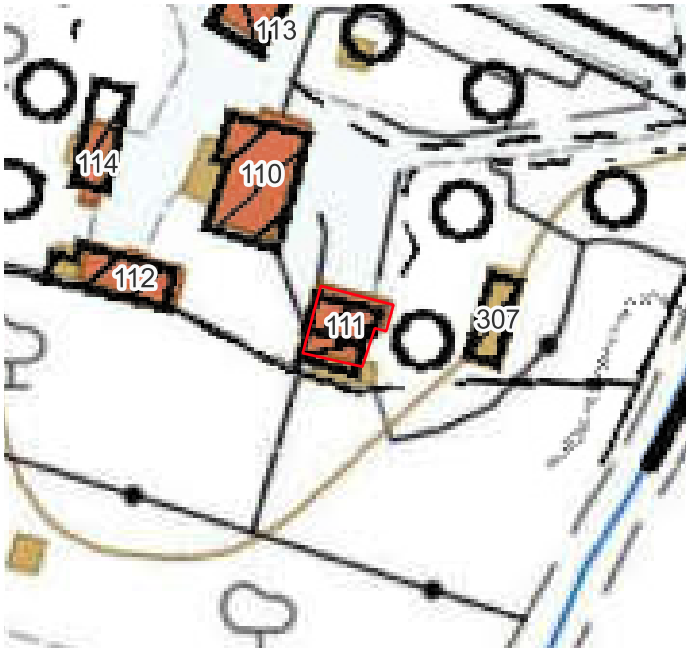
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**54:43**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:42**
Real Case - Ombreggiamento Ore/anno	**23:50**	**Worst Case - Ombreggiamento Giorni/anno**	**94**

RECETTORE n° 111

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702716.544
	X 214282.535
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	727
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	989.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

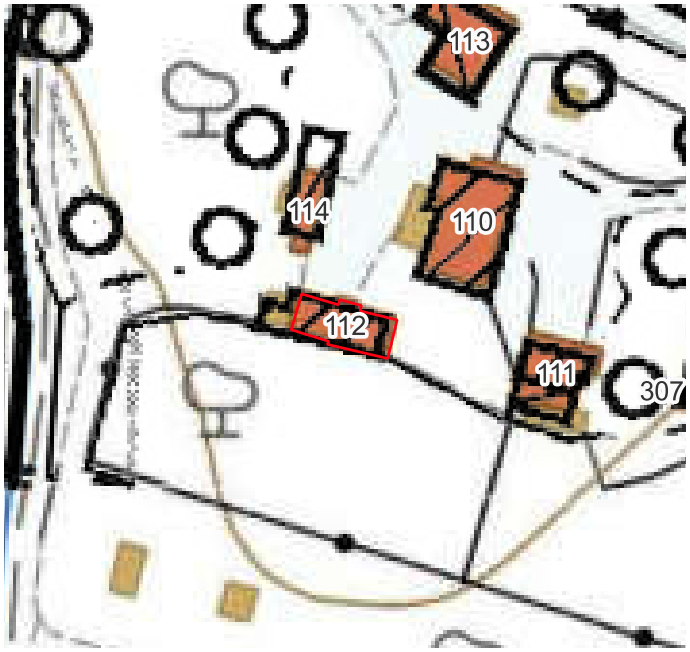
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**56:25**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:42**
Real Case - Ombreggiamento Ore/anno	**24:37**	**Worst Case - Ombreggiamento Giorni/anno**	**96**

RECETTORE n° 112

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702722.856
	X 214254.602
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	726
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1013.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

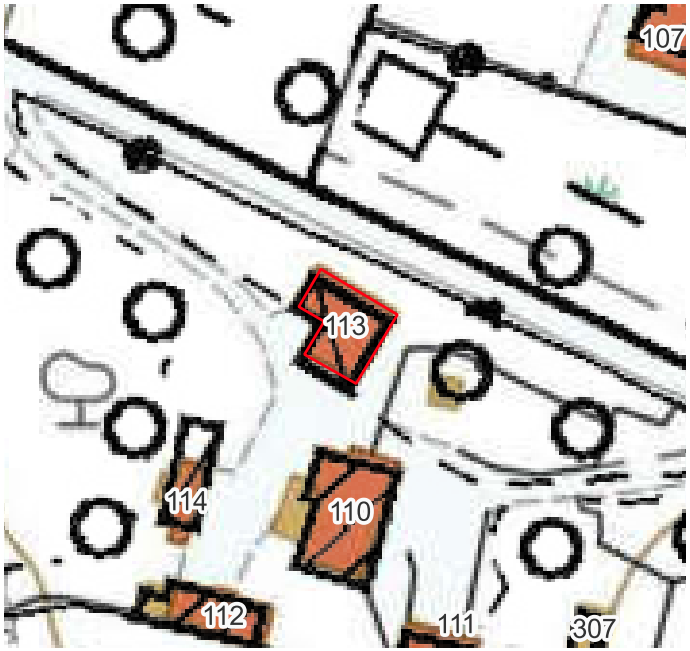
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**53:20**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:41**
Real Case - Ombreggiamento Ore/anno	**23:19**	**Worst Case - Ombreggiamento Giorni/anno**	**98**

RECETTORE n° 113

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702761.24
	X 214270.752
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	113
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1025.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

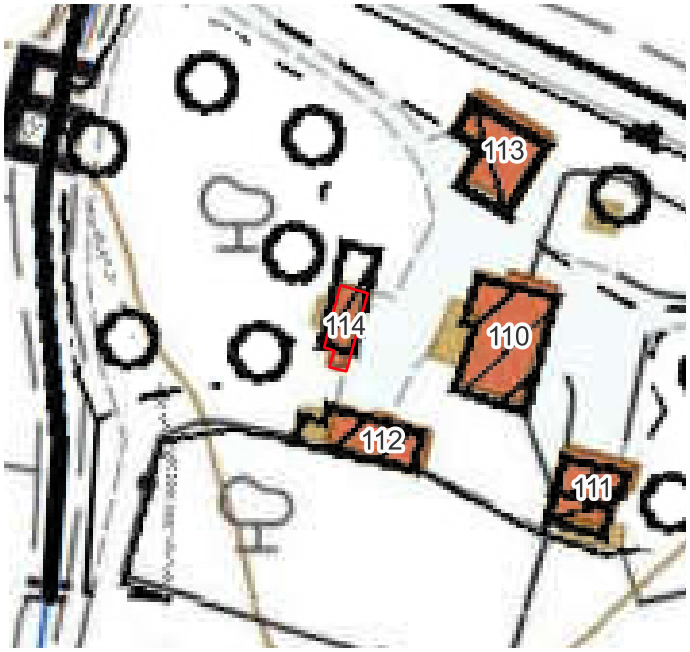
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**52:46**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:41**
Real Case - Ombreggiamento Ore/anno	**22:54**	**Worst Case - Ombreggiamento Giorni/anno**	**88**

RECETTORE n° 114

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702738.026
	X 214249.784
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	726
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1029.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**53:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:41**
Real Case - Ombreggiamento Ore/anno	**23:07**	**Worst Case - Ombreggiamento Giorni/anno**	**95**

RECETTORE n° 115

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701445.575
	X 215127.113
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	217
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	644.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

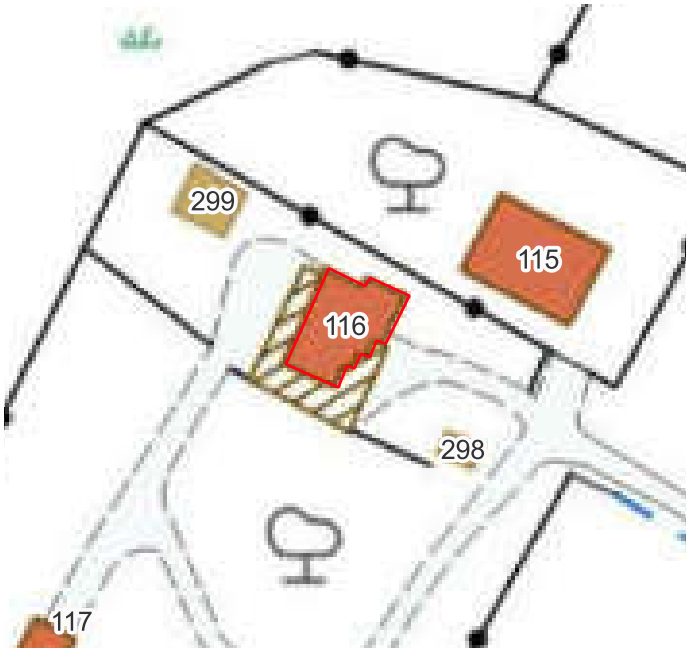
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 116

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701436.788
	X 215101.564
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	108
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	652.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

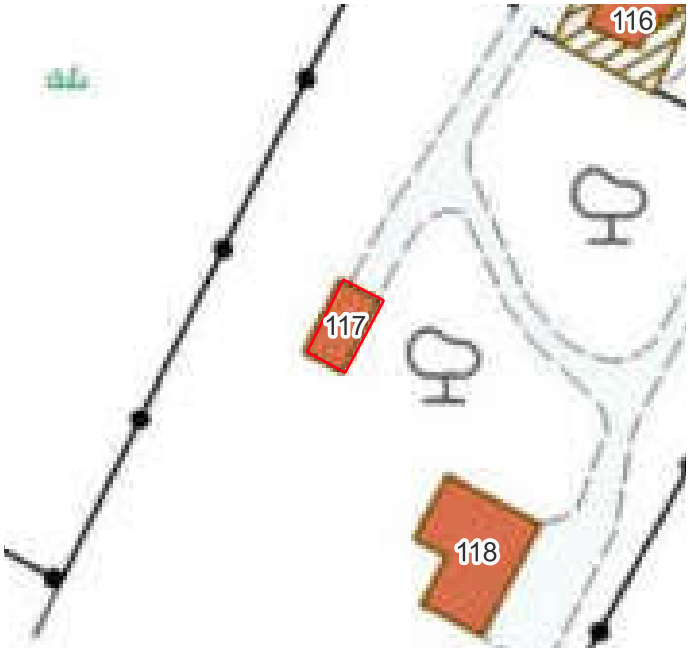
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 117

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701392.062
	X 215061.292
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	165
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	697.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

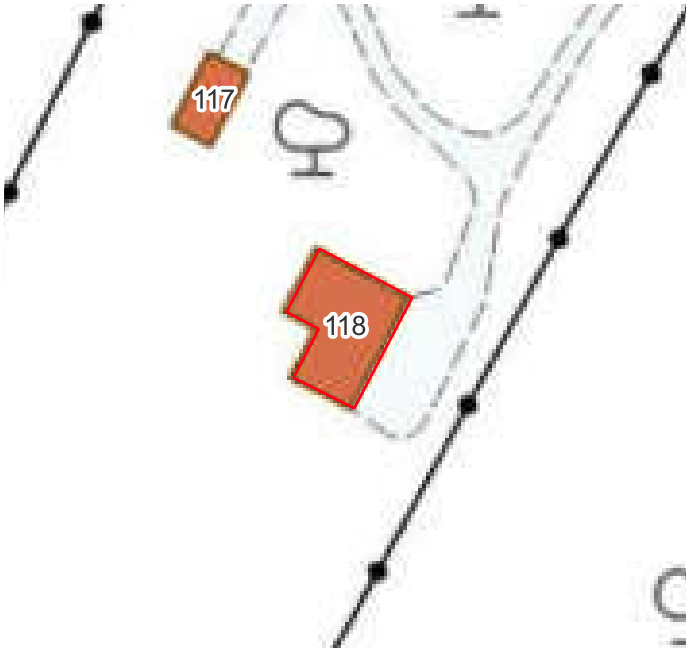
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 118

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701362.1
	X 215078.66
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	165
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	723.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 119

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701367.816
	X 215294.115
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	185
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	755.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 120

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700852.639
	X 215119.456
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	195
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1233.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

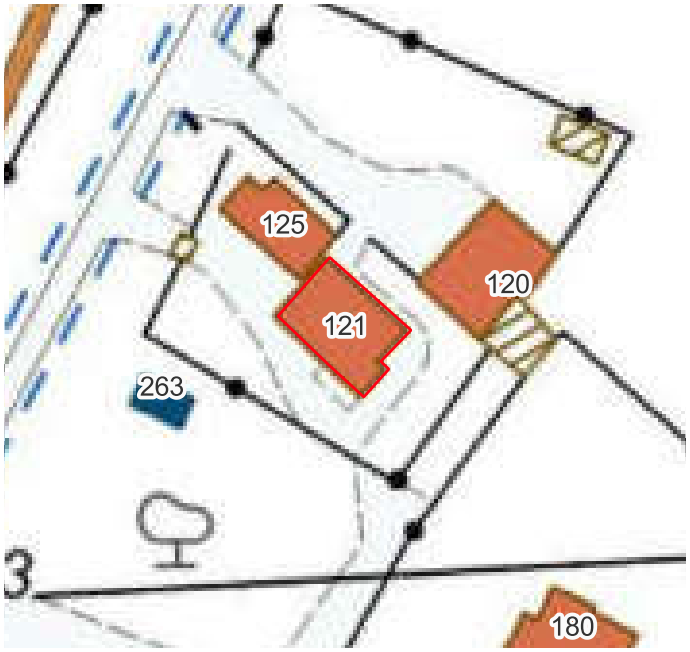
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 121

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700847.101
	X 215097.915
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	195
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1240.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

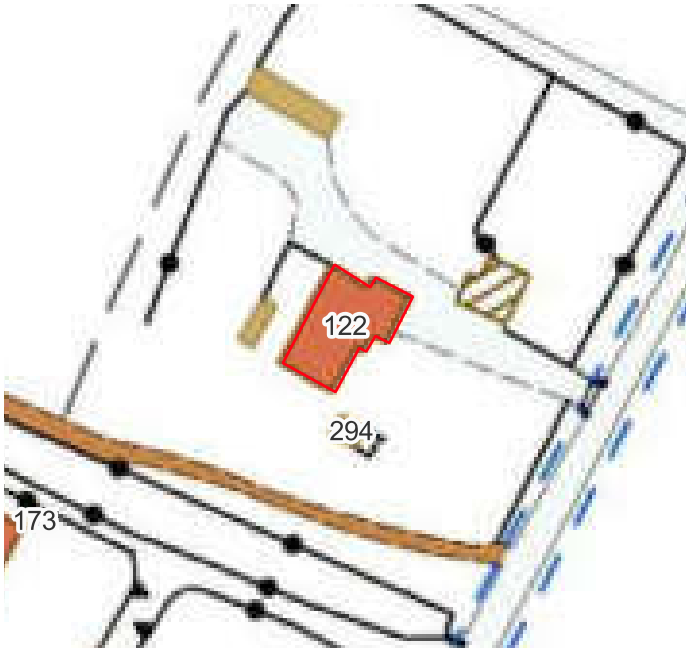
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 122

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701078.27
	X 215140.704
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	221
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1012.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

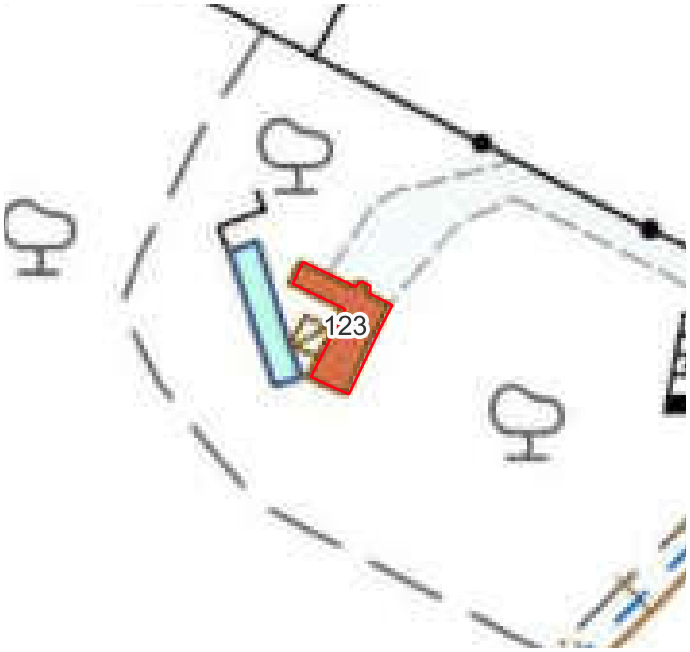
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

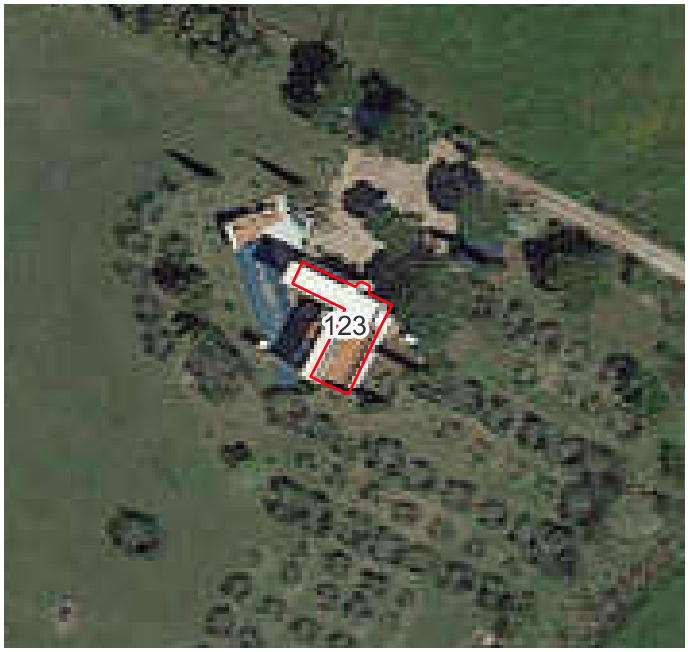
RECETTORE n° 123

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701163.294
	X 215015.044
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	96
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	925.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000



Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 124

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701337.767
	X 215340.741
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	32
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	800.6

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 125

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700860.522
	X 215089.7
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	195
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1229.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

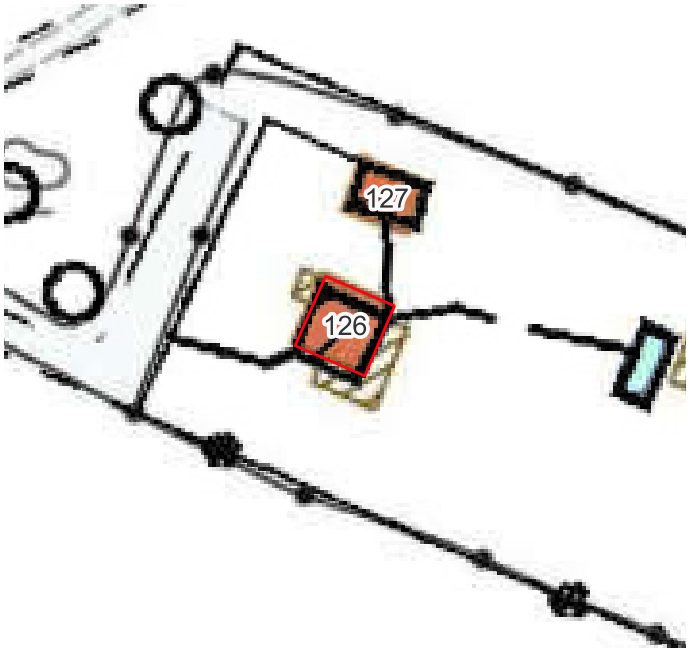
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 126

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702988.054
	X 215248.958
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	83
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	904.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

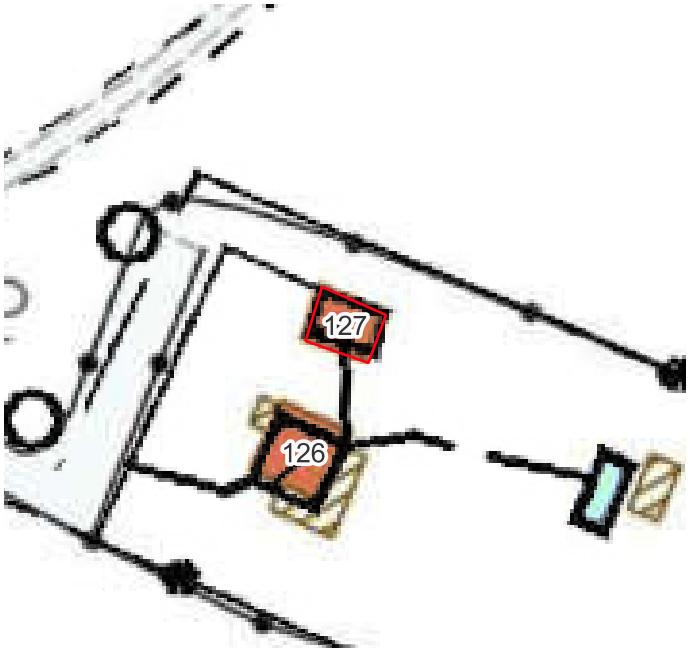
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 127

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703004.912
	X 215254.469
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	83
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	924.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

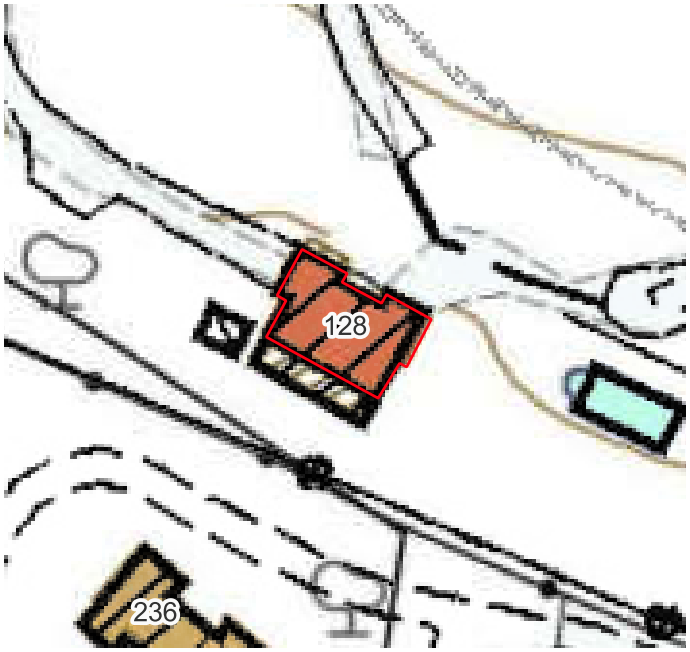
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 128

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703104.525
	X 214972.572
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	310
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1001.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

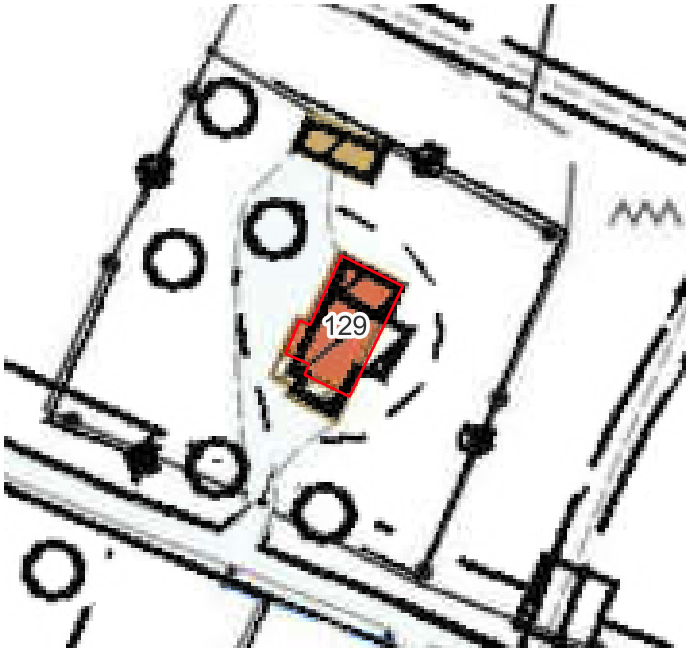
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 129

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702786.354
	X 214900.735
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	408
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	698.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

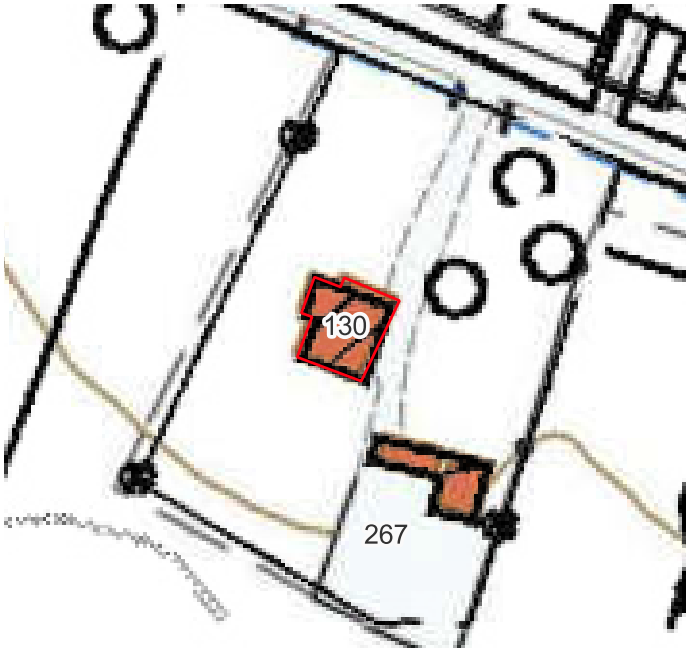
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 130

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702713.908
	X 214891.327
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	674
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	632.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

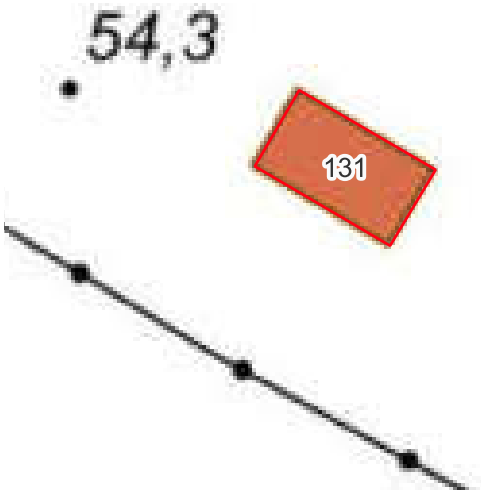
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 131

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702527.036
	X 215829.506
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	230
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO06
Distanza minima dalla WTG (m)	870.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

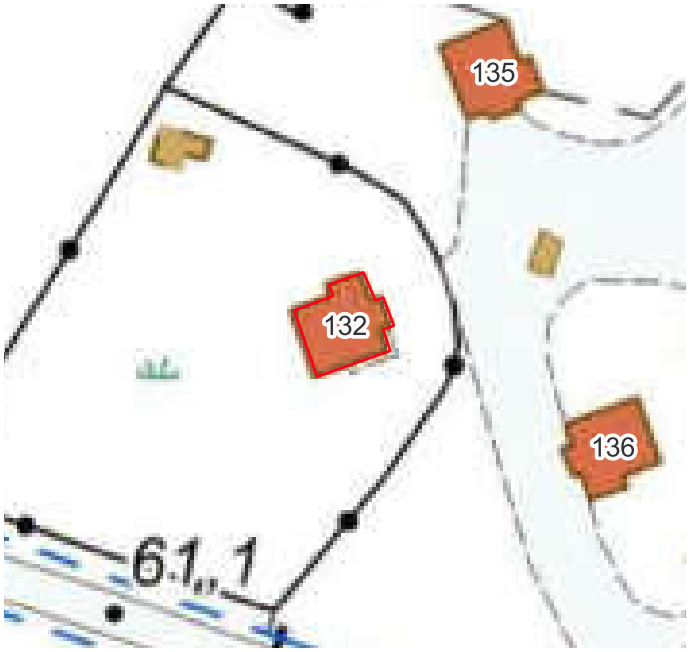
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**49:25**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:47**
Real Case - Ombreggiamento Ore/anno	**22:27**	**Worst Case - Ombreggiamento Giorni/anno**	**89**

RECETTORE n° 132

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701369.754
	X 218071.811
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	73
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Abitazione non in uso
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1103.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

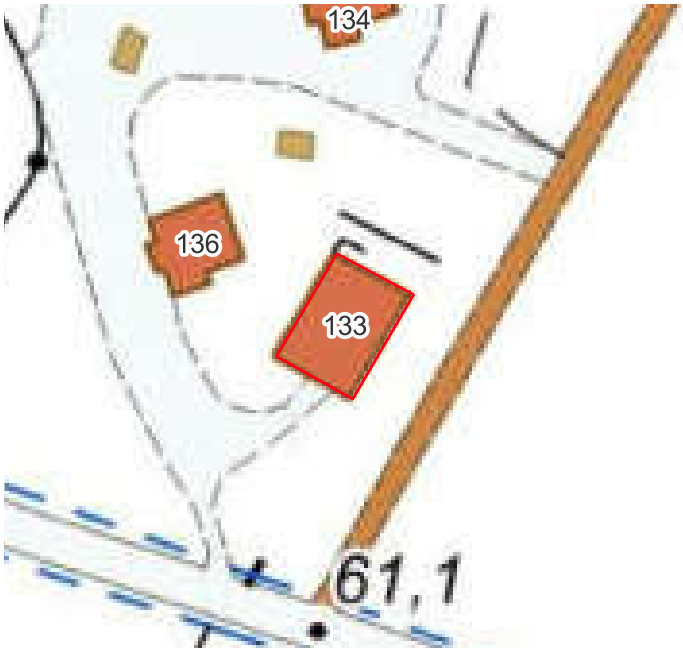
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**20:43**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:36**
Real Case - Ombreggiamento Ore/anno	**11:47**	**Worst Case - Ombreggiamento Giorni/anno**	**48**

RECETTORE n° 133

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701342.809
	X 218126.814
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	303
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1046.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

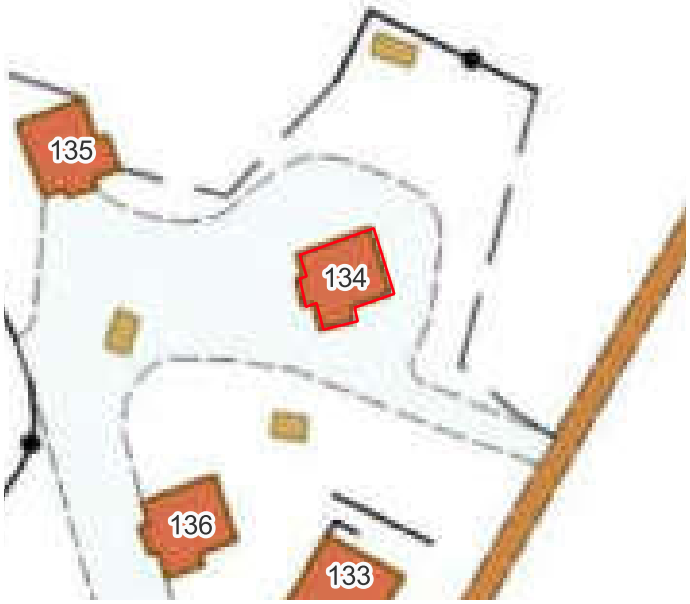
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**23:47**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:38**
Real Case - Ombreggiamento Ore/anno	**13:45**	**Worst Case - Ombreggiamento Giorni/anno**	**51**

RECETTORE n° 134

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701386.401
	X 218127.689
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	73
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Abitazione non in uso
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1047.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

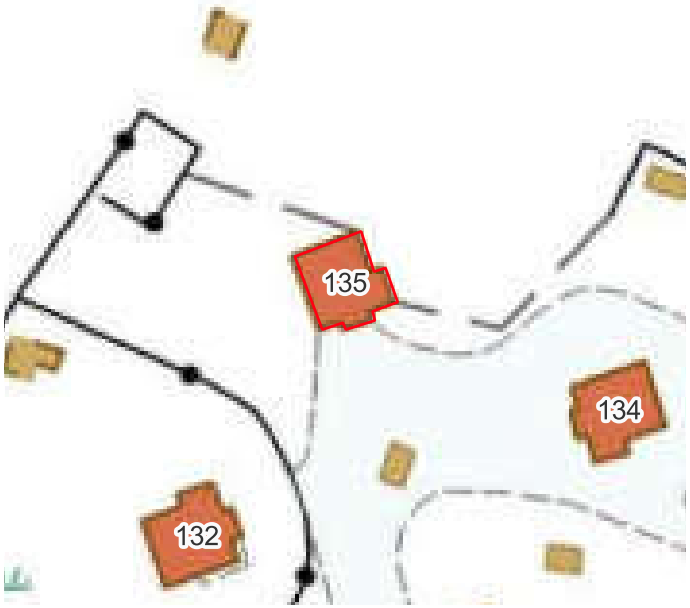
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**23:12**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:38**
Real Case - Ombreggiamento Ore/anno	**13:07**	**Worst Case - Ombreggiamento Giorni/anno**	**50**

RECETTORE n° 135

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701403.267
	X 218091.419
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	73
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Abitazione non in uso
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1083.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

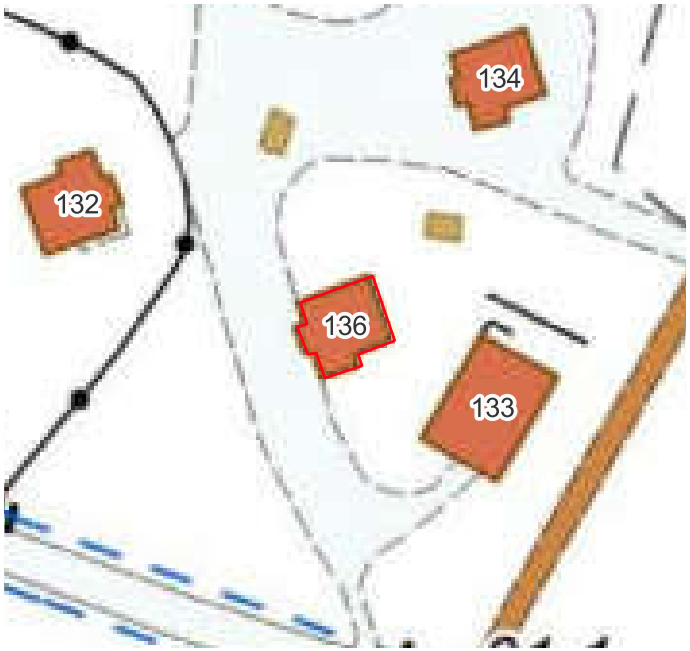
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**21:10**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:36**
Real Case - Ombreggiamento Ore/anno	**11:51**	**Worst Case - Ombreggiamento Giorni/anno**	**48**

RECETTORE n° 136

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701353.664
	X 218107.276
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	303
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1068.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

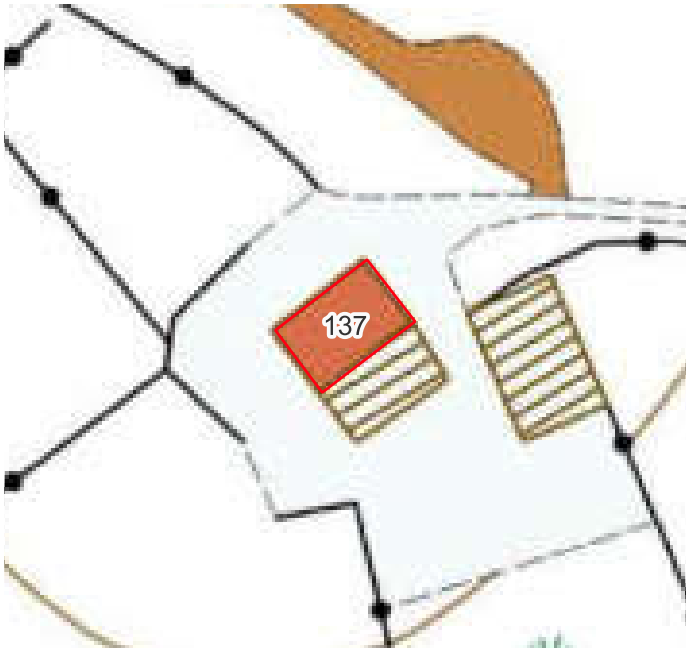
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**22:38**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:37**
Real Case - Ombreggiamento Ore/anno	**13:00**	**Worst Case - Ombreggiamento Giorni/anno**	**51**

RECETTORE n° 137

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702067.917
	X 217782.572
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	159
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1545.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**09:39**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**04:43**	**Worst Case - Ombreggiamento Giorni/anno**	**37**

RECETTORE n° 138

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702318.213
	X 217963.448
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	182
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1519.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**21:07**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**09:08**	**Worst Case - Ombreggiamento Giorni/anno**	**72**

RECETTORE n° 139

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701467.896
	X 217710.947
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	200
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1437.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**09:54**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**05:24**	**Worst Case - Ombreggiamento Giorni/anno**	**35**

RECETTORE n° 140

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702275.604
	X 217966.835
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	123
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1490

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**19:57**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**08:40**	**Worst Case - Ombreggiamento Giorni/anno**	**78**

RECETTORE n° 141

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701432.441
	X 217712.345
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	200
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1408.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

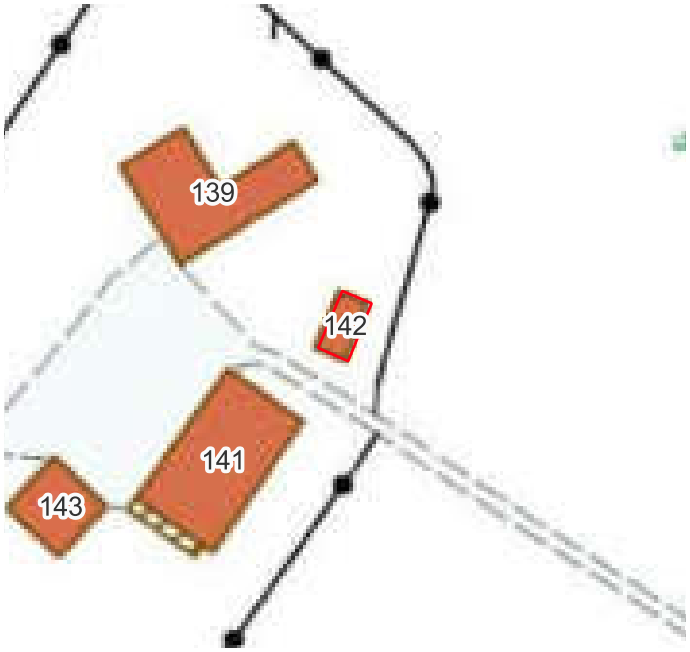
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**10:08**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**05:34**	**Worst Case - Ombreggiamento Giorni/anno**	**34**

RECETTORE n° 142

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701450.249
	X 217728.463
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	200
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1438

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

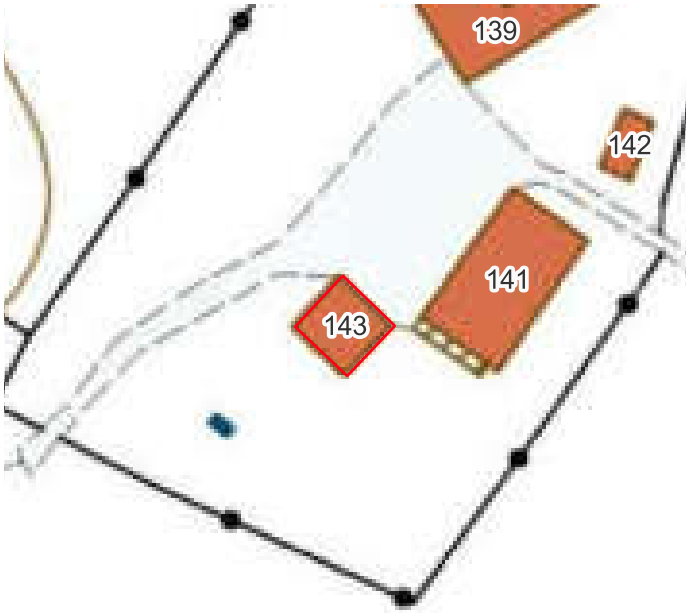
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**10:21**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**05:40**	**Worst Case - Ombreggiamento Giorni/anno**	**35**

RECETTORE n° 143

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701426.321
	X 217690.83
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	200
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1396.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

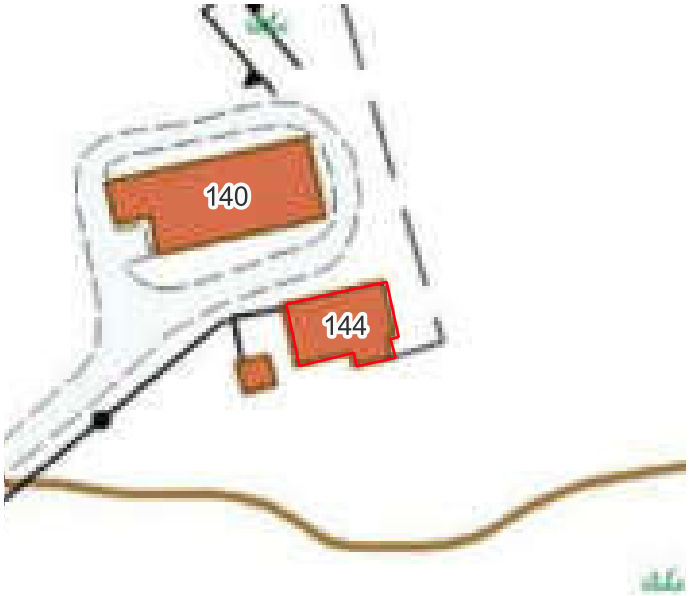
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**09:44**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**05:21**	**Worst Case - Ombreggiamento Giorni/anno**	**33**

RECETTORE n° 144

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702258.482
	X 217982.533
Comune	Montalto di Castro
Foglio catastale	0004
Particella catastale	183
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1471.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**20:15**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:27**
Real Case - Ombreggiamento Ore/anno	**08:48**	**Worst Case - Ombreggiamento Giorni/anno**	**80**

RECETTORE n° 145

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702591.829
	X 219543.885
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	81
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	889.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

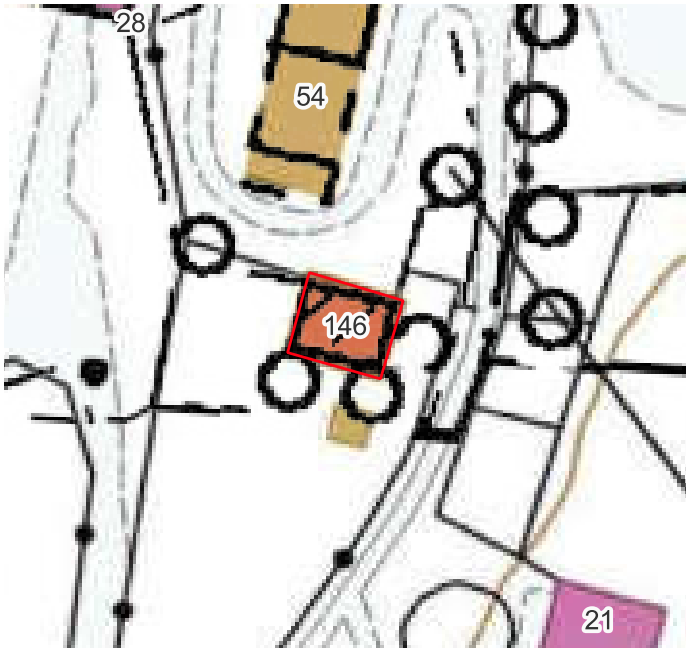
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 146

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702499.167
	X 219562.279
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	18
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	983.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

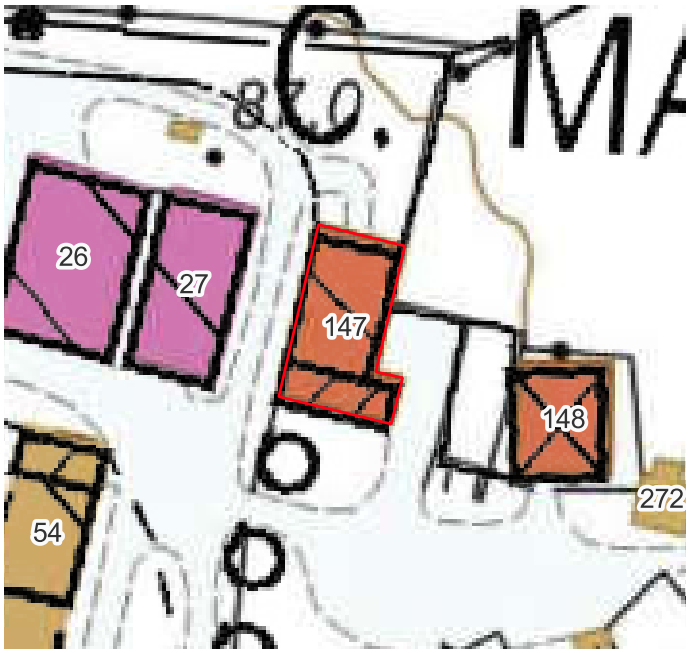
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 147

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702570.443
	X 219600.88
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	18
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	911.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

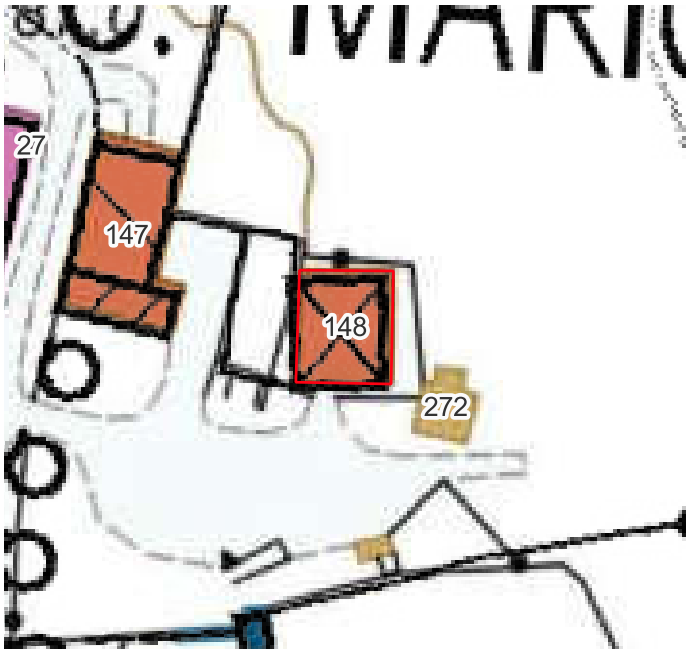
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 148

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702558.252
	X 219629.783
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	18
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO02
Distanza minima dalla WTG (m)	934

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

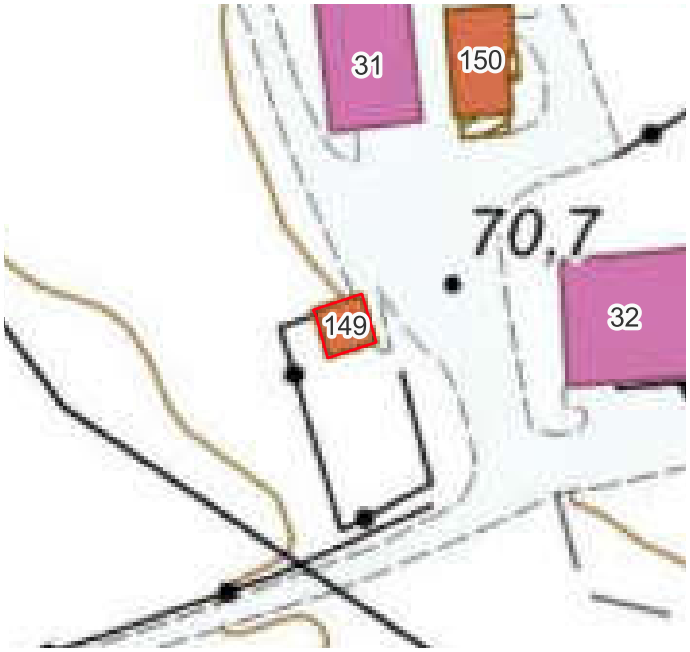
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 149

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702088.264
	X 219937.332
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	194
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1022.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

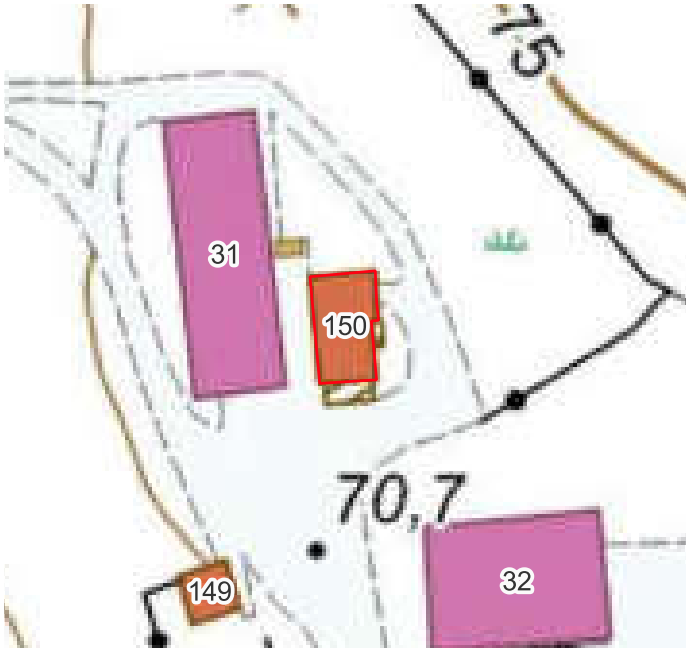
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**20:27**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:34**
Real Case - Ombreggiamento Ore/anno	**08:47**	**Worst Case - Ombreggiamento Giorni/anno**	**45**

RECETTORE n° 150

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702123.433
	X 219955.25
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	194
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1056.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**11:43**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:27**
Real Case - Ombreggiamento Ore/anno	**05:02**	**Worst Case - Ombreggiamento Giorni/anno**	**34**

RECETTORE n° 151

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702255.179
	X 219813.086
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	192
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Diruto
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1061

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 152

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700803.207
	X 221275.794
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	74
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO04
Distanza minima dalla WTG (m)	796.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

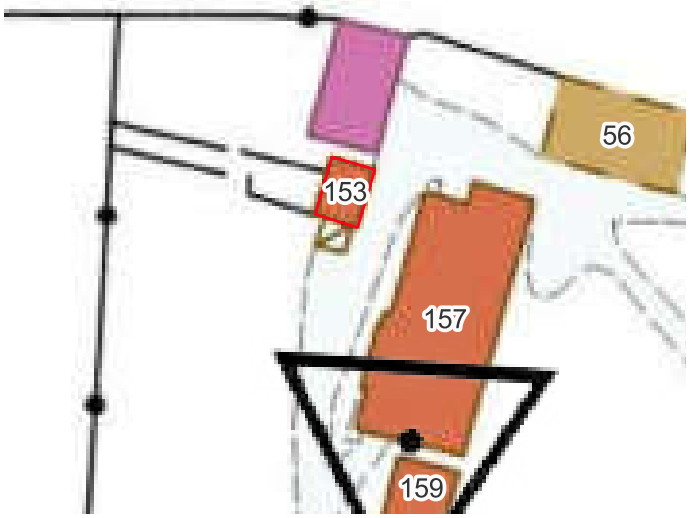
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**57:09**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:51**
Real Case - Ombreggiamento Ore/anno	**35:33**	**Worst Case - Ombreggiamento Giorni/anno**	**91**

RECETTORE n° 153

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701169.403
	X 221141.099
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	11
Destinazione d'uso (catastale)	C7
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO04
Distanza minima dalla WTG (m)	652.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

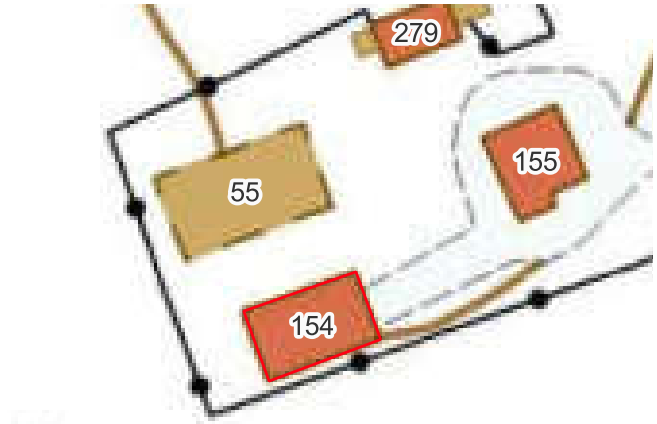
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**59:35**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:00**
Real Case - Ombreggiamento Ore/anno	**30:55**	**Worst Case - Ombreggiamento Giorni/anno**	**77**

RECETTORE n° 154

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700740.852
	X 221161.885
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	57
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	706.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

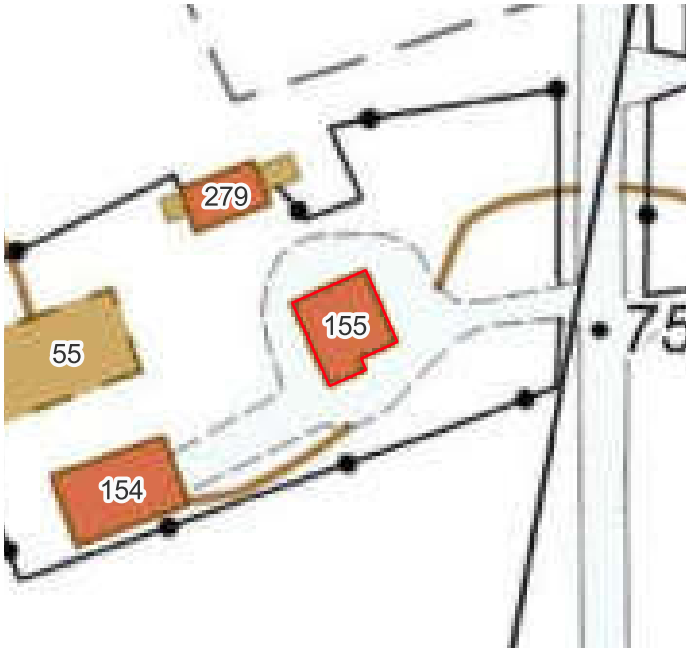
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**90:54**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:59**
Real Case - Ombreggiamento Ore/anno	**57:52**	**Worst Case - Ombreggiamento Giorni/anno**	**105**

RECETTORE n° 155

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700762.604
	X 221191.463
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	57
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO04
Distanza minima dalla WTG (m)	727.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

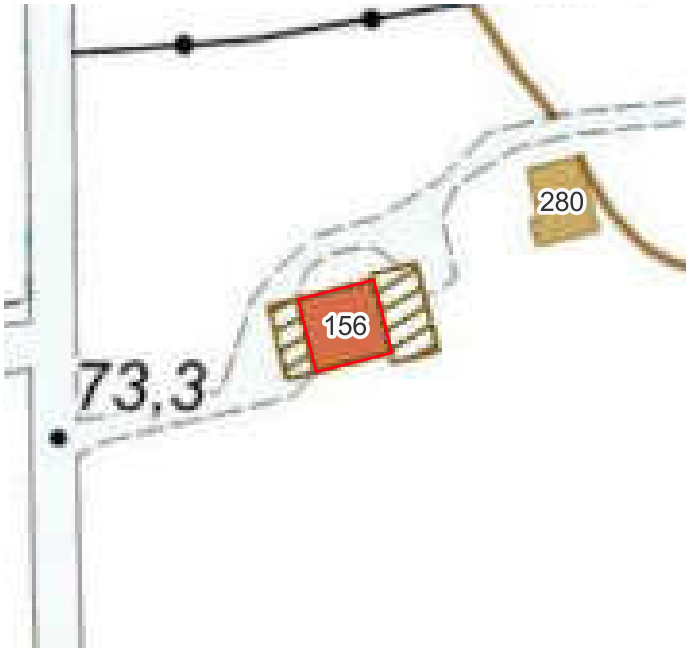
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**93:51**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:57**
Real Case - Ombreggiamento Ore/anno	**59:34**	**Worst Case - Ombreggiamento Giorni/anno**	**116**

RECETTORE n° 156

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700623.4
	X 221265.747
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	55
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO04
Distanza minima dalla WTG (m)	852

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

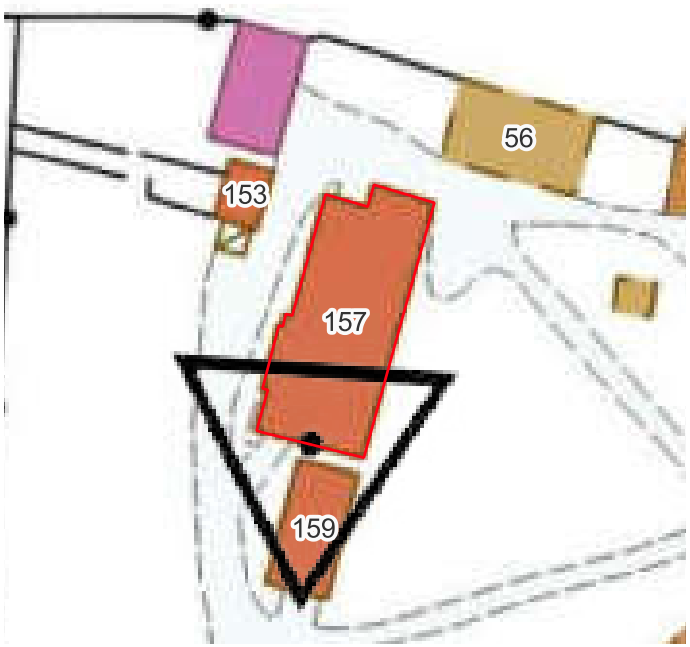
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**55:40**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:50**
Real Case - Ombreggiamento Ore/anno	**35:26**	**Worst Case - Ombreggiamento Giorni/anno**	**81**

RECETTORE n° 157

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701152.561
	X 221154.325
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	11
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO04
Distanza minima dalla WTG (m)	652.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**57:45**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:59**
Real Case - Ombreggiamento Ore/anno	**30:08**	**Worst Case - Ombreggiamento Giorni/anno**	**76**

RECETTORE n° 158

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701845.841
	X 221364.805
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	65
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1189.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

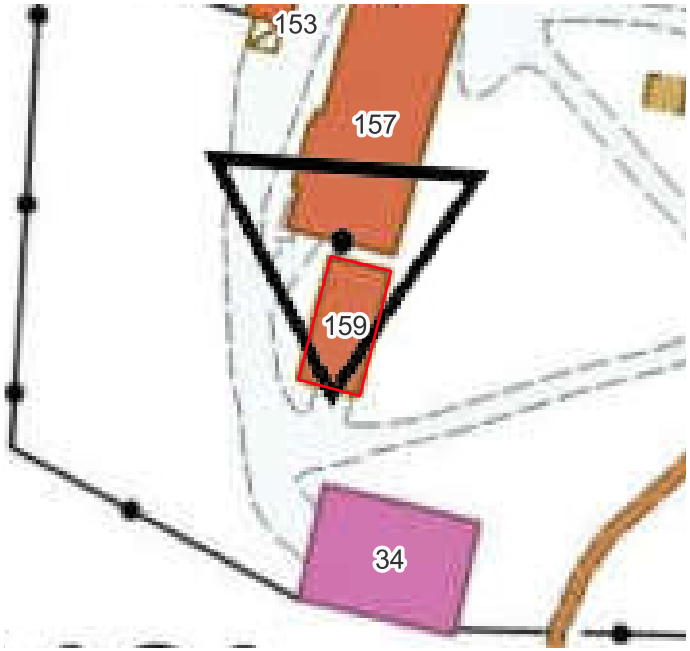
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**03:20**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:15**
Real Case - Ombreggiamento Ore/anno	**01:26**	**Worst Case - Ombreggiamento Giorni/anno**	**18**

RECETTORE n° 159

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701125.213
	X 221150.159
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	11
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO04
Distanza minima dalla WTG (m)	650

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

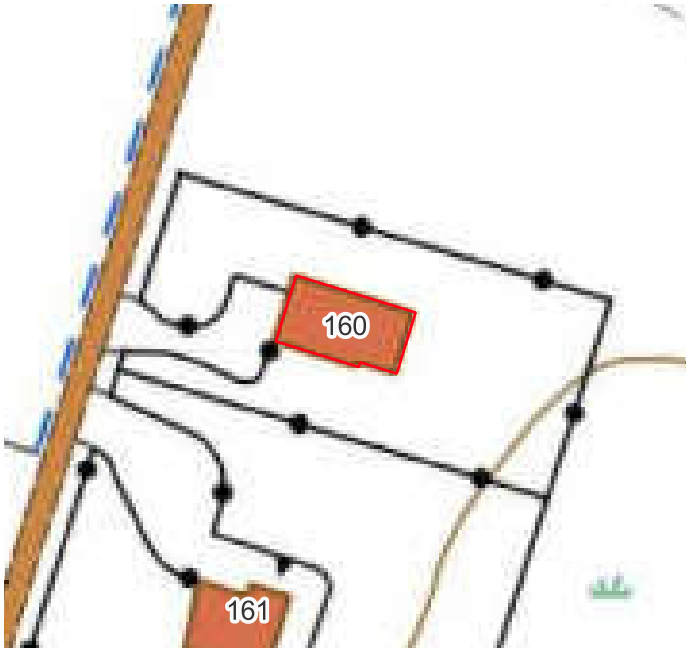
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**58:50**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:59**
Real Case - Ombreggiamento Ore/anno	**31:06**	**Worst Case - Ombreggiamento Giorni/anno**	**77**

RECETTORE n° 160

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701459.34
	X 213489.587
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	455
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1685

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

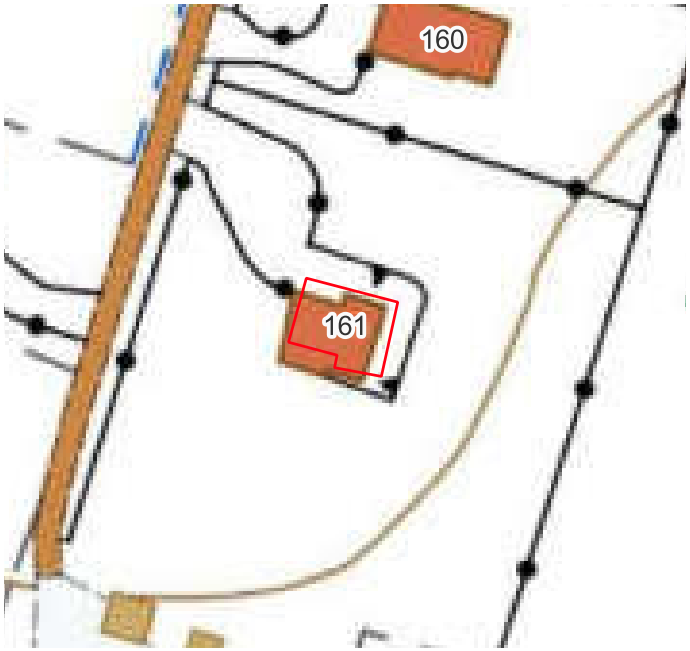
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**24:13**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**15:28**	**Worst Case - Ombreggiamento Giorni/anno**	**80**

RECETTORE n° 161

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701421.092
	X 213476.98
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	457
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1713

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

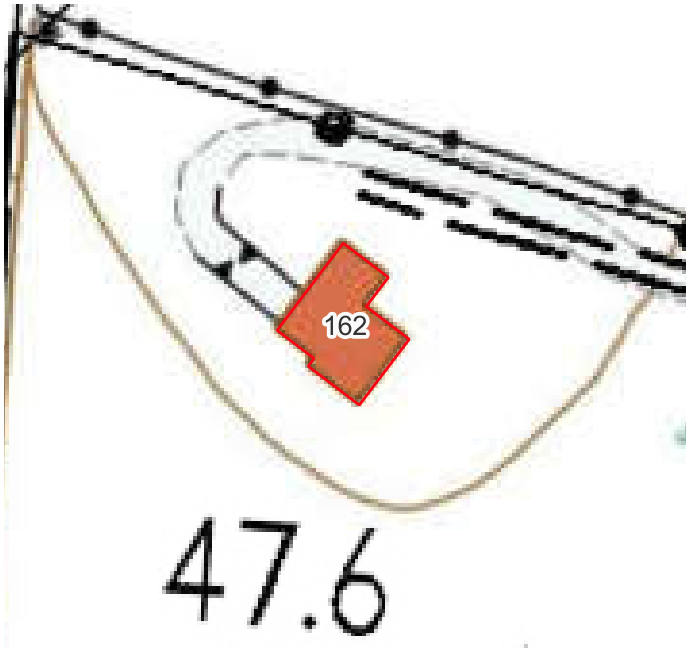
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**23:33**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**15:01**	**Worst Case - Ombreggiamento Giorni/anno**	**74**

RECETTORE n° 162

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702989.374
	X 213728.232
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	720
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1594.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

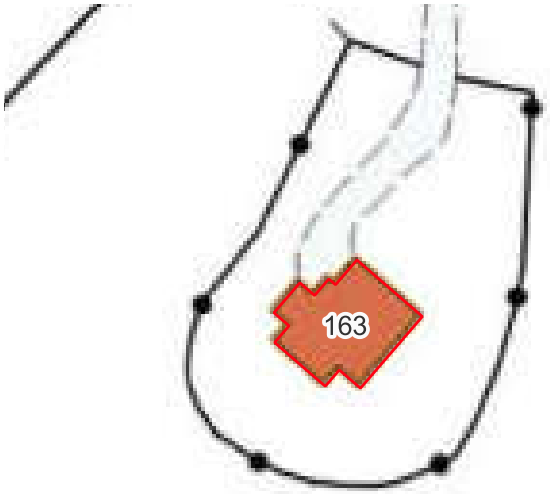
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**13:33**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**05:57**	**Worst Case - Ombreggiamento Giorni/anno**	**54**

RECETTORE n° 163

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703123.888
	X 213852.476
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	892
Destinazione d'uso (catastale)	F3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1578

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**19:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**08:10**	**Worst Case - Ombreggiamento Giorni/anno**	**52**

RECETTORE n° 164

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702655.162
	X 213691.922
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	498
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1468.6

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

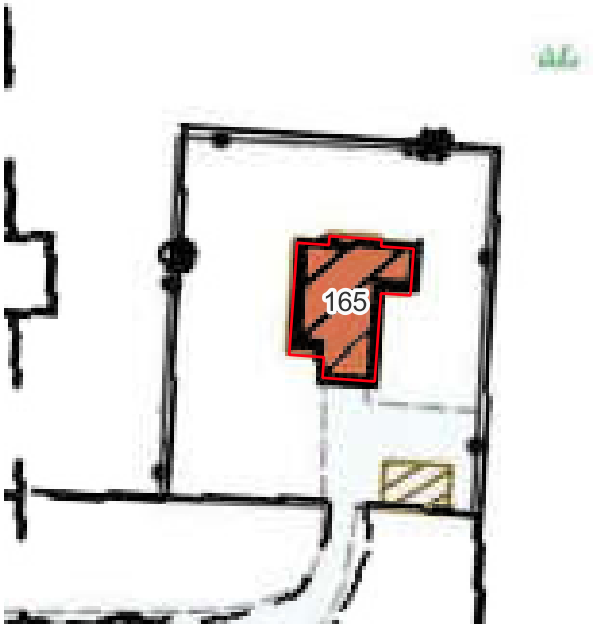
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**10:38**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**05:22**	**Worst Case - Ombreggiamento Giorni/anno**	**38**

RECETTORE n° 165

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703092.733
	X 213996.542
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	489
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1446.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**12:57**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**05:34**	**Worst Case - Ombreggiamento Giorni/anno**	**39**

RECETTORE n° 166

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702922.718
	X 214189.049
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	693
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1192.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

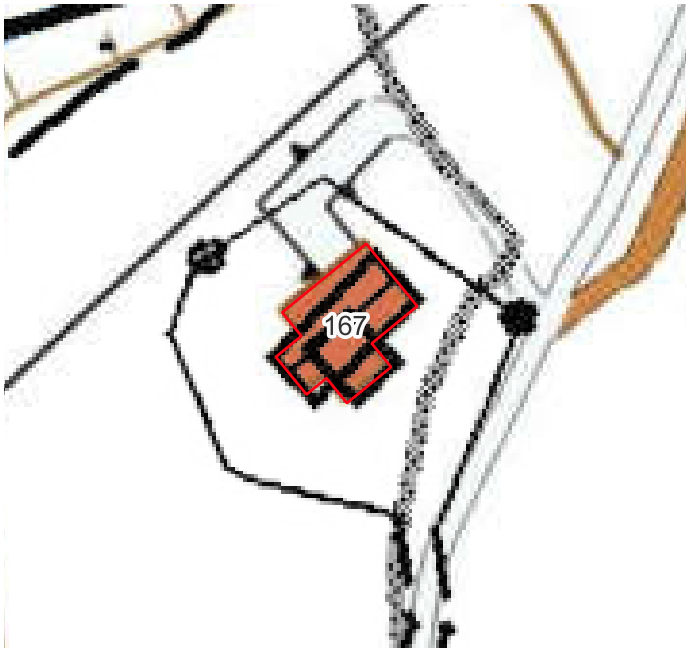
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**28:31**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:35**
Real Case - Ombreggiamento Ore/anno	**12:17**	**Worst Case - Ombreggiamento Giorni/anno**	**58**

RECETTORE n° 167

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703071.781
	X 214323.82
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	626
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1213.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

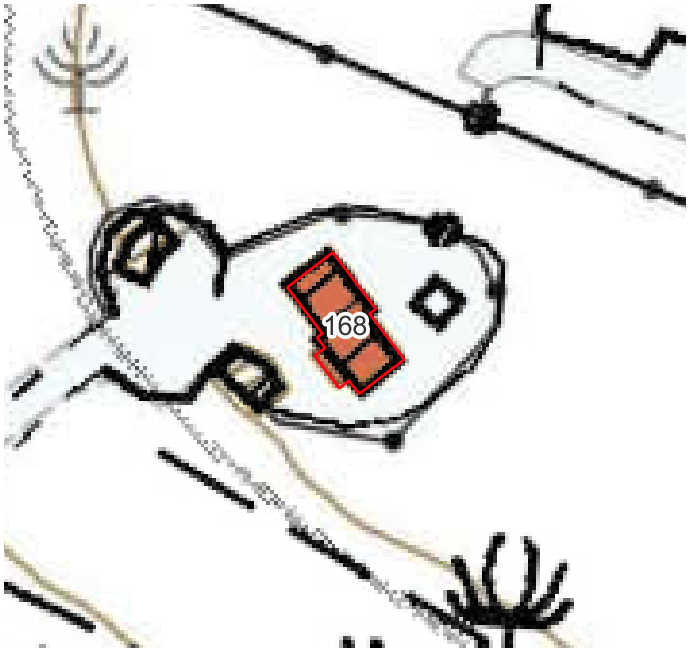
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 168

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702941.411
	X 214709.604
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	900
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	905.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

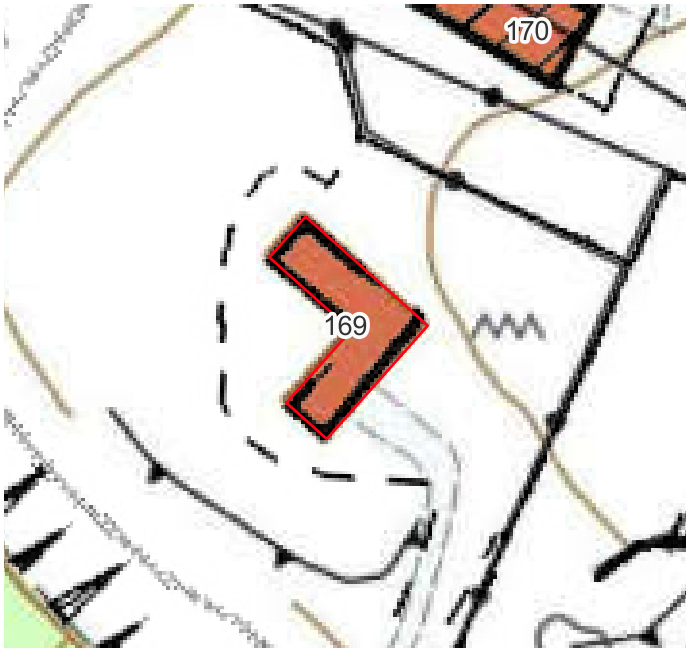
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 169

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703086.828
	X 214874.088
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	645
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO06
Distanza minima dalla WTG (m)	993

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

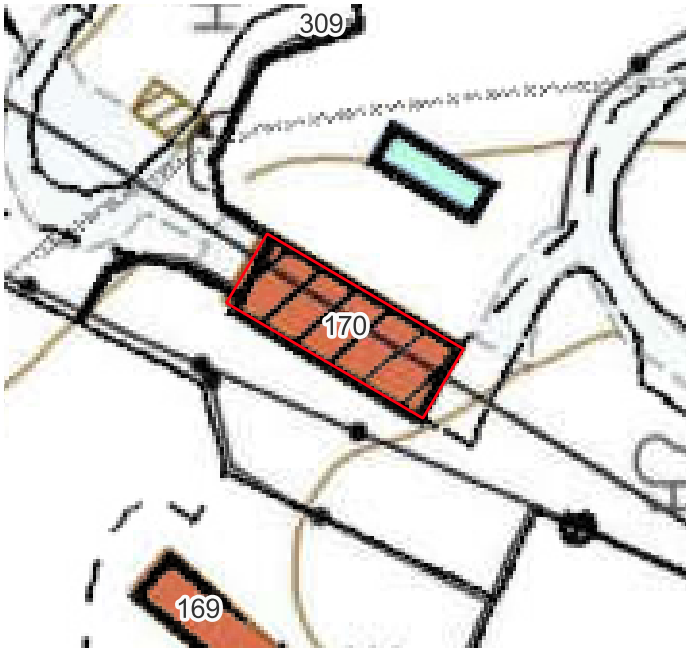
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 170

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703131.186
	X 214891.88
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	707
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1034.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

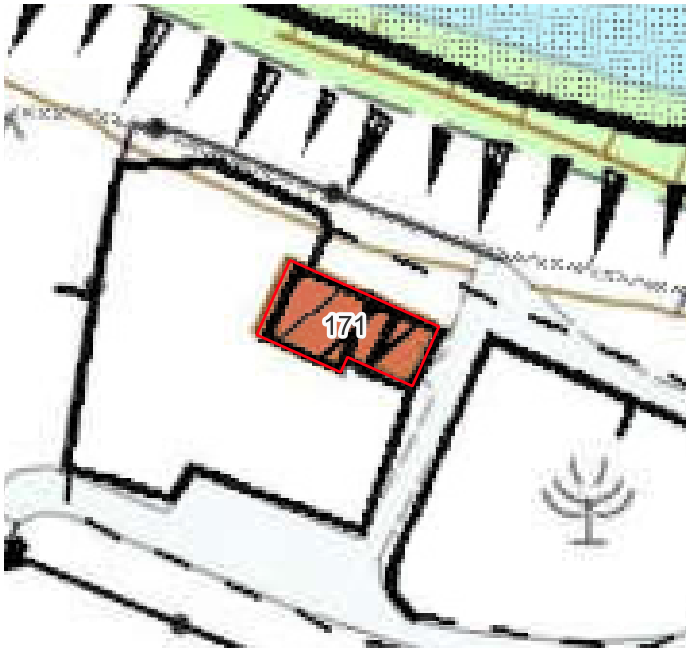
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

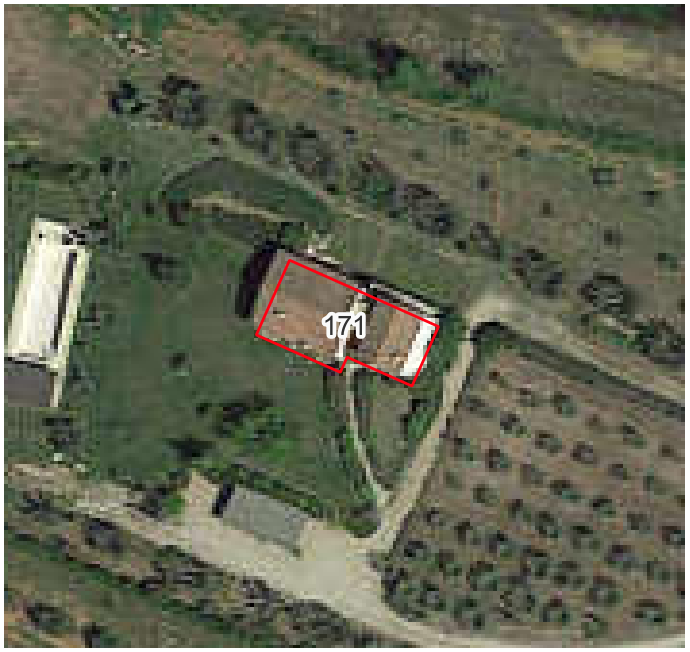
RECETTORE n° 171

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702998.92
	X 214772.039
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	501
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	936.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000



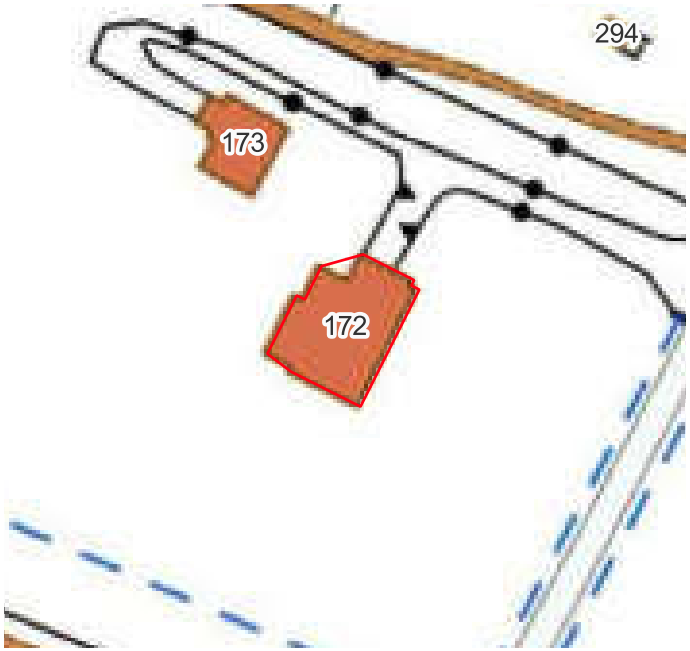
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 172

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701025.629
	X 215105.572
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	174
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1061.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

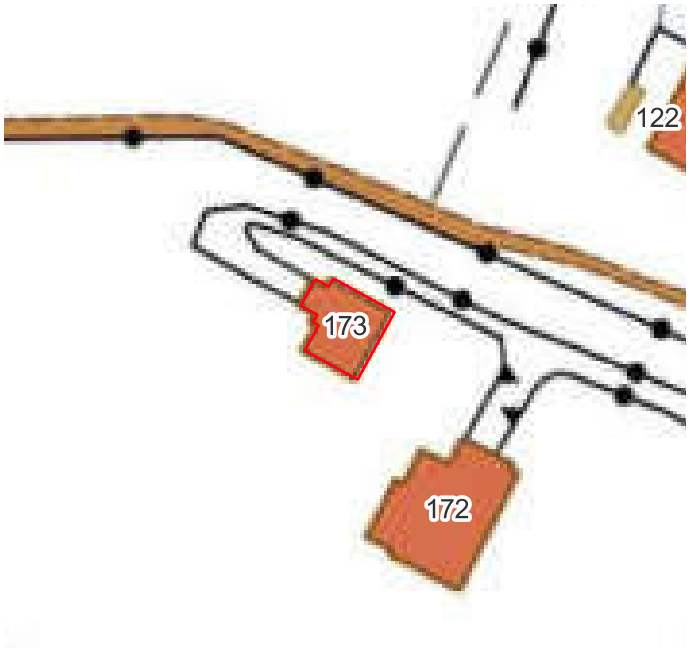
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 173

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701049.884
	X 215092.045
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	192
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1040.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

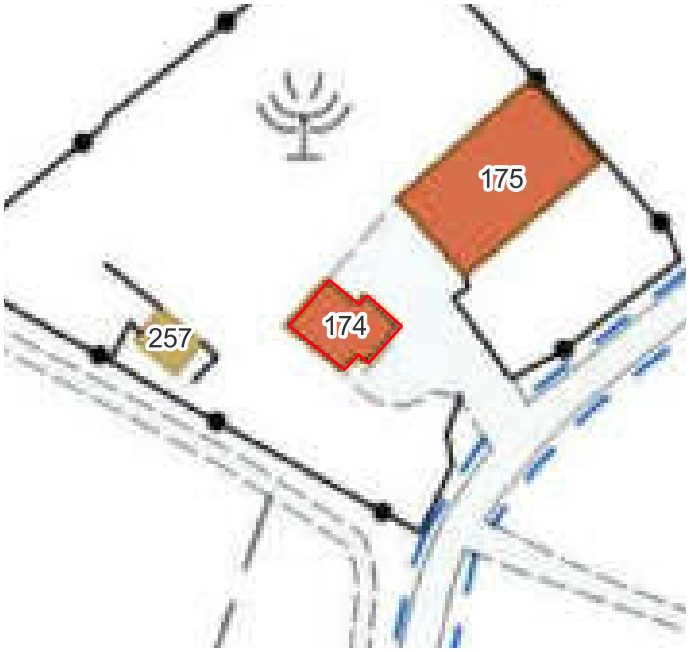
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 174

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700501.808
	X 214581.627
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	366
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1658.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 175

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700521.276
	X 214602.336
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	366
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1625.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

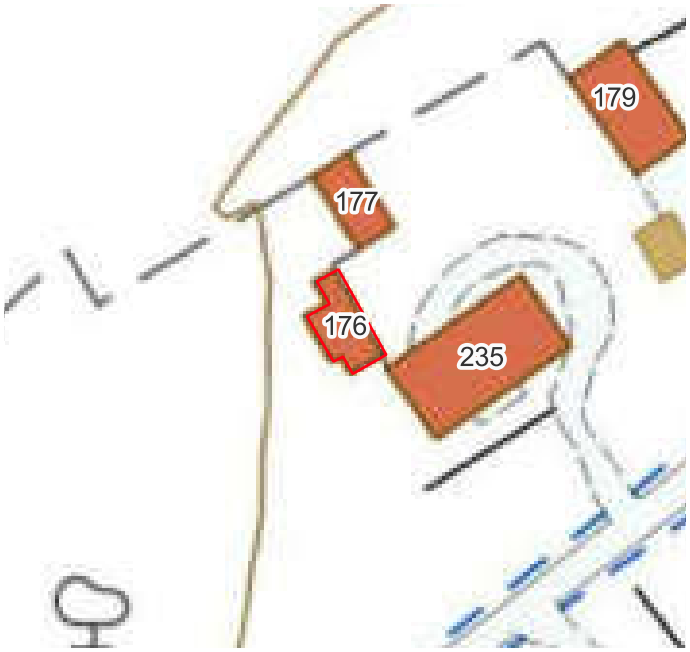
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 176

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700663.003
	X 214758.012
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	527
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1457.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 177

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700679.451
	X 214759.531
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	543
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1441.7

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 178

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700424.929
	X 214745.582
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	56
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1689.6

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

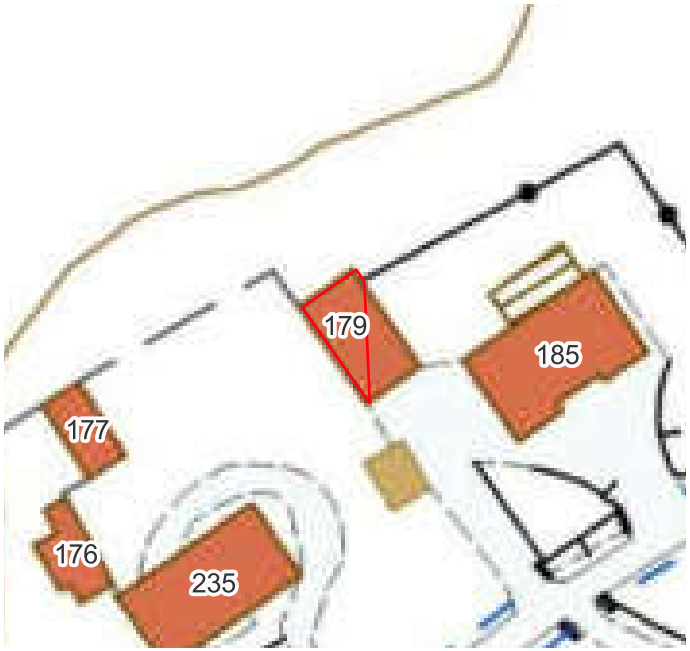
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 179

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700693.242
	X 214793.63
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	416
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1420

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 180

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700802.315
	X 215127.346
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	163
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1284.7

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**05:10**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:18**
Real Case - Ombreggiamento Ore/anno	**02:36**	**Worst Case - Ombreggiamento Giorni/anno**	**26**

RECETTORE n° 181

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700599.633
	X 214839.342
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	193
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1502.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

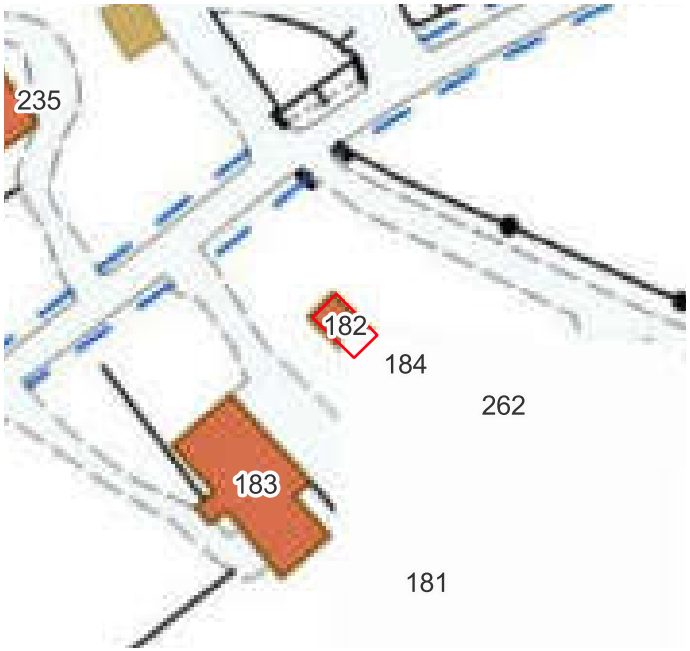
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 182

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700633.64
	X 214828.515
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	193
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1476.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

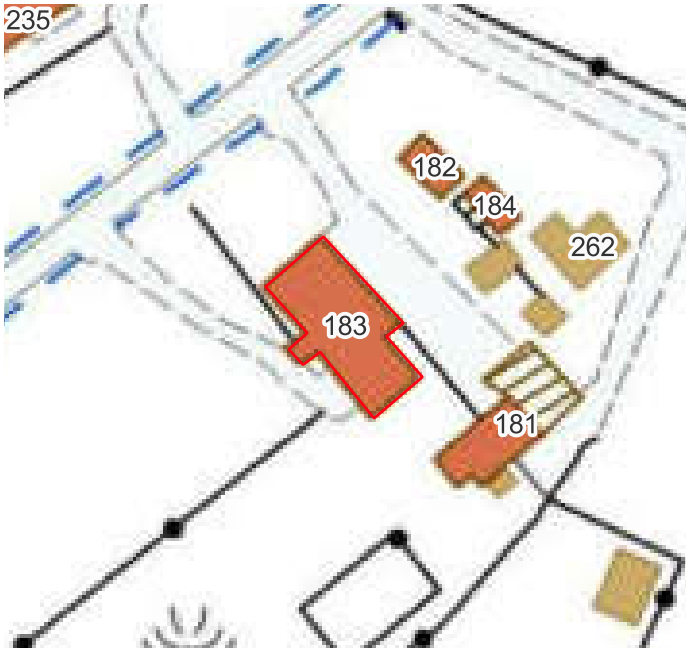
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 183

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700612.644
	X 214816.683
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	48
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1491.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

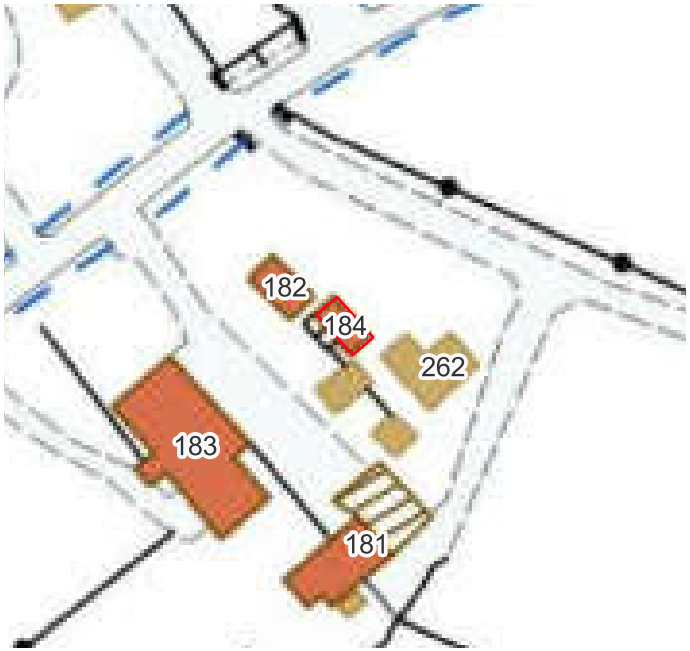
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 184

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700628.549
	X 214836.503
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	193
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1480.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

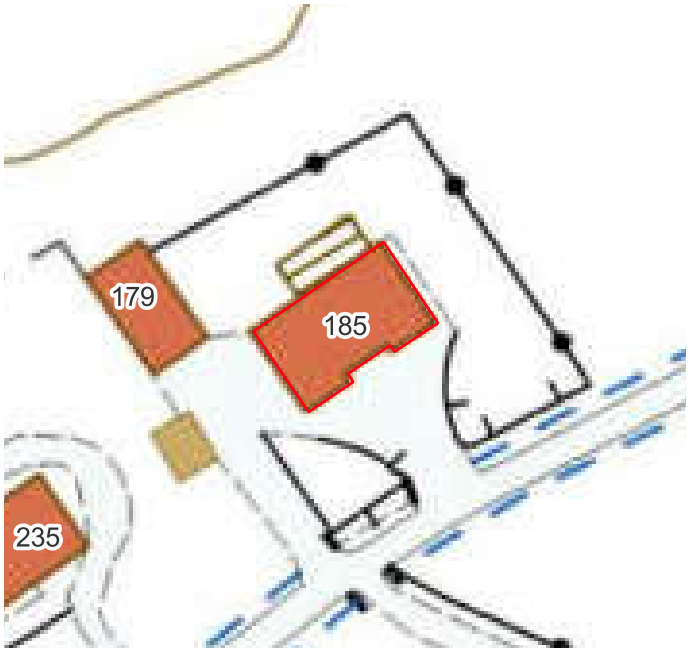
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 185

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700689.397
	X 214821.742
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	416
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1414.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 186

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700722.962
	X 215198.125
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	170
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1369.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**06:07**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:20**
Real Case - Ombreggiamento Ore/anno	**03:04**	**Worst Case - Ombreggiamento Giorni/anno**	**28**

RECETTORE n° 187

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700619.928
	X 216413.152
Comune	Montalto di Castro
Foglio catastale	0018
Particella catastale	188
Destinazione d'uso (catastale)	C7
Destinazione d'uso presunta	Diruto
WTG più vicina	MO05
Distanza minima dalla WTG (m)	618.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

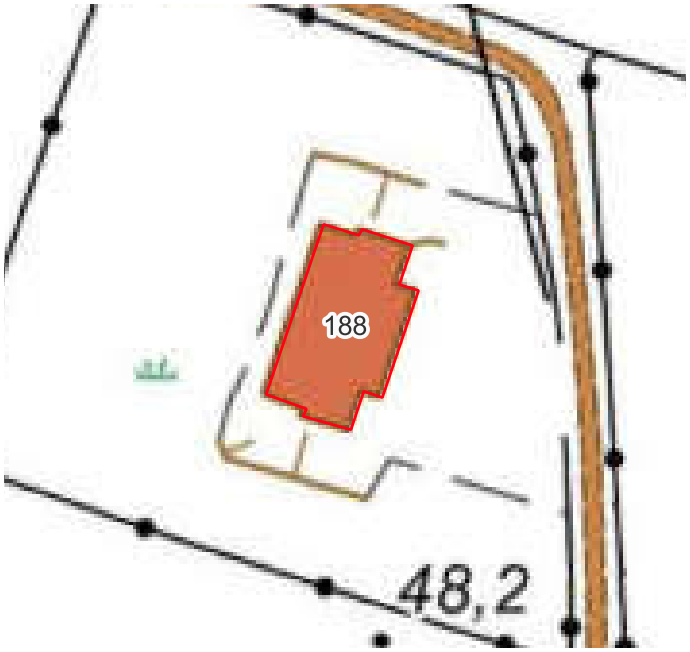
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**104:36**	**Worst Case - Ombreggiamento Max ore/giorno**	**01:05**
Real Case - Ombreggiamento Ore/anno	**47:50**	**Worst Case - Ombreggiamento Giorni/anno**	**136**

RECETTORE n° 188

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700280.678
	X 218099.41
Comune	Montalto di Castro
Foglio catastale	0018
Particella catastale	139
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione non in uso
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1166

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

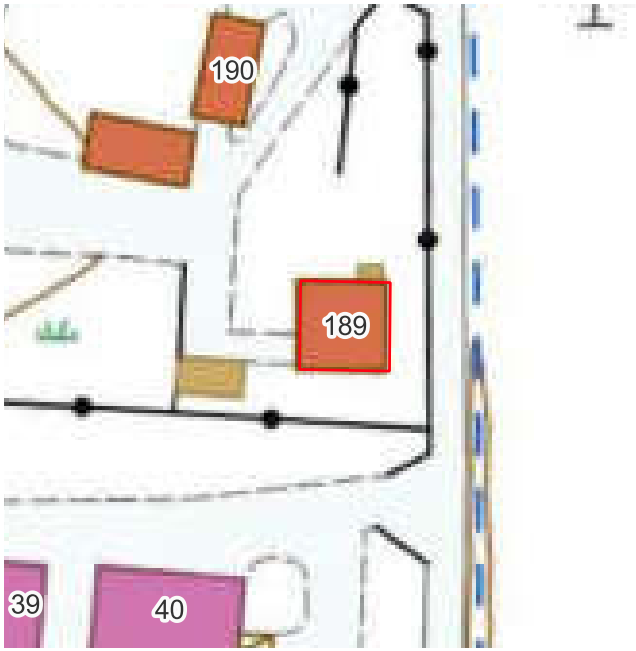
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**15:30**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:32**
Real Case - Ombreggiamento Ore/anno	**08:24**	**Worst Case - Ombreggiamento Giorni/anno**	**43**

RECETTORE n° 189

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699879.898
	X 218091.527
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	271
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1219.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

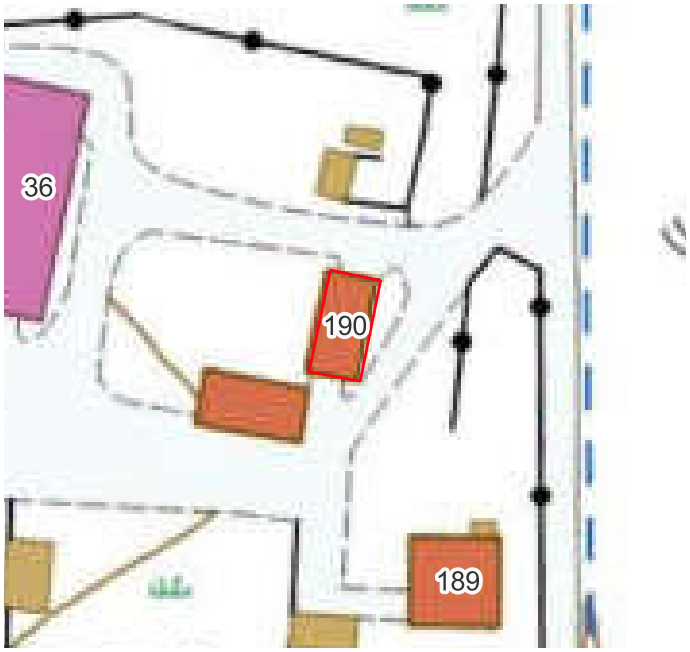
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**19:40**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:32**
Real Case - Ombreggiamento Ore/anno	**12:12**	**Worst Case - Ombreggiamento Giorni/anno**	**54**

RECETTORE n° 190

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699913.712
	X 218076.592
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	271
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1198.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

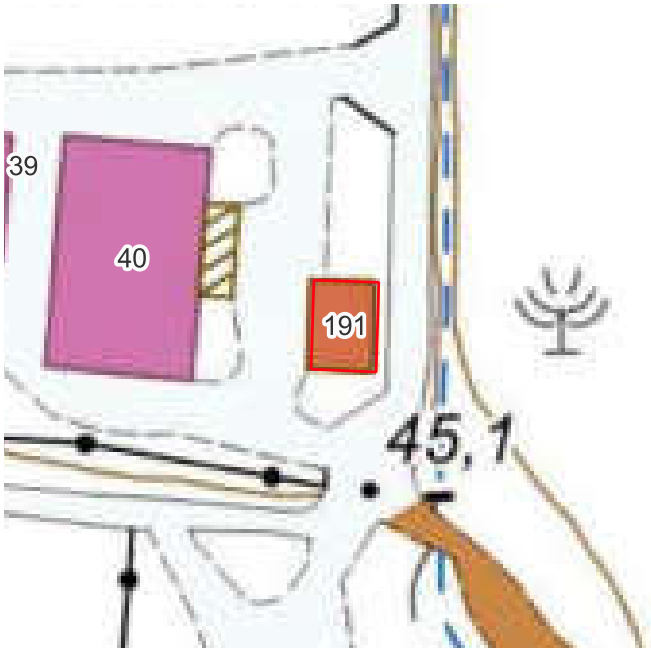
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**19:42**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:33**
Real Case - Ombreggiamento Ore/anno	**12:07**	**Worst Case - Ombreggiamento Giorni/anno**	**53**

RECETTORE n° 191

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699823.062
	X 218095.929
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	279
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1243.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

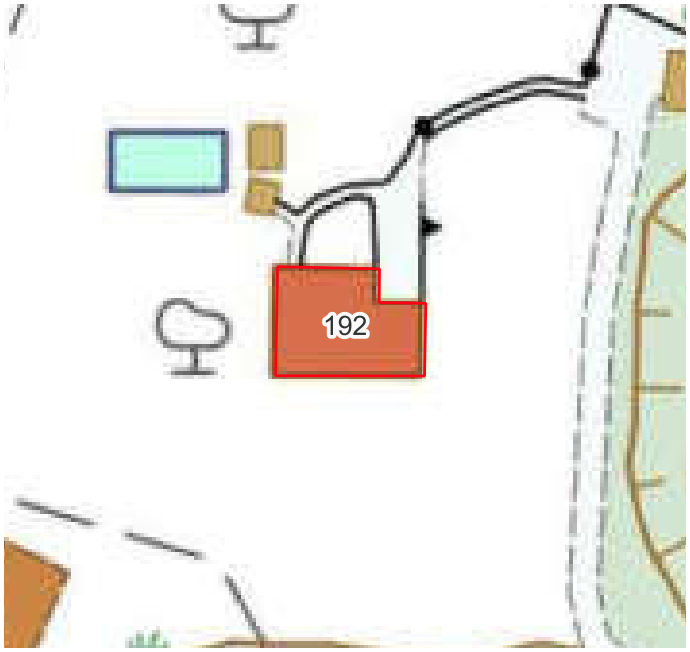
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**21:13**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:32**
Real Case - Ombreggiamento Ore/anno	**13:23**	**Worst Case - Ombreggiamento Giorni/anno**	**59**

RECETTORE n° 192

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700226.447
	X 218244.568
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	160
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1312.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**11:29**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:27**
Real Case - Ombreggiamento Ore/anno	**06:16**	**Worst Case - Ombreggiamento Giorni/anno**	**37**

RECETTORE n° 193

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700540.447
	X 219724.246
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	154
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	902.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 194

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700585.875
	X 219748.626
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	154
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	854.7

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

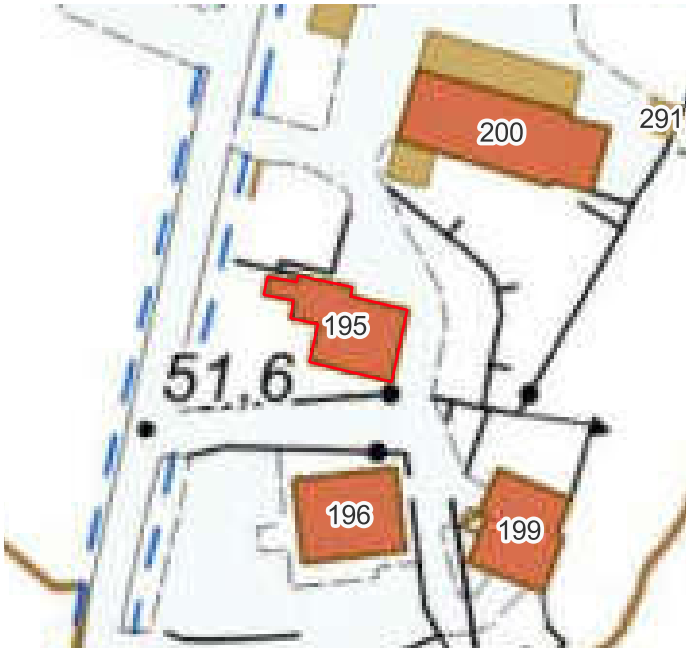
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 195

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700347.426
	X 218848.349
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	130
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1089.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

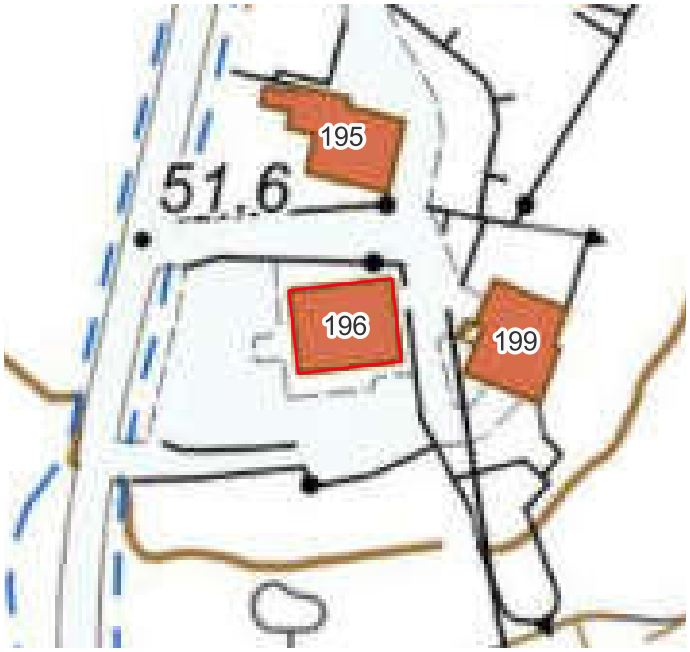
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**21:48**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**13:56**	**Worst Case - Ombreggiamento Giorni/anno**	**80**

RECETTORE n° 196

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700322.383
	X 218848.842
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	132
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1110.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**22:39**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**14:27**	**Worst Case - Ombreggiamento Giorni/anno**	**75**

RECETTORE n° 197

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700408.217
	X 218818.556
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	146
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1035.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

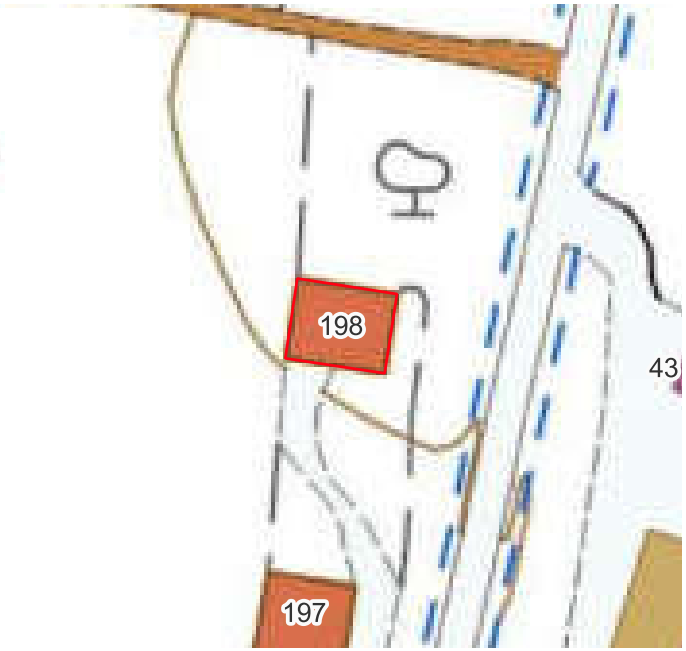
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**13:56**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:23**
Real Case - Ombreggiamento Ore/anno	**08:52**	**Worst Case - Ombreggiamento Giorni/anno**	**53**

RECETTORE n° 198

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700451.908
	X 218824.166
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	146
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	997.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

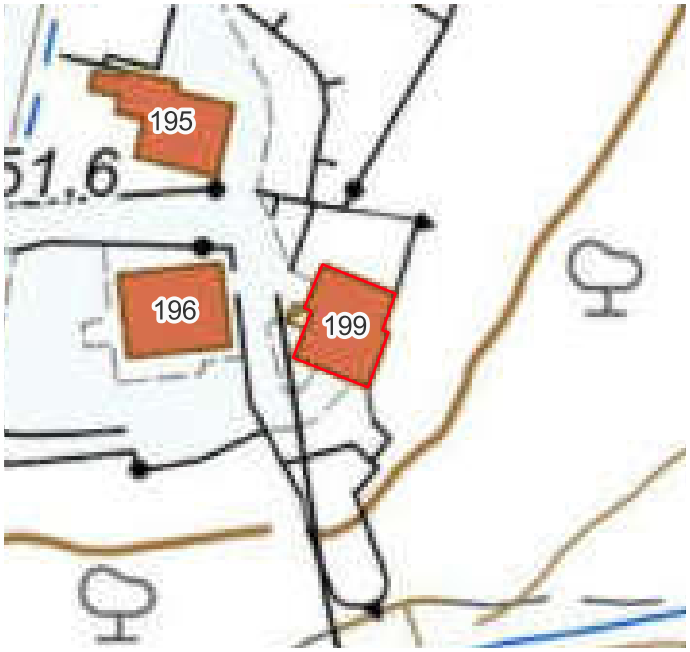
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**12:33**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:23**
Real Case - Ombreggiamento Ore/anno	**07:59**	**Worst Case - Ombreggiamento Giorni/anno**	**47**

RECETTORE n° 199

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700320.335
	X 218871.4
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	131
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1107

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**22:58**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**14:38**	**Worst Case - Ombreggiamento Giorni/anno**	**73**

RECETTORE n° 200

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700373.021
	X 218869.086
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	130
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1059.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

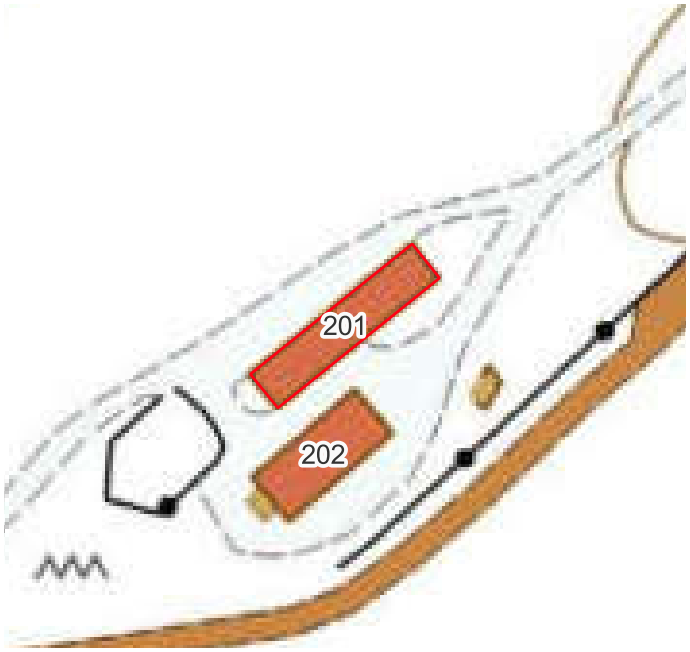
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**20:40**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**13:14**	**Worst Case - Ombreggiamento Giorni/anno**	**83**

RECETTORE n° 201

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700358.512
	X 220773.079
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	321
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO04
Distanza minima dalla WTG (m)	705.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

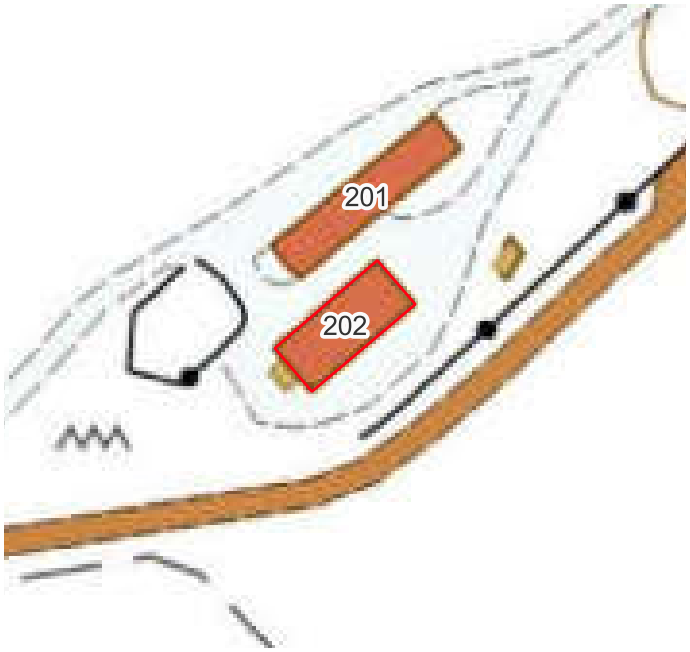
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 202

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700341.461
	X 220770.199
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	322
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO04
Distanza minima dalla WTG (m)	720.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 203

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700112.406
	X 221791.735
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	211
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1567.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 204

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700107.636
	X 221815.26
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	211
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1588

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 205

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700084.824
	X 221802.213
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	211
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1592.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

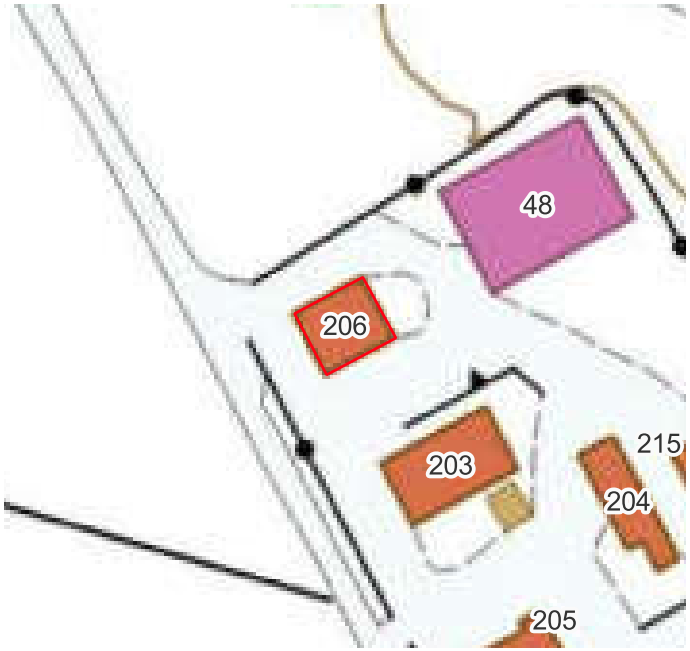
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 206

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700130.881
	X 221777.735
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	211
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1546.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 207

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700399.806
	X 220882.417
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	231
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	717.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

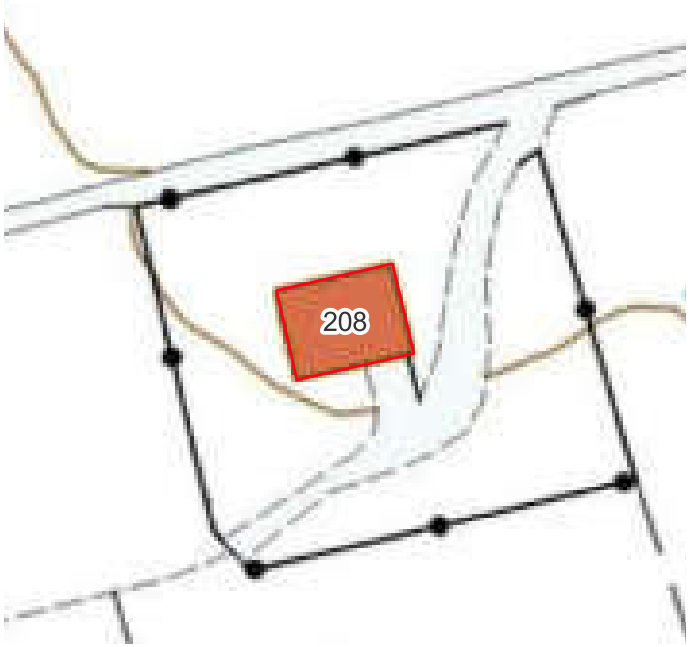
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 208

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700070.695
	X 221127.2
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	244
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1125.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 209

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699736.227
	X 221535.921
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	149
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1638.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

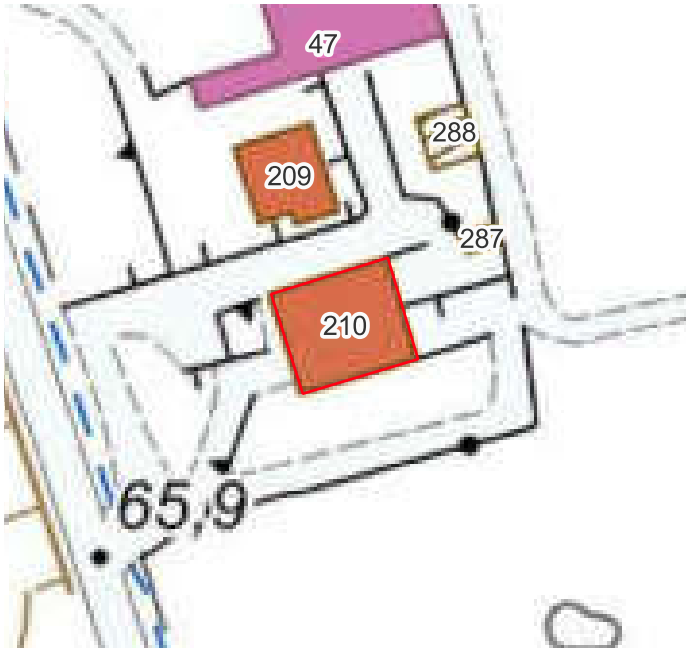
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 210

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699716.409
	X 221543.288
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	147
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1656

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 211

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700230.779
	X 221588.778
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	188
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1329.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

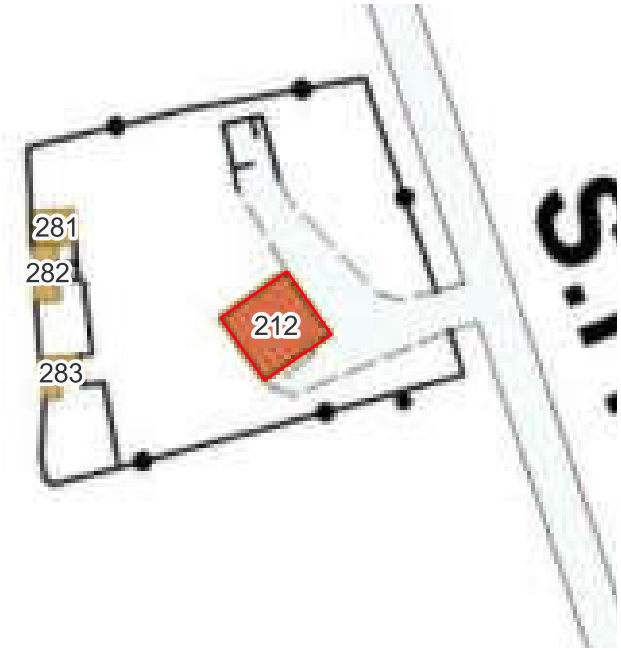
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 212

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700242.559
	X 221291.42
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	299
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione non in uso
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1099.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

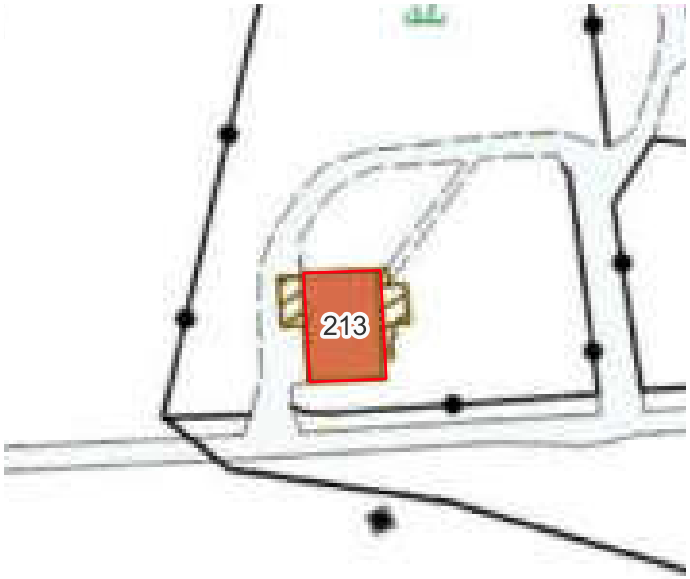
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 213

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700180.859
	X 221543.168
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	187
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1326.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

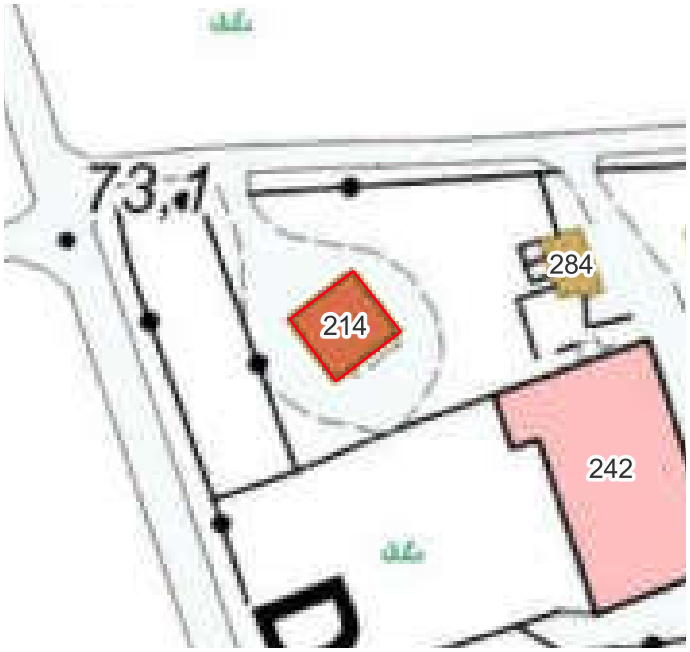
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 214

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700134.628
	X 221389.822
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	182
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione non in uso
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1245.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 215

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700105.576
	X 221830.538
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	211
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1598.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

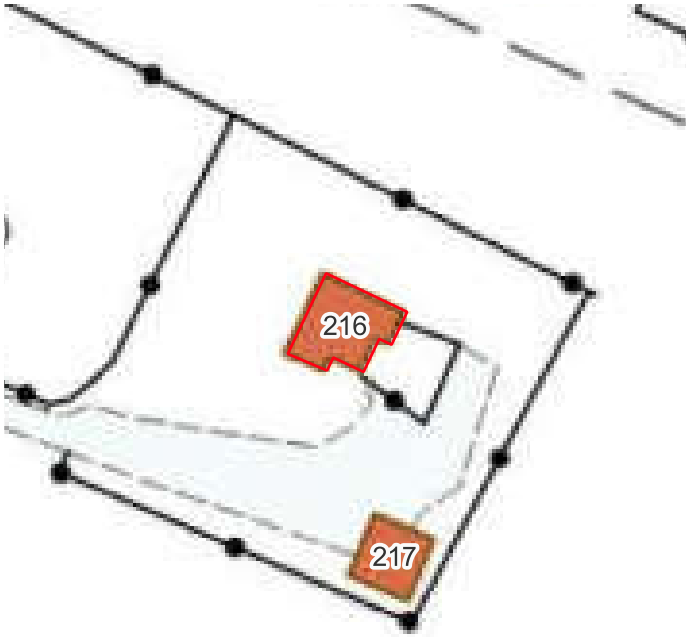
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 216

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700635.824
	X 214938.197
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	205
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1458.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

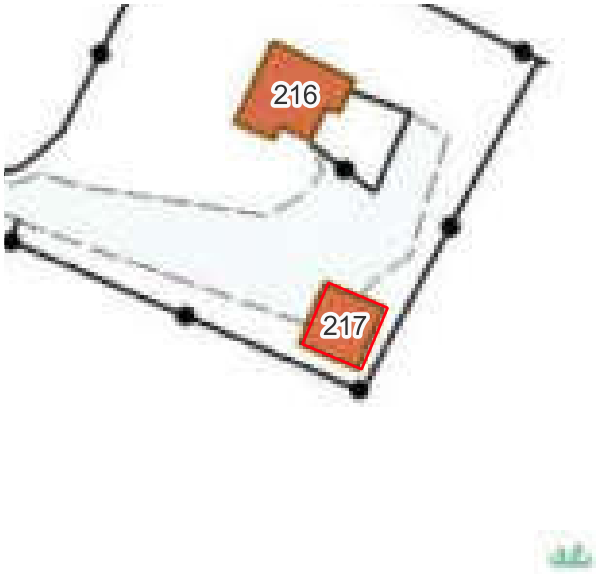
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 217

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700605.255
	X 214944.745
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	205
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1489.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

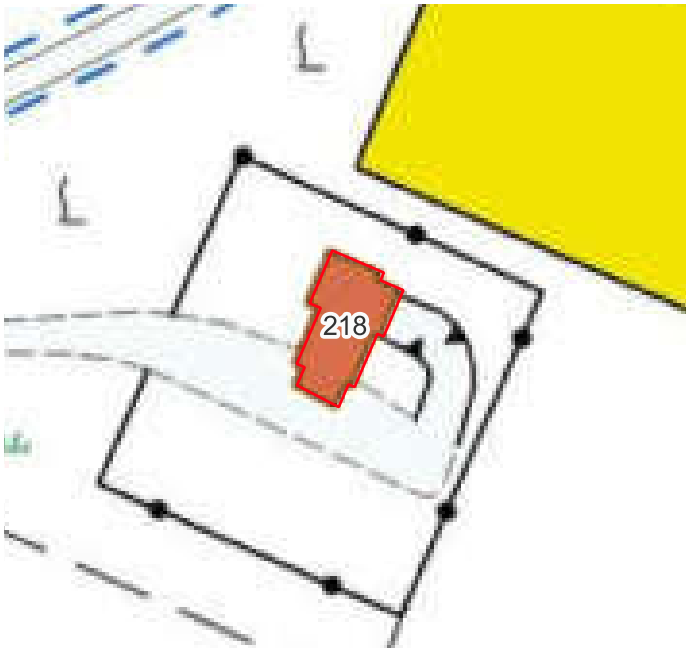
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 218

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700698.255
	X 215009.215
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	234
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1388.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 219

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700134.974
	X 218368.038
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	162
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1435

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

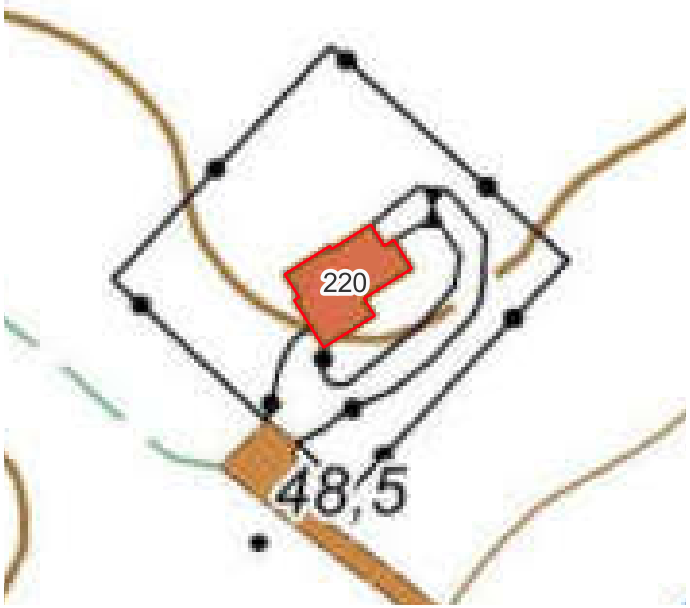
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**09:33**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**05:17**	**Worst Case - Ombreggiamento Giorni/anno**	**34**

RECETTORE n° 220

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699786.481
	X 219246.02
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	230
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1597

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

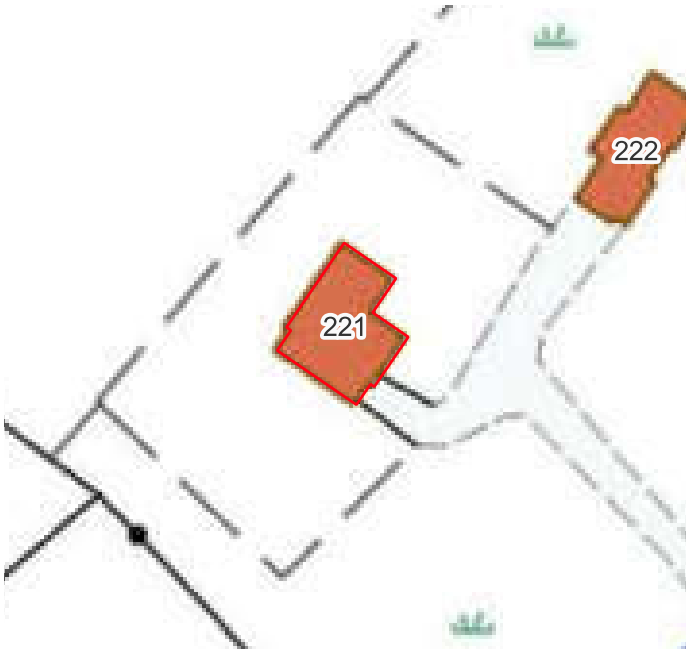
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 221

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700580.222
	X 214617.301
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	497
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1568.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

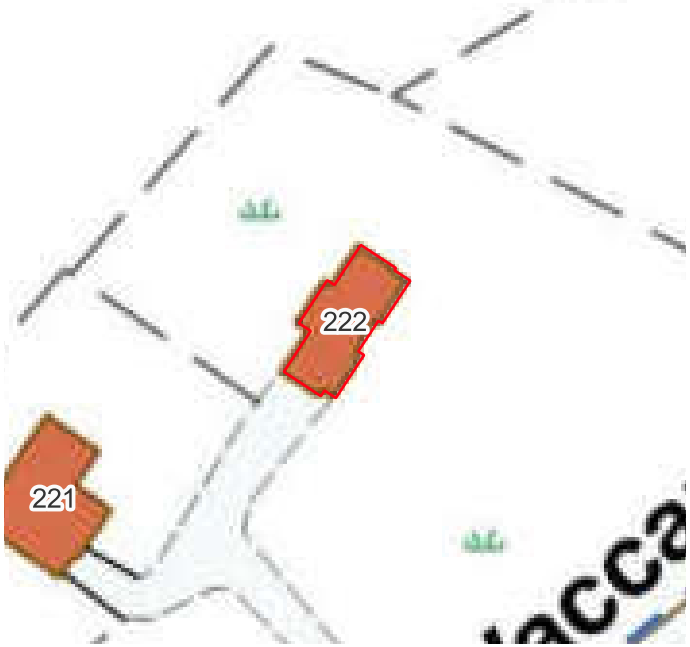
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 222

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700603.716
	X 214656.17
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	496
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1535.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

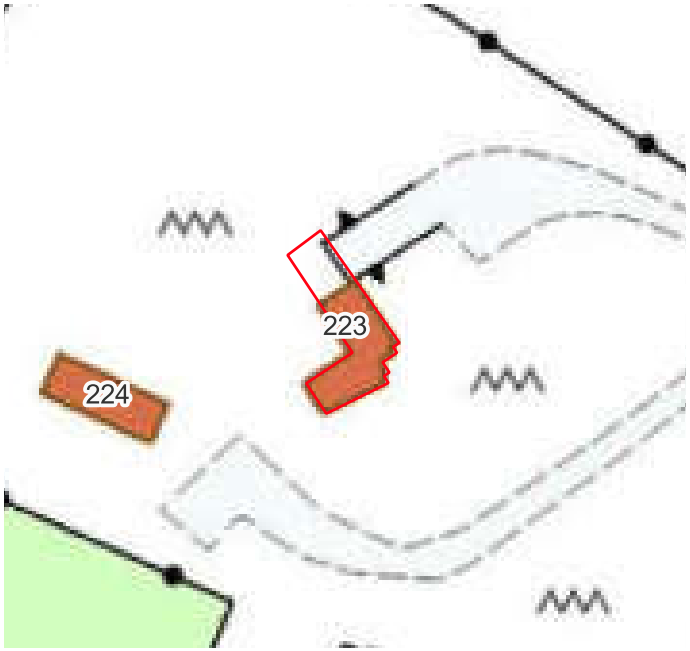
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 223

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700511.382
	X 214444.401
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	558
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1689

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 224

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700502.308
	X 214412.985
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	560
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1716.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 225

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703635.452
	X 215538.339
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	552
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1601.6

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

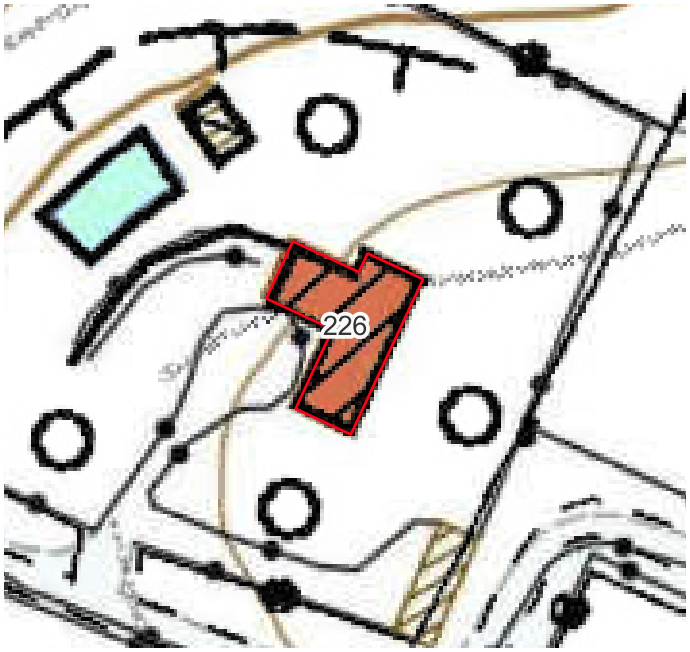
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 226

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703623.737
	X 215359.288
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	476
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1541.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

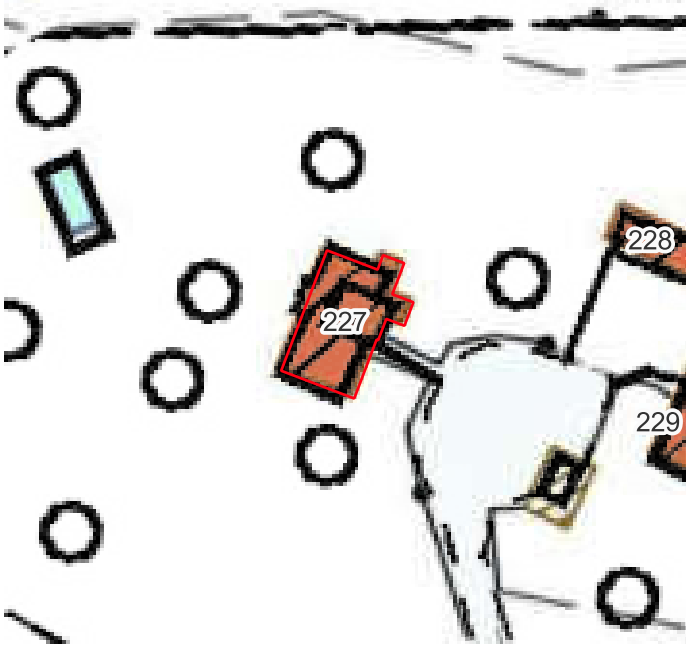
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 227

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703203.103
	X 215259.295
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	410
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1113.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 228

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703213.372
	X 215301.012
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	461
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1137.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

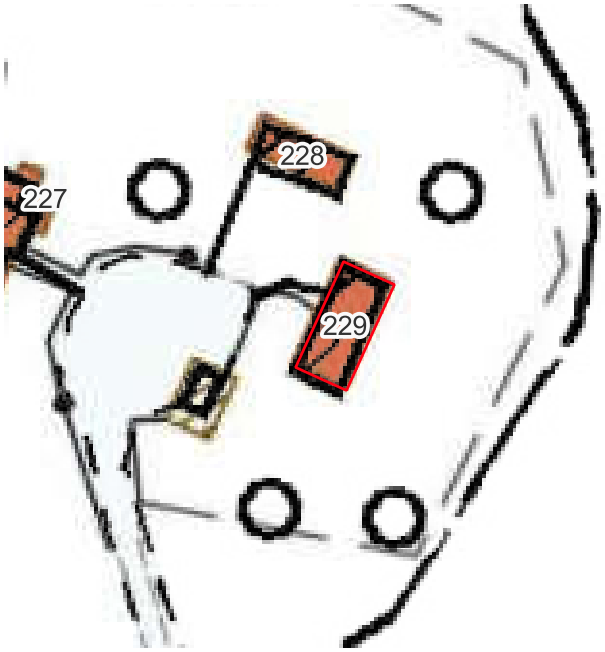
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 229

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703190.852
	X 215306.661
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	419
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1112.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 230

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703238.215
	X 214970.038
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	429
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1133.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

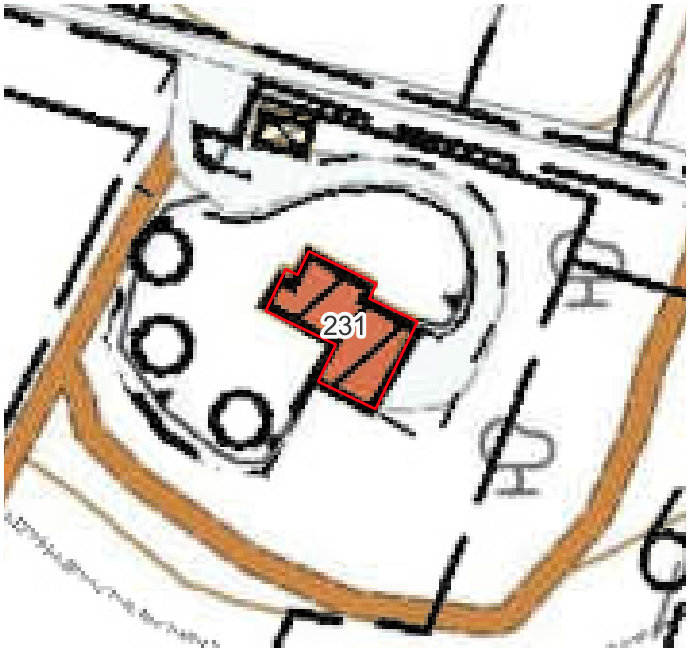
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 231

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703465.085
	X 214570.474
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	546
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1441.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

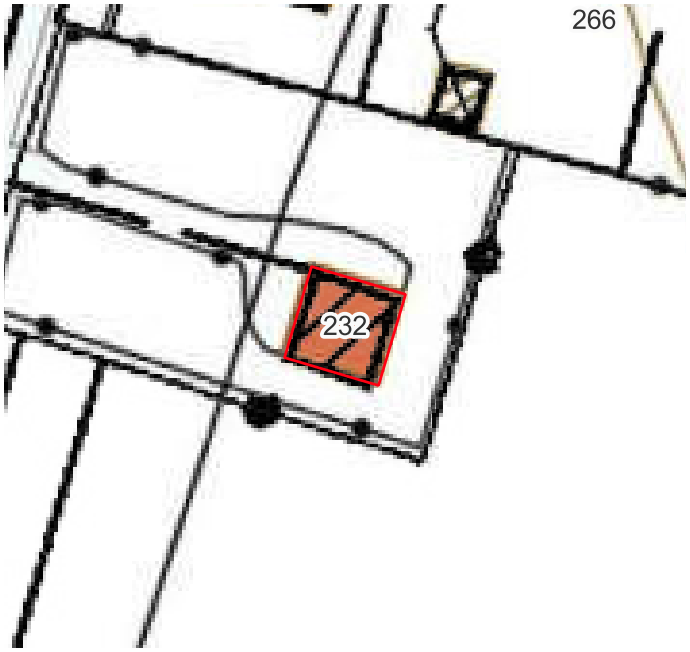
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 232

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703443.987
	X 214023.567
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	806
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1690.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

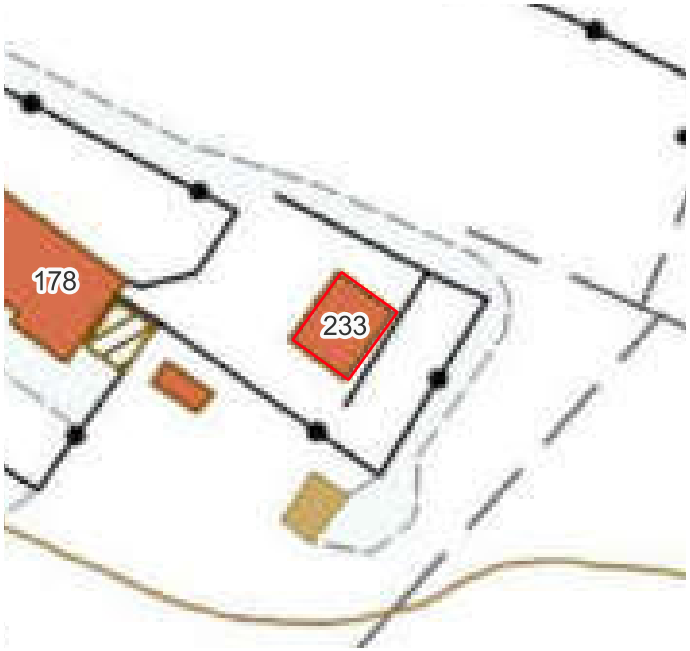
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 233

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700418.077
	X 214786.441
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	210
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1692.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 234

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703227.117
	X 213787.532
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	619
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1693.6

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

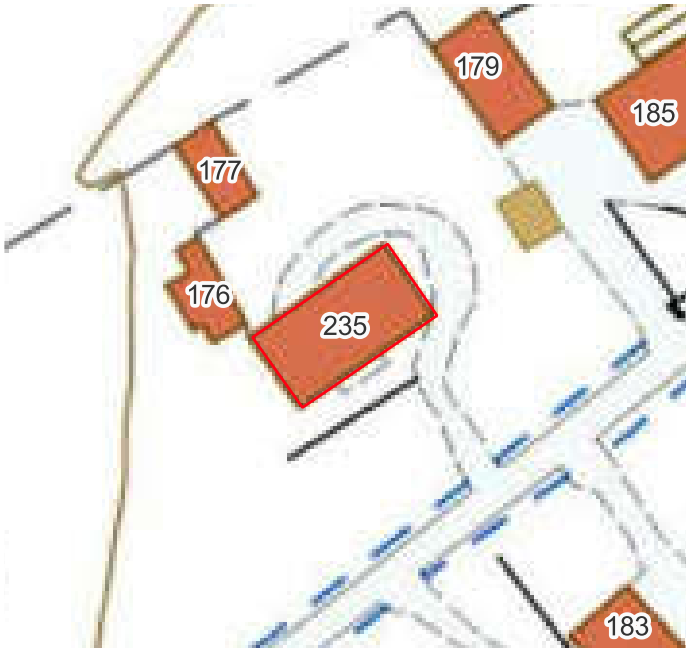
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**11:24**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:22**
Real Case - Ombreggiamento Ore/anno	**04:54**	**Worst Case - Ombreggiamento Giorni/anno**	**38**

RECETTORE n° 235

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700658.891
	X 214776.118
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	526
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1452.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

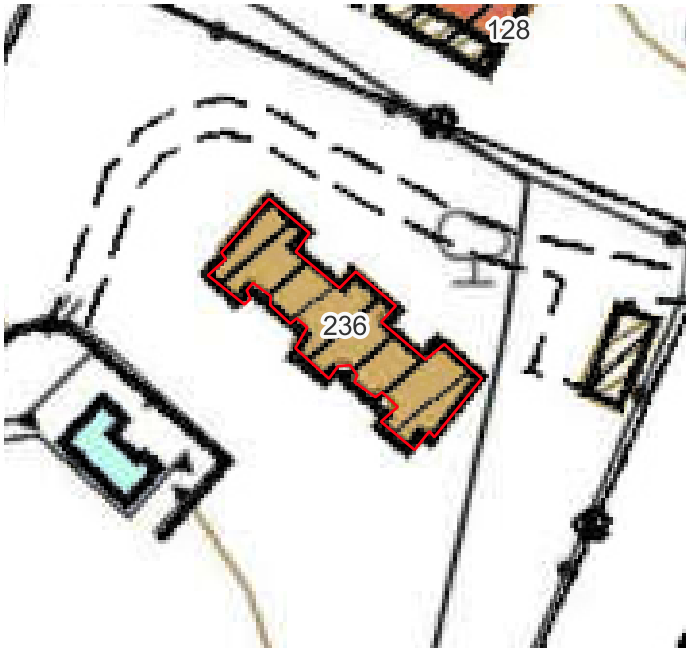
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 236

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703058.217
	X 214956.169
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	404
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	949.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

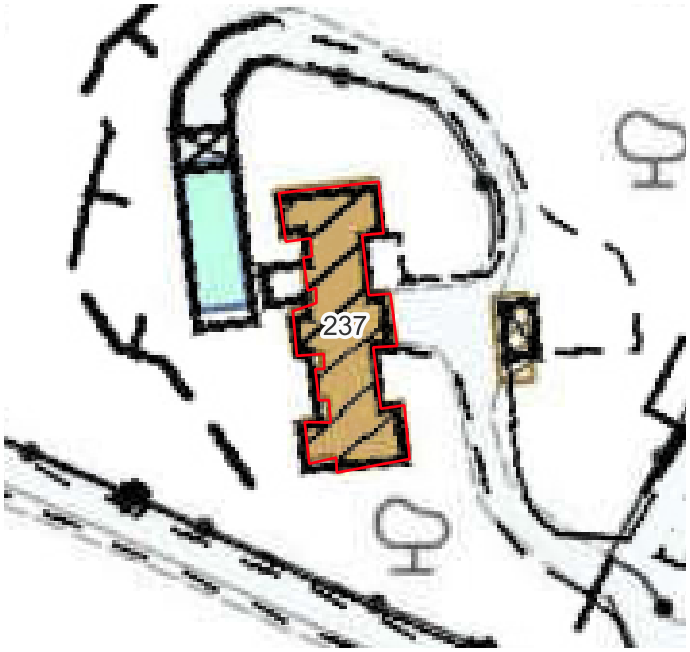
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 237

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702984.708
	X 215034.992
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	405
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	868.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

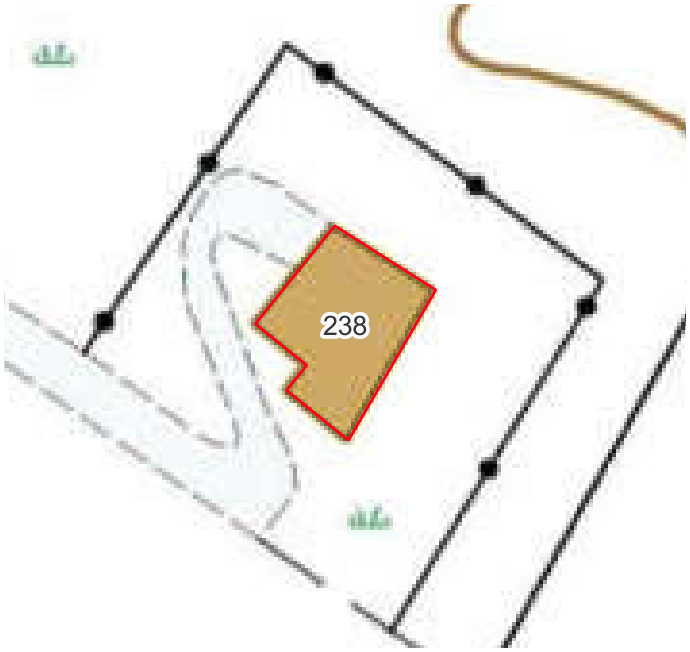
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 238

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702588.983
	X 213863.117
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	915
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1284.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**15:01**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:31**
Real Case - Ombreggiamento Ore/anno	**07:34**	**Worst Case - Ombreggiamento Giorni/anno**	**42**

RECETTORE n° 239

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703664.053
	X 215001.826
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	736
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1550.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

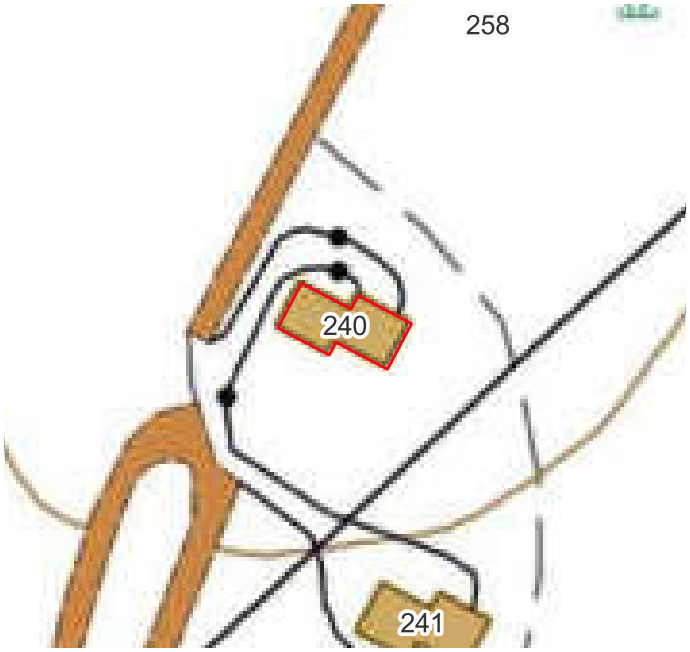
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 240

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703233.301
	X 214435.986
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	753
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1288.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

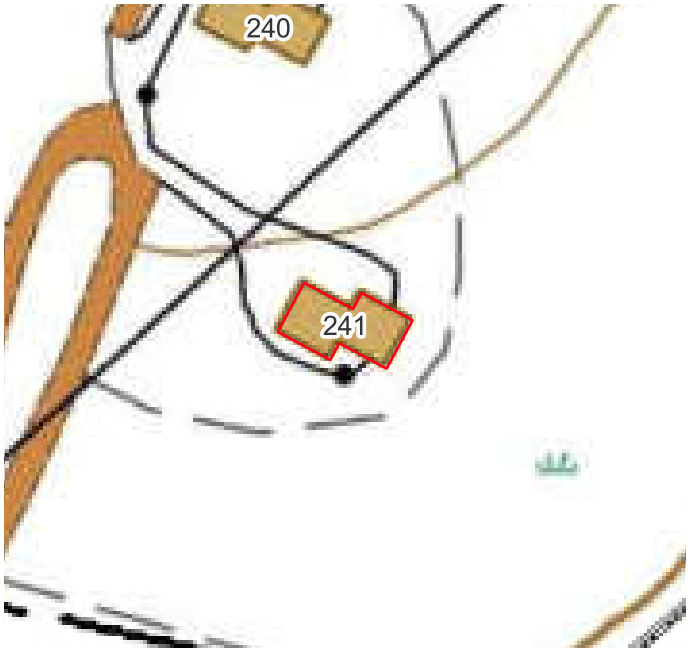
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 241

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703193.389
	X 214446.581
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	753
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1248.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

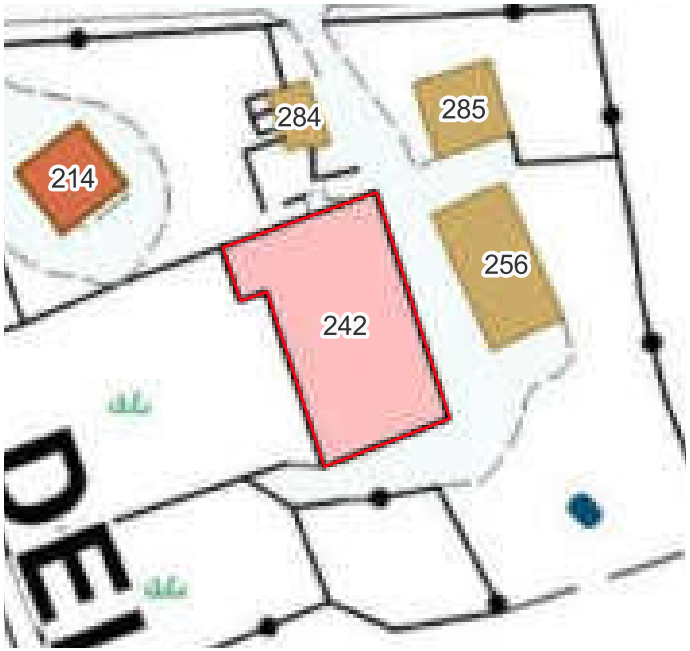
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 242

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700115.125
	X 221425.804
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	240
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1271.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 243

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700460.692
	X 218886.058
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	134
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	966.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

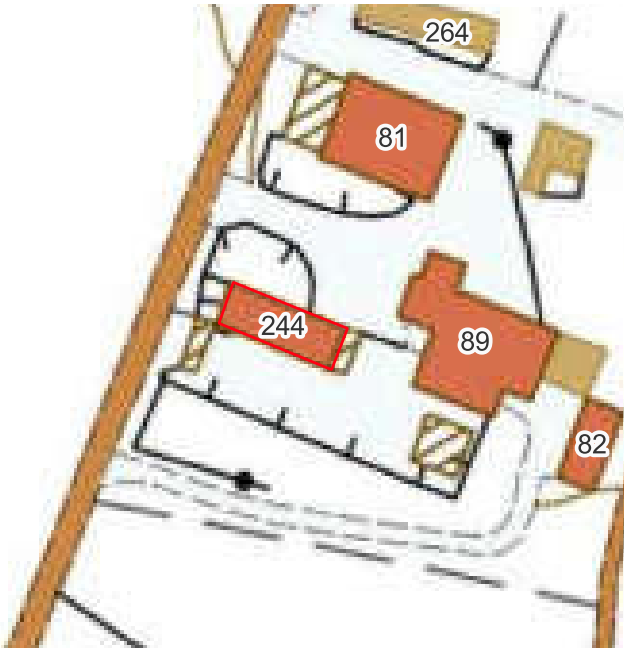
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**14:21**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:24**
Real Case - Ombreggiamento Ore/anno	**09:08**	**Worst Case - Ombreggiamento Giorni/anno**	**51**

RECETTORE n° 244

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701623.702
	X 213533.432
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	439
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1589.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

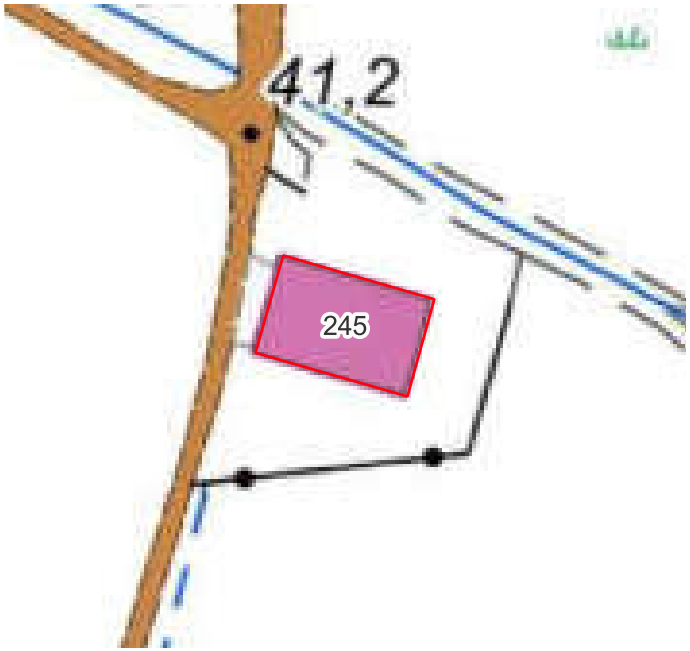
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**14:43**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**09:21**	**Worst Case - Ombreggiamento Giorni/anno**	**50**

RECETTORE n° 245

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699386.786
	X 218087.253
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	277
Destinazione d'uso (catastale)	C7
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1438.6

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 246

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699732.137
	X 218089.122
Comune	Montalto di Castro
Foglio catastale	0029
Particella catastale	275
Destinazione d'uso (catastale)	C7
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1265.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

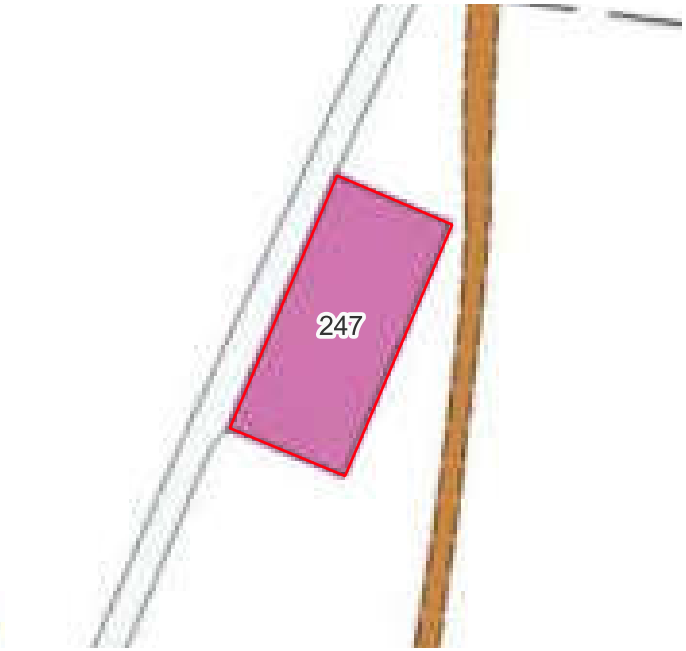
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**29:22**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:32**
Real Case - Ombreggiamento Ore/anno	**18:49**	**Worst Case - Ombreggiamento Giorni/anno**	**85**

RECETTORE n° 247

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699526.54
	X 215947.547
Comune	Montalto di Castro
Foglio catastale	0017
Particella catastale	421
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1195.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

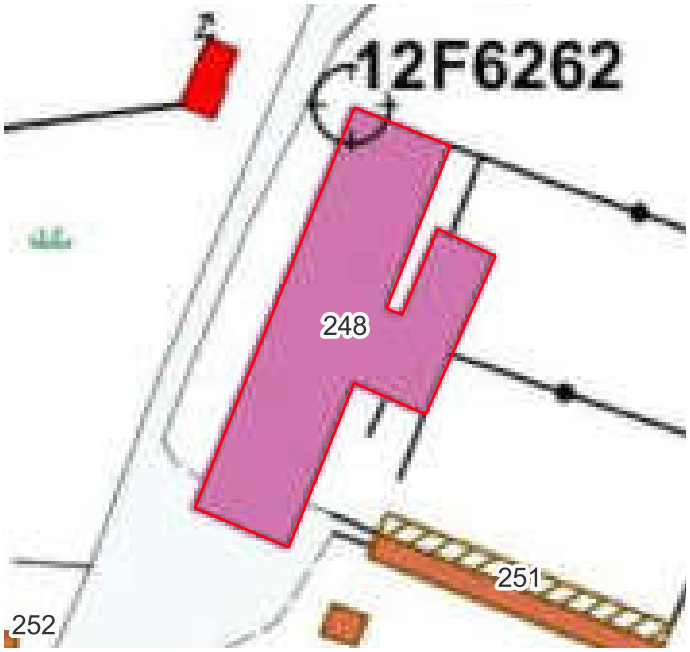
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 248

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699663.232
	X 216013.638
Comune	Montalto di Castro
Foglio catastale	0017
Particella catastale	421
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1058.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

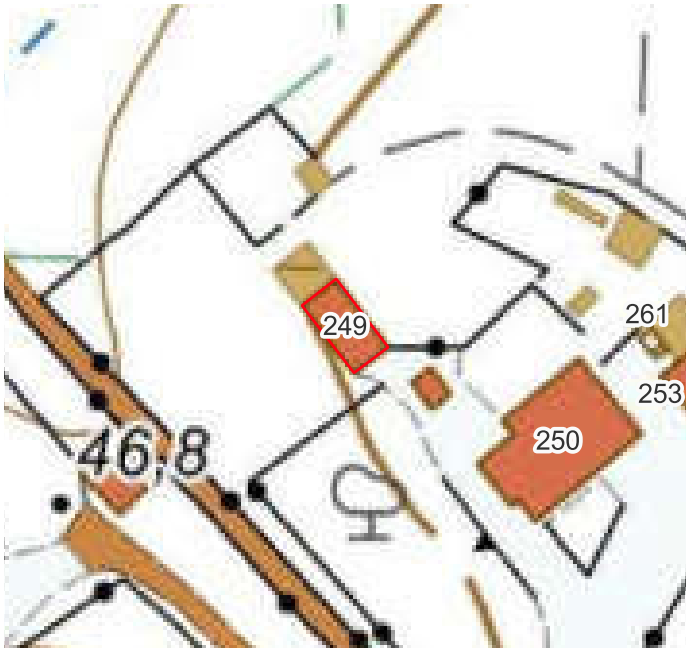
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 249

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699705.877
	X 219332.15
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	223
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1684.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

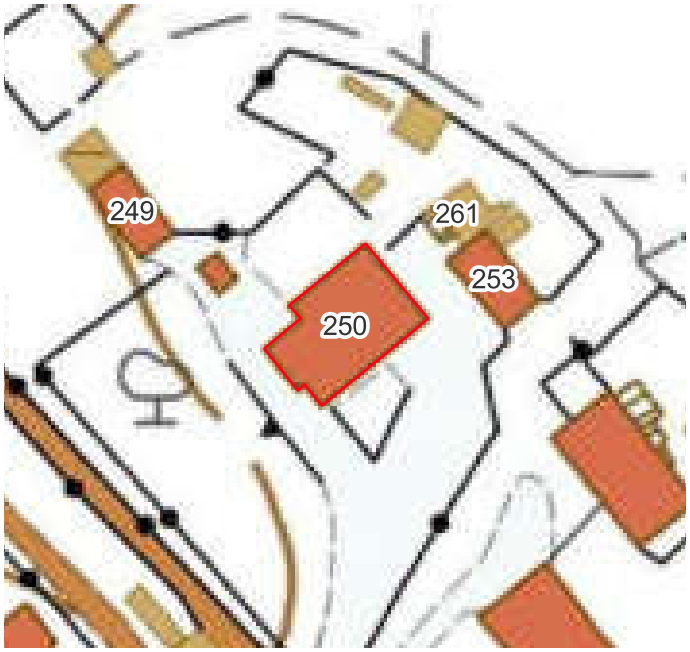
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 250

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699690.695
	X 219360.33
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	221
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1697.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 251

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699629.587
	X 216037.237
Comune	Montalto di Castro
Foglio catastale	0017
Particella catastale	421
Destinazione d'uso (catastale)	F2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1067.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 252

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699619.613
	X 215960.254
Comune	Montalto di Castro
Foglio catastale	0017
Particella catastale	421
Destinazione d'uso (catastale)	A4
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO05
Distanza minima dalla WTG (m)	1141.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 253

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699696.873
	X 219380.004
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	221
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1697.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

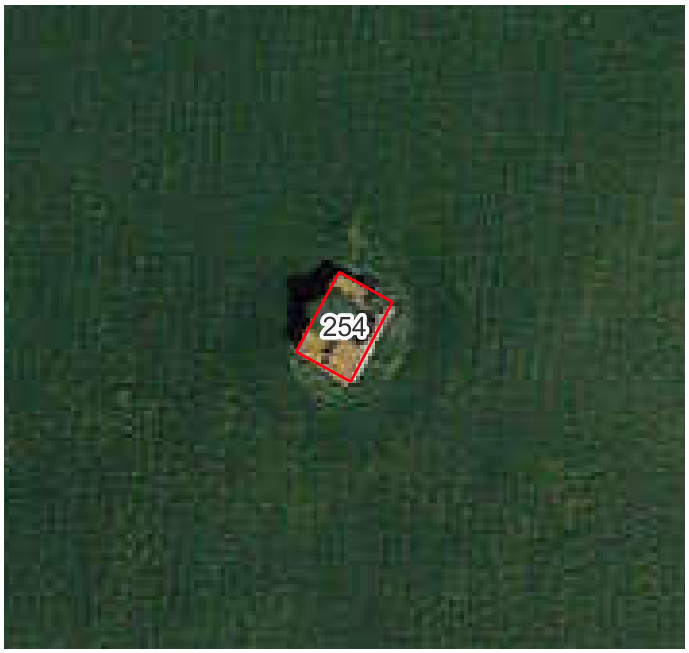
Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 254

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703951.811
	X 220151.265
Comune	Manciano
Foglio catastale	0270
Particella catastale	250
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Diruto
WTG più vicina	MO02
Distanza minima dalla WTG (m)	827.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000



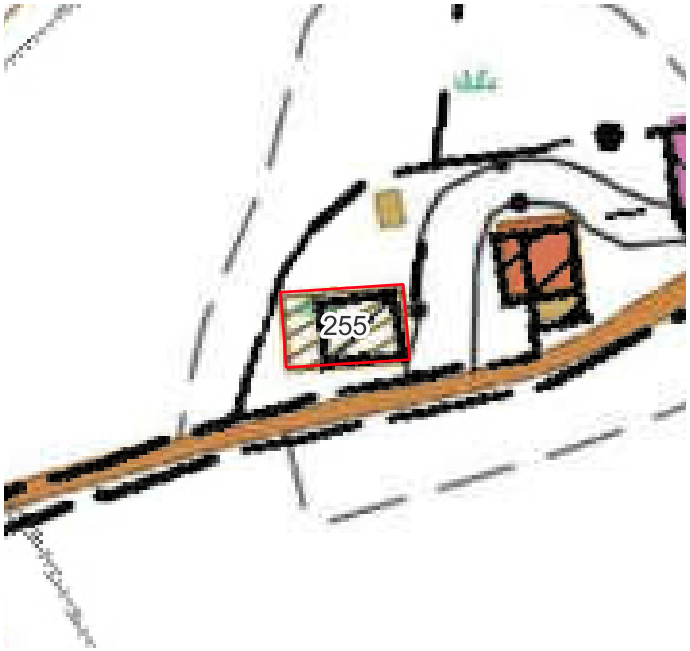
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**83:15**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:50**
Real Case - Ombreggiamento Ore/anno	**37:20**	**Worst Case - Ombreggiamento Giorni/anno**	**142**

RECETTORE n° 255

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703635.878
	X 221158.43
Comune	Montalto di Castro
Foglio catastale	0006
Particella catastale	193
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO02
Distanza minima dalla WTG (m)	1697.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

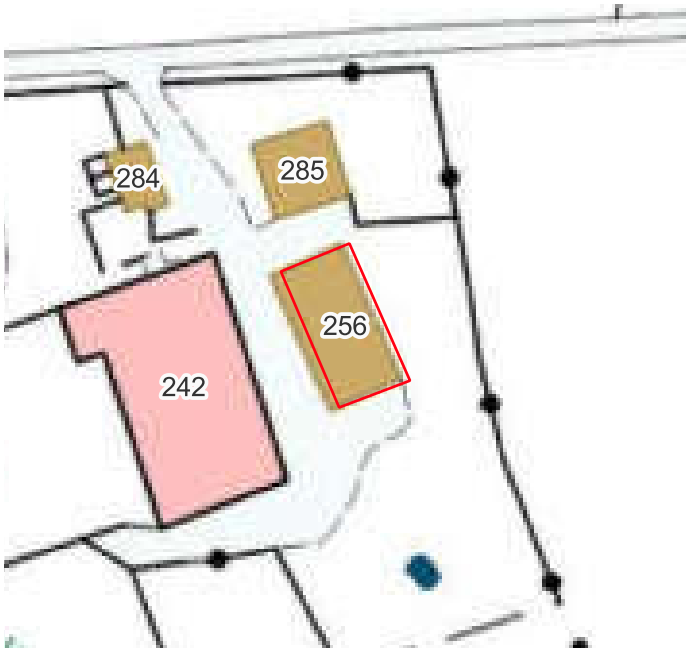
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**06:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:19**
Real Case - Ombreggiamento Ore/anno	**03:11**	**Worst Case - Ombreggiamento Giorni/anno**	**28**

RECETTORE n° 256

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700123.224
	X 221447.152
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	241
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1289.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 257

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700500.17
	X 214558.486
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	366
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1668.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 258

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703280.527
	X 214458.458
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	781
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1319.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

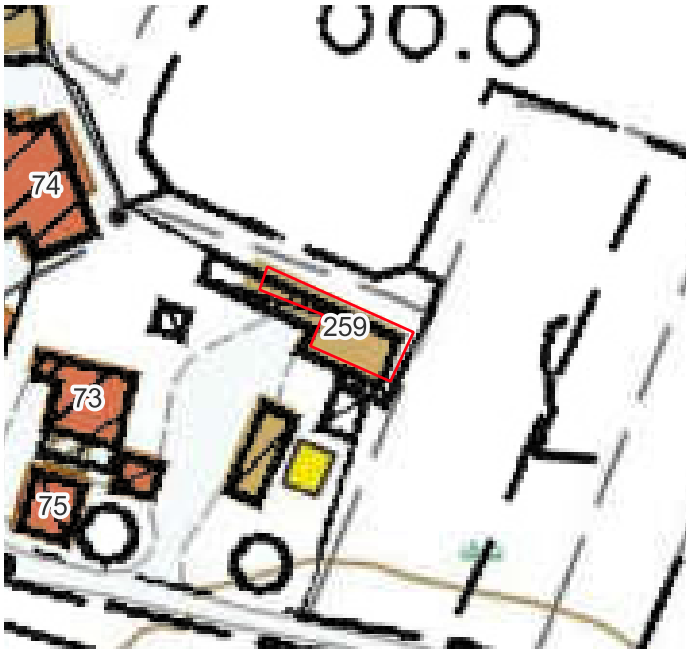
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 259

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703554.56
	X 214506.593
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	69
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1550

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

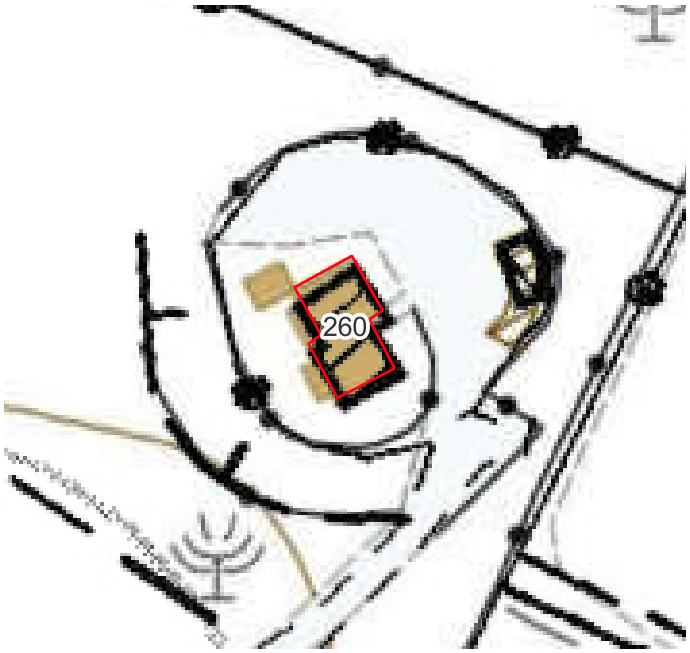
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 260

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702905.709
	X 214791.506
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	511
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO06
Distanza minima dalla WTG (m)	843.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 261

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699705.536
	X 219375.217
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	221
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1690.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

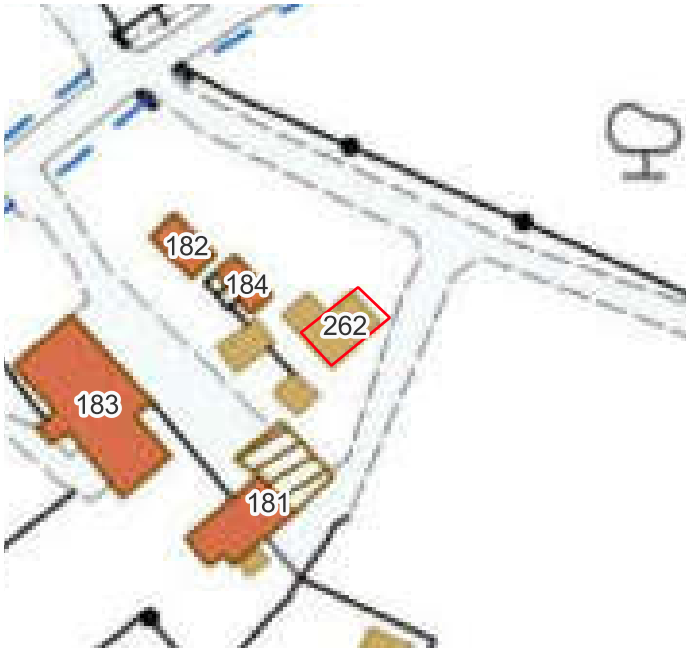
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 262

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700623.088
	X 214849.509
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	206
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1482.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

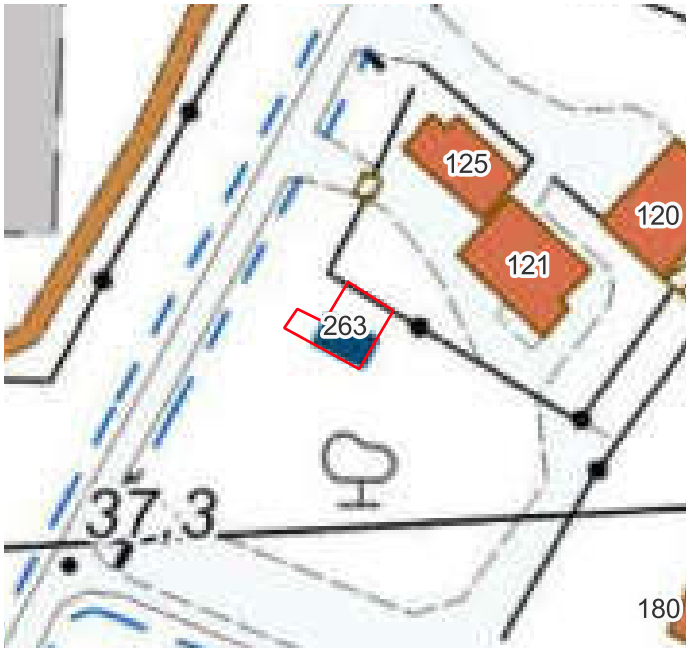
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 263

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700839.065
	X 215073.68
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	199
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1250.9

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

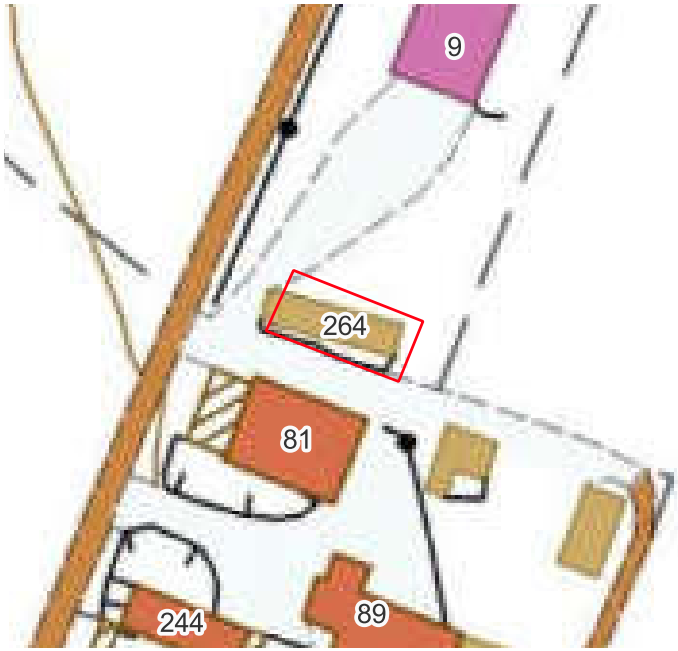
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 264

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701663.663
	X 213554.253
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	576
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1556.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

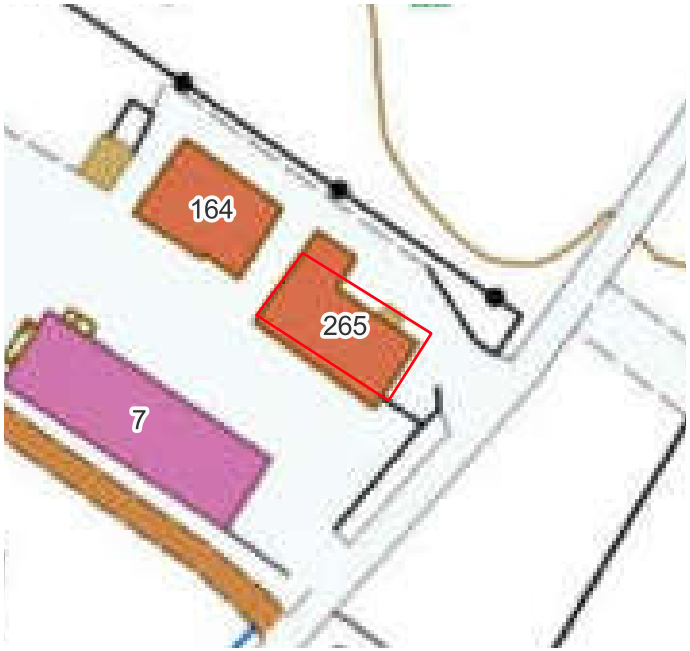
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**14:25**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**09:07**	**Worst Case - Ombreggiamento Giorni/anno**	**48**

RECETTORE n° 265

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702639.74
	X 213709.595
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	498
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1444.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

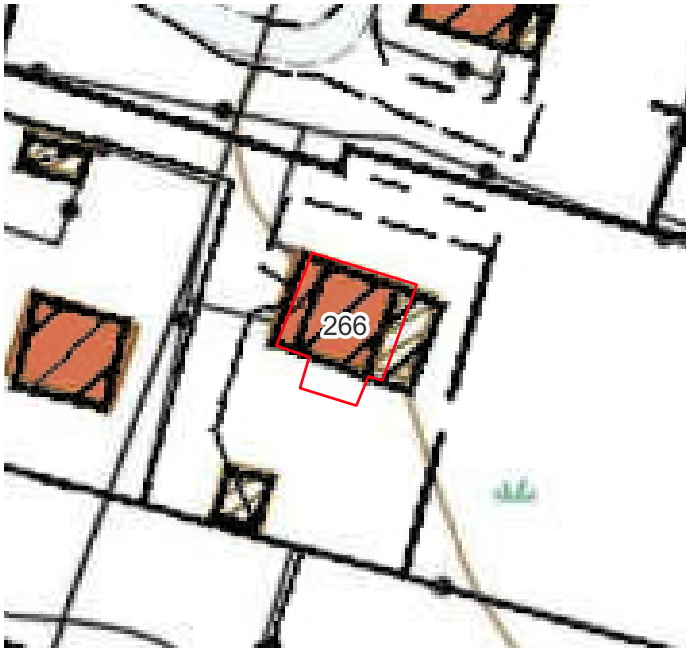
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**10:54**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:26**
Real Case - Ombreggiamento Ore/anno	**05:30**	**Worst Case - Ombreggiamento Giorni/anno**	**37**

RECETTORE n° 266

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703496.946
	X 214052.243
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	421
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1715.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

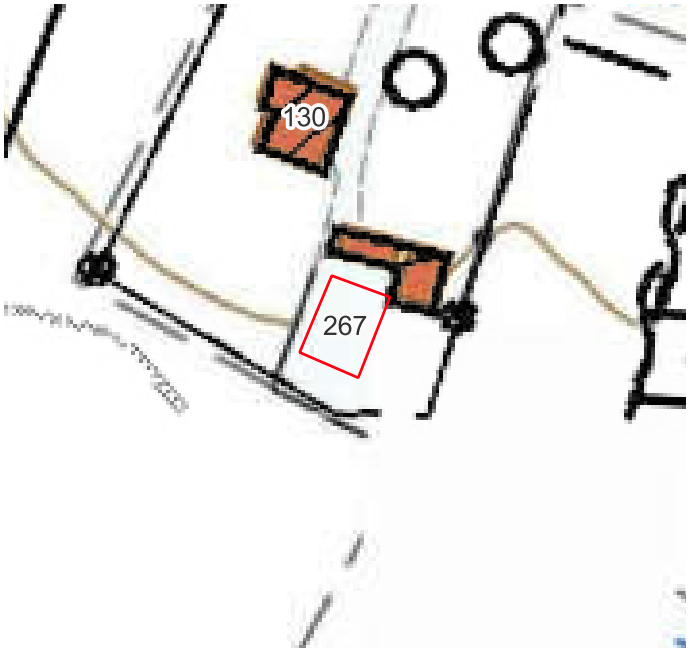
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 267

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702686.281
	X 214896.766
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	687
Destinazione d'uso (catastale)	A2
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	604.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

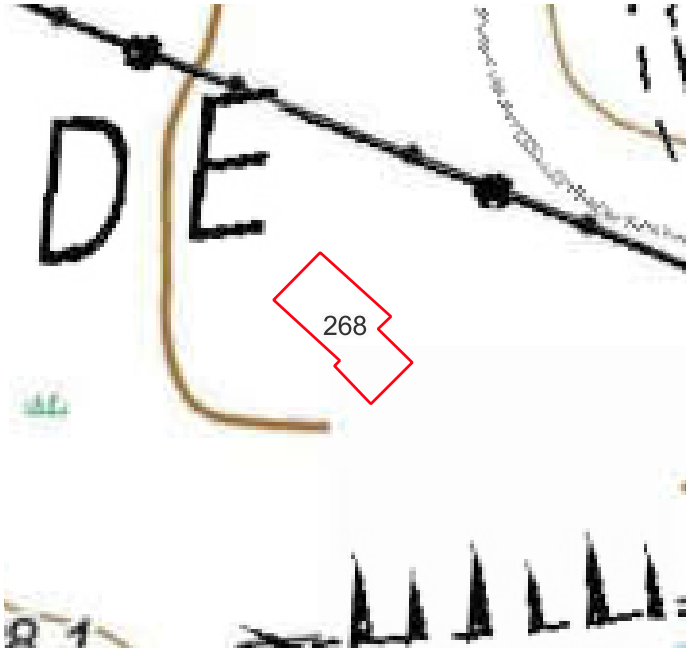
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 268

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703785.625
	X 215414.015
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	880
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1715.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 269

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702731.073
	X 219565.468
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	120
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO02
Distanza minima dalla WTG (m)	743.6

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 270

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4705135.406
	X 218320.678
Comune	Manciano
Foglio catastale	0269
Particella catastale	131
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Diruto
WTG più vicina	MO01
Distanza minima dalla WTG (m)	1670

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 271

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702608.296
	X 219514.601
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	119
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO02
Distanza minima dalla WTG (m)	874.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

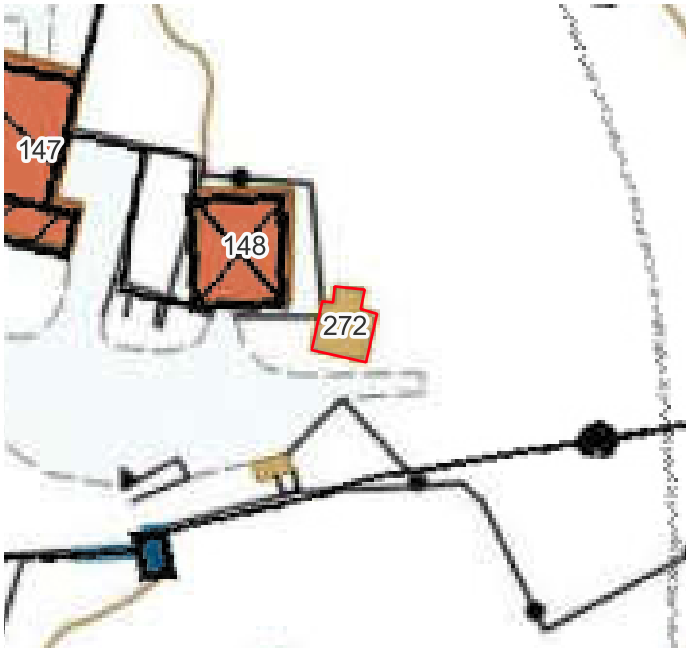
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 272

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702547.657
	X 219643.126
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	33
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Diruto
WTG più vicina	MO02
Distanza minima dalla WTG (m)	950

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

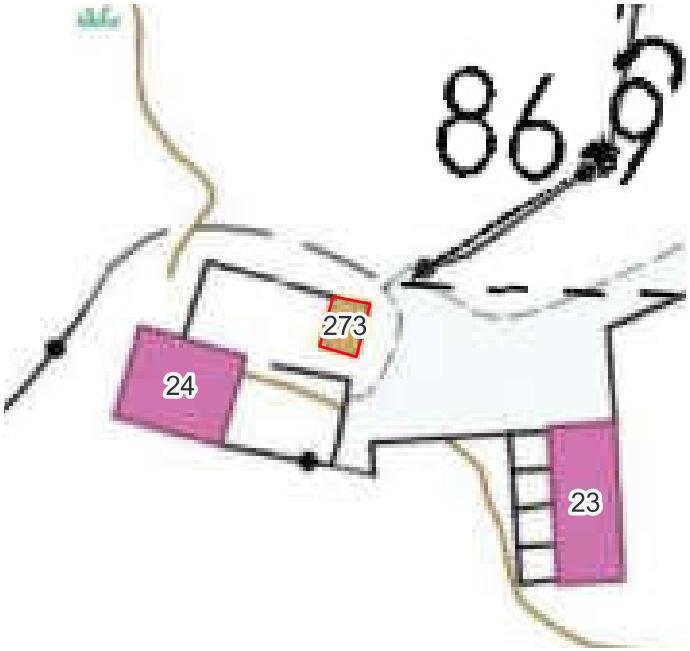
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 273

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702483.973
	X 219457.53
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	104
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO02
Distanza minima dalla WTG (m)	997.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

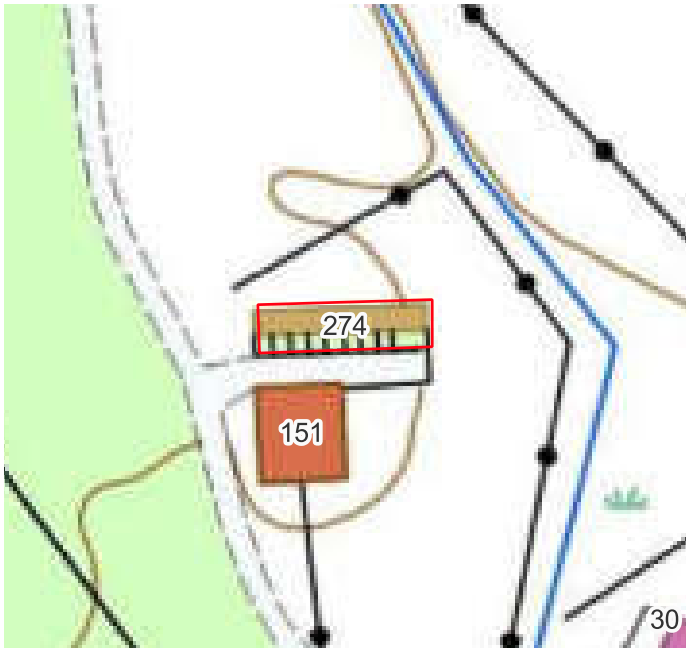
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 274

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702269.326
	X 219818.846
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	192
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Diruto
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1074.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 275

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702107.073
	X 220023.408
Comune	Montalto di Castro
Foglio catastale	0005
Particella catastale	105
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1101.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

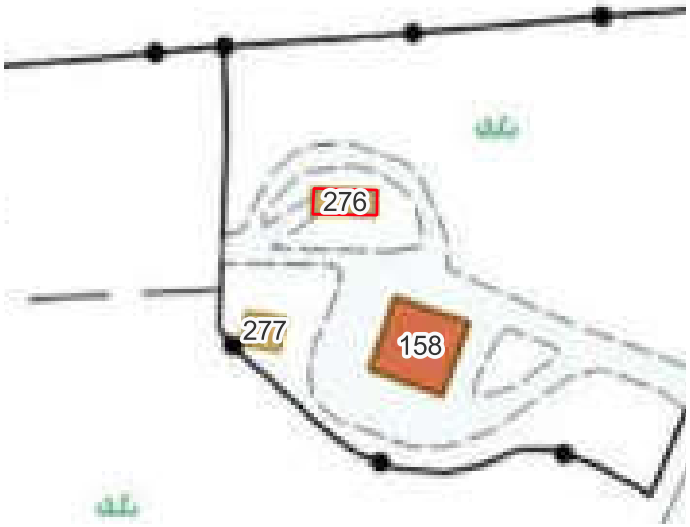
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**24:05**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:35**
Real Case - Ombreggiamento Ore/anno	**10:21**	**Worst Case - Ombreggiamento Giorni/anno**	**50**

RECETTORE n° 276

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701864.878
	X 221354.867
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	65
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1198.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 277

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701847.823
	X 221344.253
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	65
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1179.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:10**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:03**
Real Case - Ombreggiamento Ore/anno	**00:04**	**Worst Case - Ombreggiamento Giorni/anno**	**4**

RECETTORE n° 278

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700799.966
	X 221301.616
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	74
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO04
Distanza minima dalla WTG (m)	823.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**51:55**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:49**
Real Case - Ombreggiamento Ore/anno	**32:12**	**Worst Case - Ombreggiamento Giorni/anno**	**84**

RECETTORE n° 279

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700779.721
	X 221175.74
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	57
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO04
Distanza minima dalla WTG (m)	708.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

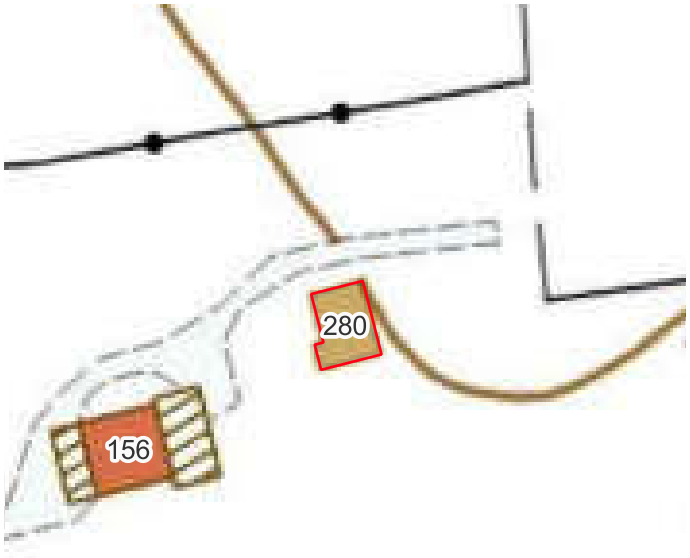
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**98:09**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:58**
Real Case - Ombreggiamento Ore/anno	**62:11**	**Worst Case - Ombreggiamento Giorni/anno**	**120**

RECETTORE n° 280

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700639.815
	X 221294.463
Comune	Montalto di Castro
Foglio catastale	0012
Particella catastale	55
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO04
Distanza minima dalla WTG (m)	871.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**63:18**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:49**
Real Case - Ombreggiamento Ore/anno	**40:19**	**Worst Case - Ombreggiamento Giorni/anno**	**91**

RECETTORE n° 281

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700255.582
	X 221262.437
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	299
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1072.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

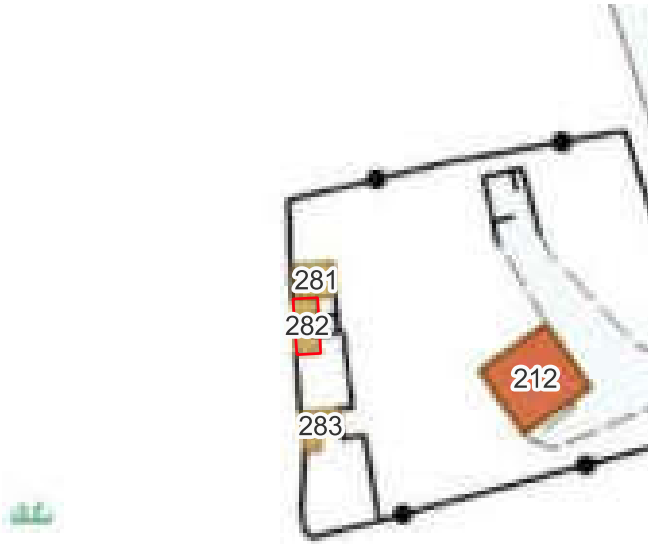
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 282

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700249.547
	X 221261.187
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	299
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1075.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

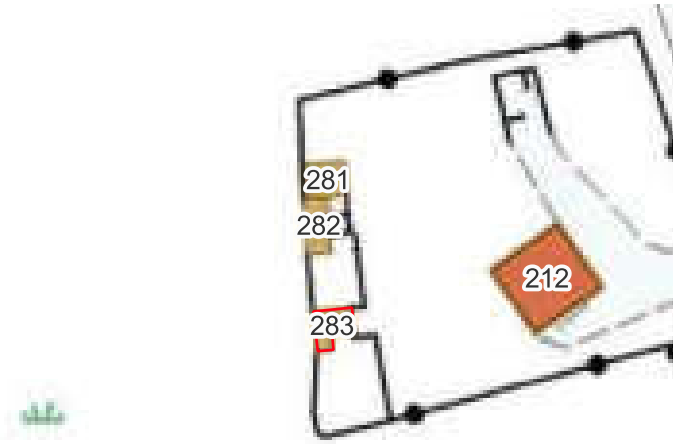
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 283

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700236.284
	X 221262.964
Comune	Montalto di Castro
Foglio catastale	0019
Particella catastale	299
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1086.8

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 284

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700142.745
	X 221419.784
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	182
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1262

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 285

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700143.789
	X 221441.518
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	242
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1275.2

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

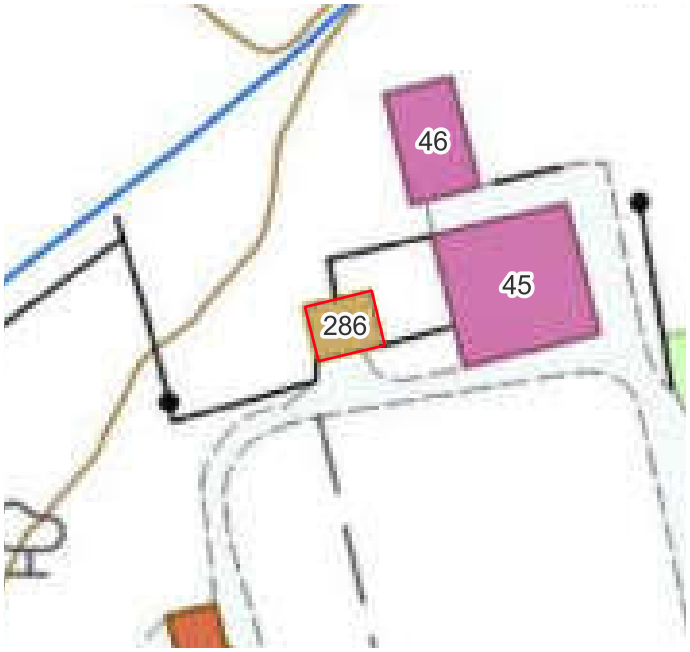
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 286

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699832.583
	X 221548.35
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	206
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1574.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 287

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699727.938
	X 221561.408
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	177, 178
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1665.8

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 288

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4699742.024
	X 221557.744
Comune	Montalto di Castro
Foglio catastale	0020
Particella catastale	150
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO04
Distanza minima dalla WTG (m)	1650.1

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 289

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700515.908
	X 219698.965
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	154
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO04
Distanza minima dalla WTG (m)	941.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 290

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700440.969
	X 218912.083
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	134
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	983.7

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

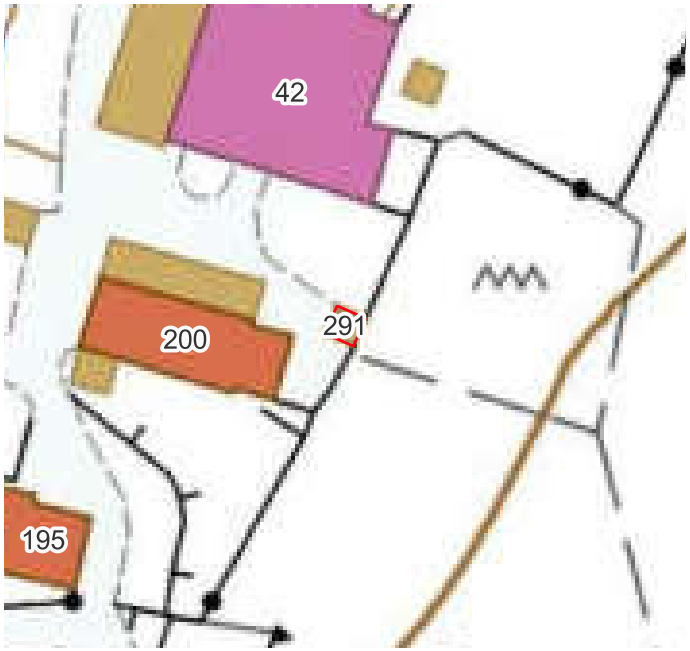
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**16:51**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**10:46**	**Worst Case - Ombreggiamento Giorni/anno**	**59**

RECETTORE n° 291

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700374.838
	X 218890.237
Comune	Montalto di Castro
Foglio catastale	0011
Particella catastale	130
Destinazione d'uso (catastale)	D10
Destinazione d'uso presunta	Agricola
WTG più vicina	MO03
Distanza minima dalla WTG (m)	1054.2

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**22:50**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:25**
Real Case - Ombreggiamento Ore/anno	**14:36**	**Worst Case - Ombreggiamento Giorni/anno**	**82**

RECETTORE n° 292

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700718.943
	X 215215.21
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	167
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Diruto
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1381.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**06:15**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:20**
Real Case - Ombreggiamento Ore/anno	**03:08**	**Worst Case - Ombreggiamento Giorni/anno**	**28**

RECETTORE n° 293

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4700720.9
	X 215176.628
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	170
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1377

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

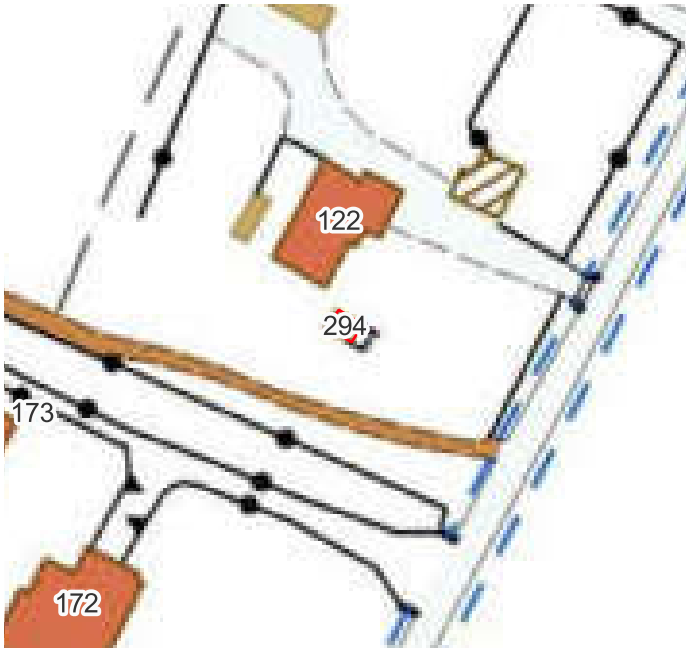
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**05:55**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:20**
Real Case - Ombreggiamento Ore/anno	**02:58**	**Worst Case - Ombreggiamento Giorni/anno**	**27**

RECETTORE n° 294

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701064.343
	X 215141.553
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	221
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1032.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

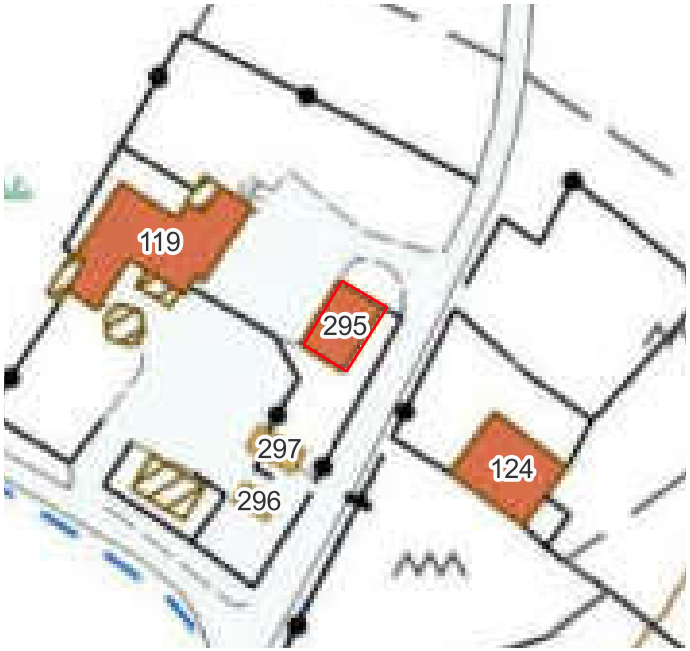
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 295

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701356.704
	X 215318.681
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	187
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	777.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

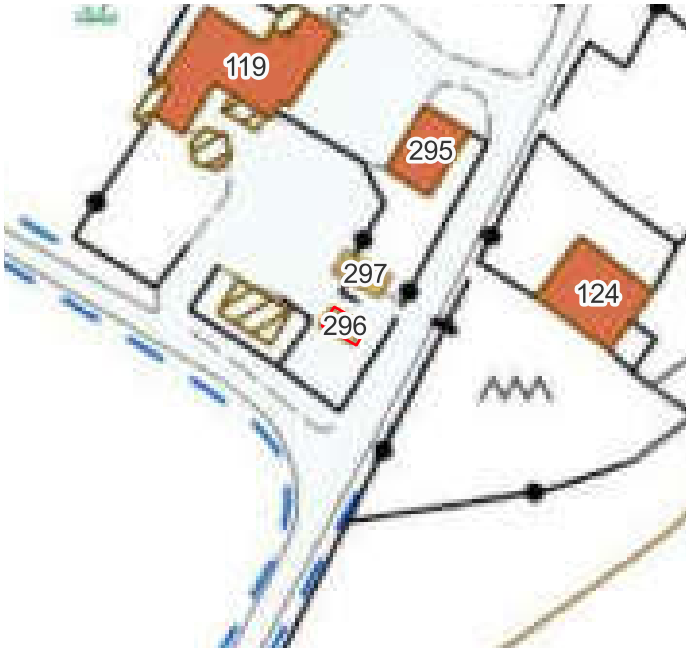
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 296

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701333.513
	X 215307.316
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	186
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	798.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 297

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701340.41
	X 215310.026
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	187
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	792

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 298

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701420.37
	X 215117.169
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	108
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	675.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

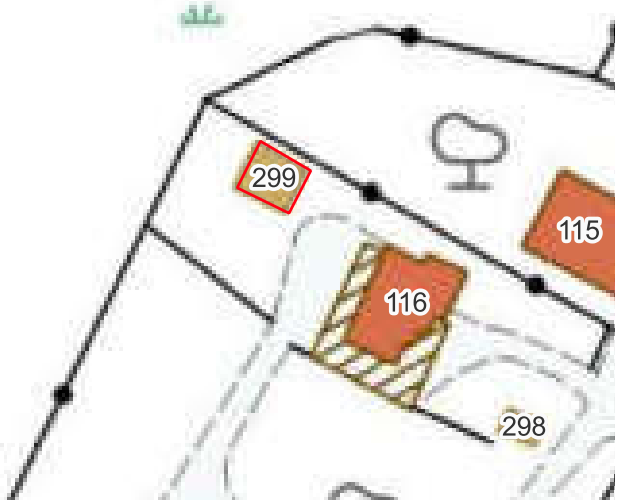
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 299

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701453.283
	X 215084.073
Comune	Montalto di Castro
Foglio catastale	0010
Particella catastale	108
Destinazione d'uso (catastale)	A7
Destinazione d'uso presunta	Abitazione
WTG più vicina	MO06
Distanza minima dalla WTG (m)	638.3

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 300

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4701826.302
	X 213630.837
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	624
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1450.4

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

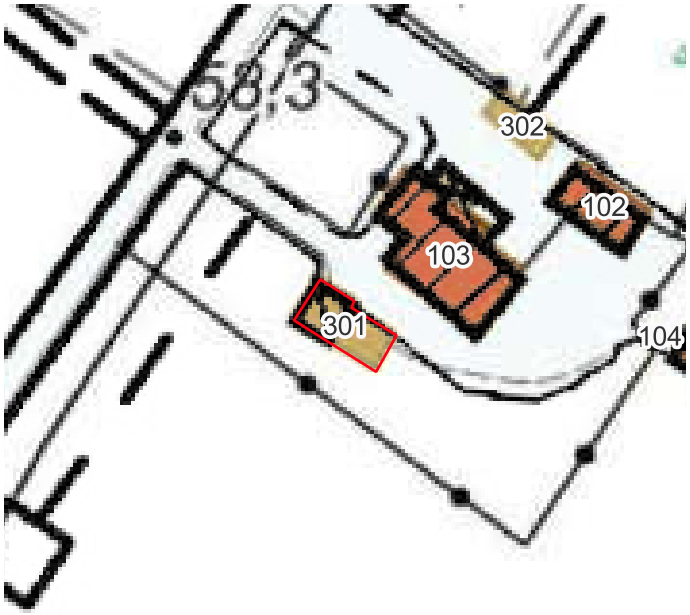
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**13:51**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:28**
Real Case - Ombreggiamento Ore/anno	**08:24**	**Worst Case - Ombreggiamento Giorni/anno**	**42**

RECETTORE n° 301

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702789.29
	X 213878.592
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	260
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1362.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

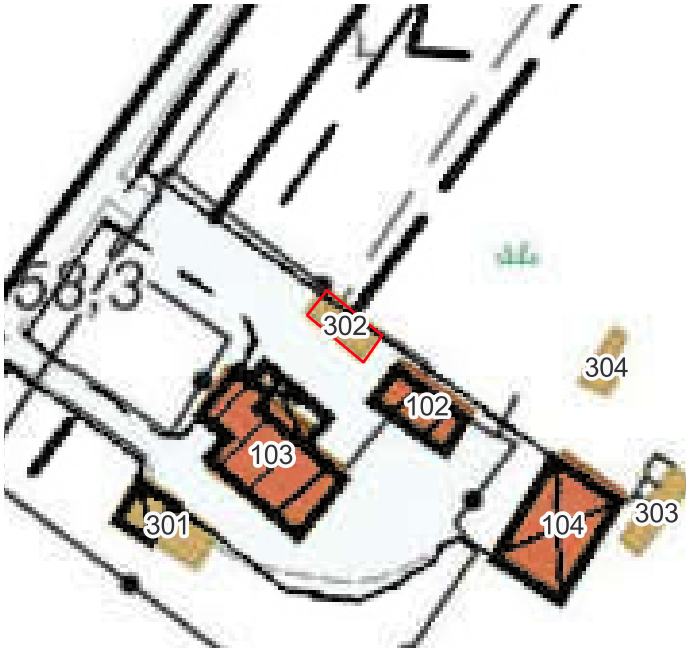
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**15:55**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:30**
Real Case - Ombreggiamento Ore/anno	**07:16**	**Worst Case - Ombreggiamento Giorni/anno**	**50**

RECETTORE n° 302

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702815.689
	X 213902.038
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	235
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1358

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

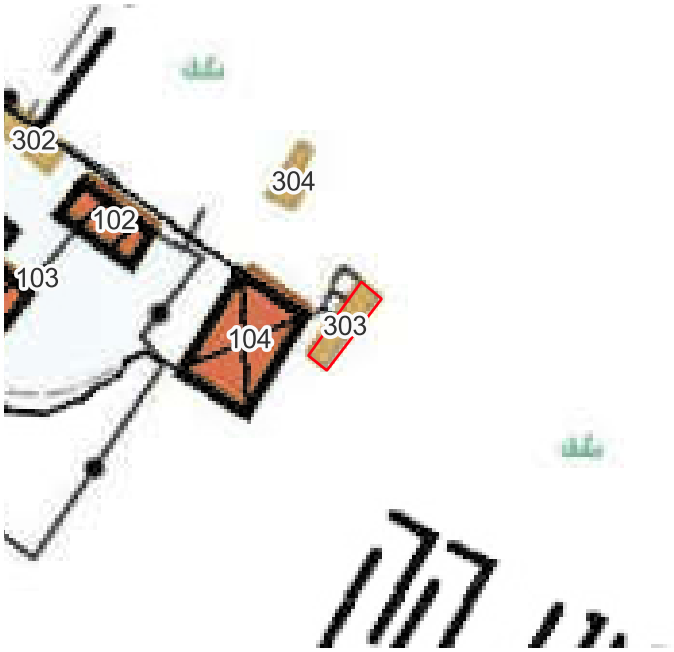
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**17:12**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:29**
Real Case - Ombreggiamento Ore/anno	**07:42**	**Worst Case - Ombreggiamento Giorni/anno**	**54**

RECETTORE n° 303

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702791.045
	X 213943.469
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	264
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Tettoia
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1312.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**18:58**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:31**
Real Case - Ombreggiamento Ore/anno	**08:31**	**Worst Case - Ombreggiamento Giorni/anno**	**56**

RECETTORE n° 304

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702810.17
	X 213936.664
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	263
Destinazione d'uso (catastale)	F2
Destinazione d'uso presunta	Diruto
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1328.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**19:11**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:31**
Real Case - Ombreggiamento Ore/anno	**08:34**	**Worst Case - Ombreggiamento Giorni/anno**	**58**

RECETTORE n° 305

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702993.872
	X 213996.534
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	549
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1386.3

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

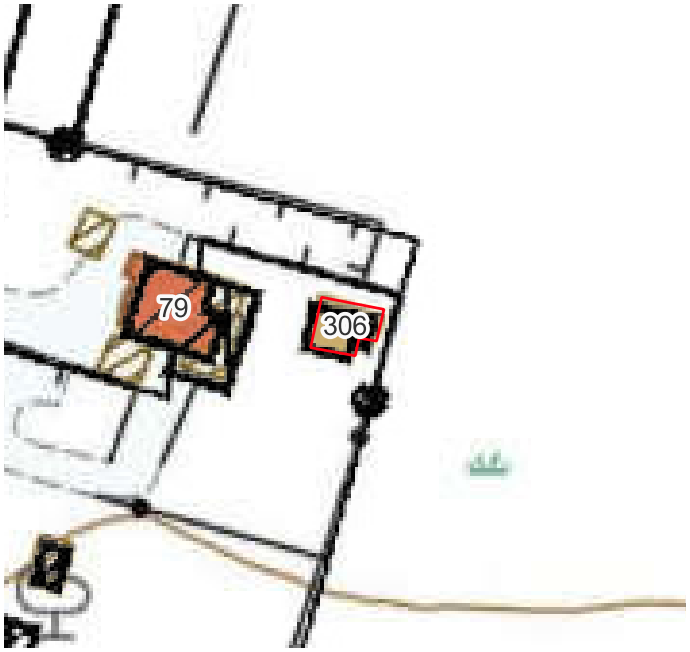
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**26:26**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:31**
Real Case - Ombreggiamento Ore/anno	**11:24**	**Worst Case - Ombreggiamento Giorni/anno**	**62**

RECETTORE n° 306

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703343.44
	X 214005.811
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	273
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1628.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

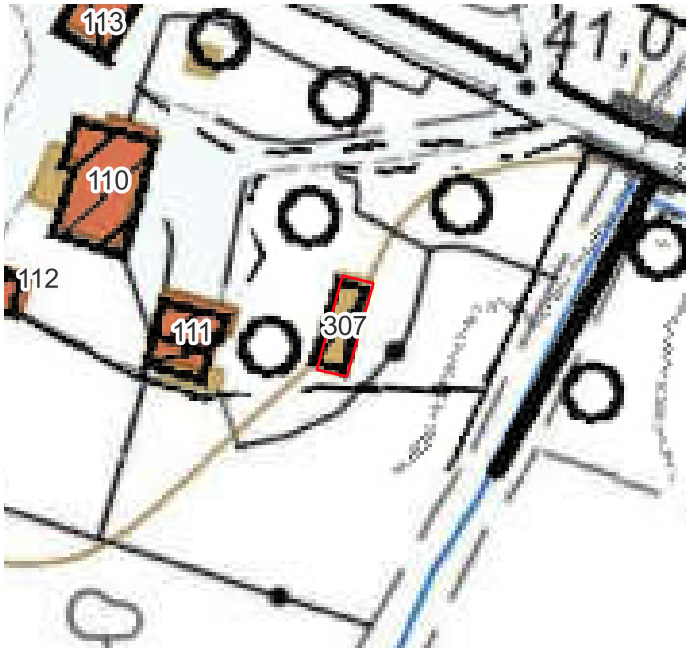
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 307

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4702717.396
	X 214302.797
Comune	Montalto di Castro
Foglio catastale	0009
Particella catastale	727
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Rimessa
WTG più vicina	MO06
Distanza minima dalla WTG (m)	974.7

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

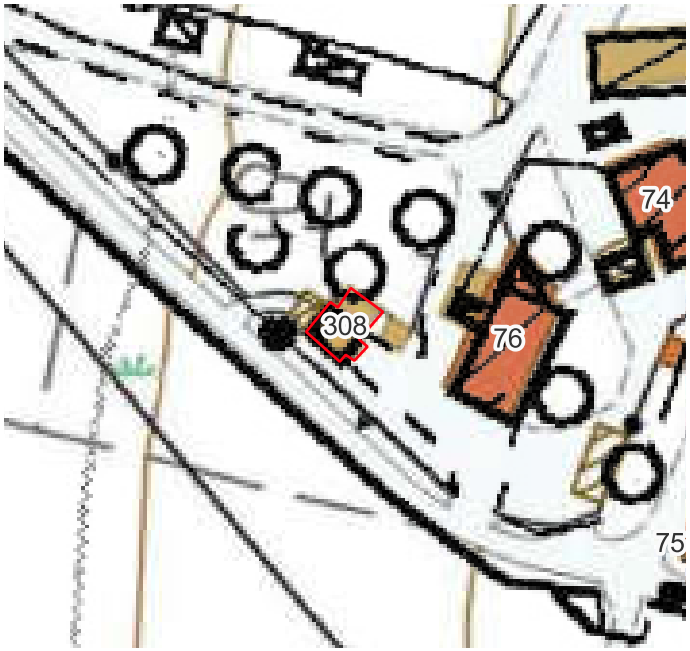
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**57:59**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:43**
Real Case - Ombreggiamento Ore/anno	**25:16**	**Worst Case - Ombreggiamento Giorni/anno**	**94**

RECETTORE n° 308

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703558.564
	X 214417.913
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	657
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1591.5

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 309

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703172.248
	X 214888.603
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	854
Destinazione d'uso (catastale)	A3
Destinazione d'uso presunta	Abitazione in uso
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1083.5

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 310

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703576.253
	X 215243.413
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	189
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1487.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

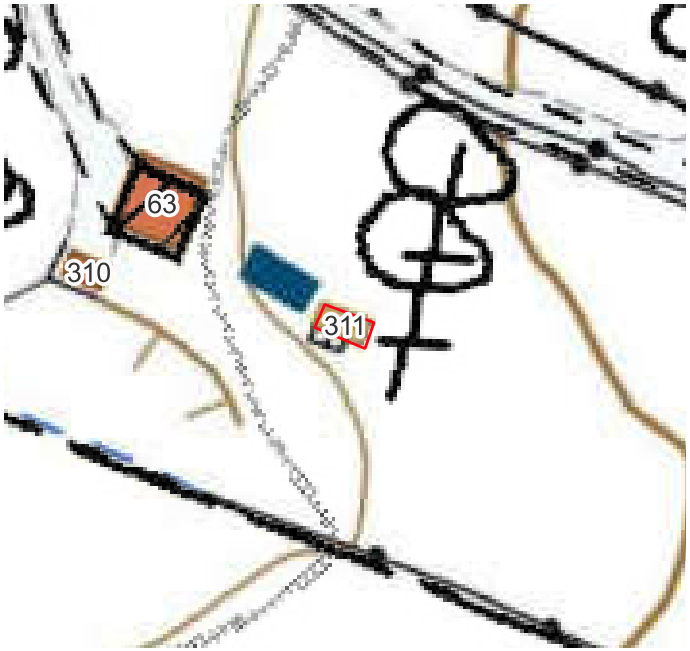
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 311

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703569.229
	X 215277.312
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	896
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1485.1

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 312

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703611.436
	X 215585.219
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	552
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Deposito
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1597.9

Estratto CTRN 2014 - Scala 1:1000

Estratto Google Satellite - Scala 1:1000

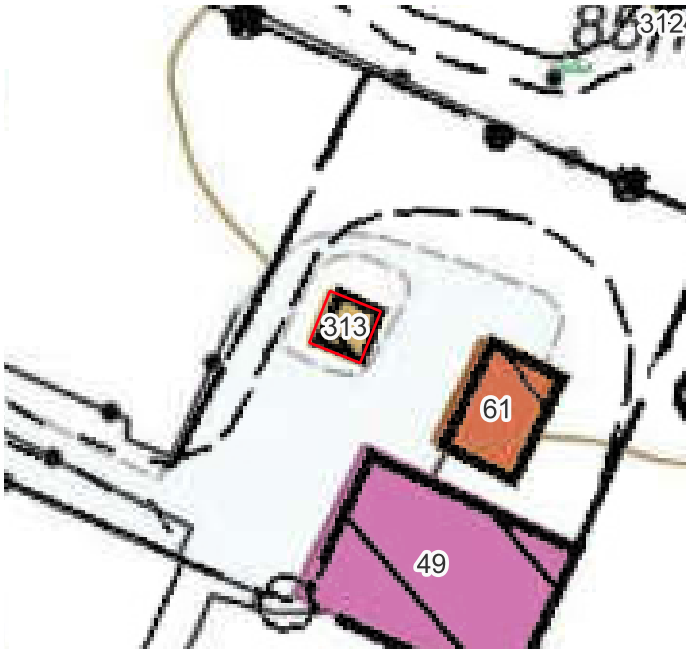
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 313

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703565.569
	X 215542.959
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	660
Destinazione d'uso (catastale)	C2
Destinazione d'uso presunta	Magazzino
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1541.4

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

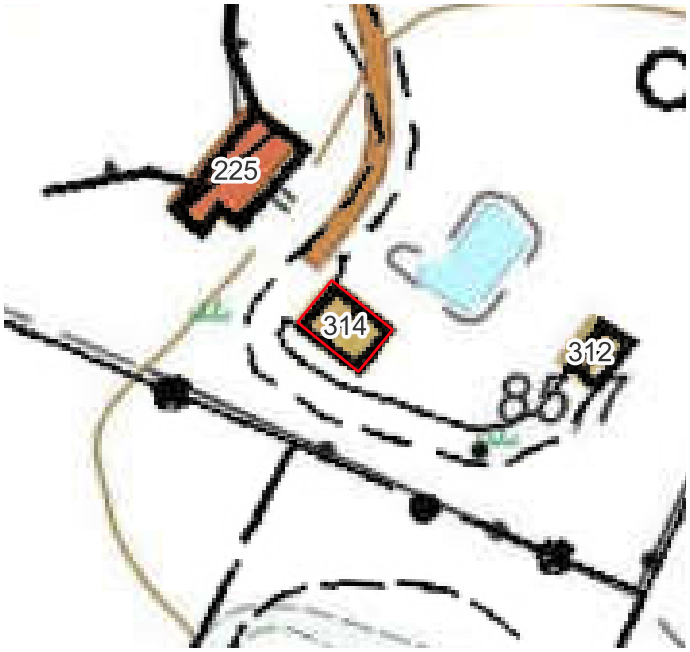
Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

RECETTORE n° 314

Coordinate SR WGS84/UTM 33N (EPSG: 32633)	Y 4703614.91
	X 215552.792
Comune	Montalto di Castro
Foglio catastale	0003
Particella catastale	552
Destinazione d'uso (catastale)	NC
Destinazione d'uso presunta	Deposito
WTG più vicina	MO06
Distanza minima dalla WTG (m)	1590

Estratto CTRN 2014 - Scala 1:1000



Estratto Google Satellite - Scala 1:1000

Risultati analitici dello studio di Shadow Flickering

Worst Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Max ore/giorno**	**00:00**
Real Case - Ombreggiamento Ore/anno	**00:00**	**Worst Case - Ombreggiamento Giorni/anno**	**0**

Allegato 2

Risultati dello Shadow Flickering

Licensed user:
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viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence	3 °
Day step for calculation	1 days
Time step for calculation	1 minutes

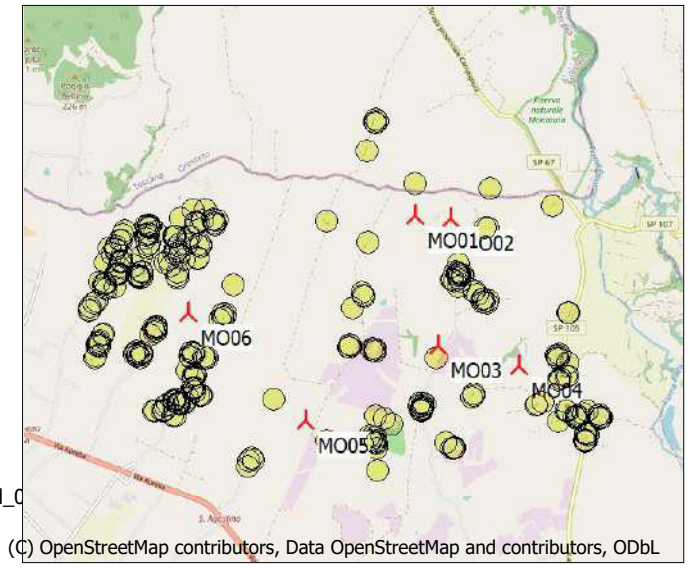
Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Elevation Grid Data Object: eolico-montalto_EMDGrid_0
Receptor grid resolution: 1.0 m

All coordinates are in
Geo [deg]-WGS84



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Scale 1:125,000

New WTG Shadow receptor

WTGs

	Longitude	Latitude	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Shadow data Hub height	Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
MO01	11.582511° E	42.433400° N	80.3	VESTAS V172-7.2 7200...	No	VESTAS	V172-7.2-7,200	7,200	172.0	125.0	1,887	12.1
MO02	11.589506° E	42.432954° N	81.2	VESTAS V172-7.2 7200...	No	VESTAS	V172-7.2-7,200	7,200	172.0	125.0	1,887	12.1
MO03	11.587175° E	42.414021° N	59.5	VESTAS V172-7.2 7200...	No	VESTAS	V172-7.2-7,200	7,200	172.0	125.0	1,887	12.1
MO04	11.603362° E	42.411137° N	72.9	VESTAS V172-7.2 7200...	No	VESTAS	V172-7.2-7,200	7,200	172.0	125.0	1,887	12.1
MO05	11.560318° E	42.402973° N	32.9	VESTAS V172-7.2 7200...	No	VESTAS	V172-7.2-7,200	7,200	172.0	125.0	1,887	12.1
MO06	11.536823° E	42.418864° N	50.9	VESTAS V172-7.2 7200...	No	VESTAS	V172-7.2-7,200	7,200	172.0	125.0	1,887	12.1

Shadow receptor-Input

No.	Longitude	Latitude	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
1	11.597065° E	42.431619° N	95.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
2	11.596639° E	42.431514° N	96.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
3	11.574274° E	42.447308° N	98.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
4	11.574544° E	42.447159° N	97.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
5	11.522230° E	42.428729° N	61.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
6	11.522010° E	42.428453° N	61.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
7	11.519837° E	42.423129° N	55.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
8	11.518967° E	42.423579° N	51.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
9	11.518933° E	42.414796° N	38.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
10	11.518425° E	42.420718° N	49.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
11	11.526444° E	42.413242° N	38.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
12	11.529329° E	42.415713° N	43.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
13	11.530159° E	42.416761° N	46.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
14	11.530556° E	42.416274° N	45.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
15	11.527495° E	42.413021° N	39.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
16	11.526794° E	42.412824° N	37.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
17	11.526487° E	42.412515° N	34.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
18	11.525976° E	42.412826° N	36.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
19	11.543227° E	42.418053° N	48.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
20	11.543710° E	42.418208° N	47.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
21	11.591662° E	42.423723° N	81.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
22	11.591161° E	42.422787° N	82.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
23	11.590379° E	42.423750° N	82.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
24	11.589721° E	42.423870° N	80.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
25	11.586870° E	42.412336° N	61.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5

To be continued on next page...

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Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

...continued from previous page

No.	Longitude	Latitude	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
26	11.591237° E	42.424848° N	81.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
27	11.591433° E	42.424822° N	81.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
28	11.590838° E	42.424632° N	82.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
29	11.597005° E	42.420385° N	68.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
30	11.595031° E	42.421668° N	65.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
31	11.595999° E	42.420967° N	67.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
32	11.596488° E	42.420591° N	67.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
33	11.613192° E	42.411518° N	71.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
34	11.611266° E	42.412067° N	73.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
35	11.564676° E	42.399889° N	36.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
36	11.573885° E	42.400495° N	44.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
37	11.573331° E	42.400675° N	44.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
38	11.571940° E	42.399462° N	42.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
39	11.574090° E	42.399673° N	43.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
40	11.574417° E	42.399605° N	43.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
41	11.573659° E	42.400026° N	43.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
42	11.584033° E	42.405087° N	52.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
43	11.583973° E	42.405421° N	54.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
44	11.617386° E	42.400803° N	67.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
45	11.616908° E	42.400922° N	66.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
46	11.616765° E	42.401089° N	65.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
47	11.616595° E	42.400189° N	66.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
48	11.619575° E	42.403782° N	69.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
49	11.542109° E	42.431961° N	85.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
50	11.573066° E	42.429460° N	80.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
51	11.543676° E	42.418805° N	45.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
52	11.544124° E	42.418399° N	45.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
53	11.544447° E	42.418733° N	40.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
54	11.591192° E	42.424461° N	84.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
55	11.611391° E	42.409048° N	73.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
56	11.611483° E	42.412818° N	71.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
57	11.582445° E	42.438120° N	80.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
58	11.564655° E	42.432619° N	78.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
59	11.572717° E	42.443001° N	93.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
60	11.574578° E	42.447661° N	100.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
61	11.542198° E	42.432157° N	85.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
62	11.537261° E	42.430331° N	59.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
63	11.538420° E	42.432319° N	68.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
64	11.537709° E	42.434256° N	80.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
65	11.536718° E	42.429004° N	62.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
66	11.536838° E	42.430350° N	57.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
67	11.528370° E	42.430429° N	60.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
68	11.528569° E	42.430663° N	61.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
69	11.528330° E	42.430589° N	60.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
70	11.528780° E	42.430670° N	60.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
71	11.534162° E	42.430292° N	61.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
72	11.534227° E	42.430190° N	59.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
73	11.528968° E	42.431671° N	65.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
74	11.528853° E	42.431928° N	65.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
75	11.528919° E	42.431541° N	65.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
76	11.528561° E	42.431765° N	64.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
77	11.533953° E	42.430145° N	60.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
78	11.528345° E	42.429905° N	58.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
79	11.523129° E	42.429699° N	62.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
80	11.522280° E	42.428437° N	61.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
81	11.518693° E	42.414282° N	37.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
82	11.519034° E	42.413927° N	37.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
83	11.519430° E	42.415727° N	40.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
84	11.517867° E	42.420425° N	46.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
85	11.517096° E	42.419750° N	44.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
86	11.517005° E	42.419236° N	44.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
87	11.516694° E	42.419311° N	44.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
88	11.517075° E	42.419388° N	44.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
89	11.518839° E	42.414043° N	37.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

...continued from previous page

No.	Longitude	Latitude	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
90	11.530490° E	42.416914° N	46.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
91	11.530064° E	42.416155° N	45.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
92	11.530249° E	42.416990° N	47.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
93	11.530442° E	42.416497° N	46.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
94	11.529891° E	42.416637° N	46.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
95	11.526370° E	42.412908° N	36.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
96	11.520073° E	42.422663° N	55.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
97	11.527157° E	42.412769° N	37.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
98	11.527329° E	42.412676° N	37.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
99	11.520382° E	42.422624° N	55.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
100	11.526994° E	42.412304° N	36.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
101	11.522852° E	42.425678° N	58.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
102	11.522545° E	42.424812° N	57.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
103	11.522298° E	42.424747° N	58.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
104	11.522771° E	42.424677° N	56.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
105	11.523186° E	42.426476° N	60.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
106	11.523215° E	42.426660° N	60.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
107	11.527440° E	42.424929° N	41.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
108	11.527587° E	42.425129° N	41.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
109	11.527455° E	42.425143° N	42.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
110	11.526929° E	42.424329° N	40.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
111	11.527074° E	42.424153° N	40.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
112	11.526732° E	42.424199° N	39.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
113	11.526909° E	42.424550° N	40.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
114	11.526666° E	42.424334° N	39.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
115	11.537951° E	42.413037° N	44.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
116	11.537646° E	42.412949° N	44.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
117	11.537179° E	42.412532° N	43.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
118	11.537405° E	42.412269° N	42.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
119	11.540016° E	42.412400° N	45.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
120	11.538152° E	42.407704° N	36.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
121	11.537893° E	42.407647° N	36.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
122	11.538298° E	42.409741° N	39.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
123	11.536732° E	42.410459° N	37.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
124	11.540596° E	42.412147° N	43.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
125	11.537787° E	42.407764° N	36.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
126	11.538666° E	42.426948° N	67.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
127	11.538725° E	42.427102° N	68.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
128	11.535255° E	42.427894° N	60.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
129	11.534541° E	42.425007° N	64.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
130	11.534462° E	42.424353° N	61.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
131	11.545938° E	42.423017° N	54.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
132	11.573713° E	42.413430° N	59.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
133	11.574393° E	42.413208° N	59.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
134	11.574383° E	42.413600° N	60.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
135	11.573934° E	42.413739° N	60.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
136	11.574151° E	42.413299° N	59.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
137	11.569861° E	42.419602° N	69.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
138	11.571933° E	42.421918° N	73.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
139	11.569287° E	42.414182° N	60.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
140	11.571995° E	42.421536° N	74.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
141	11.569321° E	42.413863° N	60.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
142	11.569508° E	42.414029° N	60.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
143	11.569063° E	42.413801° N	60.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
144	11.572194° E	42.421388° N	74.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
145	11.590976° E	42.424950° N	82.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
146	11.591245° E	42.424124° N	84.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
147	11.591679° E	42.424778° N	81.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
148	11.592035° E	42.424679° N	81.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
149	11.595996° E	42.420565° N	65.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
150	11.596196° E	42.420888° N	67.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
151	11.594407° E	42.422021° N	65.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
152	11.612859° E	42.409494° N	74.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
153	11.611047° E	42.412737° N	72.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

...continued from previous page

No.	Longitude	Latitude	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
154	11.611507° E	42.408892° N	73.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
155	11.611856° E	42.409098° N	73.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
156	11.612824° E	42.407873° N	72.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
157	11.611216° E	42.412591° N	73.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
158	11.613434° E	42.418899° N	68.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
159	11.611179° E	42.412343° N	73.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
160	11.518079° E	42.412559° N	34.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
161	11.517945° E	42.412210° N	34.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
162	11.520213° E	42.426401° N	55.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
163	11.521654° E	42.427656° N	60.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
164	11.519939° E	42.423383° N	55.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
165	11.523417° E	42.427429° N	60.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
166	11.525838° E	42.425971° N	47.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
167	11.527399° E	42.427361° N	51.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
168	11.532145° E	42.426331° N	60.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
169	11.534068° E	42.427699° N	57.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
170	11.534262° E	42.428104° N	57.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
171	11.532874° E	42.426871° N	60.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
172	11.537898° E	42.409254° N	38.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
173	11.537722° E	42.409468° N	37.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
174	11.531802° E	42.404353° N	31.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
175	11.532043° E	42.404536° N	31.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
176	11.533862° E	42.405867° N	31.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
177	11.533872° E	42.406015° N	31.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
178	11.533829° E	42.403722° N	32.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
179	11.534279° E	42.406152° N	30.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
180	11.538273° E	42.407255° N	35.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
181	11.534879° E	42.405327° N	32.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
182	11.534731° E	42.405629° N	31.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
183	11.534598° E	42.405436° N	31.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
184	11.534831° E	42.405586° N	31.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
185	11.534621° E	42.406128° N	30.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
186	11.539170° E	42.406568° N	31.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
187	11.553960° E	42.406086° N	37.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
188	11.574581° E	42.403650° N	46.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
189	11.574682° E	42.400044° N	44.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
190	11.574484° E	42.400343° N	44.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
191	11.574763° E	42.399535° N	43.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
192	11.576368° E	42.403215° N	47.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
193	11.594164° E	42.406573° N	59.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
194	11.594438° E	42.406990° N	61.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
195	11.583633° E	42.404521° N	51.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
196	11.583651° E	42.404296° N	50.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
197	11.583242° E	42.405057° N	53.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
198	11.583289° E	42.405452° N	54.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
199	11.583926° E	42.404286° N	50.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
200	11.583872° E	42.404759° N	52.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
201	11.606976° E	42.405315° N	66.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
202	11.606949° E	42.405161° N	66.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
203	11.619452° E	42.403468° N	69.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
204	11.619740° E	42.403434° N	69.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
205	11.619593° E	42.403224° N	68.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
206	11.619273° E	42.403629° N	69.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
207	11.608282° E	42.405726° N	68.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
208	11.611411° E	42.402855° N	67.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
209	11.616531° E	42.399994° N	65.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
210	11.616630° E	42.399819° N	64.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
211	11.616933° E	42.404460° N	69.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
212	11.613320° E	42.404459° N	69.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
213	11.616404° E	42.403994° N	68.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
214	11.614566° E	42.403524° N	68.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
215	11.619926° E	42.403421° N	69.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
216	11.536061° E	42.405689° N	33.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
217	11.536155° E	42.405416° N	34.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

...continued from previous page

No.	Longitude	Latitude	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
218	11.536891° E	42.406276° N	34.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
219	11.577911° E	42.402437° N	43.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
220	11.588731° E	42.399622° N	44.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
221	11.532196° E	42.405071° N	31.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
222	11.532656° E	42.405297° N	31.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
223	11.530133° E	42.404389° N	29.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
224	11.529756° E	42.404296° N	29.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
225	11.541857° E	42.432874° N	86.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
226	11.539690° E	42.432703° N	80.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
227	11.538685° E	42.428885° N	72.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
228	11.539186° E	42.428993° N	73.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
229	11.539266° E	42.428793° N	71.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
230	11.535158° E	42.429095° N	53.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
231	11.530197° E	42.430987° N	61.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
232	11.523570° E	42.430596° N	63.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
233	11.534328° E	42.403676° N	32.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
234	11.520814° E	42.428560° N	60.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
235	11.534083° E	42.405837° N	31.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
236	11.535079° E	42.427472° N	62.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
237	11.536071° E	42.426840° N	65.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
238	11.522049° E	42.422851° N	51.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
239	11.535332° E	42.432935° N	66.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
240	11.528680° E	42.428854° N	55.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
241	11.528828° E	42.428499° N	54.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
242	11.615012° E	42.403361° N	68.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
243	11.584035° E	42.405553° N	55.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
244	11.518529° E	42.414053° N	37.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
245	11.574871° E	42.395609° N	38.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
246	11.574725° E	42.398715° N	42.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
247	11.548851° E	42.396087° N	25.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
248	11.549585° E	42.397339° N	26.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
249	11.589815° E	42.398929° N	44.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
250	11.590164° E	42.398802° N	45.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
251	11.549888° E	42.397046° N	24.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
252	11.548960° E	42.396928° N	27.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
253	11.590399° E	42.398865° N	46.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
254	11.597685° E	42.437396° N	90.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
255	11.610062° E	42.434918° N	90.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
256	11.615267° E	42.403442° N	68.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
257	11.531522° E	42.404330° N	31.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
258	11.528929° E	42.429287° N	56.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
259	11.529377° E	42.431768° N	65.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
260	11.533156° E	42.426040° N	61.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
261	11.590337° E	42.398941° N	46.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
262	11.534991° E	42.405542° N	32.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
263	11.537603° E	42.407566° N	36.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
264	11.518762° E	42.414419° N	37.8	1.2	1.5	1.0	90.0	"Green house mode"	2.5
265	11.520161° E	42.423251° N	56.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
266	11.523892° E	42.431083° N	63.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
267	11.534542° E	42.424106° N	60.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
268	11.540274° E	42.434179° N	79.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
269	11.591170° E	42.426210° N	86.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
270	11.574887° E	42.447374° N	97.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
271	11.590613° E	42.425087° N	84.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
272	11.592202° E	42.424589° N	80.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
273	11.589981° E	42.423949° N	81.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
274	11.594470° E	42.422150° N	66.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
275	11.597031° E	42.420765° N	69.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
276	11.613304° E	42.419067° N	68.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
277	11.613184° E	42.418910° N	67.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
278	11.613174° E	42.409474° N	74.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
279	11.611657° E	42.409247° N	73.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
280	11.613165° E	42.408031° N	73.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
281	11.612962° E	42.404566° N	69.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

...continued from previous page

No.	Longitude	Latitude	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
282	11.612950° E	42.404511° N	69.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
283	11.612978° E	42.404392° N	69.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
284	11.614925° E	42.403608° N	68.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
285	11.615189° E	42.403625° N	68.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
286	11.616635° E	42.400865° N	65.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
287	11.616844° E	42.399929° N	66.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
288	11.616793° E	42.400054° N	66.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
289	11.593870° E	42.406343° N	56.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
290	11.584361° E	42.405385° N	52.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
291	11.584128° E	42.404783° N	51.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
292	11.539380° E	42.406538° N	32.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
293	11.538911° E	42.406541° N	32.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
294	11.538315° E	42.409616° N	39.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
295	11.540319° E	42.412309° N	44.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
296	11.540193° E	42.412096° N	44.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
297	11.540222° E	42.412159° N	44.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
298	11.537843° E	42.412807° N	44.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
299	11.537425° E	42.413091° N	44.9	1.2	1.5	1.0	90.0	"Green house mode"	2.5
300	11.519610° E	42.415910° N	40.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
301	11.522137° E	42.424658° N	57.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
302	11.522408° E	42.424904° N	58.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
303	11.522923° E	42.424697° N	56.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
304	11.522831° E	42.424867° N	56.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
305	11.523466° E	42.426540° N	60.1	1.2	1.5	1.0	90.0	"Green house mode"	2.5
306	11.523405° E	42.429686° N	62.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
307	11.527320° E	42.424168° N	40.2	1.2	1.5	1.0	90.0	"Green house mode"	2.5
308	11.528299° E	42.431772° N	61.5	1.2	1.5	1.0	90.0	"Green house mode"	2.5
309	11.534202° E	42.428472° N	55.4	1.2	1.5	1.0	90.0	"Green house mode"	2.5
310	11.538307° E	42.432234° N	67.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5
311	11.538722° E	42.432183° N	72.3	1.2	1.5	1.0	90.0	"Green house mode"	2.5
312	11.542438° E	42.432676° N	87.0	1.2	1.5	1.0	90.0	"Green house mode"	2.5
313	11.541948° E	42.432248° N	85.6	1.2	1.5	1.0	90.0	"Green house mode"	2.5
314	11.542043° E	42.432695° N	86.7	1.2	1.5	1.0	90.0	"Green house mode"	2.5

Calculation Results

Shadow receptor

	Shadow, worst case			**Shadow, expected values**
No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
1	109:47	154	1:04	68:44
2	127:37	150	1:08	80:15
3	0:00	0	0:00	0:00
4	0:00	0	0:00	0:00
5	0:00	0	0:00	0:00
6	4:49	24	0:16	2:04
7	10:29	36	0:26	5:17
8	9:30	35	0:25	4:48
9	14:05	46	0:27	8:50
10	9:09	33	0:25	4:50
11	0:00	0	0:00	0:00
12	23:13	44	0:40	14:42
13	87:38	90	1:10	55:48
14	31:26	49	0:48	19:56
15	0:00	0	0:00	0:00
16	0:00	0	0:00	0:00
17	0:00	0	0:00	0:00
18	0:00	0	0:00	0:00
19	145:42	150	1:15	90:56
20	104:07	121	1:10	63:49
21	0:00	0	0:00	0:00
22	0:00	0	0:00	0:00
23	0:00	0	0:00	0:00

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SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

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	Shadow, worst case			Shadow, expected values
No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
24	0:00	0	0:00	0:00
25	12:53	36	0:29	6:57
26	0:00	0	0:00	0:00
27	0:00	0	0:00	0:00
28	0:00	0	0:00	0:00
29	34:35	62	0:40	14:55
30	0:00	0	0:00	0:00
31	6:30	24	0:20	2:48
32	24:32	50	0:36	10:33
33	39:30	62	0:49	21:48
34	58:34	76	0:59	31:28
35	0:00	0	0:00	0:00
36	21:57	56	0:35	13:30
37	24:11	58	0:37	14:50
38	52:53	98	0:41	33:42
39	24:36	64	0:34	15:32
40	22:49	62	0:33	14:24
41	25:12	63	0:35	15:48
42	17:04	62	0:24	10:56
43	14:44	53	0:24	9:23
44	0:00	0	0:00	0:00
45	0:00	0	0:00	0:00
46	0:00	0	0:00	0:00
47	0:00	0	0:00	0:00
48	1:43	22	0:06	1:03
49	0:00	0	0:00	0:00
50	38:57	99	0:35	24:31
51	87:44	99	1:09	51:12
52	83:47	100	1:06	50:16
53	70:57	88	1:03	41:18
54	0:00	0	0:00	0:00
55	96:44	110	1:00	61:31
56	53:42	73	0:56	27:48
57	54:07	74	0:52	23:24
58	10:34	36	0:26	5:54
59	10:37	38	0:21	4:33
60	0:00	0	0:00	0:00
61	0:00	0	0:00	0:00
62	0:00	0	0:00	0:00
63	0:00	0	0:00	0:00
64	0:00	0	0:00	0:00
65	0:00	0	0:00	0:00
66	0:00	0	0:00	0:00
67	0:00	0	0:00	0:00
68	0:00	0	0:00	0:00
69	0:00	0	0:00	0:00
70	0:00	0	0:00	0:00
71	0:00	0	0:00	0:00
72	0:00	0	0:00	0:00
73	0:00	0	0:00	0:00
74	0:00	0	0:00	0:00
75	0:00	0	0:00	0:00
76	0:00	0	0:00	0:00
77	0:00	0	0:00	0:00
78	0:00	0	0:00	0:00
79	0:00	0	0:00	0:00
80	2:51	18	0:12	1:13
81	14:30	48	0:26	9:11
82	16:48	55	0:27	10:41
83	13:38	42	0:28	8:18
84	8:43	32	0:24	4:40
85	8:01	31	0:23	4:20
86	8:03	31	0:23	4:22

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SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

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	Shadow, worst case			Shadow, expected values
No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
87	7:43	30	0:23	4:11
88	8:06	32	0:23	4:23
89	15:39	51	0:27	9:57
90	95:06	92	1:14	60:33
91	37:40	55	0:51	23:55
92	104:04	100	1:13	66:16
93	57:57	69	1:03	36:52
94	81:57	88	1:07	52:10
95	0:00	0	0:00	0:00
96	10:50	37	0:26	5:28
97	0:00	0	0:00	0:00
98	0:00	0	0:00	0:00
99	11:21	37	0:27	5:43
100	0:00	0	0:00	0:00
101	24:29	86	0:30	10:40
102	17:42	54	0:30	7:57
103	16:34	52	0:29	7:29
104	18:20	56	0:31	8:16
105	26:47	66	0:30	11:34
106	25:31	62	0:30	11:00
107	44:07	72	0:42	19:04
108	38:24	66	0:42	16:34
109	38:38	66	0:41	16:40
110	54:43	94	0:42	23:50
111	56:25	96	0:42	24:37
112	53:20	98	0:41	23:19
113	52:46	88	0:41	22:54
114	53:00	95	0:41	23:07
115	0:00	0	0:00	0:00
116	0:00	0	0:00	0:00
117	0:00	0	0:00	0:00
118	0:00	0	0:00	0:00
119	0:00	0	0:00	0:00
120	0:00	0	0:00	0:00
121	0:00	0	0:00	0:00
122	0:00	0	0:00	0:00
123	0:00	0	0:00	0:00
124	0:00	0	0:00	0:00
125	0:00	0	0:00	0:00
126	0:00	0	0:00	0:00
127	0:00	0	0:00	0:00
128	0:00	0	0:00	0:00
129	0:00	0	0:00	0:00
130	0:00	0	0:00	0:00
131	49:25	89	0:47	22:27
132	20:43	48	0:36	11:47
133	23:47	51	0:38	13:45
134	23:12	50	0:38	13:07
135	21:10	48	0:36	11:51
136	22:38	51	0:37	13:00
137	9:39	37	0:24	4:43
138	21:07	72	0:26	9:08
139	9:54	35	0:25	5:24
140	19:57	78	0:26	8:40
141	10:08	34	0:26	5:34
142	10:21	35	0:26	5:40
143	9:44	33	0:26	5:21
144	20:15	80	0:27	8:48
145	0:00	0	0:00	0:00
146	0:00	0	0:00	0:00
147	0:00	0	0:00	0:00
148	0:00	0	0:00	0:00
149	20:27	45	0:34	8:47

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SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

...continued from previous page

	Shadow, worst case			Shadow, expected values
No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
150	11:43	34	0:27	5:02
151	0:00	0	0:00	0:00
152	57:09	91	0:51	35:33
153	59:35	77	1:00	30:55
154	90:54	105	0:59	57:52
155	93:51	116	0:57	59:34
156	55:40	81	0:50	35:26
157	57:45	76	0:59	30:08
158	3:20	18	0:15	1:26
159	58:50	77	0:59	31:06
160	24:13	80	0:25	15:28
161	23:33	74	0:25	15:01
162	13:33	54	0:25	5:57
163	19:00	52	0:26	8:10
164	10:38	38	0:26	5:22
165	12:57	39	0:25	5:34
166	28:31	58	0:35	12:17
167	0:00	0	0:00	0:00
168	0:00	0	0:00	0:00
169	0:00	0	0:00	0:00
170	0:00	0	0:00	0:00
171	0:00	0	0:00	0:00
172	0:00	0	0:00	0:00
173	0:00	0	0:00	0:00
174	0:00	0	0:00	0:00
175	0:00	0	0:00	0:00
176	0:00	0	0:00	0:00
177	0:00	0	0:00	0:00
178	0:00	0	0:00	0:00
179	0:00	0	0:00	0:00
180	5:10	26	0:18	2:36
181	0:00	0	0:00	0:00
182	0:00	0	0:00	0:00
183	0:00	0	0:00	0:00
184	0:00	0	0:00	0:00
185	0:00	0	0:00	0:00
186	6:07	28	0:20	3:04
187	104:36	136	1:05	47:50
188	15:30	43	0:32	8:24
189	19:40	54	0:32	12:12
190	19:42	53	0:33	12:07
191	21:13	59	0:32	13:23
192	11:29	37	0:27	6:16
193	0:00	0	0:00	0:00
194	0:00	0	0:00	0:00
195	21:48	80	0:24	13:56
196	22:39	75	0:24	14:27
197	13:56	53	0:23	8:52
198	12:33	47	0:23	7:59
199	22:58	73	0:24	14:38
200	20:40	83	0:24	13:14
201	0:00	0	0:00	0:00
202	0:00	0	0:00	0:00
203	0:00	0	0:00	0:00
204	0:00	0	0:00	0:00
205	0:00	0	0:00	0:00
206	0:00	0	0:00	0:00
207	0:00	0	0:00	0:00
208	0:00	0	0:00	0:00
209	0:00	0	0:00	0:00
210	0:00	0	0:00	0:00
211	0:00	0	0:00	0:00
212	0:00	0	0:00	0:00

To be continued on next page...

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

...continued from previous page

	Shadow, worst case			Shadow, expected values
No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
213	0:00	0	0:00	0:00
214	0:00	0	0:00	0:00
215	0:00	0	0:00	0:00
216	0:00	0	0:00	0:00
217	0:00	0	0:00	0:00
218	0:00	0	0:00	0:00
219	9:33	34	0:24	5:17
220	0:00	0	0:00	0:00
221	0:00	0	0:00	0:00
222	0:00	0	0:00	0:00
223	0:00	0	0:00	0:00
224	0:00	0	0:00	0:00
225	0:00	0	0:00	0:00
226	0:00	0	0:00	0:00
227	0:00	0	0:00	0:00
228	0:00	0	0:00	0:00
229	0:00	0	0:00	0:00
230	0:00	0	0:00	0:00
231	0:00	0	0:00	0:00
232	0:00	0	0:00	0:00
233	0:00	0	0:00	0:00
234	11:24	38	0:22	4:54
235	0:00	0	0:00	0:00
236	0:00	0	0:00	0:00
237	0:00	0	0:00	0:00
238	15:01	42	0:31	7:34
239	0:00	0	0:00	0:00
240	0:00	0	0:00	0:00
241	0:00	0	0:00	0:00
242	0:00	0	0:00	0:00
243	14:21	51	0:24	9:08
244	14:43	50	0:26	9:21
245	0:00	0	0:00	0:00
246	29:22	85	0:32	18:49
247	0:00	0	0:00	0:00
248	0:00	0	0:00	0:00
249	0:00	0	0:00	0:00
250	0:00	0	0:00	0:00
251	0:00	0	0:00	0:00
252	0:00	0	0:00	0:00
253	0:00	0	0:00	0:00
254	83:15	142	0:50	37:20
255	6:00	28	0:19	3:11
256	0:00	0	0:00	0:00
257	0:00	0	0:00	0:00
258	0:00	0	0:00	0:00
259	0:00	0	0:00	0:00
260	0:00	0	0:00	0:00
261	0:00	0	0:00	0:00
262	0:00	0	0:00	0:00
263	0:00	0	0:00	0:00
264	14:25	48	0:26	9:07
265	10:54	37	0:26	5:30
266	0:00	0	0:00	0:00
267	0:00	0	0:00	0:00
268	0:00	0	0:00	0:00
269	0:00	0	0:00	0:00
270	0:00	0	0:00	0:00
271	0:00	0	0:00	0:00
272	0:00	0	0:00	0:00
273	0:00	0	0:00	0:00
274	0:00	0	0:00	0:00
275	24:05	50	0:35	10:21

To be continued on next page...

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SHADOW - Main Result

Calculation: Real Case con piena operatività dell'impianto

...continued from previous page

No.	Shadow, worst case: Shadow hours per year [h/year]	Shadow, worst case: Shadow days per year [days/year]	Shadow, worst case: Max shadow hours per day [h/day]	Shadow, expected values: Shadow hours per year [h/year]
276	0:00	0	0:00	0:00
277	0:10	4	0:03	0:04
278	51:55	84	0:49	32:12
279	98:09	120	0:58	62:11
280	63:18	91	0:49	40:19
281	0:00	0	0:00	0:00
282	0:00	0	0:00	0:00
283	0:00	0	0:00	0:00
284	0:00	0	0:00	0:00
285	0:00	0	0:00	0:00
286	0:00	0	0:00	0:00
287	0:00	0	0:00	0:00
288	0:00	0	0:00	0:00
289	0:00	0	0:00	0:00
290	16:51	59	0:25	10:46
291	22:50	82	0:25	14:36
292	6:15	28	0:20	3:08
293	5:55	27	0:20	2:58
294	0:00	0	0:00	0:00
295	0:00	0	0:00	0:00
296	0:00	0	0:00	0:00
297	0:00	0	0:00	0:00
298	0:00	0	0:00	0:00
299	0:00	0	0:00	0:00
300	13:51	42	0:28	8:24
301	15:55	50	0:30	7:16
302	17:12	54	0:29	7:42
303	18:58	56	0:31	8:31
304	19:11	58	0:31	8:34
305	26:26	62	0:31	11:24
306	0:00	0	0:00	0:00
307	57:59	94	0:43	25:16
308	0:00	0	0:00	0:00
309	0:00	0	0:00	0:00
310	0:00	0	0:00	0:00
311	0:00	0	0:00	0:00
312	0:00	0	0:00	0:00
313	0:00	0	0:00	0:00
314	0:00	0	0:00	0:00

Total amount of flickering on the shadow receptors caused by each WTG

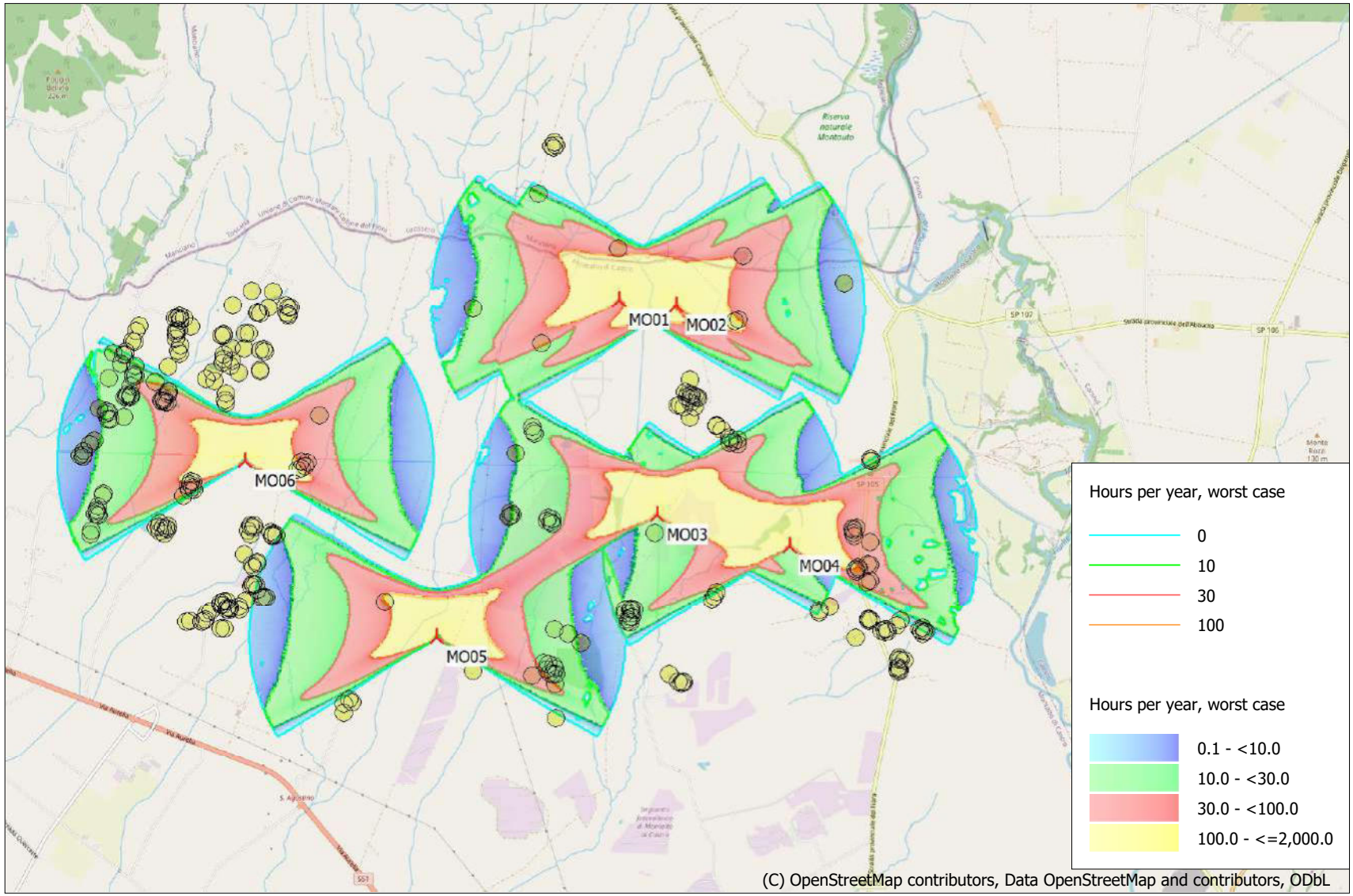
No.	Name	Worst case [h/year]	Expected [h/year]
MO01	VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (1)	66:17	38:47
MO02	VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (2)	285:40	153:02
MO03	VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)	111:10	53:18
MO04	VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)	307:14	181:21
MO05	VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)	215:15	114:35
MO06	VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)	516:12	290:03

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

Allegato 3

Risultati grafici dello Shadow Flickering



0 1 2 3 4 km

Map: EMD OpenStreetMap , Print scale 1:60,000, Map center Geo WGS84 East: 11.587828° E North: 42.418115° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: eolico-montalto_EMDGrid_0.wpg (1)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

Project:

eolico-montalto

Description:

Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

SHADOW - Map

Calculation:

Shadow Flickering - WORST CASE

Licensed user:

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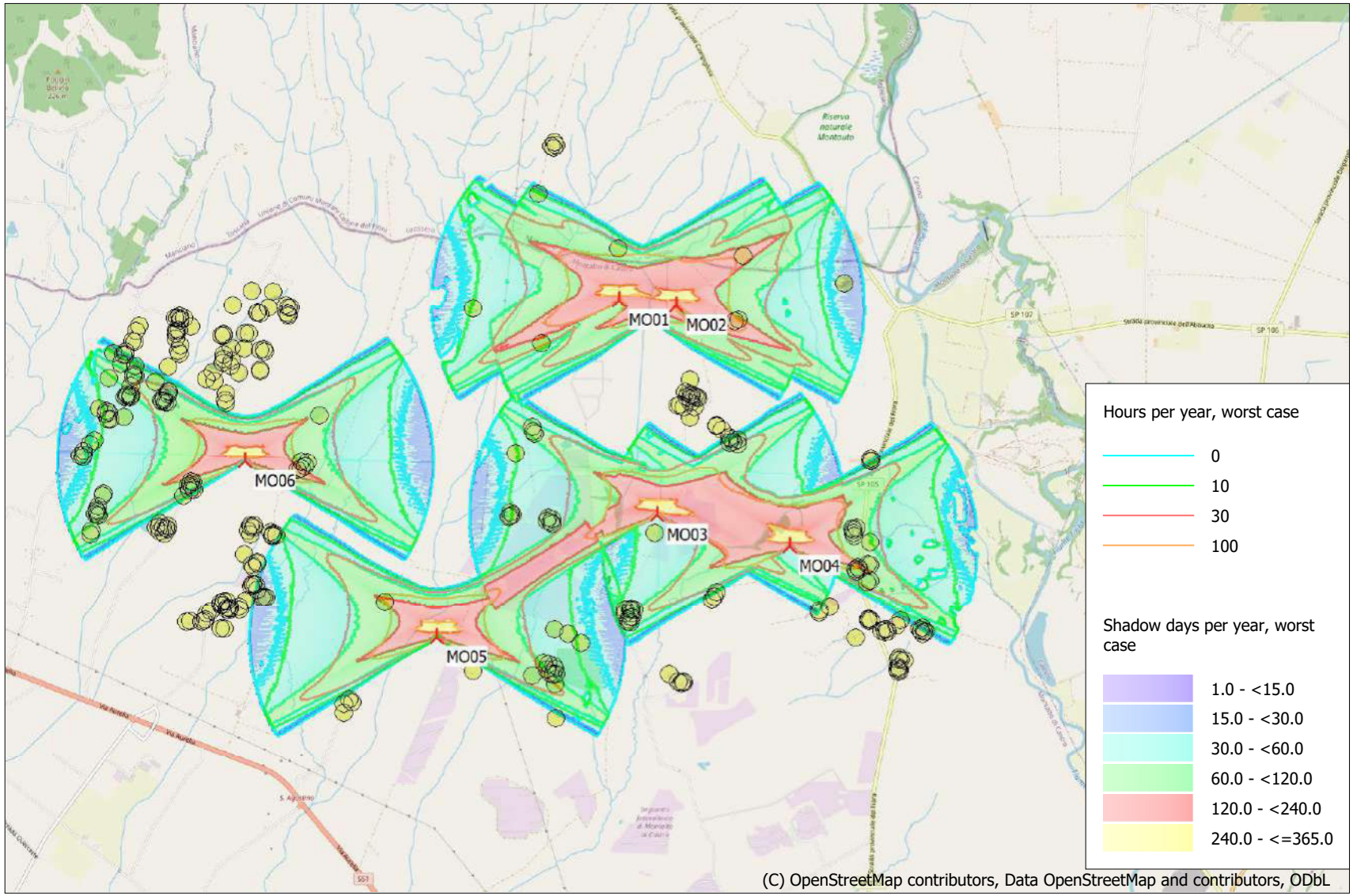
Calculated:

05/09/2023 15:22/3.6.361



0 1 2 3 4 km

Map: EMD OpenStreetMap , Print scale 1:60,000, Map center Geo WGS84 East: 11.587828° E North: 42.418115° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: eolico-montalto_EMDGrid_0.wpg (1)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

Project:

eolico-montalto

Description:

Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

SHADOW - Map

Calculation:

Shadow Flickering - WORST CASE

Licensed user:

Enviarea snc stp

viale XX Settembre 266bis

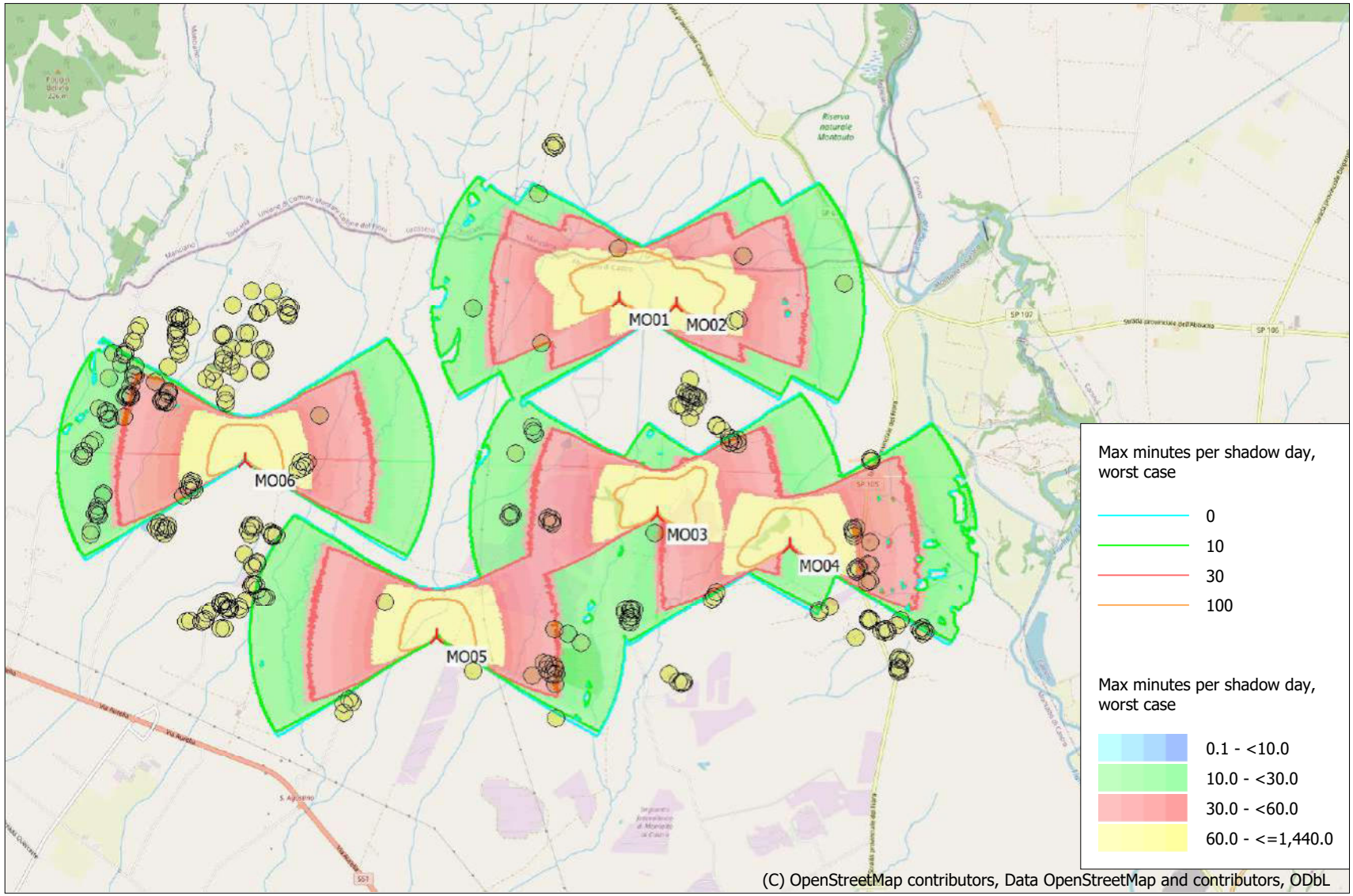
IT-54033 Carrara

00390585281383

Sara / s.cassini@enviarea.it

Calculated:

05/09/2023 15:22/3.6.361



0 1 2 3 4 km

Map: EMD OpenStreetMap , Print scale 1:60,000, Map center Geo WGS84 East: 11.587828° E North: 42.418115° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: eolico-montalto_EMDGrid_0.wpg (1)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

Project:

eolico-montalto

Description:

Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

SHADOW - Map

Calculation:

Shadow Flickering - WORST CASE

Licensed user:

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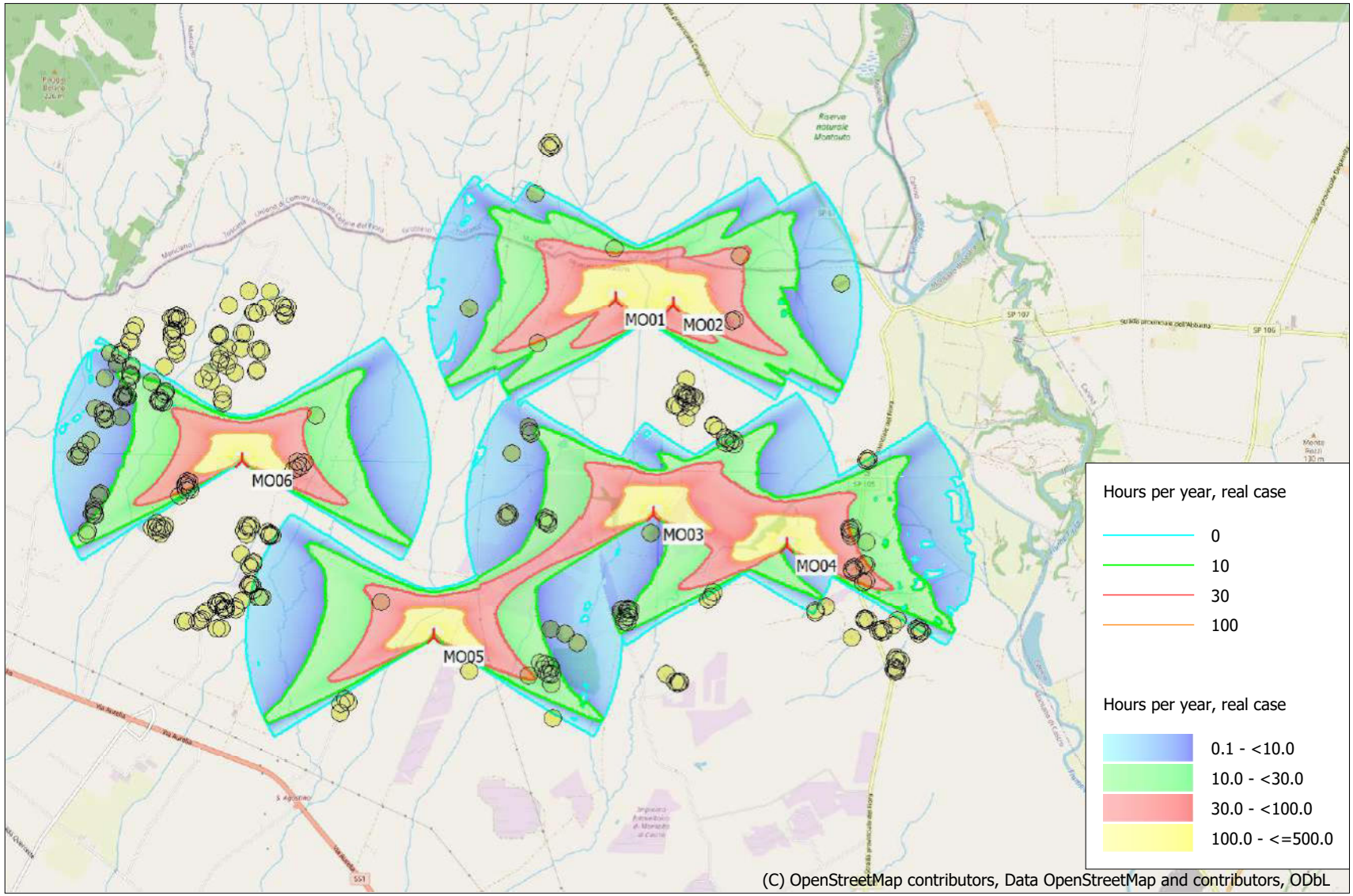
Calculated:

05/09/2023 15:22/3.6.361



0 1 2 3 4 km

Map: EMD OpenStreetMap , Print scale 1:60,000, Map center Geo WGS84 East: 11.588192° E North: 42.418107° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: eolico-montalto_EMDGrid_0.wpg (1)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

Project:

eolico-montalto

Description:

Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

SHADOW - Map

Calculation:

Real Case con piena operatività dell'impianto

Licensed user:

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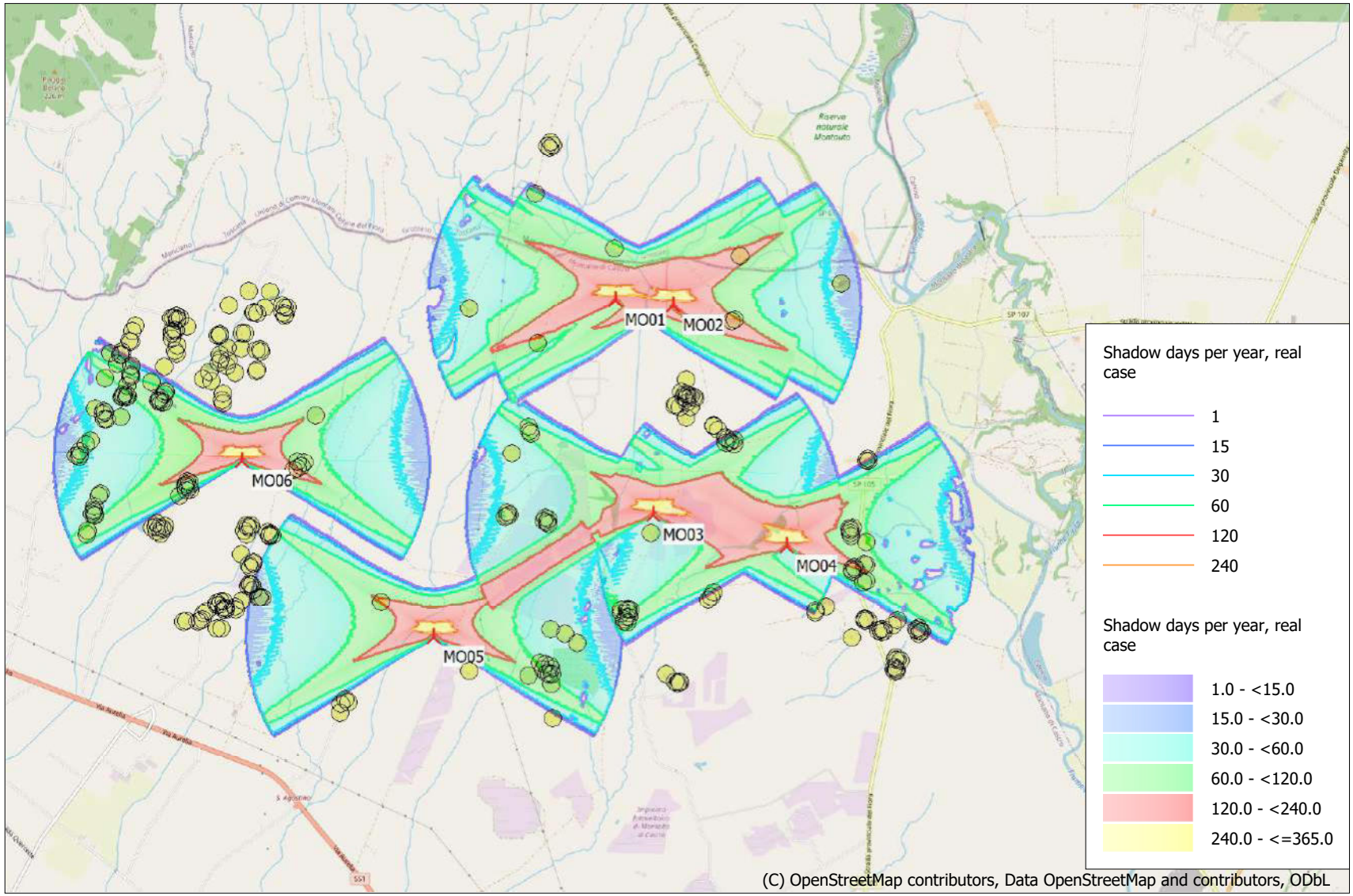
Calculated:

02/09/2023 23:38/3.6.361



0 1 2 3 4 km

Map: EMD OpenStreetMap , Print scale 1:60,000, Map center Geo WGS84 East: 11.588192° E North: 42.418107° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: eolico-montalto_EMDGrid_0.wpg (1)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

Project:

eolico-montalto

Description:

Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

SHADOW - Map

Calculation:

Real Case con piena operatività dell'impianto

Licensed user:

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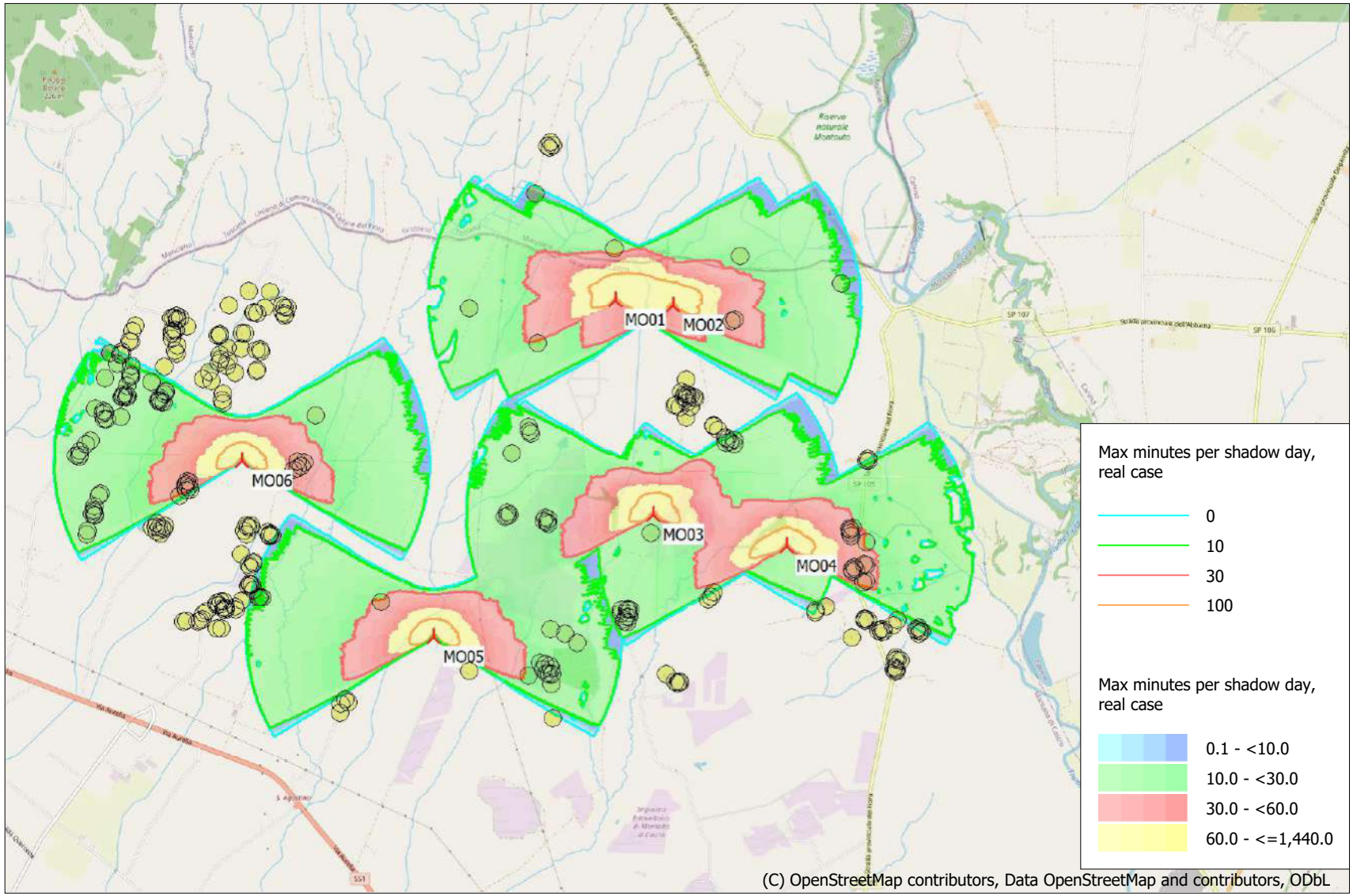
Sara / s.cassini@enviarea.it

Calculated:

02/09/2023 23:38/3.6.361



0 1 2 3 4 km

Map: EMD OpenStreetMap , Print scale 1:60,000, Map center Geo WGS84 East: 11.588192° E North: 42.418107° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: eolico-montalto_EMDGrid_0.wpg (1)

Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

Project:

eolico-montalto

Description:

Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

SHADOW - Map

Calculation:

Real Case con piena operatività dell'impianto

Licensed user:

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Calculated:

02/09/2023 23:38/3.6.361

Allegato 4

Mappa di impatto potenziale del fenomeno di shadow flickering – Worst Case

MO01
MO02
MO03
MO04
MO05
MO06
Legenda
Confini amministrativi
Confine regionale
Confine comunale
Impianto eolico in progetto
aerogeneratori
Shadow flickering - Worst Case
Recettori presenti nel raggio di 1720 m dagli aerogeneratori in progetto
Ore di ombreggiamento, Worst Case
0
10.00
30.00
100.00
Ore di ombreggiamento, Worst Case
0.10 - 10.00
10.00 - 30.00
30.00 - 100.00
> 100.00

Allegato 5

Mappa di impatto potenziale del fenomeno di shadow flickering – Real Case con piena operatività dell'impianto

MO01
MO02
MO03
MO04
MO05
MO06
Legenda
Confini amministrativi
Confine regionale
Confine comunale
Impianto eolico in progetto
aerogeneratori
Shadow flickering - Real Case con piena operatività dell'impianto
Recettori presenti nel raggio di 1720 m dagli aerogeneratori in progetto
Ore di ombreggiamento, Real Case
0
10.0000
30.0000
100.0000
Ore di ombreggiamento, Real Case
0.10 - 10.00
10.00 - 30.00
30.00 - 100.00
> 100.00

Allegato 6

Calendar Time per recettore

Licensed user:
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IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 1 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (899)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June		
1	07:44		07:29		06:51		06:58			06:11		18:46 (MO02)	05:40		18:58 (MO02)
	16:51		17:27		18:03		19:39			20:13	63	19:49 (MO02)	20:44	41	19:39 (MO02)
2	07:44		07:28		06:50		06:57			06:09		18:46 (MO02)	05:40		18:59 (MO02)
	16:52		17:28		18:04		19:40			20:14	63	19:49 (MO02)	20:45	40	19:39 (MO02)
3	07:44		07:27		06:48		06:55			06:08		18:46 (MO02)	05:39		18:59 (MO02)
	16:53		17:30		18:05		19:41			20:15	63	19:49 (MO02)	20:45	39	19:38 (MO02)
4	07:44		07:26		06:46		06:53			06:07		18:45 (MO02)	05:39		19:00 (MO02)
	16:54		17:31		18:06		19:42			20:16	64	19:49 (MO02)	20:46	38	19:38 (MO02)
5	07:44		07:25		06:45		06:51			06:05		18:45 (MO02)	05:38		19:01 (MO02)
	16:55		17:32		18:08		19:44			20:17	64	19:49 (MO02)	20:47	37	19:38 (MO02)
6	07:44		07:24		06:43		06:50		19:22 (MO01)	06:04		18:45 (MO02)	05:38		19:02 (MO02)
	16:56		17:33		18:09		19:45	1	19:23 (MO01)	20:18	64	19:49 (MO02)	20:48	35	19:37 (MO02)
7	07:44		07:22		06:41		06:48		19:18 (MO01)	06:03		18:46 (MO02)	05:38		19:03 (MO02)
	16:57		17:35		18:10		19:46	6	19:24 (MO01)	20:19	63	19:49 (MO02)	20:48	34	19:37 (MO02)
8	07:44		07:21		06:40		06:46		19:15 (MO01)	06:01		18:46 (MO02)	05:37		19:04 (MO02)
	16:58		17:36		18:11		19:47	10	19:25 (MO01)	20:21	63	19:49 (MO02)	20:49	33	19:37 (MO02)
9	07:43		07:20		06:38		06:45		19:14 (MO01)	06:00		18:46 (MO02)	05:37		19:05 (MO02)
	16:59		17:37		18:12		19:48	12	19:26 (MO01)	20:22	63	19:49 (MO02)	20:50	31	19:36 (MO02)
10	07:43		07:19		06:36		06:43		19:12 (MO01)	05:59		18:45 (MO02)	05:37		19:06 (MO02)
	17:00		17:39		18:14		19:49	15	19:27 (MO01)	20:23	63	19:48 (MO02)	20:50	30	19:36 (MO02)
11	07:43		07:17		06:35		06:41		19:10 (MO01)	05:58		18:46 (MO02)	05:37		19:05 (MO02)
	17:01		17:40		18:15		19:50	18	19:28 (MO01)	20:24	62	19:48 (MO02)	20:51	30	19:35 (MO02)
12	07:43		07:16		06:33		06:40		19:10 (MO01)	05:57		18:46 (MO02)	05:37		19:06 (MO02)
	17:02		17:41		18:16		19:51	20	19:30 (MO01)	20:25	62	19:48 (MO02)	20:51	29	19:35 (MO02)
13	07:42		07:15		06:31		06:38		19:08 (MO01)	05:56		18:46 (MO02)	05:36		19:07 (MO02)
	17:03		17:43		18:17		19:53	22	19:30 (MO01)	20:26	61	19:47 (MO02)	20:52	28	19:35 (MO02)
14	07:42		07:14		06:30		06:36		19:07 (MO01)	05:55		18:46 (MO02)	05:36		19:08 (MO02)
	17:04		17:44		18:18		19:54	24	19:31 (MO01)	20:27	61	19:47 (MO02)	20:52	26	19:34 (MO02)
15	07:41		07:12		06:28		06:35		19:05 (MO02)	05:54		18:47 (MO02)	05:36		19:08 (MO02)
	17:06		17:45		18:20		19:55	28	19:33 (MO01)	20:28	60	19:47 (MO02)	20:53	26	19:34 (MO02)
16	07:41		07:11		06:26		06:33		19:02 (MO02)	05:52		18:47 (MO02)	05:36		19:09 (MO02)
	17:07		17:46		18:21		19:56	31	19:33 (MO01)	20:29	59	19:46 (MO02)	20:53	25	19:34 (MO02)
17	07:41		07:09		06:24		06:32		19:00 (MO02)	05:51		18:48 (MO02)	05:36		19:09 (MO02)
	17:08		17:48		18:22		19:57	35	19:35 (MO01)	20:30	58	19:46 (MO02)	20:53	25	19:34 (MO02)
18	07:40		07:08		06:23		06:30		18:58 (MO02)	05:51		18:48 (MO02)	05:36		19:10 (MO02)
	17:09		17:49		18:23		19:58	38	19:36 (MO01)	20:31	57	19:45 (MO02)	20:54	24	19:34 (MO02)
19	07:39		07:07		06:21		06:28		18:57 (MO02)	05:50		18:49 (MO02)	05:37		19:11 (MO02)
	17:10		17:50		18:24		19:59	40	19:37 (MO01)	20:32	57	19:46 (MO02)	20:54	24	19:35 (MO02)
20	07:39		07:05		06:19		06:27		18:55 (MO02)	05:49		18:50 (MO02)	05:37		19:11 (MO02)
	17:12		17:52		18:25		20:00	43	19:38 (MO01)	20:33	55	19:45 (MO02)	20:54	23	19:34 (MO02)
21	07:38		07:04		06:17		06:25		18:53 (MO02)	05:48		18:50 (MO02)	05:37		19:11 (MO02)
	17:13		17:53		18:26		20:02	45	19:38 (MO02)	20:34	55	19:45 (MO02)	20:55	23	19:34 (MO02)
22	07:38		07:02		06:16		06:24		18:52 (MO02)	05:47		18:50 (MO02)	05:37		19:11 (MO02)
	17:14		17:54		18:28		20:03	48	19:40 (MO02)	20:35	54	19:44 (MO02)	20:55	23	19:34 (MO02)
23	07:37		07:01		06:14		06:22		18:52 (MO02)	05:46		18:51 (MO02)	05:37		19:11 (MO02)
	17:15		17:55		18:29		20:04	49	19:41 (MO02)	20:36	52	19:43 (MO02)	20:55	23	19:34 (MO02)
24	07:36		06:59		06:12		06:21		18:50 (MO02)	05:45		18:52 (MO02)	05:38		19:12 (MO02)
	17:17		17:57		18:30		20:05	52	19:42 (MO02)	20:37	52	19:44 (MO02)	20:55	24	19:36 (MO02)
25	07:35		06:58		06:11		06:19		18:50 (MO02)	05:45		18:53 (MO02)	05:38		19:12 (MO02)
	17:18		17:58		18:31		20:06	53	19:43 (MO02)	20:38	50	19:43 (MO02)	20:55	24	19:36 (MO02)
26	07:35		06:56		06:09		06:18		18:49 (MO02)	05:44		18:53 (MO02)	05:38		19:11 (MO02)
	17:19		17:59		18:32		20:07	55	19:44 (MO02)	20:39	49	19:42 (MO02)	20:55	25	19:36 (MO02)
27	07:34		06:54		06:07		06:16		18:48 (MO02)	05:43		18:54 (MO02)	05:39		19:12 (MO02)
	17:20		18:00		18:33		20:08	57	19:45 (MO02)	20:40	48	19:42 (MO02)	20:55	25	19:37 (MO02)
28	07:33		06:53		06:05		06:15		18:47 (MO02)	05:42		18:55 (MO02)	05:39		19:11 (MO02)
	17:22		18:02		18:34		20:09	59	19:46 (MO02)	20:41	46	19:41 (MO02)	20:55	26	19:37 (MO02)
29	07:32				07:04		06:13		18:47 (MO02)	05:42		18:56 (MO02)	05:39		19:11 (MO02)
	17:23				19:36		20:11	60	19:47 (MO02)	20:41	45	19:41 (MO02)	20:55	27	19:38 (MO02)
30	07:31				07:02		06:12		18:47 (MO02)	05:41		18:56 (MO02)	05:40		19:11 (MO02)
	17:24				19:37		20:12	62	19:49 (MO02)	20:42	45	19:41 (MO02)	20:55	28	19:39 (MO02)
31	07:30				07:00					05:41		18:57 (MO02)			
	17:26				19:38					20:43	44	19:41 (MO02)			
Potential sun hours	293		295		369		400			452			457		
Total, worst case								883			1765			866	
Sun reduction								0.49			0.57			0.61	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								1.00			1.00			1.00	
Total reduction								0.49			0.57			0.61	
Total, real								437			1004			529	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 1 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (899)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October	November	December
1	05:40		19:11 (MO02)	06:05		18:56 (MO02)	06:38		19:09 (MO01)	07:10	06:46	07:23
	20:55	29	19:40 (MO02)	20:35	62	19:58 (MO02)	19:50	18	19:27 (MO01)	18:57	17:09	16:43
2	05:41		19:10 (MO02)	06:06		18:56 (MO02)	06:39		19:10 (MO01)	07:11	06:48	07:24
	20:55	30	19:40 (MO02)	20:34	62	19:58 (MO02)	19:48	15	19:25 (MO01)	18:56	17:07	16:42
3	05:41		19:10 (MO02)	06:07		18:56 (MO02)	06:40		19:11 (MO01)	07:12	06:49	07:25
	20:55	31	19:41 (MO02)	20:33	63	19:59 (MO02)	19:47	12	19:23 (MO01)	18:54	17:06	16:42
4	05:42		19:09 (MO02)	06:08		18:56 (MO02)	06:41		19:12 (MO01)	07:13	06:50	07:26
	20:55	33	19:42 (MO02)	20:31	63	19:59 (MO02)	19:45	10	19:22 (MO01)	18:52	17:05	16:42
5	05:42		19:09 (MO02)	06:09		18:55 (MO02)	06:42		19:14 (MO01)	07:15	06:51	07:27
	20:54	34	19:43 (MO02)	20:30	64	19:59 (MO02)	19:43	6	19:20 (MO01)	18:50	17:04	16:42
6	05:43		19:08 (MO02)	06:11		18:55 (MO02)	06:43		19:17 (MO01)	07:16	06:53	07:28
	20:54	35	19:43 (MO02)	20:29	64	19:59 (MO02)	19:41	1	19:18 (MO01)	18:49	17:02	16:41
7	05:44		19:08 (MO02)	06:12		18:55 (MO02)	06:44			07:17	06:54	07:29
	20:54	36	19:44 (MO02)	20:28	63	19:58 (MO02)	19:40			18:47	17:01	16:41
8	05:44		19:08 (MO02)	06:13		18:55 (MO02)	06:46			07:18	06:55	07:30
	20:53	37	19:45 (MO02)	20:26	63	19:58 (MO02)	19:38			18:45	17:00	16:41
9	05:45		19:07 (MO02)	06:14		18:55 (MO02)	06:47			07:19	06:56	07:31
	20:53	38	19:45 (MO02)	20:25	63	19:58 (MO02)	19:36			18:44	16:59	16:41
10	05:46		19:06 (MO02)	06:15		18:55 (MO02)	06:48			07:20	06:58	07:32
	20:53	40	19:46 (MO02)	20:24	63	19:58 (MO02)	19:34			18:42	16:58	16:41
11	05:46		19:06 (MO02)	06:16		18:55 (MO02)	06:49			07:21	06:59	07:33
	20:52	41	19:47 (MO02)	20:22	63	19:58 (MO02)	19:33			18:40	16:57	16:41
12	05:47		19:05 (MO02)	06:17		18:55 (MO02)	06:50			07:22	07:00	07:34
	20:52	42	19:47 (MO02)	20:21	62	19:57 (MO02)	19:31			18:39	16:56	16:41
13	05:48		19:05 (MO02)	06:18		18:55 (MO02)	06:51			07:24	07:01	07:34
	20:51	44	19:49 (MO02)	20:20	61	19:56 (MO02)	19:29			18:37	16:55	16:41
14	05:49		19:04 (MO02)	06:19		18:55 (MO02)	06:52			07:25	07:03	07:35
	20:51	45	19:49 (MO02)	20:18	60	19:55 (MO02)	19:27			18:35	16:54	16:42
15	05:50		19:04 (MO02)	06:20		18:55 (MO02)	06:53			07:26	07:04	07:36
	20:50	46	19:50 (MO02)	20:17	58	19:53 (MO02)	19:26			18:34	16:53	16:42
16	05:50		19:04 (MO02)	06:21		18:55 (MO02)	06:54			07:27	07:05	07:37
	20:49	47	19:51 (MO02)	20:15	57	19:52 (MO02)	19:24			18:32	16:52	16:42
17	05:51		19:03 (MO02)	06:22		18:55 (MO02)	06:55			07:28	07:06	07:37
	20:49	48	19:51 (MO02)	20:14	55	19:50 (MO02)	19:22			18:30	16:51	16:42
18	05:52		19:02 (MO02)	06:23		18:56 (MO02)	06:56			07:29	07:08	07:38
	20:48	50	19:52 (MO02)	20:12	53	19:49 (MO02)	19:20			18:29	16:50	16:43
19	05:53		19:02 (MO02)	06:24		18:56 (MO02)	06:57			07:31	07:09	07:39
	20:47	51	19:53 (MO02)	20:11	51	19:47 (MO02)	19:19			18:27	16:49	16:43
20	05:54		19:02 (MO02)	06:25		18:57 (MO02)	06:58			07:32	07:10	07:39
	20:46	52	19:54 (MO02)	20:09	49	19:46 (MO02)	19:17			18:26	16:49	16:43
21	05:55		19:01 (MO02)	06:26		18:57 (MO02)	06:59			07:33	07:11	07:40
	20:46	53	19:54 (MO02)	20:08	47	19:44 (MO02)	19:15			18:24	16:48	16:44
22	05:56		19:01 (MO02)	06:27		18:58 (MO02)	07:00			07:34	07:13	07:40
	20:45	54	19:55 (MO02)	20:06	45	19:43 (MO02)	19:13			18:23	16:47	16:44
23	05:57		19:00 (MO02)	06:29		18:59 (MO02)	07:01			07:35	07:14	07:41
	20:44	56	19:56 (MO02)	20:05	42	19:41 (MO01)	19:11			18:21	16:47	16:45
24	05:58		19:00 (MO02)	06:30		19:00 (MO02)	07:03			07:37	07:15	07:41
	20:43	56	19:56 (MO02)	20:03	40	19:40 (MO01)	19:10			18:20	16:46	16:45
25	05:58		18:59 (MO02)	06:31		19:01 (MO02)	07:04			06:38	07:16	07:42
	20:42	57	19:56 (MO02)	20:01	37	19:38 (MO01)	19:08			17:18	16:45	16:46
26	05:59		18:58 (MO02)	06:32		19:02 (MO02)	07:05			06:39	07:17	07:42
	20:41	58	19:56 (MO02)	20:00	35	19:37 (MO01)	19:06			17:17	16:45	16:47
27	06:00		18:58 (MO02)	06:33		19:04 (MO02)	07:06			06:40	07:18	07:42
	20:40	59	19:57 (MO02)	19:58	31	19:35 (MO01)	19:04			17:15	16:44	16:47
28	06:01		18:58 (MO02)	06:34		19:06 (MO02)	07:07			06:41	07:20	07:43
	20:39	59	19:57 (MO02)	19:57	27	19:33 (MO01)	19:03			17:14	16:44	16:48
29	06:02		18:57 (MO02)	06:35		19:08 (MO01)	07:08			06:43	07:21	07:43
	20:38	60	19:57 (MO02)	19:55	24	19:32 (MO01)	19:01			17:13	16:43	16:49
30	06:03		18:57 (MO02)	06:36		19:08 (MO01)	07:09			06:44	07:22	07:43
	20:37	61	19:58 (MO02)	19:53	22	19:30 (MO01)	18:59			17:11	16:43	16:49
31	06:04		18:57 (MO02)	06:37		19:09 (MO01)				06:45		07:43
	20:36	61	19:58 (MO02)	19:52	19	19:28 (MO01)				17:10		16:50
Potential sun hours	463			431			376			344	295	283
Total, worst case		1443			1568			62				
Sun reduction		0.71			0.70			0.62				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		1.00			1.00			1.00				
Total reduction		0.71			0.70			0.62				
Total, real		1017			1098			39				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 2 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (900)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June		
1	07:44		07:29		06:51		06:58			06:11		18:50 (MO02)	05:40		18:53 (MO02)
	16:51		17:27		18:03		19:39			20:13	59	19:49 (MO02)	20:44	58	19:51 (MO02)
2	07:44		07:28		06:50		06:57			06:09		18:49 (MO02)	05:40		18:54 (MO02)
	16:52		17:28		18:04		19:40			20:14	61	19:50 (MO02)	20:45	57	19:51 (MO02)
3	07:44		07:27		06:48		06:55			06:08		18:49 (MO02)	05:39		18:54 (MO02)
	16:53		17:30		18:05		19:41			20:15	63	19:52 (MO02)	20:45	57	19:51 (MO02)
4	07:44		07:26		06:46		06:53			06:07		18:48 (MO02)	05:39		18:55 (MO02)
	16:54		17:31		18:06		19:42			20:16	64	19:52 (MO02)	20:46	56	19:51 (MO02)
5	07:44		07:25		06:45		06:51			06:05		18:48 (MO02)	05:38		18:56 (MO02)
	16:55		17:32		18:08		19:44			20:17	65	19:53 (MO02)	20:47	55	19:51 (MO02)
6	07:44		07:24		06:43		06:50			06:04		18:48 (MO02)	05:38		18:56 (MO02)
	16:56		17:33		18:09		19:45			20:18	66	19:54 (MO02)	20:48	54	19:50 (MO02)
7	07:44		07:22		06:41		06:48			06:03		18:48 (MO02)	05:38		18:57 (MO02)
	16:57		17:35		18:10		19:46			20:19	66	19:54 (MO02)	20:48	53	19:50 (MO02)
8	07:44		07:21		06:40		06:46		19:20 (MO01)	06:01		18:48 (MO02)	05:37		18:57 (MO02)
	16:58		17:36		18:11		19:47	5	19:25 (MO01)	20:21	66	19:54 (MO02)	20:49	53	19:50 (MO02)
9	07:43		07:20		06:38		06:45		19:18 (MO01)	06:00		18:48 (MO02)	05:37		18:58 (MO02)
	16:59		17:37		18:12		19:48	8	19:26 (MO01)	20:22	67	19:55 (MO02)	20:50	52	19:50 (MO02)
10	07:43		07:19		06:36		06:43		19:16 (MO01)	05:59		18:47 (MO02)	05:37		18:59 (MO02)
	17:00		17:39		18:14		19:49	11	19:27 (MO01)	20:23	67	19:54 (MO02)	20:50	52	19:51 (MO02)
11	07:43		07:17		06:35		06:41		19:14 (MO01)	05:58		18:47 (MO02)	05:37		18:58 (MO02)
	17:01		17:40		18:15		19:50	14	19:28 (MO01)	20:24	67	19:54 (MO02)	20:51	52	19:50 (MO02)
12	07:43		07:16		06:33		06:40		19:13 (MO01)	05:57		18:47 (MO02)	05:37		18:59 (MO02)
	17:02		17:41		18:16		19:51	17	19:30 (MO01)	20:25	67	19:54 (MO02)	20:51	51	19:50 (MO02)
13	07:42		07:15		06:31		06:38		19:11 (MO01)	05:56		18:47 (MO02)	05:36		18:59 (MO02)
	17:03		17:43		18:17		19:53	19	19:30 (MO01)	20:26	67	19:54 (MO02)	20:52	51	19:50 (MO02)
14	07:42		07:14		06:30		06:36		19:10 (MO01)	05:55		18:47 (MO02)	05:36		19:00 (MO02)
	17:04		17:44		18:18		19:54	21	19:31 (MO01)	20:27	67	19:54 (MO02)	20:52	50	19:50 (MO02)
15	07:41		07:12		06:28		06:35		19:10 (MO01)	05:54		18:47 (MO02)	05:36		19:00 (MO02)
	17:06		17:45		18:20		19:55	23	19:33 (MO01)	20:28	67	19:54 (MO02)	20:53	50	19:50 (MO02)
16	07:41		07:11		06:26		06:33		19:09 (MO01)	05:52		18:47 (MO02)	05:36		19:00 (MO02)
	17:07		17:46		18:21		19:56	24	19:33 (MO01)	20:29	67	19:54 (MO02)	20:53	50	19:50 (MO02)
17	07:41		07:09		06:24		06:32		19:09 (MO01)	05:51		18:47 (MO02)	05:36		19:01 (MO02)
	17:08		17:48		18:22		19:57	26	19:35 (MO01)	20:30	66	19:53 (MO02)	20:53	49	19:50 (MO02)
18	07:40		07:08		06:23		06:30		19:08 (MO01)	05:51		18:47 (MO02)	05:36		19:01 (MO02)
	17:09		17:49		18:23		19:58	28	19:36 (MO01)	20:31	66	19:53 (MO02)	20:54	49	19:50 (MO02)
19	07:39		07:07		06:21		06:28		19:06 (MO02)	05:50		18:48 (MO02)	05:37		19:02 (MO02)
	17:10		17:50		18:24		19:59	31	19:37 (MO01)	20:32	66	19:54 (MO02)	20:54	49	19:51 (MO02)
20	07:39		07:05		06:19		06:27		19:03 (MO02)	05:49		18:49 (MO02)	05:37		19:02 (MO02)
	17:12		17:52		18:25		20:00	35	19:38 (MO01)	20:33	65	19:54 (MO02)	20:54	49	19:51 (MO02)
21	07:38		07:04		06:17		06:25		19:01 (MO02)	05:48		18:49 (MO02)	05:37		19:02 (MO02)
	17:13		17:53		18:26		20:02	37	19:38 (MO01)	20:34	64	19:53 (MO02)	20:55	49	19:51 (MO02)
22	07:38		07:02		06:16		06:24		19:00 (MO02)	05:47		18:49 (MO02)	05:37		19:02 (MO02)
	17:14		17:54		18:28		20:03	40	19:40 (MO01)	20:35	64	19:53 (MO02)	20:55	49	19:51 (MO02)
23	07:37		07:01		06:14		06:22		18:58 (MO02)	05:46		18:49 (MO02)	05:37		19:02 (MO02)
	17:15		17:55		18:29		20:04	43	19:41 (MO02)	20:36	63	19:52 (MO02)	20:55	49	19:51 (MO02)
24	07:36		06:59		06:12		06:21		18:56 (MO02)	05:45		18:50 (MO02)	05:38		19:03 (MO02)
	17:17		17:57		18:30		20:05	46	19:42 (MO02)	20:37	63	19:53 (MO02)	20:55	49	19:52 (MO02)
25	07:35		06:58		06:11		06:19		18:56 (MO02)	05:45		18:50 (MO02)	05:38		19:03 (MO02)
	17:18		17:58		18:31		20:06	47	19:43 (MO02)	20:38	62	19:52 (MO02)	20:55	49	19:52 (MO02)
26	07:35		06:56		06:09		06:18		18:54 (MO02)	05:44		18:50 (MO02)	05:38		19:02 (MO02)
	17:19		17:59		18:32		20:07	50	19:44 (MO02)	20:39	62	19:52 (MO02)	20:55	50	19:52 (MO02)
27	07:34		06:54		06:07		06:16		18:53 (MO02)	05:43		18:51 (MO02)	05:39		19:03 (MO02)
	17:20		18:00		18:33		20:08	52	19:45 (MO02)	20:40	61	19:52 (MO02)	20:55	50	19:53 (MO02)
28	07:33		06:53		06:05		06:15		18:52 (MO02)	05:42		18:51 (MO02)	05:39		19:03 (MO02)
	17:22		18:02		18:34		20:09	54	19:46 (MO02)	20:41	61	19:52 (MO02)	20:55	50	19:53 (MO02)
29	07:32				07:04		06:13		18:51 (MO02)	05:42		18:52 (MO02)	05:39		19:03 (MO02)
	17:23				19:36		20:11	56	19:47 (MO02)	20:41	60	19:52 (MO02)	20:55	51	19:54 (MO02)
30	07:31				07:02		06:12		18:51 (MO02)	05:41		18:52 (MO02)	05:40		19:03 (MO02)
	17:24				19:37		20:12	58	19:49 (MO02)	20:42	59	19:51 (MO02)	20:55	51	19:54 (MO02)
31	07:30				07:00					05:41		18:53 (MO02)			
	17:26				19:38					20:43	59	19:52 (MO02)			
Potential sun hours	293		295		369		400			452			457		
Total, worst case								745			1987			1544	
Sun reduction								0.49			0.57			0.61	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								1.00			1.00			1.00	
Total reduction								0.49			0.57			0.61	
Total, real								368			1131			943	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 2 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (900)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October	November	December
1	05:40		19:03 (MO02)	06:05		18:57 (MO02)	06:38		19:13 (MO01)	07:10	06:46	07:23
	20:55	52	19:55 (MO02)	20:35	67	20:04 (MO02)	19:50	14	19:27 (MO01)	18:57	17:09	16:43
2	05:41		19:03 (MO02)	06:06		18:57 (MO02)	06:39		19:14 (MO01)	07:11	06:48	07:24
	20:55	52	19:55 (MO02)	20:34	67	20:04 (MO02)	19:48	11	19:25 (MO01)	18:56	17:07	16:42
3	05:41		19:03 (MO02)	06:07		18:57 (MO02)	06:40		19:15 (MO01)	07:12	06:49	07:25
	20:55	52	19:55 (MO02)	20:33	67	20:04 (MO02)	19:47	8	19:23 (MO01)	18:54	17:06	16:42
4	05:42		19:03 (MO02)	06:08		18:57 (MO02)	06:41		19:17 (MO01)	07:13	06:50	07:26
	20:55	52	19:55 (MO02)	20:31	67	20:04 (MO02)	19:45	5	19:22 (MO01)	18:52	17:05	16:42
5	05:42		19:03 (MO02)	06:09		18:57 (MO02)	06:42			07:15	06:51	07:27
	20:54	53	19:56 (MO02)	20:30	67	20:04 (MO02)	19:43			18:50	17:04	16:42
6	05:43		19:02 (MO02)	06:11		18:57 (MO02)	06:43			07:16	06:53	07:28
	20:54	54	19:56 (MO02)	20:29	67	20:04 (MO02)	19:41			18:49	17:02	16:41
7	05:44		19:02 (MO02)	06:12		18:57 (MO02)	06:44			07:17	06:54	07:29
	20:54	55	19:57 (MO02)	20:28	66	20:03 (MO02)	19:40			18:47	17:01	16:41
8	05:44		19:03 (MO02)	06:13		18:57 (MO02)	06:46			07:18	06:55	07:30
	20:53	55	19:58 (MO02)	20:26	66	20:03 (MO02)	19:38			18:45	17:00	16:41
9	05:45		19:02 (MO02)	06:14		18:58 (MO02)	06:47			07:19	06:56	07:31
	20:53	56	19:58 (MO02)	20:25	63	20:01 (MO02)	19:36			18:44	16:59	16:41
10	05:46		19:02 (MO02)	06:15		18:58 (MO02)	06:48			07:20	06:58	07:32
	20:53	56	19:58 (MO02)	20:24	62	20:00 (MO02)	19:34			18:42	16:58	16:41
11	05:46		19:02 (MO02)	06:16		18:58 (MO02)	06:49			07:21	06:59	07:33
	20:52	57	19:59 (MO02)	20:22	61	19:59 (MO02)	19:33			18:40	16:57	16:41
12	05:47		19:01 (MO02)	06:17		18:58 (MO02)	06:50			07:22	07:00	07:34
	20:52	58	19:59 (MO02)	20:21	59	19:57 (MO02)	19:31			18:39	16:56	16:41
13	05:48		19:01 (MO02)	06:18		18:59 (MO02)	06:51			07:24	07:01	07:34
	20:51	59	20:00 (MO02)	20:20	57	19:56 (MO02)	19:29			18:37	16:55	16:41
14	05:49		19:01 (MO02)	06:19		18:59 (MO02)	06:52			07:25	07:03	07:35
	20:51	59	20:00 (MO02)	20:18	56	19:55 (MO02)	19:27			18:35	16:54	16:42
15	05:50		19:01 (MO02)	06:20		19:00 (MO02)	06:53			07:26	07:04	07:36
	20:50	60	20:01 (MO02)	20:17	53	19:53 (MO02)	19:26			18:34	16:53	16:42
16	05:50		19:01 (MO02)	06:21		19:00 (MO02)	06:54			07:27	07:05	07:37
	20:49	61	20:02 (MO02)	20:15	52	19:52 (MO02)	19:24			18:32	16:52	16:42
17	05:51		19:00 (MO02)	06:22		19:01 (MO02)	06:55			07:28	07:06	07:37
	20:49	61	20:01 (MO02)	20:14	49	19:50 (MO02)	19:22			18:30	16:51	16:42
18	05:52		19:00 (MO02)	06:23		19:02 (MO02)	06:56			07:29	07:08	07:38
	20:48	62	20:02 (MO02)	20:12	47	19:49 (MO02)	19:20			18:29	16:50	16:43
19	05:53		19:00 (MO02)	06:24		19:02 (MO02)	06:57			07:31	07:09	07:39
	20:47	62	20:02 (MO02)	20:11	45	19:47 (MO02)	19:19			18:27	16:49	16:43
20	05:54		19:00 (MO02)	06:25		19:03 (MO02)	06:58			07:32	07:10	07:39
	20:46	63	20:03 (MO02)	20:09	43	19:46 (MO02)	19:17			18:26	16:49	16:43
21	05:55		18:59 (MO02)	06:26		19:05 (MO02)	06:59			07:33	07:11	07:40
	20:46	64	20:03 (MO02)	20:08	39	19:44 (MO01)	19:15			18:24	16:48	16:44
22	05:56		18:59 (MO02)	06:27		19:06 (MO02)	07:00			07:34	07:13	07:40
	20:45	65	20:04 (MO02)	20:06	37	19:43 (MO01)	19:13			18:23	16:47	16:44
23	05:57		18:59 (MO02)	06:29		19:07 (MO02)	07:01			07:35	07:14	07:41
	20:44	65	20:04 (MO02)	20:05	34	19:41 (MO01)	19:11			18:21	16:47	16:45
24	05:58		18:59 (MO02)	06:30		19:09 (MO02)	07:03			07:37	07:15	07:41
	20:43	65	20:04 (MO02)	20:03	31	19:40 (MO01)	19:10			18:20	16:46	16:45
25	05:58		18:58 (MO02)	06:31		19:11 (MO01)	07:04			06:38	07:16	07:42
	20:42	66	20:04 (MO02)	20:01	27	19:38 (MO01)	19:08			17:18	16:45	16:46
26	05:59		18:58 (MO02)	06:32		19:10 (MO01)	07:05			06:39	07:17	07:42
	20:41	66	20:04 (MO02)	20:00	27	19:37 (MO01)	19:06			17:17	16:45	16:47
27	06:00		18:58 (MO02)	06:33		19:10 (MO01)	07:06			06:40	07:18	07:42
	20:40	66	20:04 (MO02)	19:58	25	19:35 (MO01)	19:04			17:15	16:44	16:47
28	06:01		18:58 (MO02)	06:34		19:10 (MO01)	07:07			06:41	07:20	07:43
	20:39	66	20:04 (MO02)	19:57	23	19:33 (MO01)	19:03			17:14	16:44	16:48
29	06:02		18:58 (MO02)	06:35		19:11 (MO01)	07:08			06:43	07:21	07:43
	20:38	66	20:04 (MO02)	19:55	21	19:32 (MO01)	19:01			17:13	16:43	16:49
30	06:03		18:57 (MO02)	06:36		19:11 (MO01)	07:09			06:44	07:22	07:43
	20:37	67	20:04 (MO02)	19:53	19	19:30 (MO01)	18:59			17:11	16:43	16:49
31	06:04		18:57 (MO02)	06:37		19:12 (MO01)				06:45		07:43
	20:36	68	20:05 (MO02)	19:52	16	19:28 (MO01)				17:10		16:50
Potential sun hours	463			431			376			344	295	283
Total, worst case		1863			1480			38				
Sun reduction		0.71			0.70			0.62				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		1.00			1.00			1.00				
Total reduction		0.71			0.70			0.62				
Total, real		1314			1037			24				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 3 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (901)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:47	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:41	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:25	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:40	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:02	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:19	07:43
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	401	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 4 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (902)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:47	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:41	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:25	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:40	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:02	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:19	07:43
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	401	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 5 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (903)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:40
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:39	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 6 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (904)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November	December		
1	07:44		08:26 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23		
	16:52	7	08:33 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43		
2	07:44		08:28 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24		
	16:53	3	08:31 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	16:43		
3	07:44			07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25		
	16:53			17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42		
4	07:44			07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26		
	16:54			17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42		
5	07:44			07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27		
	16:55			17:32	18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51	17:04	16:42		
6	07:44			07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28		
	16:56			17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42		
7	07:44			07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29		
	16:57			17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	16:42		
8	07:44			07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30		
	16:58			17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42		
9	07:44			07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31		
	16:59			17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42		
10	07:43			07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		08:18 (MO06)
	17:00			17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42	3	08:21 (MO06)
11	07:43			07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33		08:16 (MO06)
	17:01			17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42	7	08:23 (MO06)
12	07:43			07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34		08:15 (MO06)
	17:03			17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42	9	08:24 (MO06)
13	07:43			07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35		08:15 (MO06)
	17:04			17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42	11	08:26 (MO06)
14	07:42			07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35		08:15 (MO06)
	17:05			17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42	12	08:27 (MO06)
15	07:42			07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36		08:16 (MO06)
	17:06			17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42	12	08:28 (MO06)
16	07:41			07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37		08:15 (MO06)
	17:07			17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42	13	08:28 (MO06)
17	07:41			07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38		08:15 (MO06)
	17:08			17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43	15	08:30 (MO06)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38		08:16 (MO06)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43	15	08:31 (MO06)
19	07:40			07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39		08:16 (MO06)
	17:11			17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43	15	08:31 (MO06)
20	07:39			07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:40		08:17 (MO06)
	17:12			17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44	15	08:32 (MO06)
21	07:39			07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40		08:16 (MO06)
	17:13			17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44	16	08:32 (MO06)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41		08:17 (MO06)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45	16	08:33 (MO06)
23	07:37			07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41		08:18 (MO06)
	17:16			17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45	15	08:33 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42		08:18 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46	15	08:33 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42		08:19 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46	16:46	15	08:34 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42		08:19 (MO06)
	17:19			17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47	15	08:34 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43		08:20 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48	14	08:34 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43		08:21 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48	13	08:34 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43		08:22 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	16:49	12	08:34 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44		08:23 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50	11	08:34 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45		07:44		08:24 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10		16:51	10	08:34 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295	283		
Total, worst case		10													279	
Sun reduction		0.42													0.43	
Oper. time red.		1.00													1.00	
Wind dir. red.		1.00													1.00	
Total reduction		0.42													0.43	
Total, real		4													121	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 7 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (905)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March		April	May	June	July	August	September	October		November	December
1	07:44	07:29		06:52	07:24 (MO06)	06:59	06:11	05:40	05:41	06:06	06:38	07:10		06:47	07:23
	16:52	17:27		18:03	14 07:38 (MO06)	19:39	20:13	20:44	20:55	20:35	19:50	18:58		17:09	16:43
2	07:44	07:28		06:50	07:28 (MO06)	06:57	06:10	05:40	05:41	06:07	06:39	07:12		06:48	07:24
	16:53	17:29		18:04	6 07:34 (MO06)	19:40	20:14	20:45	20:55	20:34	19:49	18:56		17:08	16:43
3	07:44	07:27		06:48		06:55	06:08	05:40	05:42	06:08	06:41	07:13		06:49	07:25
	16:53	17:30		18:06		19:42	20:15	20:46	20:55	20:33	19:47	18:54		17:06	16:42
4	07:44	07:26		06:47		06:53	06:07	05:39	05:42	06:09	06:42	07:14		06:50	07:26
	16:54	17:31		18:07		19:43	20:16	20:46	20:55	20:32	19:45	18:52		17:05	16:42
5	07:44	07:25		06:45		06:52	06:06	05:39	05:43	06:10	06:43	07:15		06:52	07:27
	16:55	17:32		18:08		19:44	20:18	20:47	20:55	20:30	19:43	18:51		17:04	16:42
6	07:44	07:24		06:43		06:50	06:04	05:38	05:43	06:11	06:44	07:16		06:53	07:28
	16:56	17:34		18:09		19:45	20:19	20:48	20:54	20:29	19:42	18:49		17:03	16:42
7	07:44	07:23		06:42		06:48	06:03	05:38	05:44	06:12	06:45	07:17		06:54	07:29
	16:57	17:35		18:10		19:46	20:20	20:49	20:54	20:28	19:40	18:47		17:02	16:42
8	07:44	07:21		06:40		06:47	06:02	05:38	05:45	06:13	06:46	07:18		06:55	07:30
	16:58	17:36		18:12		19:47	20:21	20:49	20:54	20:27	19:38	18:46		17:00	16:42
9	07:44	07:20		06:38		06:45	06:01	05:37	05:45	06:14	06:47	07:19		06:57	07:31
	16:59	17:38		18:13		19:48	20:22	20:50	20:53	20:25	19:36	18:44		16:59	16:42
10	07:43	07:19		06:37		06:43	05:59	05:37	05:46	06:15	06:48	07:20		06:58	07:32
	17:00	17:39		18:14		19:49	20:23	20:50	20:53	20:24	19:35	18:42		16:58	16:42
11	07:43	07:18		06:35		06:42	05:58	05:37	05:47	06:16	06:49	07:22		06:59	07:33
	17:01	17:40		18:15		19:51	20:24	20:51	20:52	20:23	19:33	18:41		16:57	16:42
12	07:43	07:16		06:33		06:40	05:57	05:37	05:48	06:17	06:50	07:23	08:00 (MO06)	07:00	07:34
	17:03	17:42		18:16		19:52	20:25	20:51	20:52	20:21	19:31	18:39	10 08:10 (MO06)	16:56	16:42
13	07:43	07:15	07:35 (MO06)	06:32		06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:57 (MO06)	07:02	07:35
	17:04	17:43	5 07:40 (MO06)	18:18		19:53	20:26	20:52	20:51	20:20	19:29	18:37	15 08:12 (MO06)	16:55	16:42
14	07:42	07:14	07:34 (MO06)	06:30		06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:55 (MO06)	07:03	07:35
	17:05	17:44	8 07:42 (MO06)	18:19		19:54	20:27	20:52	20:51	20:18	19:28	18:36	19 08:14 (MO06)	16:54	16:42
15	07:42	07:12	07:32 (MO06)	06:28		06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:53 (MO06)	07:04	07:36
	17:06	17:46	11 07:43 (MO06)	18:20		19:55	20:28	20:53	20:50	20:17	19:26	18:34	22 08:15 (MO06)	16:53	16:42
16	07:41	07:11	07:31 (MO06)	06:26		06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:51 (MO06)	07:05	07:37
	17:07	17:47	13 07:44 (MO06)	18:21		19:56	20:29	20:53	20:50	20:16	19:24	18:32	24 08:15 (MO06)	16:52	16:42
17	07:41	07:10	07:29 (MO06)	06:25		06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:51 (MO06)	07:07	07:38
	17:08	17:48	15 07:44 (MO06)	18:22		19:57	20:30	20:54	20:49	20:14	19:22	18:31	26 08:17 (MO06)	16:51	16:43
18	07:40	07:08	07:28 (MO06)	06:23		06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:51 (MO06)	07:08	07:38
	17:09	17:49	17 07:45 (MO06)	18:23		19:58	20:31	20:54	20:48	20:13	19:21	18:29	26 08:17 (MO06)	16:51	16:43
19	07:40	07:07	07:27 (MO06)	06:21		06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:52 (MO06)	07:09	07:39
	17:11	17:51	19 07:46 (MO06)	18:24		20:00	20:32	20:54	20:48	20:11	19:19	18:28	25 08:17 (MO06)	16:50	16:43
20	07:39	07:05	07:25 (MO06)	06:20		06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:53 (MO06)	07:10	07:39
	17:12	17:52	21 07:46 (MO06)	18:26		20:01	20:33	20:55	20:47	20:10	19:17	18:26	23 08:16 (MO06)	16:49	16:44
21	07:39	07:04	07:24 (MO06)	06:18		06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:55 (MO06)	07:12	07:40
	17:13	17:53	22 07:46 (MO06)	18:27		20:02	20:34	20:55	20:46	20:08	19:15	18:25	22 08:17 (MO06)	16:48	16:44
22	07:38	07:02	07:22 (MO06)	06:16		06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:56 (MO06)	07:13	07:41
	17:14	17:54	24 07:46 (MO06)	18:28		20:03	20:35	20:55	20:45	20:06	19:13	18:23	20 08:16 (MO06)	16:48	16:45
23	07:37	07:01	07:20 (MO06)	06:14		06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:57 (MO06)	07:14	07:41
	17:16	17:56	25 07:45 (MO06)	18:29		20:04	20:36	20:55	20:44	20:05	19:12	18:22	19 08:16 (MO06)	16:47	16:45
24	07:36	06:59	07:19 (MO06)	06:13		06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:58 (MO06)	07:15	07:42
	17:17	17:57	26 07:45 (MO06)	18:30		20:05	20:37	20:55	20:43	20:03	19:10	18:20	17 08:15 (MO06)	16:46	16:46
25	07:36	06:58	07:19 (MO06)	06:11		06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:00 (MO06)	07:16	07:42
	17:18	17:58	25 07:44 (MO06)	18:31		20:06	20:38	20:55	20:42	20:02	19:08	17:19	15 07:15 (MO06)	16:46	16:46
26	07:35	06:56	07:20 (MO06)	06:09		06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:01 (MO06)	07:18	07:42
	17:19	17:59	23 07:43 (MO06)	18:32		20:08	20:39	20:56	20:42	20:00	19:06	17:17	12 07:13 (MO06)	16:45	16:47
27	07:34	06:55	07:21 (MO06)	06:07		06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:02 (MO06)	07:19	07:43
	17:21	18:01	21 07:42 (MO06)	18:34		20:09	20:40	20:56	20:41	19:58	19:05	17:16	10 07:12 (MO06)	16:45	16:48
28	07:33	06:53	07:23 (MO06)	06:06		06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:04 (MO06)	07:20	07:43
	17:22	18:02	18 07:41 (MO06)	18:35		20:10	20:41	20:56	20:40	19:57	19:03	17:14	7 07:11 (MO06)	16:44	16:48
29	07:32			07:04		06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:05 (MO06)	07:21	07:43
	17:23			19:36		20:11	20:42	20:56	20:39	19:55	19:01	17:13	4 07:09 (MO06)	16:44	16:49
30	07:31			07:02		06:12	05:42	05:40	06:04	06:36	07:09	06:44		07:22	07:44
	17:25			19:37		20:12	20:43	20:56	20:37	19:54	18:59	17:12		16:43	16:50
31	07:30			07:00			05:41		06:05	06:37		06:45			07:44
	17:26			19:38			20:43		20:36	19:52		17:10			16:51
Potential sun hours	293	295		369		400	452	457	463	431	376	344		295	283
Total, worst case			293		20								316		
Sun reduction			0.46		0.46								0.55		
Oper. time red.			1.00		1.00								1.00		
Wind dir. red.			1.00		1.00								1.00		
Total reduction			0.46		0.46								0.55		
Total, real			135		9								173		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 8 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (906)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March	April	May	June	July	August	September	October		November	December
1	07:44	07:29		06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10		06:47	07:23
	16:52	17:27		18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58		17:09	16:43
2	07:44	07:28		06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12		06:48	07:24
	16:53	17:29		18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56		17:08	16:43
3	07:44	07:27		06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13		06:49	07:25
	16:53	17:30		18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54		17:06	16:42
4	07:44	07:26		06:47	06:54	06:07	05:39	05:42	06:09	06:42	07:14		06:50	07:26
	16:54	17:31		18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52		17:05	16:42
5	07:44	07:25		06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15		06:52	07:27
	16:55	17:32		18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51		17:04	16:42
6	07:44	07:24		06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16		06:53	07:28
	16:56	17:34		18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49		17:03	16:42
7	07:44	07:23		06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17		06:54	07:29
	16:57	17:35		18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47		17:02	16:42
8	07:44	07:21		06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18		06:55	07:30
	16:58	17:36		18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46		17:00	16:42
9	07:44	07:20		06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19		06:57	07:31
	16:59	17:38		18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44		16:59	16:42
10	07:43	07:19		06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20		06:58	07:32
	17:00	17:39		18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42		16:58	16:42
11	07:43	07:18	07:38 (MO06)	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22		06:59	07:33
	17:01	17:40	3 07:41 (MO06)	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41		16:57	16:42
12	07:43	07:16	07:36 (MO06)	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23		07:00	07:34
	17:03	17:42	6 07:42 (MO06)	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39		16:56	16:42
13	07:43	07:15	07:35 (MO06)	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24		07:02	07:35
	17:04	17:43	9 07:44 (MO06)	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37		16:55	16:42
14	07:42	07:14	07:34 (MO06)	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	08:03 (MO06)	07:03	07:35
	17:05	17:44	12 07:46 (MO06)	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	7 08:10 (MO06)	16:54	16:42
15	07:42	07:12	07:32 (MO06)	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:59 (MO06)	07:04	07:36
	17:06	17:46	14 07:46 (MO06)	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	14 08:13 (MO06)	16:53	16:42
16	07:41	07:11	07:31 (MO06)	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:57 (MO06)	07:05	07:37
	17:07	17:47	16 07:47 (MO06)	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	17 08:14 (MO06)	16:52	16:42
17	07:41	07:10	07:29 (MO06)	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:56 (MO06)	07:07	07:38
	17:08	17:48	18 07:47 (MO06)	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	20 08:16 (MO06)	16:51	16:43
18	07:40	07:08	07:28 (MO06)	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:55 (MO06)	07:08	07:38
	17:09	17:49	20 07:48 (MO06)	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	22 08:17 (MO06)	16:51	16:43
19	07:40	07:07	07:27 (MO06)	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:53 (MO06)	07:09	07:39
	17:11	17:51	21 07:48 (MO06)	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	24 08:17 (MO06)	16:50	16:43
20	07:39	07:05	07:25 (MO06)	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:53 (MO06)	07:10	07:40
	17:12	17:52	23 07:48 (MO06)	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	24 08:17 (MO06)	16:49	16:44
21	07:39	07:04	07:24 (MO06)	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:55 (MO06)	07:12	07:40
	17:13	17:53	24 07:48 (MO06)	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	23 08:18 (MO06)	16:48	16:44
22	07:38	07:02	07:22 (MO06)	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:56 (MO06)	07:13	07:41
	17:14	17:54	25 07:47 (MO06)	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	22 08:18 (MO06)	16:48	16:45
23	07:37	07:01	07:22 (MO06)	06:14	06:23	05:46	05:38	05:57	06:29	07:02	07:36	07:57 (MO06)	07:14	07:41
	17:16	17:56	24 07:46 (MO06)	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	21 08:18 (MO06)	16:47	16:45
24	07:36	06:59	07:23 (MO06)	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:58 (MO06)	07:15	07:42
	17:17	17:57	22 07:45 (MO06)	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	19 08:17 (MO06)	16:46	16:46
25	07:36	06:58	07:24 (MO06)	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:00 (MO06)	07:16	07:42
	17:18	17:58	19 07:43 (MO06)	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	17 07:17 (MO06)	16:46	16:46
26	07:35	06:56	07:26 (MO06)	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:01 (MO06)	07:18	07:42
	17:19	17:59	16 07:42 (MO06)	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16 07:17 (MO06)	16:45	16:47
27	07:34	06:55	07:28 (MO06)	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:02 (MO06)	07:19	07:43
	17:21	18:01	11 07:39 (MO06)	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	13 07:15 (MO06)	16:45	16:48
28	07:33	06:53		06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:04 (MO06)	07:20	07:43
	17:22	18:02		18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	11 07:15 (MO06)	16:44	16:48
29	07:32			07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:05 (MO06)	07:21	07:43
	17:23			19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	9 07:14 (MO06)	16:44	16:49
30	07:31			07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:06 (MO06)	07:22	07:44
	17:25			19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	6 07:12 (MO06)	16:43	16:50
31	07:30			07:00		05:41		06:05	06:37		06:45	07:07 (MO06)		07:44
	17:26			19:38		20:43		20:36	19:52		17:10	2 07:09 (MO06)		16:51
Potential sun hours	293	295		369	400	452	457	463	431	376	344		295	283
Total, worst case			283									287		
Sun reduction			0.46									0.55		
Oper. time red.			1.00									1.00		
Wind dir. red.			1.00									1.00		
Total reduction			0.46									0.55		
Total, real			131									157		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 9 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (907)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June	
1	07:44		07:29		06:52		06:59			06:11		06:31 (MO06)	05:40	
	16:52		17:27		18:03		19:39			20:13	21	06:52 (MO06)	20:44	
2	07:44		07:28		06:50		06:57			06:10		06:29 (MO06)	05:40	
	16:53		17:29		18:04		19:40			20:14	22	06:51 (MO06)	20:45	
3	07:44		07:27		06:48		06:55			06:08		06:28 (MO06)	05:40	
	16:53		17:30		18:06		19:42			20:15	24	06:52 (MO06)	20:46	
4	07:44		07:26		06:47		06:54			06:07		06:27 (MO06)	05:39	
	16:54		17:31		18:07		19:43			20:16	25	06:52 (MO06)	20:46	
5	07:44		07:25		06:45		06:52			06:06		06:26 (MO06)	05:39	
	16:55		17:32		18:08		19:44			20:18	26	06:52 (MO06)	20:47	
6	07:44		07:24		06:43		06:50			06:04		06:25 (MO06)	05:38	
	16:56		17:34		18:09		19:45			20:19	26	06:51 (MO06)	20:48	
7	07:44		07:23		06:42		06:48			06:03		06:25 (MO06)	05:38	
	16:57		17:35		18:10		19:46			20:20	26	06:51 (MO06)	20:49	
8	07:44		07:21		06:40		06:47			06:02		06:25 (MO06)	05:38	
	16:58		17:36		18:12		19:47			20:21	26	06:51 (MO06)	20:49	
9	07:44		07:20		06:38		06:45			06:01		06:26 (MO06)	05:38	
	16:59		17:38		18:13		19:48			20:22	24	06:50 (MO06)	20:50	
10	07:43		07:19		06:37		06:43			05:59		06:27 (MO06)	05:37	
	17:00		17:39		18:14		19:49			20:23	23	06:50 (MO06)	20:50	
11	07:43		07:18		06:35		06:42			05:58		06:27 (MO06)	05:37	
	17:01		17:40		18:15		19:51			20:24	22	06:49 (MO06)	20:51	
12	07:43		07:16		06:33		06:40			05:57		06:28 (MO06)	05:37	
	17:03		17:42		18:16		19:52			20:25	20	06:48 (MO06)	20:51	
13	07:43		07:15		06:32		06:38			05:56		06:29 (MO06)	05:37	
	17:04		17:43		18:18		19:53			20:26	18	06:47 (MO06)	20:52	
14	07:42		07:14		06:30		06:37			05:55		06:31 (MO06)	05:37	
	17:05		17:44		18:19		19:54			20:27	15	06:46 (MO06)	20:52	
15	07:42		07:12		06:28		06:35			05:54		06:32 (MO06)	05:37	
	17:06		17:46		18:20		19:55			20:28	12	06:44 (MO06)	20:53	
16	07:41		07:11		06:26		06:33			05:53		06:35 (MO06)	05:37	
	17:07		17:47		18:21		19:56			20:29	6	06:41 (MO06)	20:53	
17	07:41		07:10		06:25		06:32			05:52			05:37	
	17:08		17:48		18:22		19:57			20:30			20:54	
18	07:40		07:08		06:23		06:30			05:51			05:37	
	17:10		17:49		18:23		19:58			20:31			20:54	
19	07:40		07:07		06:21		06:29			05:50			05:37	
	17:11		17:51		18:24		20:00			20:32			20:54	
20	07:39		07:05		06:20		06:27			05:49			05:37	
	17:12		17:52		18:26		20:01			20:33			20:55	
21	07:38		07:04		06:18		06:26			05:48			05:37	
	17:13		17:53		18:27		20:02			20:34			20:55	
22	07:38		07:02		06:16		06:24			05:47			05:37	
	17:14		17:54		18:28		20:03			20:35			20:55	
23	07:37		07:01		06:14		06:23			05:46			05:38	
	17:16		17:56		18:29		20:04			20:36			20:55	
24	07:36		06:59		06:13		06:21		06:40 (MO06)	05:46			05:38	
	17:17		17:57		18:30		20:05	3	06:43 (MO06)	20:37			20:55	
25	07:36		06:58		06:11		06:20		06:39 (MO06)	05:45			05:38	
	17:18		17:58		18:31		20:06	7	06:46 (MO06)	20:38			20:55	
26	07:35		06:56		06:09		06:18		06:38 (MO06)	05:44			05:39	
	17:19		17:59		18:32		20:07	11	06:49 (MO06)	20:39			20:56	
27	07:34		06:55		06:07		06:17		06:36 (MO06)	05:43			05:39	
	17:21		18:01		18:34		20:09	13	06:49 (MO06)	20:40			20:56	
28	07:33		06:53		06:06		06:15		06:35 (MO06)	05:43			05:39	
	17:22		18:02		18:35		20:10	15	06:50 (MO06)	20:41			20:56	
29	07:32				07:04		06:14		06:33 (MO06)	05:42			05:40	
	17:23				19:36		20:11	17	06:50 (MO06)	20:42			20:56	
30	07:31				07:02		06:12		06:32 (MO06)	05:42			05:40	
	17:25				19:37		20:12	19	06:51 (MO06)	20:43			20:56	
31	07:30				07:00					05:41				
	17:26				19:38					20:43				
Potential sun hours	293		295		369		400			452			457	
Total, worst case								85			336			
Sun reduction								0.49			0.57			
Oper. time red.								1.00			1.00			
Wind dir. red.								1.00			1.00			
Total reduction								0.49			0.57			
Total, real								42			191			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 9 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (907)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:41			06:06		06:38 (MO06)	06:38	07:10	06:47	07:23
	20:55			20:35	20	06:58 (MO06)	19:50	18:58	17:09	16:43
2	05:41			06:07		06:37 (MO06)	06:39	07:12	06:48	07:24
	20:55			20:34	22	06:59 (MO06)	19:49	18:56	17:08	16:43
3	05:42			06:08		06:36 (MO06)	06:41	07:13	06:49	07:25
	20:55			20:33	23	06:59 (MO06)	19:47	18:54	17:06	16:42
4	05:42			06:09		06:35 (MO06)	06:42	07:14	06:50	07:26
	20:55			20:32	25	07:00 (MO06)	19:45	18:52	17:05	16:42
5	05:43			06:10		06:35 (MO06)	06:43	07:15	06:52	07:27
	20:55			20:30	25	07:00 (MO06)	19:43	18:51	17:04	16:42
6	05:43			06:11		06:34 (MO06)	06:44	07:16	06:53	07:28
	20:54			20:29	27	07:01 (MO06)	19:42	18:49	17:03	16:42
7	05:44			06:12		06:34 (MO06)	06:45	07:17	06:54	07:29
	20:54			20:28	27	07:01 (MO06)	19:40	18:47	17:02	16:42
8	05:45			06:13		06:35 (MO06)	06:46	07:18	06:55	07:30
	20:54			20:27	26	07:01 (MO06)	19:38	18:46	17:00	16:42
9	05:45			06:14		06:36 (MO06)	06:47	07:19	06:57	07:31
	20:53			20:25	25	07:01 (MO06)	19:36	18:44	16:59	16:42
10	05:46			06:15		06:37 (MO06)	06:48	07:20	06:58	07:32
	20:53			20:24	23	07:00 (MO06)	19:35	18:42	16:58	16:42
11	05:47			06:16		06:38 (MO06)	06:49	07:22	06:59	07:33
	20:52			20:23	22	07:00 (MO06)	19:33	18:41	16:57	16:42
12	05:48			06:17		06:39 (MO06)	06:50	07:23	07:00	07:34
	20:52			20:21	20	06:59 (MO06)	19:31	18:39	16:56	16:42
13	05:48			06:18		06:40 (MO06)	06:51	07:24	07:02	07:35
	20:51			20:20	19	06:59 (MO06)	19:29	18:37	16:55	16:42
14	05:49			06:19		06:41 (MO06)	06:52	07:25	07:03	07:35
	20:51			20:18	17	06:58 (MO06)	19:28	18:36	16:54	16:42
15	05:50			06:20		06:42 (MO06)	06:53	07:26	07:04	07:36
	20:50			20:17	15	06:57 (MO06)	19:26	18:34	16:53	16:42
16	05:51			06:21		06:43 (MO06)	06:54	07:27	07:05	07:37
	20:50			20:16	13	06:56 (MO06)	19:24	18:32	16:52	16:42
17	05:52			06:22		06:45 (MO06)	06:55	07:29	07:07	07:38
	20:49			20:14	10	06:55 (MO06)	19:22	18:31	16:51	16:43
18	05:52			06:24		06:46 (MO06)	06:56	07:30	07:08	07:38
	20:48			20:13	7	06:53 (MO06)	19:21	18:29	16:51	16:43
19	05:53			06:25		06:47 (MO06)	06:57	07:31	07:09	07:39
	20:48			20:11	1	06:48 (MO06)	19:19	18:28	16:50	16:43
20	05:54			06:26			06:59	07:32	07:10	07:39
	20:47			20:10			19:17	18:26	16:49	16:44
21	05:55			06:27			07:00	07:33	07:12	07:40
	20:46			20:08			19:15	18:25	16:48	16:44
22	05:56			06:28			07:01	07:34	07:13	07:41
	20:45			20:06			19:13	18:23	16:48	16:45
23	05:57			06:29			07:02	07:36	07:14	07:41
	20:44			20:05			19:12	18:22	16:47	16:45
24	05:58			06:30			07:03	07:37	07:15	07:42
	20:43			20:03			19:10	18:20	16:46	16:46
25	05:59			06:31			07:04	06:38	07:16	07:42
	20:42			20:02			19:08	17:19	16:46	16:46
26	06:00			06:32			07:05	06:39	07:18	07:42
	20:42			20:00			19:06	17:17	16:45	16:47
27	06:01			06:33			07:06	06:41	07:19	07:43
	20:41			19:58			19:05	17:16	16:45	16:48
28	06:02		06:44 (MO06)	06:34			07:07	06:42	07:20	07:43
	20:40	9	06:53 (MO06)	19:57			19:03	17:14	16:44	16:48
29	06:03		06:42 (MO06)	06:35			07:08	06:43	07:21	07:43
	20:38	13	06:55 (MO06)	19:55			19:01	17:13	16:44	16:49
30	06:04		06:41 (MO06)	06:36			07:09	06:44	07:22	07:43
	20:37	16	06:57 (MO06)	19:54			18:59	17:12	16:43	16:50
31	06:05		06:38 (MO06)	06:37				06:45		07:44
	20:36	19	06:57 (MO06)	19:52				17:10		16:51
Potential sun hours	463			431			376	344	295	283
Total, worst case		57			367					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		40			257					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 10 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (908)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March		April	May	June	July	August	September		October		November	December
1	07:44	07:29	06:52		06:59	06:11	05:40	05:41	06:06	06:38		07:10		07:31 (MO06)	06:47	07:23
	16:52	17:27	18:03		19:39	20:13	20:44	20:55	20:35	19:50		18:58	19	07:50 (MO06)	17:09	16:43
2	07:44	07:28	06:50		06:57	06:10	05:40	05:41	06:07	06:39		07:12		07:32 (MO06)	06:48	07:24
	16:53	17:29	18:04		19:40	20:14	20:45	20:55	20:34	19:49		18:56	18	07:50 (MO06)	17:08	16:43
3	07:44	07:27	06:48		06:55	06:08	05:40	05:42	06:08	06:41		07:13		07:33 (MO06)	06:49	07:25
	16:53	17:30	18:06		19:42	20:15	20:46	20:55	20:33	19:47		18:54	16	07:49 (MO06)	17:06	16:42
4	07:44	07:26	06:47		06:54	06:07	05:39	05:42	06:09	06:42		07:14		07:34 (MO06)	06:50	07:26
	16:54	17:31	18:07		19:43	20:16	20:46	20:55	20:32	19:45		18:52	13	07:47 (MO06)	17:05	16:42
5	07:44	07:25	06:45		06:52	06:06	05:39	05:43	06:10	06:43		07:15		07:35 (MO06)	06:52	07:27
	16:55	17:32	18:08		19:44	20:18	20:47	20:55	20:30	19:43		18:51	11	07:46 (MO06)	17:04	16:42
6	07:44	07:24	06:43	07:03 (MO06)	06:50	06:04	05:38	05:43	06:11	06:44		07:16		07:37 (MO06)	06:53	07:28
	16:56	17:34	18:09	1 07:04 (MO06)	19:45	20:19	20:48	20:54	20:29	19:42		18:49	7	07:44 (MO06)	17:03	16:42
7	07:44	07:23	06:42	07:01 (MO06)	06:48	06:03	05:38	05:44	06:12	06:45		07:17		07:38 (MO06)	06:54	07:29
	16:57	17:35	18:10	6 07:07 (MO06)	19:46	20:20	20:49	20:54	20:28	19:40		18:47	3	07:41 (MO06)	17:02	16:42
8	07:44	07:21	06:40	06:59 (MO06)	06:47	06:02	05:38	05:45	06:13	06:46		07:18			06:55	07:30
	16:58	17:36	18:12	9 07:08 (MO06)	19:47	20:21	20:49	20:54	20:27	19:38		18:46			17:00	16:42
9	07:44	07:20	06:38	06:58 (MO06)	06:45	06:01	05:37	05:45	06:14	06:47		07:19			06:57	07:31
	16:59	17:38	18:13	12 07:10 (MO06)	19:48	20:22	20:50	20:53	20:25	19:36		18:44			16:59	16:42
10	07:43	07:19	06:37	06:56 (MO06)	06:43	05:59	05:37	05:46	06:15	06:48		07:20			06:58	07:32
	17:00	17:39	18:14	15 07:11 (MO06)	19:49	20:23	20:50	20:53	20:24	19:35		18:42			16:58	16:42
11	07:43	07:18	06:35	06:54 (MO06)	06:42	05:58	05:37	05:47	06:16	06:49		07:22			06:59	07:33
	17:01	17:40	18:15	17 07:11 (MO06)	19:51	20:24	20:51	20:52	20:23	19:33		18:41			16:57	16:42
12	07:43	07:16	06:33	06:52 (MO06)	06:40	05:57	05:37	05:48	06:17	06:50		07:23			07:00	07:34
	17:03	17:42	18:16	19 07:11 (MO06)	19:52	20:25	20:51	20:52	20:21	19:31		18:39			16:56	16:42
13	07:43	07:15	06:32	06:51 (MO06)	06:38	05:56	05:37	05:48	06:18	06:51		07:24			07:02	07:35
	17:04	17:43	18:18	20 07:11 (MO06)	19:53	20:26	20:52	20:51	20:20	19:29		18:37			16:55	16:42
14	07:42	07:14	06:30	06:49 (MO06)	06:37	05:55	05:37	05:49	06:19	06:52		07:25			07:03	07:35
	17:05	17:44	18:19	22 07:11 (MO06)	19:54	20:27	20:52	20:51	20:18	19:28		18:36			16:54	16:42
15	07:42	07:12	06:28	06:47 (MO06)	06:35	05:54	05:37	05:50	06:20	06:53		07:26			07:04	07:36
	17:06	17:46	18:20	23 07:10 (MO06)	19:55	20:28	20:53	20:50	20:17	19:26		18:34			16:53	16:42
16	07:41	07:11	06:26	06:45 (MO06)	06:33	05:53	05:37	05:51	06:21	06:54		07:27			07:05	07:37
	17:07	17:47	18:21	25 07:10 (MO06)	19:56	20:29	20:53	20:50	20:16	19:24		18:32			16:52	16:42
17	07:41	07:10	06:25	06:45 (MO06)	06:32	05:52	05:37	05:52	06:22	06:55		07:29			07:07	07:38
	17:08	17:48	18:22	24 07:09 (MO06)	19:57	20:30	20:54	20:49	20:14	19:22		18:31			16:51	16:43
18	07:40	07:08	06:23	06:45 (MO06)	06:30	05:51	05:37	05:52	06:24	06:56		07:30			07:08	07:38
	17:09	17:49	18:23	23 07:08 (MO06)	19:58	20:31	20:54	20:48	20:13	19:21		18:29			16:51	16:43
19	07:40	07:07	06:21	06:46 (MO06)	06:29	05:50	05:37	05:53	06:25	06:57		07:31			07:09	07:39
	17:11	17:51	18:24	21 07:07 (MO06)	20:00	20:32	20:54	20:48	20:11	19:19		18:28			16:50	16:43
20	07:39	07:05	06:20	06:48 (MO06)	06:27	05:49	05:37	05:54	06:26	06:59		07:32			07:10	07:39
	17:12	17:52	18:26	18 07:06 (MO06)	20:01	20:33	20:55	20:47	20:10	19:17		18:26			16:49	16:44
21	07:39	07:04	06:18	06:49 (MO06)	06:26	05:48	05:37	05:55	06:27	07:00		07:33			07:12	07:40
	17:13	17:53	18:27	14 07:03 (MO06)	20:02	20:34	20:55	20:46	20:08	19:15		18:25			16:48	16:44
22	07:38	07:02	06:16	06:53 (MO06)	06:24	05:47	05:37	05:56	06:28	07:01	07:35 (MO06)	07:34			07:13	07:41
	17:14	17:54	18:28	6 06:59 (MO06)	20:03	20:35	20:55	20:45	20:06	19:13	12 07:47 (MO06)	18:23			16:48	16:45
23	07:37	07:01	06:14		06:23	05:46	05:38	05:57	06:29	07:02	07:32 (MO06)	07:36			07:14	07:41
	17:16	17:56	18:29		20:04	20:36	20:55	20:44	20:05	19:12	16 07:48 (MO06)	18:22			16:47	16:45
24	07:36	06:59	06:13		06:21	05:46	05:38	05:58	06:30	07:03	07:30 (MO06)	07:37			07:15	07:42
	17:17	17:57	18:30		20:05	20:37	20:55	20:43	20:03	19:10	20 07:50 (MO06)	18:20			16:46	16:46
25	07:36	06:58	06:11		06:20	05:45	05:38	05:59	06:31	07:04	07:28 (MO06)	06:38			07:16	07:42
	17:18	17:58	18:31		20:06	20:38	20:55	20:42	20:02	19:08	22 07:50 (MO06)	17:19			16:46	16:46
26	07:35	06:56	06:09		06:18	05:44	05:39	06:00	06:32	07:05	07:28 (MO06)	06:39			07:18	07:42
	17:19	17:59	18:32		20:08	20:39	20:56	20:42	20:00	19:06	24 07:52 (MO06)	17:17			16:45	16:47
27	07:34	06:55	06:07		06:17	05:43	05:39	06:01	06:33	07:06	07:27 (MO06)	06:41			07:19	07:43
	17:21	18:01	18:34		20:09	20:40	20:56	20:41	19:58	19:05	25 07:52 (MO06)	17:16			16:45	16:48
28	07:33	06:53	06:06		06:15	05:43	05:39	06:02	06:34	07:07	07:28 (MO06)	06:42			07:20	07:43
	17:22	18:02	18:35		20:10	20:41	20:56	20:40	19:57	19:03	24 07:52 (MO06)	17:14			16:44	16:48
29	07:32		07:04		06:14	05:42	05:40	06:03	06:35	07:08	07:29 (MO06)	06:43			07:21	07:43
	17:23		19:36		20:11	20:42	20:56	20:39	19:55	19:01	23 07:52 (MO06)	17:13			16:44	16:49
30	07:31		07:02		06:12	05:42	05:40	06:04	06:36	07:09	07:30 (MO06)	06:44			07:22	07:44
	17:25		19:37		20:12	20:43	20:56	20:37	19:54	18:59	21 07:51 (MO06)	17:12			16:43	16:50
31	07:30		07:00			05:41		06:05	06:37			06:45				07:44
	17:26		19:38			20:43		20:36	19:52			17:10				16:51
Potential sun hours	293	295	369		400	452	457	463	431	376		344		295	283	
Total, worst case				275							187		87			
Sun reduction				0.46							0.62		0.55			
Oper. time red.				1.00							1.00		1.00			
Wind dir. red.				1.00							1.00		1.00			
Total reduction				0.46							0.62		0.55			
Total, real				126							117		48			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 11 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (909)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 12 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (910)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	06:12 (MO06)	05:41	06:08 (MO06)	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44 16	06:28 (MO06)	20:55 36	06:44 (MO06)	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	06:10 (MO06)	05:41	06:08 (MO06)	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45 20	06:30 (MO06)	20:55 35	06:43 (MO06)	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	06:09 (MO06)	05:42	06:09 (MO06)	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46 23	06:32 (MO06)	20:55 34	06:43 (MO06)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	06:07 (MO06)	05:42	06:09 (MO06)	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46 26	06:33 (MO06)	20:55 33	06:42 (MO06)	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	06:06 (MO06)	05:43	06:11 (MO06)	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47 28	06:34 (MO06)	20:55 31	06:42 (MO06)	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	06:06 (MO06)	05:43	06:12 (MO06)	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48 29	06:35 (MO06)	20:54 30	06:42 (MO06)	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	06:05 (MO06)	05:44	06:12 (MO06)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48 31	06:36 (MO06)	20:54 29	06:41 (MO06)	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	06:04 (MO06)	05:45	06:14 (MO06)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49 33	06:37 (MO06)	20:54 26	06:40 (MO06)	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	06:04 (MO06)	05:45	06:15 (MO06)	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50 34	06:38 (MO06)	20:53 25	06:40 (MO06)	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	06:04 (MO06)	05:46	06:16 (MO06)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50 35	06:39 (MO06)	20:53 22	06:38 (MO06)	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	06:04 (MO06)	05:47	06:18 (MO06)	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51 35	06:39 (MO06)	20:52 18	06:36 (MO06)	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	06:04 (MO06)	05:48	06:21 (MO06)	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51 36	06:40 (MO06)	20:52 14	06:35 (MO06)	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	06:04 (MO06)	05:48	06:25 (MO06)	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52 37	06:41 (MO06)	20:51 6	06:31 (MO06)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	06:04 (MO06)	05:49		06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52 37	06:41 (MO06)	20:51		20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	06:04 (MO06)	05:50		06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53 38	06:42 (MO06)	20:50		20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	06:03 (MO06)	05:51		06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53 39	06:42 (MO06)	20:50		20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	06:03 (MO06)	05:52		06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54 39	06:42 (MO06)	20:49		20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	06:03 (MO06)	05:52		06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54 40	06:43 (MO06)	20:48		20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	06:03 (MO06)	05:53		06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54 40	06:43 (MO06)	20:47		20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	06:03 (MO06)	05:54		06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55 40	06:43 (MO06)	20:47		20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	06:03 (MO06)	05:55		06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55 40	06:43 (MO06)	20:46		20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	06:04 (MO06)	05:56		06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55 40	06:44 (MO06)	20:45		20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	06:04 (MO06)	05:57		06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55 40	06:44 (MO06)	20:44		20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	06:04 (MO06)	05:58		06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55 40	06:44 (MO06)	20:43		20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	06:04 (MO06)	05:59		06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55 40	06:44 (MO06)	20:42		20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:05 (MO06)	06:00		06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56 39	06:44 (MO06)	20:41		20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:06 (MO06)	06:01		06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56 38	06:44 (MO06)	20:40		19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:07 (MO06)	06:02		06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56 37	06:44 (MO06)	20:39		19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:07 (MO06)	06:03		06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56 37	06:44 (MO06)	20:38		19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:07 (MO06)	06:04		06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55 36	06:43 (MO06)	20:37		19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41 06:14 (MO06)			06:05		06:37		06:45		07:44
	17:26		19:38		20:43 11 06:25 (MO06)			20:36		19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457		463		431	376	344	295	283
Total, worst case					11	1043		339						
Sun reduction					0.57	0.61		0.71						
Oper. time red.					1.00	1.00		1.00						
Wind dir. red.					1.00	1.00		1.00						
Total reduction					0.57	0.61		0.71						
Total, real					6	637		239						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 13 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (911)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:59	06:11			05:40		06:11 (MO06)
	16:52	17:27	18:03	19:39	20:13			20:44	66	07:17 (MO06)
2	07:44	07:28	06:50	06:57	06:10			05:40		06:11 (MO06)
	16:53	17:29	18:04	19:40	20:14			20:45	67	07:18 (MO06)
3	07:44	07:27	06:48	06:55	06:08			05:39		06:11 (MO06)
	16:53	17:30	18:06	19:42	20:15			20:46	67	07:18 (MO06)
4	07:44	07:26	06:47	06:53	06:07			05:39		06:11 (MO06)
	16:54	17:31	18:07	19:43	20:16			20:46	67	07:18 (MO06)
5	07:44	07:25	06:45	06:52	06:06			05:39		06:11 (MO06)
	16:55	17:32	18:08	19:44	20:18			20:47	68	07:19 (MO06)
6	07:44	07:24	06:43	06:50	06:04			05:38		06:11 (MO06)
	16:56	17:34	18:09	19:45	20:19			20:48	68	07:19 (MO06)
7	07:44	07:23	06:42	06:48	06:03			05:38		06:11 (MO06)
	16:57	17:35	18:10	19:46	20:20			20:48	68	07:19 (MO06)
8	07:44	07:21	06:40	06:47	06:02		06:36 (MO06)	05:38		06:11 (MO06)
	16:58	17:36	18:12	19:47	20:21	14	06:50 (MO06)	20:49	68	07:19 (MO06)
9	07:44	07:20	06:38	06:45	06:01		06:32 (MO06)	05:37		06:11 (MO06)
	16:59	17:38	18:13	19:48	20:22	23	06:55 (MO06)	20:50	69	07:20 (MO06)
10	07:43	07:19	06:37	06:43	05:59		06:29 (MO06)	05:37		06:11 (MO06)
	17:00	17:39	18:14	19:49	20:23	29	06:58 (MO06)	20:50	69	07:20 (MO06)
11	07:43	07:18	06:35	06:42	05:58		06:27 (MO06)	05:37		06:12 (MO06)
	17:01	17:40	18:15	19:51	20:24	33	07:00 (MO06)	20:51	69	07:21 (MO06)
12	07:43	07:16	06:33	06:40	05:57		06:25 (MO06)	05:37		06:12 (MO06)
	17:03	17:42	18:16	19:52	20:25	37	07:02 (MO06)	20:51	69	07:21 (MO06)
13	07:42	07:15	06:32	06:38	05:56		06:23 (MO06)	05:37		06:12 (MO06)
	17:04	17:43	18:17	19:53	20:26	41	07:04 (MO06)	20:52	69	07:21 (MO06)
14	07:42	07:14	06:30	06:37	05:55		06:22 (MO06)	05:37		06:12 (MO06)
	17:05	17:44	18:19	19:54	20:27	43	07:05 (MO06)	20:52	70	07:22 (MO06)
15	07:42	07:12	06:28	06:35	05:54		06:21 (MO06)	05:37		06:12 (MO06)
	17:06	17:45	18:20	19:55	20:28	45	07:06 (MO06)	20:53	70	07:22 (MO06)
16	07:41	07:11	06:26	06:33	05:53		06:19 (MO06)	05:37		06:12 (MO06)
	17:07	17:47	18:21	19:56	20:29	48	07:07 (MO06)	20:53	70	07:22 (MO06)
17	07:41	07:10	06:25	06:32	05:52		06:18 (MO06)	05:37		06:13 (MO06)
	17:08	17:48	18:22	19:57	20:30	50	07:08 (MO06)	20:54	69	07:22 (MO06)
18	07:40	07:08	06:23	06:30	05:51		06:17 (MO06)	05:37		06:13 (MO06)
	17:09	17:49	18:23	19:58	20:31	52	07:09 (MO06)	20:54	69	07:22 (MO06)
19	07:40	07:07	06:21	06:29	05:50		06:16 (MO06)	05:37		06:13 (MO06)
	17:11	17:51	18:24	20:00	20:32	54	07:10 (MO06)	20:54	69	07:22 (MO06)
20	07:39	07:05	06:19	06:27	05:49		06:15 (MO06)	05:37		06:13 (MO06)
	17:12	17:52	18:26	20:01	20:33	56	07:11 (MO06)	20:55	70	07:23 (MO06)
21	07:38	07:04	06:18	06:26	05:48		06:15 (MO06)	05:37		06:13 (MO06)
	17:13	17:53	18:27	20:02	20:34	56	07:11 (MO06)	20:55	70	07:23 (MO06)
22	07:38	07:02	06:16	06:24	05:47		06:15 (MO06)	05:37		06:14 (MO06)
	17:14	17:54	18:28	20:03	20:35	58	07:13 (MO06)	20:55	70	07:24 (MO06)
23	07:37	07:01	06:14	06:22	05:46		06:14 (MO06)	05:38		06:14 (MO06)
	17:16	17:56	18:29	20:04	20:36	59	07:13 (MO06)	20:55	69	07:23 (MO06)
24	07:36	06:59	06:13	06:21	05:46		06:13 (MO06)	05:38		06:14 (MO06)
	17:17	17:57	18:30	20:05	20:37	60	07:13 (MO06)	20:55	69	07:23 (MO06)
25	07:36	06:58	06:11	06:19	05:45		06:12 (MO06)	05:38		06:14 (MO06)
	17:18	17:58	18:31	20:06	20:38	62	07:14 (MO06)	20:55	69	07:23 (MO06)
26	07:35	06:56	06:09	06:18	05:44		06:13 (MO06)	05:38		06:15 (MO06)
	17:19	17:59	18:32	20:07	20:39	62	07:15 (MO06)	20:56	69	07:24 (MO06)
27	07:34	06:55	06:07	06:17	05:43		06:12 (MO06)	05:39		06:14 (MO06)
	17:21	18:01	18:34	20:09	20:40	63	07:15 (MO06)	20:56	70	07:24 (MO06)
28	07:33	06:53	06:06	06:15	05:43		06:12 (MO06)	05:39		06:15 (MO06)
	17:22	18:02	18:35	20:10	20:41	64	07:16 (MO06)	20:56	70	07:25 (MO06)
29	07:32		07:04	06:14	05:42		06:12 (MO06)	05:40		06:15 (MO06)
	17:23		19:36	20:11	20:42	64	07:16 (MO06)	20:56	69	07:24 (MO06)
30	07:31		07:02	06:12	05:42		06:11 (MO06)	05:40		06:15 (MO06)
	17:25		19:37	20:12	20:43	65	07:16 (MO06)	20:55	69	07:24 (MO06)
31	07:30		07:00		05:41		06:11 (MO06)			
	17:26		19:38		20:43	66	07:17 (MO06)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						1204			2065	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						685			1261	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 13 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (911)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:41		06:16 (MO06)	06:06		06:35 (MO06)	06:38	07:10	06:47	07:23
	20:55	69	07:25 (MO06)	20:35	36	07:11 (MO06)	19:50	18:58	17:09	16:43
2	05:41		06:15 (MO06)	06:07		06:37 (MO06)	06:39	07:11	06:48	07:24
	20:55	69	07:24 (MO06)	20:34	32	07:09 (MO06)	19:48	18:56	17:08	16:43
3	05:42		06:16 (MO06)	06:08		06:40 (MO06)	06:41	07:13	06:49	07:25
	20:55	69	07:25 (MO06)	20:33	26	07:06 (MO06)	19:47	18:54	17:06	16:42
4	05:42		06:16 (MO06)	06:09		06:43 (MO06)	06:42	07:14	06:50	07:26
	20:55	69	07:25 (MO06)	20:32	20	07:03 (MO06)	19:45	18:52	17:05	16:42
5	05:43		06:17 (MO06)	06:10		06:48 (MO06)	06:43	07:15	06:52	07:27
	20:55	68	07:25 (MO06)	20:30	10	06:58 (MO06)	19:43	18:51	17:04	16:42
6	05:43		06:17 (MO06)	06:11			06:44	07:16	06:53	07:28
	20:54	68	07:25 (MO06)	20:29			19:42	18:49	17:03	16:42
7	05:44		06:17 (MO06)	06:12			06:45	07:17	06:54	07:29
	20:54	68	07:25 (MO06)	20:28			19:40	18:47	17:02	16:42
8	05:45		06:18 (MO06)	06:13			06:46	07:18	06:55	07:30
	20:54	67	07:25 (MO06)	20:27			19:38	18:46	17:00	16:42
9	05:45		06:19 (MO06)	06:14			06:47	07:19	06:57	07:31
	20:53	67	07:26 (MO06)	20:25			19:36	18:44	16:59	16:42
10	05:46		06:18 (MO06)	06:15			06:48	07:20	06:58	07:32
	20:53	67	07:25 (MO06)	20:24			19:35	18:42	16:58	16:42
11	05:47		06:19 (MO06)	06:16			06:49	07:22	06:59	07:33
	20:52	66	07:25 (MO06)	20:23			19:33	18:41	16:57	16:42
12	05:48		06:20 (MO06)	06:17			06:50	07:23	07:00	07:34
	20:52	65	07:25 (MO06)	20:21			19:31	18:39	16:56	16:42
13	05:48		06:20 (MO06)	06:18			06:51	07:24	07:02	07:35
	20:51	65	07:25 (MO06)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:20 (MO06)	06:19			06:52	07:25	07:03	07:35
	20:51	65	07:25 (MO06)	20:18			19:28	18:36	16:54	16:42
15	05:50		06:21 (MO06)	06:20			06:53	07:26	07:04	07:36
	20:50	64	07:25 (MO06)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:21 (MO06)	06:21			06:54	07:27	07:05	07:37
	20:50	64	07:25 (MO06)	20:16			19:24	18:32	16:52	16:42
17	05:52		06:22 (MO06)	06:22			06:55	07:28	07:07	07:38
	20:49	62	07:24 (MO06)	20:14			19:22	18:31	16:51	16:43
18	05:52		06:23 (MO06)	06:24			06:56	07:30	07:08	07:38
	20:48	61	07:24 (MO06)	20:13			19:21	18:29	16:51	16:43
19	05:53		06:22 (MO06)	06:25			06:57	07:31	07:09	07:39
	20:47	61	07:23 (MO06)	20:11			19:19	18:28	16:50	16:43
20	05:54		06:23 (MO06)	06:26			06:58	07:32	07:10	07:39
	20:47	60	07:23 (MO06)	20:10			19:17	18:26	16:49	16:44
21	05:55		06:24 (MO06)	06:27			07:00	07:33	07:12	07:40
	20:46	58	07:22 (MO06)	20:08			19:15	18:25	16:48	16:44
22	05:56		06:25 (MO06)	06:28			07:01	07:34	07:13	07:41
	20:45	57	07:22 (MO06)	20:06			19:13	18:23	16:48	16:45
23	05:57		06:26 (MO06)	06:29			07:02	07:36	07:14	07:41
	20:44	55	07:21 (MO06)	20:05			19:12	18:22	16:47	16:45
24	05:58		06:26 (MO06)	06:30			07:03	07:37	07:15	07:41
	20:43	55	07:21 (MO06)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:27 (MO06)	06:31			07:04	06:38	07:16	07:42
	20:42	53	07:20 (MO06)	20:02			19:08	17:19	16:46	16:46
26	06:00		06:28 (MO06)	06:32			07:05	06:39	07:17	07:42
	20:41	51	07:19 (MO06)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:29 (MO06)	06:33			07:06	06:40	07:19	07:43
	20:40	50	07:19 (MO06)	19:58			19:05	17:16	16:45	16:48
28	06:02		06:30 (MO06)	06:34			07:07	06:42	07:20	07:43
	20:39	47	07:17 (MO06)	19:57			19:03	17:14	16:44	16:48
29	06:03		06:31 (MO06)	06:35			07:08	06:43	07:21	07:43
	20:38	44	07:15 (MO06)	19:55			19:01	17:13	16:44	16:49
30	06:04		06:32 (MO06)	06:36			07:09	06:44	07:22	07:43
	20:37	42	07:14 (MO06)	19:53			18:59	17:12	16:43	16:50
31	06:05		06:34 (MO06)	06:37				06:45		07:44
	20:36	39	07:13 (MO06)	19:52				17:10		16:51
Potential sun hours	463			431			376	344	295	283
Total, worst case		1865			124					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		1315			87					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 14 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (912)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June			July			August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11			05:40		06:12 (MO06)	05:41		06:11 (MO06)	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13			20:44	29	06:41 (MO06)	20:55	45	06:56 (MO06)	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10			05:40		06:12 (MO06)	05:41		06:11 (MO06)	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14			20:45	31	06:43 (MO06)	20:55	44	06:55 (MO06)	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08			05:39		06:11 (MO06)	05:42		06:12 (MO06)	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15			20:46	33	06:44 (MO06)	20:55	43	06:55 (MO06)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07			05:39		06:10 (MO06)	05:42		06:12 (MO06)	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16			20:46	35	06:45 (MO06)	20:55	42	06:54 (MO06)	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06			05:39		06:09 (MO06)	05:43		06:14 (MO06)	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18			20:47	37	06:46 (MO06)	20:55	40	06:54 (MO06)	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04			05:38		06:09 (MO06)	05:43		06:15 (MO06)	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19			20:48	39	06:48 (MO06)	20:54	39	06:54 (MO06)	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03			05:38		06:08 (MO06)	05:44		06:15 (MO06)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20			20:48	40	06:48 (MO06)	20:54	38	06:53 (MO06)	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02			05:38		06:07 (MO06)	05:45		06:16 (MO06)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21			20:49	42	06:49 (MO06)	20:54	37	06:53 (MO06)	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01			05:37		06:07 (MO06)	05:45		06:18 (MO06)	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22			20:50	43	06:50 (MO06)	20:53	34	06:52 (MO06)	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59			05:37		06:07 (MO06)	05:46		06:18 (MO06)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23			20:50	44	06:51 (MO06)	20:53	33	06:51 (MO06)	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58			05:37		06:07 (MO06)	05:47		06:20 (MO06)	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24			20:51	44	06:51 (MO06)	20:52	30	06:50 (MO06)	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57			05:37		06:07 (MO06)	05:48		06:22 (MO06)	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25			20:51	45	06:52 (MO06)	20:52	27	06:49 (MO06)	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56			05:37		06:07 (MO06)	05:48		06:24 (MO06)	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26			20:52	46	06:53 (MO06)	20:51	23	06:47 (MO06)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55			05:37		06:07 (MO06)	05:49		06:26 (MO06)	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27			20:52	46	06:53 (MO06)	20:51	18	06:44 (MO06)	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54			05:37		06:07 (MO06)	05:50		06:29 (MO06)	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28			20:53	47	06:54 (MO06)	20:50	13	06:42 (MO06)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53			05:37		06:07 (MO06)	05:51			06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29			20:53	47	06:54 (MO06)	20:50			20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52			05:37		06:07 (MO06)	05:52			06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30			20:54	47	06:54 (MO06)	20:49			20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51			05:37		06:07 (MO06)	05:52			06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31			20:54	48	06:55 (MO06)	20:48			20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50			05:37		06:07 (MO06)	05:53			06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32			20:54	48	06:55 (MO06)	20:47			20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49			05:37		06:07 (MO06)	05:54			06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33			20:55	48	06:55 (MO06)	20:47			20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48			05:37		06:07 (MO06)	05:55			06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34			20:55	48	06:55 (MO06)	20:46			20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47			05:37		06:08 (MO06)	05:56			06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35			20:55	48	06:56 (MO06)	20:45			20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46			05:38		06:08 (MO06)	05:57			06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36			20:55	48	06:56 (MO06)	20:44			20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46			05:38		06:08 (MO06)	05:58			06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37			20:55	48	06:56 (MO06)	20:43			20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45			05:38		06:08 (MO06)	05:59			06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38			20:55	47	06:55 (MO06)	20:42			20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44			05:38		06:09 (MO06)	06:00			06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39			20:56	47	06:56 (MO06)	20:41			20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43			05:39		06:09 (MO06)	06:01			06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40			20:56	47	06:56 (MO06)	20:40			19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43		06:23 (MO06)	05:39		06:10 (MO06)	06:02			06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	8	06:31 (MO06)	20:56	46	06:56 (MO06)	20:39			19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42		06:19 (MO06)	05:40		06:10 (MO06)	06:03			06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	16	06:35 (MO06)	20:56	46	06:56 (MO06)	20:38			19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42		06:16 (MO06)	05:40		06:10 (MO06)	06:04			06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	21	06:37 (MO06)	20:55	45	06:55 (MO06)	20:37			19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:14 (MO06)				06:05			06:37		06:45		07:44
	17:26		19:38		20:43	26	06:40 (MO06)				20:36			19:52		17:10		16:51
Potential sun hours	293	295	369	400	452			457			463			431	376	344	295	283
Total, worst case						71			1309			506						
Sun reduction						0.57			0.61			0.71						
Oper. time red.						1.00			1.00			1.00						
Wind dir. red.						1.00			1.00			1.00						
Total reduction						0.57			0.61			0.71						
Total, real						40			799			357						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 15 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (913)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
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18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 16 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (914)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
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	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
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	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
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	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 17 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (915)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 18 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (916)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 19 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (917)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June		
1	07:44		07:29		06:51		06:59			06:11			18:20 (MO06)	05:40		18:32 (MO06)
	16:52		17:27		18:03		19:39			20:13	74		19:34 (MO06)	20:44	53	19:25 (MO06)
2	07:44		07:28		06:50		06:57			06:09			18:20 (MO06)	05:40		18:33 (MO06)
	16:52		17:28		18:04		19:40			20:14	74		19:34 (MO06)	20:45	52	19:25 (MO06)
3	07:44		07:27		06:48		06:55			06:08			18:20 (MO06)	05:39		18:34 (MO06)
	16:53		17:30		18:05		19:41			20:15	74		19:34 (MO06)	20:46	51	19:25 (MO06)
4	07:44		07:26		06:47		06:53			06:07			18:20 (MO06)	05:39		18:34 (MO06)
	16:54		17:31		18:07		19:43			20:16	74		19:34 (MO06)	20:46	50	19:24 (MO06)
5	07:44		07:25		06:45		06:52			06:05			18:19 (MO06)	05:39		18:35 (MO06)
	16:55		17:32		18:08		19:44			20:17	74		19:33 (MO06)	20:47	49	19:24 (MO06)
6	07:44		07:24		06:43		06:50			06:04			18:19 (MO06)	05:38		18:36 (MO06)
	16:56		17:34		18:09		19:45			20:19	74		19:33 (MO06)	20:48	48	19:24 (MO06)
7	07:44		07:23		06:42		06:48			06:03			18:20 (MO06)	05:38		18:36 (MO06)
	16:57		17:35		18:10		19:46			20:20	73		19:33 (MO06)	20:48	47	19:23 (MO06)
8	07:44		07:21		06:40		06:47		18:53 (MO06)	06:02			18:20 (MO06)	05:38		18:37 (MO06)
	16:58		17:36		18:12		19:47	19	19:12 (MO06)	20:21	73		19:33 (MO06)	20:49	46	19:23 (MO06)
9	07:44		07:20		06:38		06:45		18:48 (MO06)	06:01			18:20 (MO06)	05:37		18:38 (MO06)
	16:59		17:38		18:13		19:48	28	19:16 (MO06)	20:22	73		19:33 (MO06)	20:50	45	19:23 (MO06)
10	07:43		07:19		06:37		06:43		18:44 (MO06)	05:59			18:21 (MO06)	05:37		18:38 (MO06)
	17:00		17:39		18:14		19:49	34	19:18 (MO06)	20:23	72		19:33 (MO06)	20:50	45	19:23 (MO06)
11	07:43		07:18		06:35		06:42		18:41 (MO06)	05:58			18:21 (MO06)	05:37		18:39 (MO06)
	17:01		17:40		18:15		19:50	40	19:21 (MO06)	20:24	72		19:33 (MO06)	20:51	44	19:23 (MO06)
12	07:43		07:16		06:33		06:40		18:39 (MO06)	05:57			18:21 (MO06)	05:37		18:40 (MO06)
	17:02		17:42		18:16		19:52	44	19:23 (MO06)	20:25	72		19:33 (MO06)	20:51	43	19:23 (MO06)
13	07:42		07:15		06:32		06:38		18:36 (MO06)	05:56			18:21 (MO06)	05:37		18:40 (MO06)
	17:04		17:43		18:17		19:53	48	19:24 (MO06)	20:26	71		19:32 (MO06)	20:52	43	19:23 (MO06)
14	07:42		07:14		06:30		06:37		18:35 (MO06)	05:55			18:21 (MO06)	05:37		18:41 (MO06)
	17:05		17:44		18:19		19:54	51	19:26 (MO06)	20:27	70		19:31 (MO06)	20:52	42	19:23 (MO06)
15	07:42		07:12		06:28		06:35		18:33 (MO06)	05:54			18:22 (MO06)	05:37		18:41 (MO06)
	17:06		17:45		18:20		19:55	54	19:27 (MO06)	20:28	70		19:32 (MO06)	20:53	42	19:23 (MO06)
16	07:41		07:11		06:26		06:33		18:31 (MO06)	05:53			18:23 (MO06)	05:37		18:42 (MO06)
	17:07		17:47		18:21		19:56	57	19:28 (MO06)	20:29	69		19:32 (MO06)	20:53	41	19:23 (MO06)
17	07:41		07:10		06:25		06:32		18:30 (MO06)	05:52			18:23 (MO06)	05:37		18:42 (MO06)
	17:08		17:48		18:22		19:57	59	19:29 (MO06)	20:30	68		19:31 (MO06)	20:54	41	19:23 (MO06)
18	07:40		07:08		06:23		06:30		18:28 (MO06)	05:51			18:23 (MO06)	05:37		18:42 (MO06)
	17:09		17:49		18:23		19:58	61	19:29 (MO06)	20:31	68		19:31 (MO06)	20:54	41	19:23 (MO06)
19	07:40		07:07		06:21		06:29		18:27 (MO06)	05:50			18:24 (MO06)	05:37		18:43 (MO06)
	17:11		17:51		18:24		20:00	64	19:31 (MO06)	20:32	66		19:30 (MO06)	20:54	40	19:23 (MO06)
20	07:39		07:05		06:19		06:27		18:26 (MO06)	05:49			18:24 (MO06)	05:37		18:43 (MO06)
	17:12		17:52		18:26		20:01	65	19:31 (MO06)	20:33	66		19:30 (MO06)	20:54	40	19:23 (MO06)
21	07:38		07:04		06:18		06:25		18:25 (MO06)	05:48			18:25 (MO06)	05:37		18:43 (MO06)
	17:13		17:53		18:27		20:02	67	19:32 (MO06)	20:34	64		19:29 (MO06)	20:55	39	19:22 (MO06)
22	07:38		07:02		06:16		06:24		18:24 (MO06)	05:47			18:25 (MO06)	05:37		18:43 (MO06)
	17:14		17:54		18:28		20:03	68	19:32 (MO06)	20:35	64		19:29 (MO06)	20:55	39	19:22 (MO06)
23	07:37		07:01		06:14		06:22		18:24 (MO06)	05:46			18:26 (MO06)	05:38		18:44 (MO06)
	17:16		17:56		18:29		20:04	69	19:33 (MO06)	20:36	63		19:29 (MO06)	20:55	40	19:24 (MO06)
24	07:36		06:59		06:12		06:21		18:23 (MO06)	05:46			18:27 (MO06)	05:38		18:44 (MO06)
	17:17		17:57		18:30		20:05	70	19:33 (MO06)	20:37	62		19:29 (MO06)	20:55	40	19:24 (MO06)
25	07:35		06:58		06:11		06:19		18:22 (MO06)	05:45			18:27 (MO06)	05:38		18:43 (MO06)
	17:18		17:58		18:31		20:06	71	19:33 (MO06)	20:38	61		19:28 (MO06)	20:55	41	19:24 (MO06)
26	07:35		06:56		06:09		06:18		18:21 (MO06)	05:44			18:28 (MO06)	05:38		18:44 (MO06)
	17:19		17:59		18:32		20:07	72	19:33 (MO06)	20:39	60		19:28 (MO06)	20:55	41	19:25 (MO06)
27	07:34		06:55		06:07		06:16		18:21 (MO06)	05:43			18:29 (MO06)	05:39		18:44 (MO06)
	17:21		18:01		18:34		20:09	73	19:34 (MO06)	20:40	58		19:27 (MO06)	20:56	41	19:25 (MO06)
28	07:33		06:53		06:06		06:15		18:21 (MO06)	05:43			18:29 (MO06)	05:39		18:43 (MO06)
	17:22		18:02		18:35		20:10	73	19:34 (MO06)	20:41	58		19:27 (MO06)	20:56	42	19:25 (MO06)
29	07:32				07:04		06:14		18:20 (MO06)	05:42			18:30 (MO06)	05:40		18:44 (MO06)
	17:23				19:36		20:11	74	19:34 (MO06)	20:42	57		19:27 (MO06)	20:55	42	19:26 (MO06)
30	07:31				07:02		06:12		18:20 (MO06)	05:41			18:30 (MO06)	05:40		18:43 (MO06)
	17:25				19:37		20:12	74	19:34 (MO06)	20:42	56		19:26 (MO06)	20:55	43	19:26 (MO06)
31	07:30				07:00					05:41			18:31 (MO06)			
	17:26				19:38					20:43	55		19:26 (MO06)			
Potential sun hours	293		295		369		400			452				457		
Total, worst case								1335			2085				1311	
Sun reduction								0.49			0.57				0.61	
Oper. time red.								1.00			1.00				1.00	
Wind dir. red.								1.00			1.00				1.00	
Total reduction								0.49			0.57				0.61	
Total, real								660			1187				800	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 19 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (917)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October	November	December
1	05:41		18:43 (MO06)	06:06		18:31 (MO06)	06:38		18:40 (MO06)	07:10	06:47	07:23
	20:55	44	19:27 (MO06)	20:35	72	19:43 (MO06)	19:50	40	19:20 (MO06)	18:58	17:09	16:43
2	05:41		18:43 (MO06)	06:07		18:30 (MO06)	06:39		18:43 (MO06)	07:11	06:48	07:24
	20:55	44	19:27 (MO06)	20:34	73	19:43 (MO06)	19:48	34	19:17 (MO06)	18:56	17:08	16:43
3	05:42		18:43 (MO06)	06:08		18:30 (MO06)	06:40		18:46 (MO06)	07:13	06:49	07:25
	20:55	45	19:28 (MO06)	20:33	73	19:43 (MO06)	19:47	28	19:14 (MO06)	18:54	17:06	16:42
4	05:42		18:42 (MO06)	06:09		18:30 (MO06)	06:42		18:50 (MO06)	07:14	06:50	07:26
	20:55	46	19:28 (MO06)	20:32	73	19:43 (MO06)	19:45	19	19:09 (MO06)	18:52	17:05	16:42
5	05:43		18:42 (MO06)	06:10		18:29 (MO06)	06:43			07:15	06:52	07:27
	20:55	47	19:29 (MO06)	20:30	74	19:43 (MO06)	19:43			18:51	17:04	16:42
6	05:43		18:42 (MO06)	06:11		18:29 (MO06)	06:44			07:16	06:53	07:28
	20:54	48	19:30 (MO06)	20:29	74	19:43 (MO06)	19:42			18:49	17:03	16:42
7	05:44		18:41 (MO06)	06:12		18:29 (MO06)	06:45			07:17	06:54	07:29
	20:54	49	19:30 (MO06)	20:28	74	19:43 (MO06)	19:40			18:47	17:01	16:42
8	05:45		18:41 (MO06)	06:13		18:29 (MO06)	06:46			07:18	06:55	07:30
	20:54	50	19:31 (MO06)	20:27	74	19:43 (MO06)	19:38			18:46	17:00	16:42
9	05:45		18:41 (MO06)	06:14		18:29 (MO06)	06:47			07:19	06:57	07:31
	20:53	51	19:32 (MO06)	20:25	74	19:43 (MO06)	19:36			18:44	16:59	16:41
10	05:46		18:40 (MO06)	06:15		18:28 (MO06)	06:48			07:20	06:58	07:32
	20:53	52	19:32 (MO06)	20:24	75	19:43 (MO06)	19:35			18:42	16:58	16:41
11	05:47		18:40 (MO06)	06:16		18:28 (MO06)	06:49			07:22	06:59	07:33
	20:52	53	19:33 (MO06)	20:23	74	19:42 (MO06)	19:33			18:40	16:57	16:42
12	05:47		18:40 (MO06)	06:17		18:28 (MO06)	06:50			07:23	07:00	07:34
	20:52	54	19:34 (MO06)	20:21	74	19:42 (MO06)	19:31			18:39	16:56	16:42
13	05:48		18:39 (MO06)	06:18		18:28 (MO06)	06:51			07:24	07:02	07:35
	20:51	55	19:34 (MO06)	20:20	74	19:42 (MO06)	19:29			18:37	16:55	16:42
14	05:49		18:39 (MO06)	06:19		18:28 (MO06)	06:52			07:25	07:03	07:35
	20:51	56	19:35 (MO06)	20:18	73	19:41 (MO06)	19:28			18:36	16:54	16:42
15	05:50		18:38 (MO06)	06:20		18:28 (MO06)	06:53			07:26	07:04	07:36
	20:50	58	19:36 (MO06)	20:17	73	19:41 (MO06)	19:26			18:34	16:53	16:42
16	05:51		18:38 (MO06)	06:21		18:28 (MO06)	06:54			07:27	07:05	07:37
	20:50	58	19:36 (MO06)	20:15	72	19:40 (MO06)	19:24			18:32	16:52	16:42
17	05:51		18:38 (MO06)	06:22		18:28 (MO06)	06:55			07:28	07:07	07:37
	20:49	59	19:37 (MO06)	20:14	72	19:40 (MO06)	19:22			18:31	16:51	16:43
18	05:52		18:37 (MO06)	06:23		18:28 (MO06)	06:56			07:30	07:08	07:38
	20:48	60	19:37 (MO06)	20:13	71	19:39 (MO06)	19:20			18:29	16:51	16:43
19	05:53		18:36 (MO06)	06:25		18:28 (MO06)	06:57			07:31	07:09	07:39
	20:47	62	19:38 (MO06)	20:11	70	19:38 (MO06)	19:19			18:28	16:50	16:43
20	05:54		18:36 (MO06)	06:26		18:29 (MO06)	06:58			07:32	07:10	07:39
	20:47	62	19:38 (MO06)	20:09	68	19:37 (MO06)	19:17			18:26	16:49	16:44
21	05:55		18:36 (MO06)	06:27		18:29 (MO06)	07:00			07:33	07:11	07:40
	20:46	63	19:39 (MO06)	20:08	68	19:37 (MO06)	19:15			18:24	16:48	16:44
22	05:56		18:35 (MO06)	06:28		18:29 (MO06)	07:01			07:34	07:13	07:40
	20:45	65	19:40 (MO06)	20:06	67	19:36 (MO06)	19:13			18:23	16:48	16:45
23	05:57		18:35 (MO06)	06:29		18:31 (MO06)	07:02			07:36	07:14	07:41
	20:44	65	19:40 (MO06)	20:05	65	19:36 (MO06)	19:12			18:21	16:47	16:45
24	05:58		18:35 (MO06)	06:30		18:31 (MO06)	07:03			07:37	07:15	07:41
	20:43	66	19:41 (MO06)	20:03	63	19:34 (MO06)	19:10			18:20	16:46	16:46
25	05:59		18:34 (MO06)	06:31		18:32 (MO06)	07:04			06:38	07:16	07:42
	20:42	67	19:41 (MO06)	20:02	61	19:33 (MO06)	19:08			17:19	16:46	16:46
26	06:00		18:34 (MO06)	06:32		18:33 (MO06)	07:05			06:39	07:17	07:42
	20:41	68	19:42 (MO06)	20:00	59	19:32 (MO06)	19:06			17:17	16:45	16:47
27	06:01		18:34 (MO06)	06:33		18:34 (MO06)	07:06			06:40	07:19	07:43
	20:40	68	19:42 (MO06)	19:58	56	19:30 (MO06)	19:05			17:16	16:45	16:48
28	06:02		18:32 (MO06)	06:34		18:35 (MO06)	07:07			06:42	07:20	07:43
	20:39	70	19:42 (MO06)	19:57	54	19:29 (MO06)	19:03			17:14	16:44	16:48
29	06:03		18:32 (MO06)	06:35		18:36 (MO06)	07:08			06:43	07:21	07:43
	20:38	70	19:42 (MO06)	19:55	51	19:27 (MO06)	19:01			17:13	16:44	16:49
30	06:04		18:31 (MO06)	06:36		18:37 (MO06)	07:09			06:44	07:22	07:43
	20:37	71	19:42 (MO06)	19:53	48	19:25 (MO06)	18:59			17:12	16:43	16:50
31	06:05		18:31 (MO06)	06:37		18:39 (MO06)				06:45		07:44
	20:36	71	19:42 (MO06)	19:52	44	19:23 (MO06)				17:10		16:51
Potential sun hours	463			431			376			344	295	283
Total, worst case		1797			2093			121				
Sun reduction		0.71			0.70			0.62				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		1.00			1.00			1.00				
Total reduction		0.71			0.70			0.62				
Total, real		1267			1466			76				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 20 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (918)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June		
1	07:44		07:29		06:51		06:59			06:11			18:20 (MO06)	05:40		18:50 (MO06)
	16:52		17:27		18:03		19:39			20:13	68		19:28 (MO06)	20:44	9	18:59 (MO06)
2	07:44		07:28		06:50		06:57			06:09			18:19 (MO06)	05:40		
	16:52		17:28		18:04		19:40			20:14	68		19:27 (MO06)	20:45		
3	07:44		07:27		06:48		06:55		18:55 (MO06)	06:08			18:19 (MO06)	05:39		
	16:53		17:30		18:05		19:41	8	19:03 (MO06)	20:15	68		19:27 (MO06)	20:46		
4	07:44		07:26		06:47		06:53		18:48 (MO06)	06:07			18:20 (MO06)	05:39		
	16:54		17:31		18:07		19:43	22	19:10 (MO06)	20:16	66		19:26 (MO06)	20:46		
5	07:44		07:25		06:45		06:52		18:44 (MO06)	06:05			18:20 (MO06)	05:39		
	16:55		17:32		18:08		19:44	30	19:14 (MO06)	20:17	65		19:25 (MO06)	20:47		
6	07:44		07:24		06:43		06:50		18:41 (MO06)	06:04			18:20 (MO06)	05:38		
	16:56		17:34		18:09		19:45	35	19:16 (MO06)	20:19	65		19:25 (MO06)	20:48		
7	07:44		07:23		06:42		06:48		18:38 (MO06)	06:03			18:21 (MO06)	05:38		
	16:57		17:35		18:10		19:46	40	19:18 (MO06)	20:20	64		19:25 (MO06)	20:48		
8	07:44		07:21		06:40		06:47		18:36 (MO06)	06:02			18:21 (MO06)	05:38		
	16:58		17:36		18:12		19:47	44	19:20 (MO06)	20:21	63		19:24 (MO06)	20:49		
9	07:44		07:20		06:38		06:45		18:34 (MO06)	06:01			18:22 (MO06)	05:37		
	16:59		17:38		18:13		19:48	47	19:21 (MO06)	20:22	62		19:24 (MO06)	20:50		
10	07:43		07:19		06:37		06:43		18:32 (MO06)	05:59			18:23 (MO06)	05:37		
	17:00		17:39		18:14		19:49	50	19:22 (MO06)	20:23	60		19:23 (MO06)	20:50		
11	07:43		07:18		06:35		06:42		18:31 (MO06)	05:58			18:23 (MO06)	05:37		
	17:01		17:40		18:15		19:50	53	19:24 (MO06)	20:24	60		19:23 (MO06)	20:51		
12	07:43		07:16		06:33		06:40		18:29 (MO06)	05:57			18:24 (MO06)	05:37		
	17:02		17:42		18:16		19:52	55	19:24 (MO06)	20:25	58		19:22 (MO06)	20:51		
13	07:42		07:15		06:32		06:38		18:27 (MO06)	05:56			18:24 (MO06)	05:37		
	17:04		17:43		18:17		19:53	58	19:25 (MO06)	20:26	57		19:21 (MO06)	20:52		
14	07:42		07:14		06:30		06:37		18:27 (MO06)	05:55			18:25 (MO06)	05:37		
	17:05		17:44		18:19		19:54	59	19:26 (MO06)	20:27	55		19:20 (MO06)	20:52		
15	07:42		07:12		06:28		06:35		18:25 (MO06)	05:54			18:26 (MO06)	05:37		
	17:06		17:45		18:20		19:55	61	19:26 (MO06)	20:28	54		19:20 (MO06)	20:53		
16	07:41		07:11		06:26		06:33		18:24 (MO06)	05:53			18:27 (MO06)	05:37		
	17:07		17:47		18:21		19:56	62	19:26 (MO06)	20:29	53		19:20 (MO06)	20:53		
17	07:41		07:10		06:25		06:32		18:23 (MO06)	05:52			18:28 (MO06)	05:37		
	17:08		17:48		18:22		19:57	64	19:27 (MO06)	20:30	51		19:19 (MO06)	20:54		
18	07:40		07:08		06:23		06:30		18:22 (MO06)	05:51			18:29 (MO06)	05:37		
	17:09		17:49		18:23		19:58	65	19:27 (MO06)	20:31	49		19:18 (MO06)	20:54		
19	07:40		07:07		06:21		06:29		18:22 (MO06)	05:50			18:30 (MO06)	05:37		
	17:11		17:51		18:24		20:00	66	19:28 (MO06)	20:32	47		19:17 (MO06)	20:54		
20	07:39		07:05		06:19		06:27		18:21 (MO06)	05:49			18:30 (MO06)	05:37		
	17:12		17:52		18:26		20:01	67	19:28 (MO06)	20:33	46		19:16 (MO06)	20:54		
21	07:38		07:04		06:18		06:25		18:21 (MO06)	05:48			18:31 (MO06)	05:37		
	17:13		17:53		18:27		20:02	68	19:29 (MO06)	20:34	44		19:15 (MO06)	20:55		
22	07:38		07:02		06:16		06:24		18:20 (MO06)	05:47			18:32 (MO06)	05:37		
	17:14		17:54		18:28		20:03	68	19:28 (MO06)	20:35	42		19:14 (MO06)	20:55		
23	07:37		07:01		06:14		06:22		18:20 (MO06)	05:46			18:34 (MO06)	05:38		
	17:16		17:56		18:29		20:04	69	19:29 (MO06)	20:36	39		19:13 (MO06)	20:55		
24	07:36		06:59		06:12		06:21		18:19 (MO06)	05:46			18:35 (MO06)	05:38		
	17:17		17:57		18:30		20:05	69	19:28 (MO06)	20:37	37		19:12 (MO06)	20:55		
25	07:35		06:58		06:11		06:19		18:19 (MO06)	05:45			18:36 (MO06)	05:38		
	17:18		17:58		18:31		20:06	70	19:29 (MO06)	20:38	35		19:11 (MO06)	20:55		
26	07:35		06:56		06:09		06:18		18:19 (MO06)	05:44			18:38 (MO06)	05:38		
	17:19		17:59		18:32		20:07	69	19:28 (MO06)	20:39	32		19:10 (MO06)	20:55		
27	07:34		06:55		06:07		06:16		18:19 (MO06)	05:43			18:39 (MO06)	05:39		
	17:21		18:01		18:34		20:09	69	19:28 (MO06)	20:40	30		19:09 (MO06)	20:55		
28	07:33		06:53		06:06		06:15		18:19 (MO06)	05:43			18:40 (MO06)	05:39		
	17:22		18:02		18:35		20:10	69	19:28 (MO06)	20:41	27		19:07 (MO06)	20:56		
29	07:32				07:04		06:14		18:19 (MO06)	05:42			18:43 (MO06)	05:40		
	17:23				19:36		20:11	68	19:27 (MO06)	20:42	23		19:06 (MO06)	20:55		
30	07:31				07:02		06:12		18:19 (MO06)	05:41			18:44 (MO06)	05:40		
	17:25				19:37		20:12	69	19:28 (MO06)	20:42	20		19:04 (MO06)	20:55		
31	07:30				07:00					05:41			18:47 (MO06)			
	17:26				19:38					20:43	15		19:02 (MO06)			
Potential sun hours	293		295		369		400			452				457		
Total, worst case								1574			1523				9	
Sun reduction								0.49			0.57				0.61	
Oper. time red.								1.00			1.00				1.00	
Wind dir. red.								1.00			1.00				1.00	
Total reduction								0.49			0.57				0.61	
Total, real								778			867				5	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 20 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (918)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September			October	November	December
1	05:41			06:06		18:33 (MO06)	06:38		18:30 (MO06)	07:10	06:47	07:23
	20:55			20:35	59	19:32 (MO06)	19:50	53	19:23 (MO06)	18:58	17:09	16:43
2	05:41			06:07		18:33 (MO06)	06:39		18:31 (MO06)	07:11	06:48	07:24
	20:55			20:34	60	19:33 (MO06)	19:48	50	19:21 (MO06)	18:56	17:08	16:43
3	05:42			06:08		18:32 (MO06)	06:40		18:32 (MO06)	07:13	06:49	07:25
	20:55			20:33	61	19:33 (MO06)	19:47	47	19:19 (MO06)	18:54	17:06	16:42
4	05:42			06:09		18:31 (MO06)	06:42		18:33 (MO06)	07:14	06:50	07:26
	20:55			20:32	63	19:34 (MO06)	19:45	44	19:17 (MO06)	18:52	17:05	16:42
5	05:43			06:10		18:31 (MO06)	06:43		18:35 (MO06)	07:15	06:52	07:27
	20:55			20:30	63	19:34 (MO06)	19:43	40	19:15 (MO06)	18:51	17:04	16:42
6	05:43			06:11		18:30 (MO06)	06:44		18:37 (MO06)	07:16	06:53	07:28
	20:54			20:29	64	19:34 (MO06)	19:42	35	19:12 (MO06)	18:49	17:03	16:42
7	05:44			06:12		18:30 (MO06)	06:45		18:39 (MO06)	07:17	06:54	07:29
	20:54			20:28	65	19:35 (MO06)	19:40	30	19:09 (MO06)	18:47	17:01	16:42
8	05:45			06:13		18:29 (MO06)	06:46		18:42 (MO06)	07:18	06:55	07:30
	20:54			20:27	66	19:35 (MO06)	19:38	23	19:05 (MO06)	18:46	17:00	16:42
9	05:45			06:14		18:29 (MO06)	06:47		18:48 (MO06)	07:19	06:57	07:31
	20:53			20:25	66	19:35 (MO06)	19:36	10	18:58 (MO06)	18:44	16:59	16:41
10	05:46			06:15		18:28 (MO06)	06:48			07:20	06:58	07:32
	20:53			20:24	67	19:35 (MO06)	19:35			18:42	16:58	16:41
11	05:47		19:00 (MO06)	06:16		18:28 (MO06)	06:49			07:21	06:59	07:33
	20:52	5	19:05 (MO06)	20:23	67	19:35 (MO06)	19:33			18:40	16:57	16:42
12	05:47		18:57 (MO06)	06:17		18:27 (MO06)	06:50			07:23	07:00	07:34
	20:52	13	19:10 (MO06)	20:21	68	19:35 (MO06)	19:31			18:39	16:56	16:42
13	05:48		18:54 (MO06)	06:18		18:27 (MO06)	06:51			07:24	07:02	07:35
	20:51	17	19:11 (MO06)	20:20	68	19:35 (MO06)	19:29			18:37	16:55	16:42
14	05:49		18:52 (MO06)	06:19		18:26 (MO06)	06:52			07:25	07:03	07:35
	20:51	22	19:14 (MO06)	20:18	69	19:35 (MO06)	19:28			18:36	16:54	16:42
15	05:50		18:51 (MO06)	06:20		18:26 (MO06)	06:53			07:26	07:04	07:36
	20:50	25	19:16 (MO06)	20:17	69	19:35 (MO06)	19:26			18:34	16:53	16:42
16	05:51		18:49 (MO06)	06:21		18:26 (MO06)	06:54			07:27	07:05	07:37
	20:50	28	19:17 (MO06)	20:15	69	19:35 (MO06)	19:24			18:32	16:52	16:42
17	05:51		18:48 (MO06)	06:22		18:25 (MO06)	06:55			07:28	07:07	07:37
	20:49	31	19:19 (MO06)	20:14	70	19:35 (MO06)	19:22			18:31	16:51	16:43
18	05:52		18:46 (MO06)	06:23		18:25 (MO06)	06:56			07:30	07:08	07:38
	20:48	34	19:20 (MO06)	20:13	69	19:34 (MO06)	19:20			18:29	16:51	16:43
19	05:53		18:45 (MO06)	06:25		18:25 (MO06)	06:57			07:31	07:09	07:39
	20:47	36	19:21 (MO06)	20:11	69	19:34 (MO06)	19:19			18:28	16:50	16:43
20	05:54		18:44 (MO06)	06:26		18:25 (MO06)	06:58			07:32	07:10	07:39
	20:47	38	19:22 (MO06)	20:09	68	19:33 (MO06)	19:17			18:26	16:49	16:44
21	05:55		18:43 (MO06)	06:27		18:25 (MO06)	07:00			07:33	07:11	07:40
	20:46	41	19:24 (MO06)	20:08	68	19:33 (MO06)	19:15			18:24	16:48	16:44
22	05:56		18:42 (MO06)	06:28		18:25 (MO06)	07:01			07:34	07:13	07:40
	20:45	43	19:25 (MO06)	20:06	67	19:32 (MO06)	19:13			18:23	16:48	16:45
23	05:57		18:41 (MO06)	06:29		18:26 (MO06)	07:02			07:36	07:14	07:41
	20:44	45	19:26 (MO06)	20:05	67	19:33 (MO06)	19:12			18:21	16:47	16:45
24	05:58		18:41 (MO06)	06:30		18:26 (MO06)	07:03			07:37	07:15	07:41
	20:43	46	19:27 (MO06)	20:03	66	19:32 (MO06)	19:10			18:20	16:46	16:46
25	05:59		18:40 (MO06)	06:31		18:26 (MO06)	07:04			06:38	07:16	07:42
	20:42	48	19:28 (MO06)	20:02	65	19:31 (MO06)	19:08			17:19	16:46	16:46
26	06:00		18:39 (MO06)	06:32		18:26 (MO06)	07:05			06:39	07:17	07:42
	20:41	50	19:29 (MO06)	20:00	64	19:30 (MO06)	19:06			17:17	16:45	16:47
27	06:01		18:38 (MO06)	06:33		18:27 (MO06)	07:06			06:40	07:19	07:43
	20:40	52	19:30 (MO06)	19:58	62	19:29 (MO06)	19:05			17:16	16:45	16:48
28	06:02		18:36 (MO06)	06:34		18:27 (MO06)	07:07			06:42	07:20	07:43
	20:39	54	19:30 (MO06)	19:57	61	19:28 (MO06)	19:03			17:14	16:44	16:48
29	06:03		18:36 (MO06)	06:35		18:27 (MO06)	07:08			06:43	07:21	07:43
	20:38	54	19:30 (MO06)	19:55	60	19:27 (MO06)	19:01			17:13	16:44	16:49
30	06:04		18:35 (MO06)	06:36		18:28 (MO06)	07:09			06:44	07:22	07:43
	20:37	56	19:31 (MO06)	19:53	58	19:26 (MO06)	18:59			17:12	16:43	16:50
31	06:05		18:34 (MO06)	06:37		18:29 (MO06)				06:45		07:44
	20:36	58	19:32 (MO06)	19:52	55	19:24 (MO06)				17:10		16:51
Potential sun hours	463			431			376			344	295	283
Total, worst case		796			2013			332				
Sun reduction		0.71			0.70			0.62				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		1.00			1.00			1.00				
Total reduction		0.71			0.70			0.62				
Total, real		561			1410			207				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 21 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (919)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 22 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (920)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
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	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
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18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
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	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
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	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
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24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
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25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 23 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (921)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
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13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
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14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
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22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
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24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
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	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
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	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
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	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 24 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (922)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
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11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
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14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 25 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (923)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March		April	May	June	July	August	September		October		November	December
1	07:44	07:29	06:51		06:58	06:11	05:40	05:40	06:05	06:38		07:10		07:31 (MO04)	06:46	07:23
	16:51	17:27	18:03		19:39	20:13	20:44	20:55	20:35	19:50		18:57	13	07:44 (MO04)	17:09	16:43
2	07:44	07:28	06:50		06:57	06:09	05:40	05:41	06:06	06:39		07:11		07:32 (MO04)	06:48	07:24
	16:52	17:28	18:04		19:40	20:14	20:45	20:55	20:34	19:48		18:56	9	07:41 (MO04)	17:07	16:42
3	07:44	07:27	06:48		06:55	06:08	05:39	05:41	06:08	06:40		07:12			06:49	07:25
	16:53	17:30	18:05		19:41	20:15	20:45	20:55	20:33	19:47		18:54			17:06	16:42
4	07:44	07:26	06:46		06:53	06:07	05:39	05:42	06:09	06:41		07:13			06:50	07:26
	16:54	17:31	18:07		19:42	20:16	20:46	20:55	20:31	19:45		18:52			17:05	16:42
5	07:44	07:25	06:45		06:52	06:05	05:38	05:43	06:10	06:42		07:15			06:51	07:27
	16:55	17:32	18:08		19:44	20:17	20:47	20:54	20:30	19:43		18:50			17:04	16:42
6	07:44	07:24	06:43		06:50	06:04	05:38	05:43	06:11	06:43		07:16			06:53	07:28
	16:56	17:34	18:09		19:45	20:18	20:48	20:54	20:29	19:41		18:49			17:02	16:42
7	07:44	07:22	06:41		06:48	06:03	05:38	05:44	06:12	06:45		07:17			06:54	07:29
	16:57	17:35	18:10		19:46	20:19	20:48	20:54	20:28	19:40		18:47			17:01	16:41
8	07:44	07:21	06:40		06:46	06:02	05:38	05:44	06:13	06:46		07:18			06:55	07:30
	16:58	17:36	18:11		19:47	20:21	20:49	20:53	20:26	19:38		18:45			17:00	16:41
9	07:43	07:20	06:38		06:45	06:00	05:37	05:45	06:14	06:47		07:19			06:56	07:31
	16:59	17:37	18:13		19:48	20:22	20:49	20:53	20:25	19:36		18:44			16:59	16:41
10	07:43	07:19	06:36		06:43	05:59	05:37	05:46	06:15	06:48		07:20			06:58	07:32
	17:00	17:39	18:14		19:49	20:23	20:50	20:53	20:24	19:34		18:42			16:58	16:41
11	07:43	07:17	06:35		06:54 (MO04)	06:41	05:58	05:37	05:47	06:16	06:49			07:21		06:59	07:33
	17:01	17:40	18:15	7	07:01 (MO04)	19:50	20:24	20:51	20:52	20:22	19:33			18:40		16:57	16:41
12	07:43	07:16	06:33		06:52 (MO04)	06:40	05:57	05:37	05:47	06:17	06:50			07:22		07:00	07:34
	17:02	17:41	18:16	11	07:03 (MO04)	19:51	20:25	20:51	20:52	20:21	19:31			18:39		16:56	16:41
13	07:42	07:15	06:31		06:50 (MO04)	06:38	05:56	05:37	05:48	06:18	06:51			07:24		07:01	07:34
	17:03	17:43	18:17	15	07:05 (MO04)	19:53	20:26	20:52	20:51	20:20	19:29			18:37		16:55	16:42
14	07:42	07:14	06:30		06:49 (MO04)	06:36	05:55	05:37	05:49	06:19	06:52			07:25		07:03	07:35
	17:05	17:44	18:18	18	07:07 (MO04)	19:54	20:27	20:52	20:51	20:18	19:27			18:35		16:54	16:42
15	07:41	07:12	06:28		06:47 (MO04)	06:35	05:54	05:36	05:50	06:20	06:53	07:35 (MO04)		07:26		07:04	07:36
	17:06	17:45	18:20	20	07:07 (MO04)	19:55	20:28	20:53	20:50	20:17	19:26	11	07:46 (MO04)	18:34		16:53	16:42
16	07:41	07:11	06:26		06:45 (MO04)	06:33	05:53	05:36	05:50	06:21	06:54		07:32 (MO04)	07:27		07:05	07:37
	17:07	17:47	18:21	22	07:07 (MO04)	19:56	20:29	20:53	20:49	20:15	19:24	16	07:48 (MO04)	18:32		16:52	16:42
17	07:41	07:09	06:24		06:43 (MO04)	06:32	05:52	05:37	05:51	06:22	06:55		07:30 (MO04)	07:28		07:06	07:37
	17:08	17:48	18:22	24	07:07 (MO04)	19:57	20:30	20:53	20:49	20:14	19:22	20	07:50 (MO04)	18:31		16:51	16:42
18	07:40	07:08	06:23		06:42 (MO04)	06:30	05:51	05:37	05:52	06:23	06:56		07:28 (MO04)	07:29		07:08	07:38
	17:09	17:49	18:23	26	07:08 (MO04)	19:58	20:31	20:54	20:48	20:12	19:20	23	07:51 (MO04)	18:29		16:50	16:43
19	07:39	07:07	06:21		06:40 (MO04)	06:28	05:50	05:37	05:53	06:24	06:57		07:26 (MO04)	07:31		07:09	07:39
	17:10	17:50	18:24	28	07:08 (MO04)	19:59	20:32	20:54	20:47	20:11	19:19	25	07:51 (MO04)	18:27		16:50	16:43
20	07:39	07:05	06:19		06:38 (MO04)	06:27	05:49	05:37	05:54	06:25	06:58		07:25 (MO04)	07:32		07:10	07:39
	17:12	17:52	18:25	29	07:07 (MO04)	20:00	20:33	20:54	20:46	20:09	19:17	27	07:52 (MO04)	18:26		16:49	16:44
21	07:38	07:04	06:18		06:38 (MO04)	06:25	05:48	05:37	05:55	06:26	06:59		07:24 (MO04)	07:33		07:11	07:40
	17:13	17:53	18:27	29	07:07 (MO04)	20:02	20:34	20:55	20:46	20:08	19:15	28	07:52 (MO04)	18:24		16:48	16:44
22	07:38	07:02	06:16		06:39 (MO04)	06:24	05:47	05:37	05:56	06:28	07:00		07:23 (MO04)	07:34		07:12	07:40
	17:14	17:54	18:28	28	07:07 (MO04)	20:03	20:35	20:55	20:45	20:06	19:13	29	07:52 (MO04)	18:23		16:47	16:44
23	07:37	07:01	06:14		06:39 (MO04)	06:22	05:46	05:37	05:57	06:29	07:01		07:23 (MO04)	07:35		07:14	07:41
	17:15	17:55	18:29	27	07:06 (MO04)	20:04	20:36	20:55	20:44	20:05	19:11	29	07:52 (MO04)	18:21		16:47	16:45
24	07:36	06:59	06:12		06:39 (MO04)	06:21	05:45	05:38	05:58	06:30	07:03		07:23 (MO04)	07:37		07:15	07:41
	17:17	17:57	18:30	25	07:04 (MO04)	20:05	20:37	20:55	20:43	20:03	19:10	28	07:51 (MO04)	18:20		16:46	16:46
25	07:35	06:58	06:11		06:39 (MO04)	06:19	05:45	05:38	05:59	06:31	07:04		07:24 (MO04)	06:38		07:16	07:42
	17:18	17:58	18:31	24	07:03 (MO04)	20:06	20:38	20:55	20:42	20:01	19:08	27	07:51 (MO04)	17:18		16:45	16:46
26	07:34	06:56	06:09		06:41 (MO04)	06:18	05:44	05:38	06:00	06:32	07:05		07:25 (MO04)	06:39		07:17	07:42
	17:19	17:59	18:32	21	07:02 (MO04)	20:07	20:39	20:55	20:41	20:00	19:06	25	07:50 (MO04)	17:17		16:45	16:47
27	07:34	06:54	06:07		06:42 (MO04)	06:16	05:43	05:39	06:00	06:33	07:06		07:26 (MO04)	06:40		07:18	07:42
	17:20	18:00	18:33	18	07:00 (MO04)	20:08	20:40	20:55	20:40	19:58	19:04	23	07:49 (MO04)	17:15		16:44	16:47
28	07:33	06:53	06:05		06:44 (MO04)	06:15	05:43	05:39	06:01	06:34	07:07		07:27 (MO04)	06:41		07:20	07:43
	17:22	18:02	18:34	12	06:56 (MO04)	20:09	20:41	20:55	20:39	19:57	19:03	21	07:48 (MO04)	17:14		16:44	16:48
29	07:32		07:04			06:13	05:42	05:39	06:02	06:35	07:08		07:28 (MO04)	06:43		07:21	07:43
	17:23		19:36			20:11	20:41	20:55	20:38	19:55	19:01	19	07:47 (MO04)	17:13		16:43	16:49
30	07:31		07:02			06:12	05:41	05:40	06:03	06:36	07:09		07:30 (MO04)	06:44		07:22	07:43
	17:24		19:37			20:12	20:42	20:55	20:37	19:53	18:59	16	07:46 (MO04)	17:11		16:43	16:50
31	07:30		07:00				05:41		06:04	06:37				06:45			07:43
	17:26		19:38				20:43		20:36	19:52				17:10			16:50
Potential sun hours	293	295	369		400	452	457	463	431	376		344			295	283
Total, worst case				384							367		22			
Sun reduction				0.46							0.62		0.55			
Oper. time red.				1.00							1.00		1.00			
Wind dir. red.				1.00							1.00		1.00			
Total reduction				0.46							0.62		0.55			
Total, real				176							229		12			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 26 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (924)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 27 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (925)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
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	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 28 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (926)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
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	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
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15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
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28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 29 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (927)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		15:38 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46			07:23		15:27 (MO03)
	16:51	38	16:16 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09			16:43	33	16:00 (MO03)
2	07:44		15:39 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48			07:24		15:26 (MO03)
	16:52	38	16:17 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07			16:42	35	16:01 (MO03)
3	07:44		15:39 (MO03)	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49			07:25		15:26 (MO03)
	16:53	38	16:17 (MO03)	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06			16:42	35	16:01 (MO03)
4	07:44		15:40 (MO03)	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50			07:26		15:26 (MO03)
	16:54	37	16:17 (MO03)	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05			16:42	36	16:02 (MO03)
5	07:44		15:41 (MO03)	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51			07:27		15:26 (MO03)
	16:55	37	16:18 (MO03)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04			16:42	37	16:03 (MO03)
6	07:44		15:41 (MO03)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53			07:28		15:26 (MO03)
	16:56	37	16:18 (MO03)	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02			16:41	37	16:03 (MO03)
7	07:44		15:41 (MO03)	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54			07:29		15:27 (MO03)
	16:57	36	16:17 (MO03)	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01			16:41	37	16:04 (MO03)
8	07:44		15:42 (MO03)	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:46	07:18	06:55			07:30		15:27 (MO03)
	16:58	36	16:18 (MO03)	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00			16:41	37	16:04 (MO03)
9	07:43		15:43 (MO03)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56			07:31		15:27 (MO03)
	16:59	35	16:18 (MO03)	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59			16:41	38	16:05 (MO03)
10	07:43		15:44 (MO03)	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		15:28 (MO03)
	17:00	35	16:19 (MO03)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58			16:41	38	16:06 (MO03)
11	07:43		15:44 (MO03)	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59			07:33		15:28 (MO03)
	17:01	34	16:18 (MO03)	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57			16:41	38	16:06 (MO03)
12	07:43		15:46 (MO03)	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00			07:33		15:29 (MO03)
	17:02	32	16:18 (MO03)	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:41	38	16:07 (MO03)
13	07:42		15:46 (MO03)	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01			07:34		15:29 (MO03)
	17:03	31	16:17 (MO03)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:41	39	16:08 (MO03)
14	07:42		15:48 (MO03)	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03			07:35		15:29 (MO03)
	17:04	30	16:18 (MO03)	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54			16:42	39	16:08 (MO03)
15	07:41		15:48 (MO03)	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04			07:36		15:29 (MO03)
	17:06	29	16:17 (MO03)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	39	16:08 (MO03)
16	07:41		15:50 (MO03)	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05			07:37		15:30 (MO03)
	17:07	27	16:17 (MO03)	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52			16:42	39	16:09 (MO03)
17	07:41		15:51 (MO03)	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06			07:37		15:31 (MO03)
	17:08	25	16:16 (MO03)	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51			16:42	39	16:10 (MO03)
18	07:40		15:53 (MO03)	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08			07:38		15:31 (MO03)
	17:09	23	16:16 (MO03)	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50			16:43	39	16:10 (MO03)
19	07:39		15:54 (MO03)	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09			07:39		15:31 (MO03)
	17:10	20	16:14 (MO03)	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49			16:43	40	16:11 (MO03)
20	07:39		15:56 (MO03)	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10			07:39		15:31 (MO03)
	17:12	16	16:12 (MO03)	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49			16:43	40	16:11 (MO03)
21	07:38		16:00 (MO03)	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11		15:35 (MO03)	07:40		15:32 (MO03)
	17:13	11	16:11 (MO03)	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	11	15:46 (MO03)	16:44	40	16:12 (MO03)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12		15:32 (MO03)	07:40		15:32 (MO03)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16	15:48 (MO03)	16:44	40	16:12 (MO03)
23	07:37			07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14		15:32 (MO03)	07:41		15:33 (MO03)
	17:15			17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	19	15:51 (MO03)	16:45	40	16:13 (MO03)
24	07:36			06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15		15:30 (MO03)	07:41		15:33 (MO03)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	23	15:53 (MO03)	16:45	40	16:13 (MO03)
25	07:35			06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16		15:29 (MO03)	07:42		15:34 (MO03)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	25	15:54 (MO03)	16:46	40	16:14 (MO03)
26	07:34			06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17		15:28 (MO03)	07:42		15:35 (MO03)
	17:19			17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	27	15:55 (MO03)	16:47	39	16:14 (MO03)
27	07:34			06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18		15:28 (MO03)	07:42		15:35 (MO03)
	17:20			18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	29	15:57 (MO03)	16:47	39	16:14 (MO03)
28	07:33			06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20		15:28 (MO03)	07:43		15:35 (MO03)
	17:22			18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	30	15:58 (MO03)	16:48	39	16:14 (MO03)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21		15:27 (MO03)	07:43		15:37 (MO03)
	17:23				19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	31	15:58 (MO03)	16:49	39	16:16 (MO03)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22		15:27 (MO03)	07:43		15:37 (MO03)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	32	15:59 (MO03)	16:50	39	16:16 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45				07:43		15:37 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10				16:50	39	16:16 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		645												243			1187	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		271												111			513	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 30 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (928)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 31 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (929)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November	December		
1	07:44		15:32 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23		
	16:51	11	15:43 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43		
2	07:44		15:34 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24		
	16:52	7	15:41 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42		
3	07:44			07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25		
	16:53			17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42		
4	07:44			07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26		
	16:54			17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42		
5	07:44			07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27		
	16:55			17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42		
6	07:44			07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28		
	16:56			17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41		
7	07:44			07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29		
	16:57			17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41		
8	07:44			07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:46	07:18	06:55	07:30		
	16:58			17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41		
9	07:43			07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31		
	16:59			17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41		
10	07:43			07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		15:23 (MO03)
	17:00			17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41	7	15:30 (MO03)
11	07:43			07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33		15:22 (MO03)
	17:01			17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41	10	15:32 (MO03)
12	07:43			07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33		15:22 (MO03)
	17:02			17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41	12	15:34 (MO03)
13	07:42			07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34		15:21 (MO03)
	17:03			17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41	15	15:36 (MO03)
14	07:42			07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35		15:21 (MO03)
	17:04			17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42	16	15:37 (MO03)
15	07:41			07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36		15:20 (MO03)
	17:06			17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42	17	15:37 (MO03)
16	07:41			07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37		15:21 (MO03)
	17:07			17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42	18	15:39 (MO03)
17	07:41			07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37		15:21 (MO03)
	17:08			17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42	19	15:40 (MO03)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38		15:21 (MO03)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43	19	15:40 (MO03)
19	07:39			07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39		15:21 (MO03)
	17:10			17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43	20	15:41 (MO03)
20	07:39			07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39		15:21 (MO03)
	17:12			17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43	20	15:41 (MO03)
21	07:38			07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40		15:22 (MO03)
	17:13			17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44	20	15:42 (MO03)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40		15:22 (MO03)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44	20	15:42 (MO03)
23	07:37			07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41		15:23 (MO03)
	17:15			17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45	20	15:43 (MO03)
24	07:36			06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41		15:23 (MO03)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45	20	15:43 (MO03)
25	07:35			06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42		15:25 (MO03)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46	19	15:44 (MO03)
26	07:34			06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42		15:25 (MO03)
	17:19			17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47	19	15:44 (MO03)
27	07:34			06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42		15:25 (MO03)
	17:20			18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47	19	15:44 (MO03)
28	07:33			06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43		15:26 (MO03)
	17:22			18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48	18	15:44 (MO03)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43		15:28 (MO03)
	17:23				19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49	16	15:44 (MO03)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43		15:29 (MO03)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50	15	15:44 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45		07:43		15:30 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10		16:50	13	15:43 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295	283		
Total, worst case		18													372	
Sun reduction		0.42													0.43	
Oper. time red.		1.00													1.00	
Wind dir. red.		1.00													1.00	
Total reduction		0.42													0.43	
Total, real		8													161	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 32 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (930)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		15:32 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46			07:23		15:23 (MO03)
	16:51	33	16:05 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09			16:43	23	15:46 (MO03)
2	07:44		15:32 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48			07:24		15:22 (MO03)
	16:52	33	16:05 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07			16:42	25	15:47 (MO03)
3	07:44		15:33 (MO03)	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49			07:25		15:22 (MO03)
	16:53	32	16:05 (MO03)	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06			16:42	26	15:48 (MO03)
4	07:44		15:34 (MO03)	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50			07:26		15:21 (MO03)
	16:54	32	16:06 (MO03)	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05			16:42	28	15:49 (MO03)
5	07:44		15:35 (MO03)	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51			07:27		15:21 (MO03)
	16:55	31	16:06 (MO03)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04			16:42	29	15:50 (MO03)
6	07:44		15:36 (MO03)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53			07:28		15:21 (MO03)
	16:56	30	16:06 (MO03)	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02			16:41	30	15:51 (MO03)
7	07:44		15:36 (MO03)	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54			07:29		15:21 (MO03)
	16:57	29	16:05 (MO03)	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01			16:41	31	15:52 (MO03)
8	07:44		15:37 (MO03)	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:46	07:18	06:55			07:30		15:21 (MO03)
	16:58	28	16:05 (MO03)	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00			16:41	32	15:53 (MO03)
9	07:43		15:39 (MO03)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56			07:31		15:21 (MO03)
	16:59	26	16:05 (MO03)	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59			16:41	32	15:53 (MO03)
10	07:43		15:40 (MO03)	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		15:21 (MO03)
	17:00	25	16:05 (MO03)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58			16:41	33	15:54 (MO03)
11	07:43		15:41 (MO03)	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59			07:33		15:22 (MO03)
	17:01	23	16:04 (MO03)	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57			16:41	33	15:55 (MO03)
12	07:43		15:43 (MO03)	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00			07:33		15:22 (MO03)
	17:02	20	16:03 (MO03)	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:41	34	15:56 (MO03)
13	07:42		15:44 (MO03)	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01			07:34		15:22 (MO03)
	17:03	18	16:02 (MO03)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:41	35	15:57 (MO03)
14	07:42		15:47 (MO03)	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03			07:35		15:22 (MO03)
	17:04	14	16:01 (MO03)	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54			16:42	35	15:57 (MO03)
15	07:41		15:49 (MO03)	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04			07:36		15:22 (MO03)
	17:06	9	15:58 (MO03)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	35	15:57 (MO03)
16	07:41			07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05			07:37		15:23 (MO03)
	17:07			17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52			16:42	35	15:58 (MO03)
17	07:41			07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06			07:37		15:24 (MO03)
	17:08			17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51			16:42	35	15:59 (MO03)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08			07:38		15:23 (MO03)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50			16:43	36	15:59 (MO03)
19	07:39			07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09			07:39		15:24 (MO03)
	17:10			17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49			16:43	36	16:00 (MO03)
20	07:39			07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10			07:39		15:24 (MO03)
	17:12			17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49			16:43	36	16:00 (MO03)
21	07:38			07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11			07:40		15:25 (MO03)
	17:13			17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48			16:44	36	16:01 (MO03)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12			07:40		15:25 (MO03)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47			16:44	36	16:01 (MO03)
23	07:37			07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14			07:41		15:26 (MO03)
	17:15			17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47			16:45	36	16:02 (MO03)
24	07:36			06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15			07:41		15:26 (MO03)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46			16:45	36	16:02 (MO03)
25	07:35			06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16			07:42		15:27 (MO03)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45			16:46	36	16:03 (MO03)
26	07:34			06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17			07:42		15:28 (MO03)
	17:19			17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45			16:47	35	16:03 (MO03)
27	07:34			06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18		15:29 (MO03)	07:42		15:28 (MO03)
	17:20			18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	9	15:38 (MO03)	16:47	35	16:03 (MO03)
28	07:33			06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20		15:27 (MO03)	07:43		15:28 (MO03)
	17:22			18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	14	15:41 (MO03)	16:48	35	16:03 (MO03)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21		15:25 (MO03)	07:43		15:30 (MO03)
	17:23				19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	18	15:43 (MO03)	16:49	35	16:05 (MO03)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22		15:24 (MO03)	07:43		15:30 (MO03)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	20	15:44 (MO03)	16:50	35	16:05 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45				07:43		15:31 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10				16:50	34	16:05 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		383												61			1028	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		161												28			444	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 33 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (931)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March			April			May		June	
1	07:44		07:29		06:51			06:58		18:20 (MO04)	06:11		05:40	
	16:51		17:27		18:03			19:39	47	19:07 (MO04)	20:13		20:44	
2	07:44		07:28		06:50			06:57		18:19 (MO04)	06:09		05:40	
	16:52		17:28		18:04			19:40	48	19:07 (MO04)	20:14		20:45	
3	07:44		07:27		06:48			06:55		18:20 (MO04)	06:08		05:39	
	16:53		17:30		18:05			19:41	47	19:07 (MO04)	20:15		20:45	
4	07:44		07:26		06:46			06:53		18:20 (MO04)	06:07		05:39	
	16:54		17:31		18:06			19:42	46	19:06 (MO04)	20:16		20:46	
5	07:44		07:25		06:45			06:51		18:20 (MO04)	06:05		05:38	
	16:55		17:32		18:08			19:43	44	19:04 (MO04)	20:17		20:47	
6	07:44		07:23		06:43			06:50		18:21 (MO04)	06:04		05:38	
	16:56		17:33		18:09			19:45	43	19:04 (MO04)	20:18		20:47	
7	07:44		07:22		06:41			06:48		18:22 (MO04)	06:03		05:38	
	16:57		17:35		18:10			19:46	41	19:03 (MO04)	20:19		20:48	
8	07:43		07:21		06:40			06:46		18:22 (MO04)	06:01		05:37	
	16:58		17:36		18:11			19:47	39	19:01 (MO04)	20:20		20:49	
9	07:43		07:20		06:38			06:45		18:24 (MO04)	06:00		05:37	
	16:59		17:37		18:12			19:48	36	19:00 (MO04)	20:22		20:49	
10	07:43		07:19		06:36			06:43		18:24 (MO04)	05:59		05:37	
	17:00		17:39		18:14			19:49	34	18:58 (MO04)	20:23		20:50	
11	07:43		07:17		06:35			06:41		18:25 (MO04)	05:58		05:37	
	17:01		17:40		18:15			19:50	31	18:56 (MO04)	20:24		20:51	
12	07:42		07:16		06:33			06:40		18:28 (MO04)	05:57		05:37	
	17:02		17:41		18:16			19:51	27	18:55 (MO04)	20:25		20:51	
13	07:42		07:15		06:31			06:38		18:30 (MO04)	05:56		05:37	
	17:03		17:43		18:17			19:52	22	18:52 (MO04)	20:26		20:52	
14	07:42		07:13		06:30			06:36		18:32 (MO04)	05:55		05:36	
	17:04		17:44		18:18			19:54	16	18:48 (MO04)	20:27		20:52	
15	07:41		07:12		06:28		17:42 (MO04)	06:35			05:54		05:36	
	17:06		17:45		18:19	14	17:56 (MO04)	19:55			20:28		20:52	
16	07:41		07:11		06:26		17:38 (MO04)	06:33			05:52		05:36	
	17:07		17:46		18:21	21	17:59 (MO04)	19:56			20:29		20:53	
17	07:40		07:09		06:24		17:34 (MO04)	06:32			05:51		05:36	
	17:08		17:48		18:22	26	18:00 (MO04)	19:57			20:30		20:53	
18	07:40		07:08		06:23		17:33 (MO04)	06:30			05:51		05:36	
	17:09		17:49		18:23	29	18:02 (MO04)	19:58			20:31		20:54	
19	07:39		07:06		06:21		17:30 (MO04)	06:28			05:50		05:37	
	17:10		17:50		18:24	33	18:03 (MO04)	19:59			20:32		20:54	
20	07:39		07:05		06:19		17:28 (MO04)	06:27			05:49		05:37	
	17:12		17:52		18:25	36	18:04 (MO04)	20:00			20:33		20:54	
21	07:38		07:03		06:17		17:27 (MO04)	06:25			05:48		05:37	
	17:13		17:53		18:26	38	18:05 (MO04)	20:01			20:34		20:54	
22	07:37		07:02		06:16		17:26 (MO04)	06:24			05:47		05:37	
	17:14		17:54		18:28	41	18:07 (MO04)	20:03			20:35		20:55	
23	07:37		07:01		06:14		17:25 (MO04)	06:22			05:46		05:37	
	17:15		17:55		18:29	42	18:07 (MO04)	20:04			20:36		20:55	
24	07:36		06:59		06:12		17:23 (MO04)	06:21			05:45		05:38	
	17:17		17:57		18:30	45	18:08 (MO04)	20:05			20:37		20:55	
25	07:35		06:57		06:10		17:22 (MO04)	06:19			05:45		05:38	
	17:18		17:58		18:31	46	18:08 (MO04)	20:06			20:38		20:55	
26	07:34		06:56		06:09		17:22 (MO04)	06:18			05:44		05:38	
	17:19		17:59		18:32	47	18:09 (MO04)	20:07			20:39		20:55	
27	07:34		06:54		06:07		17:21 (MO04)	06:16			05:43		05:39	
	17:20		18:00		18:33	48	18:09 (MO04)	20:08			20:40		20:55	
28	07:33		06:53		06:05		17:21 (MO04)	06:15			05:42		05:39	
	17:22		18:02		18:34	48	18:09 (MO04)	20:09			20:40		20:55	
29	07:32				07:03		18:20 (MO04)	06:13			05:42		05:39	
	17:23				19:36	48	19:08 (MO04)	20:10			20:41		20:55	
30	07:31				07:02		18:20 (MO04)	06:12			05:41		05:40	
	17:24				19:37	49	19:09 (MO04)	20:12			20:42		20:55	
31	07:30				07:00		18:20 (MO04)				05:41			
	17:26				19:38	48	19:08 (MO04)				20:43			
Potential sun hours	293		295		369			400			452		457	
Total, worst case						659			521					
Sun reduction						0.46			0.49					
Oper. time red.						1.00			1.00					
Wind dir. red.						1.00			1.00					
Total reduction						0.46			0.49					
Total, real						302			258					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 33 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (931)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August			September			October	November	December
1	05:40	06:05			06:38		18:24 (MO04)	07:10	06:46	07:23
	20:55	20:35			19:50	31	18:55 (MO04)	18:57	17:09	16:43
2	05:41	06:06			06:39		18:22 (MO04)	07:11	06:48	07:24
	20:55	20:34			19:48	34	18:56 (MO04)	18:56	17:07	16:42
3	05:41	06:07			06:40		18:21 (MO04)	07:12	06:49	07:25
	20:55	20:33			19:46	36	18:57 (MO04)	18:54	17:06	16:42
4	05:42	06:08			06:41		18:19 (MO04)	07:13	06:50	07:26
	20:55	20:31			19:45	39	18:58 (MO04)	18:52	17:05	16:42
5	05:42	06:09			06:42		18:18 (MO04)	07:14	06:51	07:27
	20:54	20:30			19:43	41	18:59 (MO04)	18:50	17:04	16:42
6	05:43	06:11			06:43		18:16 (MO04)	07:16	06:53	07:28
	20:54	20:29			19:41	43	18:59 (MO04)	18:49	17:02	16:41
7	05:44	06:12			06:44		18:15 (MO04)	07:17	06:54	07:29
	20:54	20:28			19:40	44	18:59 (MO04)	18:47	17:01	16:41
8	05:44	06:13			06:45		18:14 (MO04)	07:18	06:55	07:30
	20:53	20:26			19:38	46	19:00 (MO04)	18:45	17:00	16:41
9	05:45	06:14			06:47		18:13 (MO04)	07:19	06:56	07:31
	20:53	20:25			19:36	47	19:00 (MO04)	18:44	16:59	16:41
10	05:46	06:15			06:48		18:13 (MO04)	07:20	06:58	07:32
	20:53	20:24			19:34	47	19:00 (MO04)	18:42	16:58	16:41
11	05:46	06:16			06:49		18:13 (MO04)	07:21	06:59	07:33
	20:52	20:22			19:33	48	19:01 (MO04)	18:40	16:57	16:41
12	05:47	06:17			06:50		18:12 (MO04)	07:22	07:00	07:33
	20:52	20:21			19:31	48	19:00 (MO04)	18:39	16:56	16:41
13	05:48	06:18			06:51		18:12 (MO04)	07:24	07:01	07:34
	20:51	20:20			19:29	48	19:00 (MO04)	18:37	16:55	16:41
14	05:49	06:19			06:52		18:11 (MO04)	07:25	07:03	07:35
	20:50	20:18			19:27	49	19:00 (MO04)	18:35	16:54	16:42
15	05:50	06:20			06:53		18:11 (MO04)	07:26	07:04	07:36
	20:50	20:17			19:26	48	18:59 (MO04)	18:34	16:53	16:42
16	05:50	06:21			06:54		18:11 (MO04)	07:27	07:05	07:36
	20:49	20:15			19:24	48	18:59 (MO04)	18:32	16:52	16:42
17	05:51	06:22			06:55		18:11 (MO04)	07:28	07:06	07:37
	20:49	20:14			19:22	47	18:58 (MO04)	18:30	16:51	16:42
18	05:52	06:23			06:56		18:11 (MO04)	07:29	07:08	07:38
	20:48	20:12			19:20	46	18:57 (MO04)	18:29	16:50	16:43
19	05:53	06:24			06:57		18:11 (MO04)	07:30	07:09	07:38
	20:47	20:11			19:18	45	18:56 (MO04)	18:27	16:49	16:43
20	05:54	06:25			06:58		18:11 (MO04)	07:32	07:10	07:39
	20:46	20:09			19:17	43	18:54 (MO04)	18:26	16:49	16:43
21	05:55	06:26			06:59		18:11 (MO04)	07:33	07:11	07:40
	20:46	20:08			19:15	41	18:52 (MO04)	18:24	16:48	16:44
22	05:56	06:27			07:00		18:12 (MO04)	07:34	07:12	07:40
	20:45	20:06			19:13	38	18:50 (MO04)	18:23	16:47	16:44
23	05:57	06:29			07:01		18:13 (MO04)	07:35	07:14	07:41
	20:44	20:05			19:11	36	18:49 (MO04)	18:21	16:47	16:45
24	05:58	06:30			07:02		18:13 (MO04)	07:36	07:15	07:41
	20:43	20:03			19:10	34	18:47 (MO04)	18:20	16:46	16:45
25	05:58	06:31			07:04		18:15 (MO04)	06:38	07:16	07:42
	20:42	20:01			19:08	30	18:45 (MO04)	17:18	16:45	16:46
26	05:59	06:32			07:05		18:16 (MO04)	06:39	07:17	07:42
	20:41	20:00			19:06	27	18:43 (MO04)	17:17	16:45	16:47
27	06:00	06:33			07:06		18:18 (MO04)	06:40	07:18	07:42
	20:40	19:58			19:04	23	18:41 (MO04)	17:15	16:44	16:47
28	06:01	06:34			07:07		18:21 (MO04)	06:41	07:19	07:43
	20:39	19:56			19:03	17	18:38 (MO04)	17:14	16:44	16:48
29	06:02	06:35		18:33 (MO04)	07:08			06:43	07:21	07:43
	20:38	19:55	16	18:49 (MO04)	19:01			17:13	16:43	16:49
30	06:03	06:36		18:29 (MO04)	07:09			06:44	07:22	07:43
	20:37	19:53	23	18:52 (MO04)	18:59			17:11	16:43	16:49
31	06:04	06:37		18:27 (MO04)				06:45		07:43
	20:36	19:51	27	18:54 (MO04)				17:10		16:50
Potential sun hours	463	431			376			344	295	283
Total, worst case			66			1124				
Sun reduction			0.70			0.62				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.70			0.62				
Total, real			46			702				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 34 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (932)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March			April			May		June	
1	07:44		07:29		06:51			06:58			17:58 (MO04)		06:11	05:40
	16:51		17:27		18:03			19:39	49		18:47 (MO04)		20:13	20:44
2	07:44		07:28		06:50			06:57			17:59 (MO04)		06:09	05:40
	16:52		17:28		18:04			19:40	46		18:45 (MO04)		20:14	20:45
3	07:44		07:27		06:48		17:27 (MO04)	06:55			18:00 (MO04)		06:08	05:39
	16:53		17:30		18:05	5	17:32 (MO04)	19:41	45		18:45 (MO04)		20:15	20:45
4	07:44		07:26		06:46		17:21 (MO04)	06:53			18:01 (MO04)		06:07	05:39
	16:54		17:31		18:06	19	17:40 (MO04)	19:42	42		18:43 (MO04)		20:16	20:46
5	07:44		07:25		06:45		17:16 (MO04)	06:51			18:02 (MO04)		06:05	05:38
	16:55		17:32		18:08	27	17:43 (MO04)	19:43	38		18:40 (MO04)		20:17	20:47
6	07:44		07:23		06:43		17:13 (MO04)	06:50			18:05 (MO04)		06:04	05:38
	16:56		17:33		18:09	32	17:45 (MO04)	19:45	34		18:39 (MO04)		20:18	20:47
7	07:44		07:22		06:41		17:11 (MO04)	06:48			18:06 (MO04)		06:03	05:38
	16:57		17:35		18:10	37	17:48 (MO04)	19:46	30		18:36 (MO04)		20:19	20:48
8	07:43		07:21		06:40		17:09 (MO04)	06:46			18:08 (MO04)		06:01	05:37
	16:58		17:36		18:11	40	17:49 (MO04)	19:47	25		18:33 (MO04)		20:20	20:49
9	07:43		07:20		06:38		17:07 (MO04)	06:45			18:13 (MO04)		06:00	05:37
	16:59		17:37		18:12	43	17:50 (MO04)	19:48	17		18:30 (MO04)		20:22	20:49
10	07:43		07:19		06:36		17:06 (MO04)	06:43					05:59	05:37
	17:00		17:39		18:14	46	17:52 (MO04)	19:49					20:23	20:50
11	07:43		07:17		06:35		17:04 (MO04)	06:41					05:58	05:37
	17:01		17:40		18:15	49	17:53 (MO04)	19:50					20:24	20:51
12	07:42		07:16		06:33		17:03 (MO04)	06:40					05:57	05:37
	17:02		17:41		18:16	50	17:53 (MO04)	19:51					20:25	20:51
13	07:42		07:15		06:31		17:01 (MO04)	06:38					05:56	05:37
	17:03		17:43		18:17	53	17:54 (MO04)	19:52					20:26	20:52
14	07:42		07:13		06:30		17:01 (MO04)	06:36					05:55	05:36
	17:04		17:44		18:18	54	17:55 (MO04)	19:54					20:27	20:52
15	07:41		07:12		06:28		17:00 (MO04)	06:35					05:54	05:36
	17:06		17:45		18:19	55	17:55 (MO04)	19:55					20:28	20:52
16	07:41		07:11		06:26		16:59 (MO04)	06:33					05:52	05:36
	17:07		17:46		18:21	56	17:55 (MO04)	19:56					20:29	20:53
17	07:40		07:09		06:24		16:58 (MO04)	06:32					05:51	05:36
	17:08		17:48		18:22	57	17:55 (MO04)	19:57					20:30	20:53
18	07:40		07:08		06:23		16:58 (MO04)	06:30					05:51	05:36
	17:09		17:49		18:23	58	17:56 (MO04)	19:58					20:31	20:54
19	07:39		07:06		06:21		16:57 (MO04)	06:28					05:50	05:37
	17:10		17:50		18:24	59	17:56 (MO04)	19:59					20:32	20:54
20	07:39		07:05		06:19		16:56 (MO04)	06:27					05:49	05:37
	17:12		17:52		18:25	59	17:55 (MO04)	20:00					20:33	20:54
21	07:38		07:04		06:17		16:56 (MO04)	06:25					05:48	05:37
	17:13		17:53		18:26	59	17:55 (MO04)	20:01					20:34	20:54
22	07:37		07:02		06:16		16:56 (MO04)	06:24					05:47	05:37
	17:14		17:54		18:28	59	17:55 (MO04)	20:03					20:35	20:55
23	07:37		07:01		06:14		16:56 (MO04)	06:22					05:46	05:37
	17:15		17:55		18:29	59	17:55 (MO04)	20:04					20:36	20:55
24	07:36		06:59		06:12		16:56 (MO04)	06:21					05:45	05:38
	17:17		17:57		18:30	58	17:54 (MO04)	20:05					20:37	20:55
25	07:35		06:57		06:10		16:55 (MO04)	06:19					05:45	05:38
	17:18		17:58		18:31	58	17:53 (MO04)	20:06					20:38	20:55
26	07:34		06:56		06:09		16:56 (MO04)	06:18					05:44	05:38
	17:19		17:59		18:32	57	17:53 (MO04)	20:07					20:39	20:55
27	07:34		06:54		06:07		16:56 (MO04)	06:16					05:43	05:39
	17:20		18:00		18:33	56	17:52 (MO04)	20:08					20:40	20:55
28	07:33		06:53		06:05		16:56 (MO04)	06:15					05:42	05:39
	17:22		18:02		18:34	55	17:51 (MO04)	20:09					20:40	20:55
29	07:32				07:03		17:56 (MO04)	06:13					05:42	05:39
	17:23				19:36	54	18:50 (MO04)	20:10					20:41	20:55
30	07:31				07:02		17:57 (MO04)	06:12					05:41	05:40
	17:24				19:37	53	18:50 (MO04)	20:12					20:42	20:55
31	07:30				07:00		17:58 (MO04)						05:41	
	17:26				19:38	50	18:48 (MO04)						20:43	
Potential sun hours	293		295		369			400			452		457	
Total, worst case						1417			326					
Sun reduction						0.46			0.49					
Oper. time red.						1.00			1.00					
Wind dir. red.						1.00			1.00					
Total reduction						0.46			0.49					
Total, real						650			161					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 34 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (932)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September			October			November	December
1	05:40	06:05	06:38			07:10		17:42 (MO04)	06:46	07:23
	20:55	20:35	19:50			18:57	51	18:33 (MO04)	17:09	16:43
2	05:41	06:06	06:39			07:11		17:42 (MO04)	06:48	07:24
	20:55	20:34	19:48			18:56	50	18:32 (MO04)	17:07	16:42
3	05:41	06:07	06:40		18:10 (MO04)	07:12		17:43 (MO04)	06:49	07:25
	20:55	20:33	19:46	17	18:27 (MO04)	18:54	47	18:30 (MO04)	17:06	16:42
4	05:42	06:08	06:41		18:05 (MO04)	07:13		17:44 (MO04)	06:50	07:26
	20:55	20:31	19:45	25	18:30 (MO04)	18:52	45	18:29 (MO04)	17:05	16:42
5	05:42	06:09	06:42		18:02 (MO04)	07:14		17:45 (MO04)	06:51	07:27
	20:54	20:30	19:43	30	18:32 (MO04)	18:50	42	18:27 (MO04)	17:04	16:42
6	05:43	06:11	06:43		18:00 (MO04)	07:16		17:46 (MO04)	06:53	07:28
	20:54	20:29	19:41	34	18:34 (MO04)	18:49	39	18:25 (MO04)	17:02	16:41
7	05:44	06:12	06:44		17:58 (MO04)	07:17		17:48 (MO04)	06:54	07:29
	20:54	20:28	19:40	37	18:35 (MO04)	18:47	34	18:22 (MO04)	17:01	16:41
8	05:44	06:13	06:45		17:56 (MO04)	07:18		17:50 (MO04)	06:55	07:30
	20:53	20:26	19:38	41	18:37 (MO04)	18:45	29	18:19 (MO04)	17:00	16:41
9	05:45	06:14	06:47		17:54 (MO04)	07:19		17:53 (MO04)	06:56	07:31
	20:53	20:25	19:36	44	18:38 (MO04)	18:44	24	18:17 (MO04)	16:59	16:41
10	05:46	06:15	06:48		17:53 (MO04)	07:20		17:57 (MO04)	06:58	07:32
	20:53	20:24	19:34	46	18:39 (MO04)	18:42	15	18:12 (MO04)	16:58	16:41
11	05:46	06:16	06:49		17:51 (MO04)	07:21			06:59	07:33
	20:52	20:22	19:33	49	18:40 (MO04)	18:40			16:57	16:41
12	05:47	06:17	06:50		17:50 (MO04)	07:22			07:00	07:33
	20:52	20:21	19:31	51	18:41 (MO04)	18:39			16:56	16:41
13	05:48	06:18	06:51		17:49 (MO04)	07:24			07:01	07:34
	20:51	20:20	19:29	52	18:41 (MO04)	18:37			16:55	16:41
14	05:49	06:19	06:52		17:48 (MO04)	07:25			07:03	07:35
	20:50	20:18	19:27	53	18:41 (MO04)	18:35			16:54	16:42
15	05:50	06:20	06:53		17:46 (MO04)	07:26			07:04	07:36
	20:50	20:17	19:26	55	18:41 (MO04)	18:34			16:53	16:42
16	05:50	06:21	06:54		17:45 (MO04)	07:27			07:05	07:36
	20:49	20:15	19:24	57	18:42 (MO04)	18:32			16:52	16:42
17	05:51	06:22	06:55		17:45 (MO04)	07:28			07:06	07:37
	20:49	20:14	19:22	57	18:42 (MO04)	18:30			16:51	16:42
18	05:52	06:23	06:56		17:44 (MO04)	07:29			07:08	07:38
	20:48	20:12	19:20	57	18:41 (MO04)	18:29			16:50	16:43
19	05:53	06:24	06:57		17:43 (MO04)	07:30			07:09	07:38
	20:47	20:11	19:18	58	18:41 (MO04)	18:27			16:49	16:43
20	05:54	06:25	06:58		17:42 (MO04)	07:32			07:10	07:39
	20:46	20:09	19:17	59	18:41 (MO04)	18:26			16:49	16:43
21	05:55	06:26	06:59		17:42 (MO04)	07:33			07:11	07:40
	20:46	20:08	19:15	59	18:41 (MO04)	18:24			16:48	16:44
22	05:56	06:27	07:00		17:41 (MO04)	07:34			07:12	07:40
	20:45	20:06	19:13	59	18:40 (MO04)	18:23			16:47	16:44
23	05:57	06:29	07:01		17:41 (MO04)	07:35			07:14	07:41
	20:44	20:05	19:11	59	18:40 (MO04)	18:21			16:47	16:45
24	05:58	06:30	07:02		17:40 (MO04)	07:36			07:15	07:41
	20:43	20:03	19:10	59	18:39 (MO04)	18:20			16:46	16:45
25	05:58	06:31	07:04		17:40 (MO04)	06:38			07:16	07:42
	20:42	20:01	19:08	58	18:38 (MO04)	17:18			16:45	16:46
26	05:59	06:32	07:05		17:40 (MO04)	06:39			07:17	07:42
	20:41	20:00	19:06	58	18:38 (MO04)	17:17			16:45	16:47
27	06:00	06:33	07:06		17:40 (MO04)	06:40			07:18	07:42
	20:40	19:58	19:04	57	18:37 (MO04)	17:15			16:44	16:47
28	06:01	06:34	07:07		17:40 (MO04)	06:41			07:19	07:43
	20:39	19:56	19:03	56	18:36 (MO04)	17:14			16:44	16:48
29	06:02	06:35	07:08		17:40 (MO04)	06:43			07:21	07:43
	20:38	19:55	19:01	55	18:35 (MO04)	17:13			16:43	16:49
30	06:03	06:36	07:09		17:41 (MO04)	06:44			07:22	07:43
	20:37	19:53	18:59	53	18:34 (MO04)	17:11			16:43	16:49
31	06:04	06:37				06:45				07:43
	20:36	19:51				17:10				16:50
Potential sun hours	463	431	376			344			295	283
Total, worst case				1395			376			
Sun reduction				0.62			0.55			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.62			0.55			
Total, real				871			206			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 35 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (933)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:41	06:06	06:38	07:10	06:46	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:41	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:29	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:11	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:35	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:01	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:16	16:45	16:48
28	07:33	06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 36 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (934)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June	July	August		September	October	November	December
1	07:44	07:29	06:51	06:58		06:11	19:14 (MO05)	05:40	05:40	06:06	19:35 (MO05)	06:38	07:10	06:46	07:23
	16:52	17:27	18:03	19:39		20:13	34 19:48 (MO05)	20:44	20:55	20:35	11 19:46 (MO05)	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57		06:09	19:14 (MO05)	05:40	05:41	06:07	19:33 (MO05)	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40		20:14	34 19:48 (MO05)	20:45	20:55	20:34	16 19:49 (MO05)	19:48	18:56	17:07	16:43
3	07:44	07:27	06:48	06:55		06:08	19:15 (MO05)	05:39	05:42	06:08	19:31 (MO05)	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41		20:15	33 19:48 (MO05)	20:45	20:55	20:33	19 19:50 (MO05)	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53		06:07	19:16 (MO05)	05:39	05:42	06:09	19:29 (MO05)	06:41	07:14	06:50	07:26
	16:54	17:31	18:07	19:42		20:16	31 19:47 (MO05)	20:46	20:55	20:31	23 19:52 (MO05)	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52		06:05	19:16 (MO05)	05:39	05:43	06:10	19:28 (MO05)	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44		20:17	30 19:46 (MO05)	20:47	20:54	20:30	25 19:53 (MO05)	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50		06:04	19:17 (MO05)	05:38	05:43	06:11	19:27 (MO05)	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45		20:18	28 19:45 (MO05)	20:48	20:54	20:29	27 19:54 (MO05)	19:41	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48		06:03	19:18 (MO05)	05:38	05:44	06:12	19:26 (MO05)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46		20:20	26 19:44 (MO05)	20:48	20:54	20:28	29 19:55 (MO05)	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47		06:02	19:19 (MO05)	05:38	05:45	06:13	19:25 (MO05)	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47		20:21	24 19:43 (MO05)	20:49	20:53	20:26	30 19:55 (MO05)	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45		06:00	19:20 (MO05)	05:37	05:45	06:14	19:24 (MO05)	06:47	07:19	06:56	07:31
	16:59	17:38	18:13	19:48		20:22	22 19:42 (MO05)	20:50	20:53	20:25	32 19:56 (MO05)	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43		05:59	19:22 (MO05)	05:37	05:46	06:15	19:24 (MO05)	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49		20:23	18 19:40 (MO05)	20:50	20:53	20:24	32 19:56 (MO05)	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41		05:58	19:24 (MO05)	05:37	05:47	06:16	19:23 (MO05)	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50		20:24	14 19:38 (MO05)	20:51	20:52	20:22	34 19:57 (MO05)	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40		05:57	19:26 (MO05)	05:37	05:47	06:17	19:22 (MO05)	06:50	07:23	07:00	07:34
	17:02	17:41	18:16	19:51		20:25	8 19:34 (MO05)	20:51	20:52	20:21	35 19:57 (MO05)	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38		05:56		05:37	05:48	06:18	19:22 (MO05)	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53		20:26		20:52	20:51	20:20	34 19:56 (MO05)	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37		05:55		05:37	05:49	06:19	19:22 (MO05)	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54		20:27		20:52	20:51	20:18	33 19:55 (MO05)	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	19:31 (MO05)	05:54		05:37	05:50	06:20	19:21 (MO05)	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	2 19:33 (MO05)	20:28		20:53	20:50	20:17	32 19:53 (MO05)	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	19:26 (MO05)	05:53		05:37	05:51	06:21	19:21 (MO05)	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	7 19:33 (MO05)	20:29		20:53	20:49	20:15	31 19:52 (MO05)	19:24	18:32	16:52	16:42
17	07:41	07:09	06:25	06:32	19:24 (MO05)	05:52		05:37	05:51	06:22	19:21 (MO05)	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	11 19:35 (MO05)	20:30		20:53	20:49	20:14	29 19:50 (MO05)	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	19:22 (MO05)	05:51		05:37	05:52	06:23	19:21 (MO05)	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	13 19:35 (MO05)	20:31		20:54	20:48	20:12	28 19:49 (MO05)	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:29	19:20 (MO05)	05:50		05:37	05:53	06:24	19:21 (MO05)	06:57	07:31	07:09	07:39
	17:11	17:50	18:24	19:59	17 19:37 (MO05)	20:32		20:54	20:47	20:11	26 19:47 (MO05)	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	19:19 (MO05)	05:49		05:37	05:54	06:25	19:21 (MO05)	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	19 19:38 (MO05)	20:33		20:54	20:46	20:09	25 19:46 (MO05)	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	19:18 (MO05)	05:48		05:37	05:55	06:27	19:22 (MO05)	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	21 19:39 (MO05)	20:34		20:55	20:46	20:08	22 19:44 (MO05)	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	19:17 (MO05)	05:47		05:37	05:56	06:28	19:22 (MO05)	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	23 19:40 (MO05)	20:35		20:55	20:45	20:06	21 19:43 (MO05)	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	19:16 (MO05)	05:46		05:37	05:57	06:29	19:23 (MO05)	07:02	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	25 19:41 (MO05)	20:36		20:55	20:44	20:05	18 19:41 (MO05)	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	19:15 (MO05)	05:45		05:38	05:58	06:30	19:23 (MO05)	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	27 19:42 (MO05)	20:37		20:55	20:43	20:03	17 19:40 (MO05)	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	19:15 (MO05)	05:45		05:38	05:59	06:31	19:25 (MO05)	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	28 19:43 (MO05)	20:38		20:55	20:42	20:01	13 19:38 (MO05)	19:08	17:18	16:46	16:46
26	07:35	06:56	06:09	06:18	19:14 (MO05)	05:44		05:38	06:00	06:32	19:26 (MO05)	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	30 19:44 (MO05)	20:39		20:55	20:41	20:00	11 19:37 (MO05)	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	19:14 (MO05)	05:43		05:39	06:01	06:33	19:28 (MO05)	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	31 19:45 (MO05)	20:40		20:55	20:40	19:58	7 19:35 (MO05)	19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	19:15 (MO05)	05:43		05:39	06:02	06:34	19:32 (MO05)	07:07	06:41	07:20	07:43
	17:22	18:02	18:35	20:09	32 19:47 (MO05)	20:41		20:55	20:39	19:57	1 19:33 (MO05)	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	19:14 (MO05)	05:42		05:40	06:03	06:35		07:08	06:43	07:21	07:43
	17:23		19:36	20:11	33 19:47 (MO05)	20:41		20:55	20:38	19:55		19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	19:14 (MO05)	05:41		05:40	06:04	06:36		07:09	06:44	07:22	07:43
	17:24		19:37	20:12	35 19:49 (MO05)	20:42		20:55	20:37	19:53		18:59	17:11	16:43	16:50
31	07:30		07:00			05:41			06:05	06:37			06:45		07:43
	17:26		19:38			20:43			20:36	19:52			17:10		16:50
Potential sun hours	293	295	369	400		452		457	463	431		376	344	295	283
Total, worst case					354		302				661				
Sun reduction					0.49		0.57				0.70				
Oper. time red.					1.00		1.00				1.00				
Wind dir. red.					1.00		1.00				1.00				
Total reduction					0.49		0.57				0.70				
Total, real					175		172				463				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 37 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (935)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June	July	August		September	October	November	December
1	07:44	07:29	06:51	06:58		06:11		19:11 (MO05)	05:40	05:40	06:06	19:33 (MO05)	06:38	07:10	06:46	07:23
	16:52	17:27	18:03	19:39		20:13	36	19:47 (MO05)	20:44	20:55	20:35	12	19:45 (MO05)	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57		06:09		19:12 (MO05)	05:40	05:41	06:07		19:30 (MO05)	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40		20:14	34	19:46 (MO05)	20:45	20:55	20:34	17	19:47 (MO05)	19:48	18:56	17:07	16:43
3	07:44	07:27	06:48	06:55		06:08		19:13 (MO05)	05:39	05:42	06:08		19:28 (MO05)	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41		20:15	33	19:46 (MO05)	20:45	20:55	20:33	21	19:49 (MO05)	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53		06:07		19:13 (MO05)	05:39	05:42	06:09		19:27 (MO05)	06:41	07:14	06:50	07:26
	16:54	17:31	18:07	19:42		20:16	33	19:46 (MO05)	20:46	20:55	20:31	23	19:50 (MO05)	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52		06:05		19:13 (MO05)	05:39	05:43	06:10		19:26 (MO05)	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44		20:17	31	19:44 (MO05)	20:47	20:54	20:30	25	19:51 (MO05)	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50		06:04		19:14 (MO05)	05:38	05:43	06:11		19:25 (MO05)	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45		20:18	29	19:43 (MO05)	20:48	20:54	20:29	27	19:52 (MO05)	19:41	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48		06:03		19:15 (MO05)	05:38	05:44	06:12		19:23 (MO05)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46		20:20	27	19:42 (MO05)	20:48	20:54	20:28	30	19:53 (MO05)	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47		06:02		19:16 (MO05)	05:38	05:45	06:13		19:23 (MO05)	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47		20:21	25	19:41 (MO05)	20:49	20:53	20:26	31	19:54 (MO05)	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45		06:00		19:18 (MO05)	05:37	05:45	06:14		19:22 (MO05)	06:47	07:19	06:56	07:31
	16:59	17:38	18:13	19:48		20:22	22	19:40 (MO05)	20:50	20:53	20:25	32	19:54 (MO05)	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43		05:59		19:19 (MO05)	05:37	05:46	06:15		19:21 (MO05)	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49		20:23	20	19:39 (MO05)	20:50	20:53	20:24	34	19:55 (MO05)	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41		05:58		19:22 (MO05)	05:37	05:47	06:16		19:20 (MO05)	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50		20:24	15	19:37 (MO05)	20:51	20:52	20:22	35	19:55 (MO05)	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40		05:57		19:24 (MO05)	05:37	05:47	06:17		19:20 (MO05)	06:50	07:23	07:00	07:34
	17:02	17:41	18:16	19:51		20:25	9	19:33 (MO05)	20:51	20:52	20:21	35	19:55 (MO05)	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38		05:56			05:37	05:48	06:18		19:19 (MO05)	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53		20:26			20:52	20:51	20:20	37	19:56 (MO05)	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	19:29 (MO05)	05:55			05:37	05:49	06:19		19:19 (MO05)	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	3 19:32 (MO05)	20:27			20:52	20:51	20:18	36	19:55 (MO05)	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	19:25 (MO05)	05:54			05:37	05:50	06:20		19:19 (MO05)	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	8 19:33 (MO05)	20:28			20:53	20:50	20:17	34	19:53 (MO05)	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	19:21 (MO05)	05:53			05:37	05:51	06:21		19:18 (MO05)	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	12 19:33 (MO05)	20:29			20:53	20:49	20:15	34	19:52 (MO05)	19:24	18:32	16:52	16:42
17	07:41	07:09	06:25	06:32	19:20 (MO05)	05:52			05:37	05:51	06:22		19:18 (MO05)	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	15 19:35 (MO05)	20:30			20:53	20:49	20:14	32	19:50 (MO05)	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	19:18 (MO05)	05:51			05:37	05:52	06:23		19:18 (MO05)	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	17 19:35 (MO05)	20:31			20:54	20:48	20:12	31	19:49 (MO05)	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:29	19:17 (MO05)	05:50			05:37	05:53	06:24		19:18 (MO05)	06:57	07:31	07:09	07:39
	17:11	17:50	18:24	19:59	20 19:37 (MO05)	20:32			20:54	20:47	20:11	29	19:47 (MO05)	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	19:15 (MO05)	05:49			05:37	05:54	06:25		19:18 (MO05)	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	23 19:38 (MO05)	20:33			20:54	20:46	20:09	28	19:46 (MO05)	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	19:15 (MO05)	05:48			05:37	05:55	06:27		19:18 (MO05)	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	24 19:39 (MO05)	20:34			20:55	20:46	20:08	26	19:44 (MO05)	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	19:14 (MO05)	05:47			05:37	05:56	06:28		19:19 (MO05)	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	26 19:40 (MO05)	20:35			20:55	20:45	20:06	24	19:43 (MO05)	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	19:13 (MO05)	05:46			05:37	05:57	06:29		19:19 (MO05)	07:02	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	28 19:41 (MO05)	20:36			20:55	20:44	20:05	22	19:41 (MO05)	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	19:12 (MO05)	05:45			05:38	05:58	06:30		19:20 (MO05)	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	30 19:42 (MO05)	20:37			20:55	20:43	20:03	20	19:40 (MO05)	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	19:12 (MO05)	05:45			05:38	05:59	06:31		19:21 (MO05)	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	31 19:43 (MO05)	20:38			20:55	20:42	20:01	17	19:38 (MO05)	19:08	17:18	16:46	16:46
26	07:35	06:56	06:09	06:18	19:11 (MO05)	05:44			05:38	06:00	06:32		19:22 (MO05)	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	33 19:44 (MO05)	20:39			20:55	20:41	20:00	15	19:37 (MO05)	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	19:12 (MO05)	05:43			05:39	06:01	06:33		19:24 (MO05)	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	33 19:45 (MO05)	20:40			20:55	20:40	19:58	11	19:35 (MO05)	19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	19:12 (MO05)	05:43			05:39	06:02	06:34		19:26 (MO05)	07:07	06:41	07:20	07:43
	17:22	18:02	18:35	20:09	35 19:47 (MO05)	20:41			20:55	20:39	19:57	7	19:33 (MO05)	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	19:11 (MO05)	05:42			05:40	06:03	06:35		19:30 (MO05)	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	36 19:47 (MO05)	20:41			20:55	20:38	19:55	2	19:32 (MO05)	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	19:12 (MO05)	05:41			05:40	06:04	06:36			07:09	06:44	07:22	07:43
	17:24		19:37	20:12	36 19:48 (MO05)	20:42			20:55	20:37	19:53			18:59	17:11	16:43	16:50
31	07:30		07:00			05:41				06:05	06:37				06:45		07:43
	17:26		19:38			20:43				20:36	19:52				17:10		16:50
Potential sun hours	293	295	369	400		452		457	463	431		376	344	295	283	
Total, worst case					410		314				727					
Sun reduction					0.49		0.57				0.70					
Oper. time red.					1.00		1.00				1.00					
Wind dir. red.					1.00		1.00				1.00					
Total reduction					0.49		0.57				0.70					
Total, real					203		179				509					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 38 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (936)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:58	06:11			05:40		19:33 (MO05)
	16:52	17:27	18:03	19:39	20:13			20:44	39	20:12 (MO05)
2	07:44	07:28	06:50	06:57	06:09			05:40		19:34 (MO05)
	16:52	17:28	18:04	19:40	20:14			20:45	38	20:12 (MO05)
3	07:44	07:27	06:48	06:55	06:08			05:39		19:35 (MO05)
	16:53	17:30	18:05	19:41	20:15			20:45	38	20:13 (MO05)
4	07:44	07:26	06:46	06:53	06:07		19:47 (MO05)	05:39		19:35 (MO05)
	16:54	17:31	18:07	19:42	20:16	6	19:53 (MO05)	20:46	37	20:12 (MO05)
5	07:44	07:25	06:45	06:52	06:05		19:43 (MO05)	05:39		19:35 (MO05)
	16:55	17:32	18:08	19:44	20:17	10	19:53 (MO05)	20:47	37	20:12 (MO05)
6	07:44	07:24	06:43	06:50	06:04		19:41 (MO05)	05:38		19:36 (MO05)
	16:56	17:34	18:09	19:45	20:18	13	19:54 (MO05)	20:48	37	20:13 (MO05)
7	07:44	07:22	06:42	06:48	06:03		19:39 (MO05)	05:38		19:36 (MO05)
	16:57	17:35	18:10	19:46	20:20	17	19:56 (MO05)	20:48	36	20:12 (MO05)
8	07:44	07:21	06:40	06:47	06:02		19:38 (MO05)	05:38		19:36 (MO05)
	16:58	17:36	18:11	19:47	20:21	19	19:57 (MO05)	20:49	36	20:12 (MO05)
9	07:43	07:20	06:38	06:45	06:00		19:37 (MO05)	05:37		19:37 (MO05)
	16:59	17:38	18:13	19:48	20:22	21	19:58 (MO05)	20:50	35	20:12 (MO05)
10	07:43	07:19	06:36	06:43	05:59		19:36 (MO05)	05:37		19:37 (MO05)
	17:00	17:39	18:14	19:49	20:23	23	19:59 (MO05)	20:50	35	20:12 (MO05)
11	07:43	07:17	06:35	06:41	05:58		19:35 (MO05)	05:37		19:38 (MO05)
	17:01	17:40	18:15	19:50	20:24	25	20:00 (MO05)	20:51	35	20:13 (MO05)
12	07:43	07:16	06:33	06:40	05:57		19:34 (MO05)	05:37		19:38 (MO05)
	17:02	17:41	18:16	19:51	20:25	26	20:00 (MO05)	20:51	35	20:13 (MO05)
13	07:42	07:15	06:31	06:38	05:56		19:33 (MO05)	05:37		19:38 (MO05)
	17:04	17:43	18:17	19:53	20:26	28	20:01 (MO05)	20:52	34	20:12 (MO05)
14	07:42	07:14	06:30	06:37	05:55		19:33 (MO05)	05:37		19:38 (MO05)
	17:05	17:44	18:18	19:54	20:27	29	20:02 (MO05)	20:52	34	20:12 (MO05)
15	07:41	07:12	06:28	06:35	05:54		19:32 (MO05)	05:37		19:39 (MO05)
	17:06	17:45	18:20	19:55	20:28	31	20:03 (MO05)	20:53	33	20:12 (MO05)
16	07:41	07:11	06:26	06:33	05:53		19:32 (MO05)	05:37		19:40 (MO05)
	17:07	17:47	18:21	19:56	20:29	32	20:04 (MO05)	20:53	33	20:13 (MO05)
17	07:41	07:09	06:25	06:32	05:52		19:32 (MO05)	05:37		19:40 (MO05)
	17:08	17:48	18:22	19:57	20:30	34	20:06 (MO05)	20:53	33	20:13 (MO05)
18	07:40	07:08	06:23	06:30	05:51		19:32 (MO05)	05:37		19:40 (MO05)
	17:09	17:49	18:23	19:58	20:31	35	20:07 (MO05)	20:54	33	20:13 (MO05)
19	07:39	07:07	06:21	06:29	05:50		19:32 (MO05)	05:37		19:41 (MO05)
	17:11	17:50	18:24	19:59	20:32	36	20:08 (MO05)	20:54	32	20:13 (MO05)
20	07:39	07:05	06:19	06:27	05:49		19:32 (MO05)	05:37		19:41 (MO05)
	17:12	17:52	18:25	20:00	20:33	36	20:08 (MO05)	20:54	32	20:13 (MO05)
21	07:38	07:04	06:18	06:25	05:48		19:31 (MO05)	05:37		19:41 (MO05)
	17:13	17:53	18:27	20:02	20:34	38	20:09 (MO05)	20:55	32	20:13 (MO05)
22	07:38	07:02	06:16	06:24	05:47		19:31 (MO05)	05:37		19:41 (MO05)
	17:14	17:54	18:28	20:03	20:35	39	20:10 (MO05)	20:55	32	20:13 (MO05)
23	07:37	07:01	06:14	06:22	05:46		19:32 (MO05)	05:38		19:42 (MO05)
	17:15	17:56	18:29	20:04	20:36	39	20:11 (MO05)	20:55	32	20:14 (MO05)
24	07:36	06:59	06:12	06:21	05:45		19:32 (MO05)	05:38		19:41 (MO05)
	17:17	17:57	18:30	20:05	20:37	40	20:12 (MO05)	20:55	33	20:14 (MO05)
25	07:35	06:58	06:11	06:19	05:45		19:32 (MO05)	05:38		19:41 (MO05)
	17:18	17:58	18:31	20:06	20:38	40	20:12 (MO05)	20:55	33	20:14 (MO05)
26	07:35	06:56	06:09	06:18	05:44		19:32 (MO05)	05:38		19:42 (MO05)
	17:19	17:59	18:32	20:07	20:39	41	20:13 (MO05)	20:55	33	20:15 (MO05)
27	07:34	06:54	06:07	06:16	05:43		19:32 (MO05)	05:39		19:42 (MO05)
	17:21	18:00	18:33	20:08	20:40	41	20:13 (MO05)	20:55	33	20:15 (MO05)
28	07:33	06:53	06:05	06:15	05:43		19:32 (MO05)	05:39		19:41 (MO05)
	17:22	18:02	18:35	20:09	20:41	40	20:12 (MO05)	20:55	34	20:15 (MO05)
29	07:32		07:04	06:14	05:42		19:33 (MO05)	05:40		19:42 (MO05)
	17:23		19:36	20:11	20:41	40	20:13 (MO05)	20:55	34	20:16 (MO05)
30	07:31		07:02	06:12	05:41		19:33 (MO05)	05:40		19:42 (MO05)
	17:24		19:37	20:12	20:42	39	20:12 (MO05)	20:55	34	20:16 (MO05)
31	07:30		07:00		05:41		19:34 (MO05)			
	17:26		19:38		20:43	39	20:13 (MO05)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						857			1032	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						488			630	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 38 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (936)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September	October	November	December
1	05:40		19:42 (MO05)	06:06	19:45 (MO05)	06:38	07:10	06:46	07:23
	20:55	35	20:17 (MO05)	20:35	25	20:10 (MO05)	19:50	18:57	17:09	16:43
2	05:41		19:42 (MO05)	06:07	19:45 (MO05)	06:39	07:11	06:48	07:24
	20:55	34	20:16 (MO05)	20:34	24	20:09 (MO05)	19:48	18:56	17:07	16:43
3	05:42		19:42 (MO05)	06:08	19:46 (MO05)	06:40	07:12	06:49	07:25
	20:55	35	20:17 (MO05)	20:33	22	20:08 (MO05)	19:47	18:54	17:06	16:42
4	05:42		19:42 (MO05)	06:09	19:47 (MO05)	06:41	07:14	06:50	07:26
	20:55	35	20:17 (MO05)	20:31	20	20:07 (MO05)	19:45	18:52	17:05	16:42
5	05:43		19:42 (MO05)	06:10	19:48 (MO05)	06:42	07:15	06:51	07:27
	20:54	36	20:18 (MO05)	20:30	18	20:06 (MO05)	19:43	18:51	17:04	16:42
6	05:43		19:42 (MO05)	06:11	19:49 (MO05)	06:44	07:16	06:53	07:28
	20:54	37	20:19 (MO05)	20:29	16	20:05 (MO05)	19:41	18:49	17:03	16:42
7	05:44		19:42 (MO05)	06:12	19:51 (MO05)	06:45	07:17	06:54	07:29
	20:54	37	20:19 (MO05)	20:28	13	20:04 (MO05)	19:40	18:47	17:01	16:42
8	05:45		19:42 (MO05)	06:13	19:53 (MO05)	06:46	07:18	06:55	07:30
	20:53	37	20:19 (MO05)	20:26	9	20:02 (MO05)	19:38	18:45	17:00	16:41
9	05:45		19:42 (MO05)	06:14	19:57 (MO05)	06:47	07:19	06:56	07:31
	20:53	38	20:20 (MO05)	20:25	4	20:01 (MO05)	19:36	18:44	16:59	16:41
10	05:46		19:41 (MO05)	06:15		06:48	07:20	06:58	07:32
	20:53	39	20:20 (MO05)	20:24		19:34	18:42	16:58	16:41
11	05:47		19:42 (MO05)	06:16		06:49	07:21	06:59	07:33
	20:52	38	20:20 (MO05)	20:22		19:33	18:40	16:57	16:41
12	05:47		19:42 (MO05)	06:17		06:50	07:23	07:00	07:34
	20:52	39	20:21 (MO05)	20:21		19:31	18:39	16:56	16:42
13	05:48		19:41 (MO05)	06:18		06:51	07:24	07:01	07:34
	20:51	39	20:20 (MO05)	20:20		19:29	18:37	16:55	16:42
14	05:49		19:41 (MO05)	06:19		06:52	07:25	07:03	07:35
	20:51	40	20:21 (MO05)	20:18		19:27	18:35	16:54	16:42
15	05:50		19:41 (MO05)	06:20		06:53	07:26	07:04	07:36
	20:50	40	20:21 (MO05)	20:17		19:26	18:34	16:53	16:42
16	05:51		19:42 (MO05)	06:21		06:54	07:27	07:05	07:37
	20:49	40	20:22 (MO05)	20:15		19:24	18:32	16:52	16:42
17	05:51		19:42 (MO05)	06:22		06:55	07:28	07:06	07:37
	20:49	40	20:22 (MO05)	20:14		19:22	18:31	16:51	16:43
18	05:52		19:41 (MO05)	06:23		06:56	07:29	07:08	07:38
	20:48	41	20:22 (MO05)	20:12		19:20	18:29	16:50	16:43
19	05:53		19:41 (MO05)	06:24		06:57	07:31	07:09	07:39
	20:47	41	20:22 (MO05)	20:11		19:19	18:27	16:50	16:43
20	05:54		19:41 (MO05)	06:25		06:58	07:32	07:10	07:39
	20:46	40	20:21 (MO05)	20:09		19:17	18:26	16:49	16:44
21	05:55		19:42 (MO05)	06:27		06:59	07:33	07:11	07:40
	20:46	39	20:21 (MO05)	20:08		19:15	18:24	16:48	16:44
22	05:56		19:42 (MO05)	06:28		07:00	07:34	07:13	07:40
	20:45	38	20:20 (MO05)	20:06		19:13	18:23	16:47	16:45
23	05:57		19:42 (MO05)	06:29		07:02	07:35	07:14	07:41
	20:44	37	20:19 (MO05)	20:05		19:12	18:21	16:47	16:45
24	05:58		19:42 (MO05)	06:30		07:03	07:37	07:15	07:41
	20:43	37	20:19 (MO05)	20:03		19:10	18:20	16:46	16:46
25	05:59		19:42 (MO05)	06:31		07:04	06:38	07:16	07:42
	20:42	36	20:18 (MO05)	20:01		19:08	17:18	16:46	16:46
26	06:00		19:43 (MO05)	06:32		07:05	06:39	07:17	07:42
	20:41	34	20:17 (MO05)	20:00		19:06	17:17	16:45	16:47
27	06:01		19:42 (MO05)	06:33		07:06	06:40	07:18	07:42
	20:40	33	20:15 (MO05)	19:58		19:04	17:16	16:45	16:48
28	06:02		19:42 (MO05)	06:34		07:07	06:41	07:20	07:43
	20:39	32	20:14 (MO05)	19:57		19:03	17:14	16:44	16:48
29	06:03		19:43 (MO05)	06:35		07:08	06:43	07:21	07:43
	20:38	30	20:13 (MO05)	19:55		19:01	17:13	16:44	16:49
30	06:04		19:43 (MO05)	06:36		07:09	06:44	07:22	07:43
	20:37	29	20:12 (MO05)	19:53		18:59	17:11	16:43	16:50
31	06:05		19:44 (MO05)	06:37			06:45		07:43
	20:36	27	20:11 (MO05)	19:52			17:10		16:50
Potential sun hours	463			431		376	344	295	283
Total, worst case		1133			151				
Sun reduction		0.71			0.70				
Oper. time red.		1.00			1.00				
Wind dir. red.		1.00			1.00				
Total reduction		0.71			0.70				
Total, real		799			106				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 39 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (937)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June
1	07:44		07:29		06:51		06:58			06:11		19:27 (MO05)	05:40
	16:52		17:27		18:03		19:39			20:13	22	19:49 (MO05)	20:44
2	07:44		07:28		06:50		06:57			06:09		19:27 (MO05)	05:40
	16:52		17:28		18:04		19:40			20:14	23	19:50 (MO05)	20:45
3	07:44		07:27		06:48		06:55			06:08		19:26 (MO05)	05:39
	16:53		17:30		18:05		19:41			20:15	26	19:52 (MO05)	20:45
4	07:44		07:26		06:46		06:53			06:07		19:26 (MO05)	05:39
	16:54		17:31		18:07		19:42			20:16	27	19:53 (MO05)	20:46
5	07:44		07:25		06:45		06:52			06:05		19:25 (MO05)	05:39
	16:55		17:32		18:08		19:44			20:17	28	19:53 (MO05)	20:47
6	07:44		07:24		06:43		06:50			06:04		19:25 (MO05)	05:38
	16:56		17:34		18:09		19:45			20:18	29	19:54 (MO05)	20:48
7	07:44		07:22		06:42		06:48			06:03		19:25 (MO05)	05:38
	16:57		17:35		18:10		19:46			20:19	31	19:56 (MO05)	20:48
8	07:44		07:21		06:40		06:47			06:02		19:25 (MO05)	05:38
	16:58		17:36		18:11		19:47			20:21	32	19:57 (MO05)	20:49
9	07:43		07:20		06:38		06:45			06:00		19:25 (MO05)	05:37
	16:59		17:38		18:13		19:48			20:22	33	19:58 (MO05)	20:50
10	07:43		07:19		06:36		06:43			05:59		19:26 (MO05)	05:37
	17:00		17:39		18:14		19:49			20:23	33	19:59 (MO05)	20:50
11	07:43		07:17		06:35		06:41			05:58		19:26 (MO05)	05:37
	17:01		17:40		18:15		19:50			20:24	34	20:00 (MO05)	20:51
12	07:43		07:16		06:33		06:40			05:57		19:25 (MO05)	05:37
	17:02		17:41		18:16		19:51			20:25	33	19:58 (MO05)	20:51
13	07:42		07:15		06:31		06:38			05:56		19:26 (MO05)	05:37
	17:03		17:43		18:17		19:53			20:26	32	19:58 (MO05)	20:52
14	07:42		07:14		06:30		06:37			05:55		19:26 (MO05)	05:37
	17:05		17:44		18:18		19:54			20:27	32	19:58 (MO05)	20:52
15	07:41		07:12		06:28		06:35			05:54		19:27 (MO05)	05:37
	17:06		17:45		18:20		19:55			20:28	30	19:57 (MO05)	20:53
16	07:41		07:11		06:26		06:33			05:53		19:27 (MO05)	05:37
	17:07		17:47		18:21		19:56			20:29	29	19:56 (MO05)	20:53
17	07:41		07:09		06:25		06:32			05:52		19:29 (MO05)	05:37
	17:08		17:48		18:22		19:57			20:30	28	19:57 (MO05)	20:53
18	07:40		07:08		06:23		06:30			05:51		19:30 (MO05)	05:37
	17:09		17:49		18:23		19:58			20:31	26	19:56 (MO05)	20:54
19	07:39		07:07		06:21		06:29			05:50		19:30 (MO05)	05:37
	17:11		17:50		18:24		19:59			20:32	25	19:55 (MO05)	20:54
20	07:39		07:05		06:19		06:27			05:49		19:31 (MO05)	05:37
	17:12		17:52		18:25		20:00			20:33	23	19:54 (MO05)	20:54
21	07:38		07:04		06:18		06:25			05:48		19:32 (MO05)	05:37
	17:13		17:53		18:27		20:02			20:34	21	19:53 (MO05)	20:55
22	07:38		07:02		06:16		06:24			05:47		19:33 (MO05)	05:37
	17:14		17:54		18:28		20:03			20:35	18	19:51 (MO05)	20:55
23	07:37		07:01		06:14		06:22			05:46		19:35 (MO05)	05:37
	17:15		17:55		18:29		20:04			20:36	16	19:51 (MO05)	20:55
24	07:36		06:59		06:12		06:21		19:39 (MO05)	05:45		19:37 (MO05)	05:38
	17:17		17:57		18:30		20:05	3	19:42 (MO05)	20:37	12	19:49 (MO05)	20:55
25	07:35		06:58		06:11		06:19		19:36 (MO05)	05:45		19:40 (MO05)	05:38
	17:18		17:58		18:31		20:06	7	19:43 (MO05)	20:38	5	19:45 (MO05)	20:55
26	07:35		06:56		06:09		06:18		19:33 (MO05)	05:44			05:38
	17:19		17:59		18:32		20:07	11	19:44 (MO05)	20:39			20:55
27	07:34		06:54		06:07		06:16		19:32 (MO05)	05:43			05:39
	17:21		18:00		18:33		20:08	13	19:45 (MO05)	20:40			20:55
28	07:33		06:53		06:05		06:15		19:31 (MO05)	05:43			05:39
	17:22		18:02		18:35		20:09	16	19:47 (MO05)	20:41			20:55
29	07:32				07:04		06:14		19:29 (MO05)	05:42			05:40
	17:23				19:36		20:11	18	19:47 (MO05)	20:41			20:55
30	07:31				07:02		06:12		19:28 (MO05)	05:41			05:40
	17:24				19:37		20:12	21	19:49 (MO05)	20:42			20:55
31	07:30				07:00					05:41			
	17:26				19:38					20:43			
Potential sun hours	293		295		369		400			452			457
Total, worst case								89			648		
Sun reduction								0.49			0.57		
Oper. time red.								1.00			1.00		
Wind dir. red.								1.00			1.00		
Total reduction								0.49			0.57		
Total, real								44			369		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 39 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (937)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:06		19:36 (MO05)	06:38	07:10	06:46	07:23
	20:55			20:35	33	20:09 (MO05)	19:50	18:57	17:09	16:43
2	05:41			06:07		19:35 (MO05)	06:39	07:11	06:48	07:24
	20:55			20:34	34	20:09 (MO05)	19:48	18:56	17:07	16:43
3	05:42			06:08		19:35 (MO05)	06:40	07:12	06:49	07:25
	20:55			20:33	33	20:08 (MO05)	19:47	18:54	17:06	16:42
4	05:42			06:09		19:35 (MO05)	06:41	07:14	06:50	07:26
	20:55			20:31	32	20:07 (MO05)	19:45	18:52	17:05	16:42
5	05:43			06:10		19:35 (MO05)	06:42	07:15	06:51	07:27
	20:54			20:30	31	20:06 (MO05)	19:43	18:51	17:04	16:42
6	05:43			06:11		19:35 (MO05)	06:44	07:16	06:53	07:28
	20:54			20:29	30	20:05 (MO05)	19:41	18:49	17:03	16:42
7	05:44			06:12		19:35 (MO05)	06:45	07:17	06:54	07:29
	20:54			20:28	29	20:04 (MO05)	19:40	18:47	17:01	16:42
8	05:45			06:13		19:35 (MO05)	06:46	07:18	06:55	07:30
	20:53			20:26	27	20:02 (MO05)	19:38	18:45	17:00	16:41
9	05:45			06:14		19:35 (MO05)	06:47	07:19	06:56	07:31
	20:53			20:25	26	20:01 (MO05)	19:36	18:44	16:59	16:41
10	05:46			06:15		19:35 (MO05)	06:48	07:20	06:58	07:32
	20:53			20:24	25	20:00 (MO05)	19:34	18:42	16:58	16:41
11	05:47			06:16		19:35 (MO05)	06:49	07:21	06:59	07:33
	20:52			20:22	24	19:59 (MO05)	19:33	18:40	16:57	16:41
12	05:47			06:17		19:36 (MO05)	06:50	07:23	07:00	07:34
	20:52			20:21	21	19:57 (MO05)	19:31	18:39	16:56	16:42
13	05:48			06:18		19:36 (MO05)	06:51	07:24	07:01	07:34
	20:51			20:20	20	19:56 (MO05)	19:29	18:37	16:55	16:42
14	05:49			06:19		19:37 (MO05)	06:52	07:25	07:03	07:35
	20:51			20:18	18	19:55 (MO05)	19:27	18:35	16:54	16:42
15	05:50			06:20		19:38 (MO05)	06:53	07:26	07:04	07:36
	20:50			20:17	15	19:53 (MO05)	19:26	18:34	16:53	16:42
16	05:51			06:21		19:39 (MO05)	06:54	07:27	07:05	07:37
	20:49			20:15	13	19:52 (MO05)	19:24	18:32	16:52	16:42
17	05:51			06:22		19:40 (MO05)	06:55	07:28	07:06	07:37
	20:49			20:14	10	19:50 (MO05)	19:22	18:31	16:51	16:43
18	05:52			06:23		19:42 (MO05)	06:56	07:29	07:08	07:38
	20:48			20:12	7	19:49 (MO05)	19:20	18:29	16:50	16:43
19	05:53		19:48 (MO05)	06:24		19:46 (MO05)	06:57	07:31	07:09	07:39
	20:47	9	19:57 (MO05)	20:11	1	19:47 (MO05)	19:19	18:27	16:50	16:43
20	05:54		19:46 (MO05)	06:25			06:58	07:32	07:10	07:39
	20:46	13	19:59 (MO05)	20:09			19:17	18:26	16:49	16:44
21	05:55		19:44 (MO05)	06:27			06:59	07:33	07:11	07:40
	20:46	17	20:01 (MO05)	20:08			19:15	18:24	16:48	16:44
22	05:56		19:43 (MO05)	06:28			07:00	07:34	07:13	07:40
	20:45	19	20:02 (MO05)	20:06			19:13	18:23	16:47	16:45
23	05:57		19:42 (MO05)	06:29			07:02	07:35	07:14	07:41
	20:44	22	20:04 (MO05)	20:05			19:11	18:21	16:47	16:45
24	05:58		19:41 (MO05)	06:30			07:03	07:37	07:15	07:41
	20:43	24	20:05 (MO05)	20:03			19:10	18:20	16:46	16:46
25	05:59		19:40 (MO05)	06:31			07:04	06:38	07:16	07:42
	20:42	26	20:06 (MO05)	20:01			19:08	17:18	16:46	16:46
26	06:00		19:40 (MO05)	06:32			07:05	06:39	07:17	07:42
	20:41	27	20:07 (MO05)	20:00			19:06	17:17	16:45	16:47
27	06:01		19:38 (MO05)	06:33			07:06	06:40	07:18	07:42
	20:40	29	20:07 (MO05)	19:58			19:04	17:16	16:44	16:47
28	06:02		19:38 (MO05)	06:34			07:07	06:41	07:20	07:43
	20:39	29	20:07 (MO05)	19:57			19:03	17:14	16:44	16:48
29	06:03		19:37 (MO05)	06:35			07:08	06:43	07:21	07:43
	20:38	31	20:08 (MO05)	19:55			19:01	17:13	16:44	16:49
30	06:04		19:37 (MO05)	06:36			07:09	06:44	07:22	07:43
	20:37	31	20:08 (MO05)	19:53			18:59	17:11	16:43	16:50
31	06:05		19:36 (MO05)	06:37				06:45		07:43
	20:36	33	20:09 (MO05)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		310			429					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		219			301					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 40 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (938)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June
1	07:44	07:29	06:51	06:58		06:11	19:27 (MO05)	05:40
	16:52	17:27	18:03	19:39		20:13	22 19:49 (MO05)	20:44
2	07:44	07:28	06:50	06:57		06:09	19:27 (MO05)	05:40
	16:52	17:28	18:04	19:40		20:14	23 19:50 (MO05)	20:45
3	07:44	07:27	06:48	06:55		06:08	19:27 (MO05)	05:39
	16:53	17:30	18:05	19:41		20:15	25 19:52 (MO05)	20:45
4	07:44	07:26	06:46	06:53		06:07	19:27 (MO05)	05:39
	16:54	17:31	18:07	19:42		20:16	26 19:53 (MO05)	20:46
5	07:44	07:25	06:45	06:52		06:05	19:26 (MO05)	05:39
	16:55	17:32	18:08	19:44		20:17	27 19:53 (MO05)	20:47
6	07:44	07:24	06:43	06:50		06:04	19:26 (MO05)	05:38
	16:56	17:34	18:09	19:45		20:18	28 19:54 (MO05)	20:48
7	07:44	07:22	06:42	06:48		06:03	19:26 (MO05)	05:38
	16:57	17:35	18:10	19:46		20:19	30 19:56 (MO05)	20:48
8	07:44	07:21	06:40	06:47		06:02	19:26 (MO05)	05:38
	16:58	17:36	18:11	19:47		20:21	31 19:57 (MO05)	20:49
9	07:43	07:20	06:38	06:45		06:00	19:26 (MO05)	05:37
	16:59	17:38	18:13	19:48		20:22	32 19:58 (MO05)	20:50
10	07:43	07:19	06:36	06:43		05:59	19:26 (MO05)	05:37
	17:00	17:39	18:14	19:49		20:23	33 19:59 (MO05)	20:50
11	07:43	07:17	06:35	06:41		05:58	19:27 (MO05)	05:37
	17:01	17:40	18:15	19:50		20:24	32 19:59 (MO05)	20:51
12	07:43	07:16	06:33	06:40		05:57	19:26 (MO05)	05:37
	17:02	17:41	18:16	19:51		20:25	32 19:58 (MO05)	20:51
13	07:42	07:15	06:31	06:38		05:56	19:27 (MO05)	05:37
	17:03	17:43	18:17	19:53		20:26	31 19:58 (MO05)	20:52
14	07:42	07:14	06:30	06:37		05:55	19:27 (MO05)	05:37
	17:05	17:44	18:18	19:54		20:27	30 19:57 (MO05)	20:52
15	07:41	07:12	06:28	06:35		05:54	19:28 (MO05)	05:37
	17:06	17:45	18:20	19:55		20:28	28 19:56 (MO05)	20:53
16	07:41	07:11	06:26	06:33		05:53	19:28 (MO05)	05:37
	17:07	17:47	18:21	19:56		20:29	28 19:56 (MO05)	20:53
17	07:41	07:09	06:25	06:32		05:52	19:30 (MO05)	05:37
	17:08	17:48	18:22	19:57		20:30	26 19:56 (MO05)	20:53
18	07:40	07:08	06:23	06:30		05:51	19:31 (MO05)	05:37
	17:09	17:49	18:23	19:58		20:31	24 19:55 (MO05)	20:54
19	07:39	07:07	06:21	06:29		05:50	19:32 (MO05)	05:37
	17:11	17:50	18:24	19:59		20:32	22 19:54 (MO05)	20:54
20	07:39	07:05	06:19	06:27		05:49	19:33 (MO05)	05:37
	17:12	17:52	18:25	20:00		20:33	20 19:53 (MO05)	20:54
21	07:38	07:04	06:18	06:25		05:48	19:34 (MO05)	05:37
	17:13	17:53	18:27	20:02		20:34	17 19:51 (MO05)	20:55
22	07:38	07:02	06:16	06:24		05:47	19:35 (MO05)	05:37
	17:14	17:54	18:28	20:03		20:35	15 19:50 (MO05)	20:55
23	07:37	07:01	06:14	06:22		05:46	19:38 (MO05)	05:37
	17:15	17:55	18:29	20:04		20:36	11 19:49 (MO05)	20:55
24	07:36	06:59	06:12	06:21	19:39 (MO05)	05:45	19:42 (MO05)	05:38
	17:17	17:57	18:30	20:05	3 19:42 (MO05)	20:37	2 19:44 (MO05)	20:55
25	07:35	06:58	06:11	06:19	19:36 (MO05)	05:45		05:38
	17:18	17:58	18:31	20:06	7 19:43 (MO05)	20:38		20:55
26	07:35	06:56	06:09	06:18	19:34 (MO05)	05:44		05:38
	17:19	17:59	18:32	20:07	10 19:44 (MO05)	20:39		20:55
27	07:34	06:54	06:07	06:16	19:32 (MO05)	05:43		05:39
	17:21	18:00	18:33	20:08	13 19:45 (MO05)	20:40		20:55
28	07:33	06:53	06:05	06:15	19:31 (MO05)	05:43		05:39
	17:22	18:02	18:35	20:09	16 19:47 (MO05)	20:41		20:55
29	07:32		07:04	06:14	19:29 (MO05)	05:42		05:40
	17:23		19:36	20:11	18 19:47 (MO05)	20:41		20:55
30	07:31		07:02	06:12	19:29 (MO05)	05:41		05:40
	17:24		19:37	20:12	20 19:49 (MO05)	20:42		20:55
31	07:30		07:00			05:41		
	17:26		19:38			20:43		
Potential sun hours	293	295	369	400		452		457
Total, worst case				87		595		
Sun reduction				0.49		0.57		
Oper. time red.				1.00		1.00		
Wind dir. red.				1.00		1.00		
Total reduction				0.49		0.57		
Total, real				43		339		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 40 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (938)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:06		19:37 (MO05)	06:38	07:10	06:46	07:23
	20:55			20:35	32	20:09 (MO05)	19:50	18:57	17:09	16:43
2	05:41			06:07		19:36 (MO05)	06:39	07:11	06:48	07:24
	20:55			20:34	33	20:09 (MO05)	19:48	18:56	17:07	16:43
3	05:42			06:08		19:36 (MO05)	06:40	07:12	06:49	07:25
	20:55			20:33	32	20:08 (MO05)	19:47	18:54	17:06	16:42
4	05:42			06:09		19:36 (MO05)	06:41	07:14	06:50	07:26
	20:55			20:31	31	20:07 (MO05)	19:45	18:52	17:05	16:42
5	05:43			06:10		19:36 (MO05)	06:42	07:15	06:51	07:27
	20:54			20:30	30	20:06 (MO05)	19:43	18:51	17:04	16:42
6	05:43			06:11		19:35 (MO05)	06:44	07:16	06:53	07:28
	20:54			20:29	30	20:05 (MO05)	19:41	18:49	17:03	16:42
7	05:44			06:12		19:35 (MO05)	06:45	07:17	06:54	07:29
	20:54			20:28	29	20:04 (MO05)	19:40	18:47	17:01	16:42
8	05:45			06:13		19:35 (MO05)	06:46	07:18	06:55	07:30
	20:53			20:26	27	20:02 (MO05)	19:38	18:45	17:00	16:41
9	05:45			06:14		19:35 (MO05)	06:47	07:19	06:56	07:31
	20:53			20:25	26	20:01 (MO05)	19:36	18:44	16:59	16:41
10	05:46			06:15		19:36 (MO05)	06:48	07:20	06:58	07:32
	20:53			20:24	24	20:00 (MO05)	19:34	18:42	16:58	16:41
11	05:47			06:16		19:36 (MO05)	06:49	07:21	06:59	07:33
	20:52			20:22	23	19:59 (MO05)	19:33	18:40	16:57	16:41
12	05:47			06:17		19:36 (MO05)	06:50	07:23	07:00	07:34
	20:52			20:21	21	19:57 (MO05)	19:31	18:39	16:56	16:42
13	05:48			06:18		19:37 (MO05)	06:51	07:24	07:01	07:34
	20:51			20:20	19	19:56 (MO05)	19:29	18:37	16:55	16:42
14	05:49			06:19		19:37 (MO05)	06:52	07:25	07:03	07:35
	20:51			20:18	18	19:55 (MO05)	19:27	18:35	16:54	16:42
15	05:50			06:20		19:38 (MO05)	06:53	07:26	07:04	07:36
	20:50			20:17	15	19:53 (MO05)	19:26	18:34	16:53	16:42
16	05:51			06:21		19:39 (MO05)	06:54	07:27	07:05	07:37
	20:49			20:15	13	19:52 (MO05)	19:24	18:32	16:52	16:42
17	05:51			06:22		19:41 (MO05)	06:55	07:28	07:06	07:37
	20:49			20:14	9	19:50 (MO05)	19:22	18:31	16:51	16:43
18	05:52			06:23		19:43 (MO05)	06:56	07:29	07:08	07:38
	20:48			20:12	6	19:49 (MO05)	19:20	18:29	16:50	16:43
19	05:53			06:24		19:46 (MO05)	06:57	07:31	07:09	07:39
	20:47			20:11	1	19:47 (MO05)	19:19	18:27	16:50	16:43
20	05:54		19:49 (MO05)	06:25			06:58	07:32	07:10	07:39
	20:46	7	19:56 (MO05)	20:09			19:17	18:26	16:49	16:44
21	05:55		19:47 (MO05)	06:27			06:59	07:33	07:11	07:40
	20:46	12	19:59 (MO05)	20:08			19:15	18:24	16:48	16:44
22	05:56		19:45 (MO05)	06:28			07:00	07:34	07:13	07:40
	20:45	16	20:01 (MO05)	20:06			19:13	18:23	16:47	16:45
23	05:57		19:44 (MO05)	06:29			07:02	07:35	07:14	07:41
	20:44	19	20:03 (MO05)	20:05			19:11	18:21	16:47	16:45
24	05:58		19:43 (MO05)	06:30			07:03	07:37	07:15	07:41
	20:43	21	20:04 (MO05)	20:03			19:10	18:20	16:46	16:46
25	05:59		19:42 (MO05)	06:31			07:04	06:38	07:16	07:42
	20:42	23	20:05 (MO05)	20:01			19:08	17:18	16:46	16:46
26	06:00		19:41 (MO05)	06:32			07:05	06:39	07:17	07:42
	20:41	25	20:06 (MO05)	20:00			19:06	17:17	16:45	16:47
27	06:01		19:39 (MO05)	06:33			07:06	06:40	07:18	07:42
	20:40	27	20:06 (MO05)	19:58			19:04	17:16	16:44	16:47
28	06:02		19:39 (MO05)	06:34			07:07	06:41	07:20	07:43
	20:39	28	20:07 (MO05)	19:57			19:03	17:14	16:44	16:48
29	06:03		19:38 (MO05)	06:35			07:08	06:43	07:21	07:43
	20:38	29	20:07 (MO05)	19:55			19:01	17:13	16:44	16:49
30	06:04		19:38 (MO05)	06:36			07:09	06:44	07:22	07:43
	20:37	30	20:08 (MO05)	19:53			18:59	17:11	16:43	16:50
31	06:05		19:37 (MO05)	06:37				06:45		07:43
	20:36	31	20:08 (MO05)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		268			419					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		189			294					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 41 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (939)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April			May			June
1	07:44	07:29	06:51	06:58			06:11		19:21 (MO05)	05:40
	16:52	17:27	18:03	19:39			20:13	28	19:49 (MO05)	20:44
2	07:44	07:28	06:50	06:57			06:09		19:21 (MO05)	05:40
	16:52	17:28	18:04	19:40			20:14	29	19:50 (MO05)	20:45
3	07:44	07:27	06:48	06:55			06:08		19:21 (MO05)	05:39
	16:53	17:30	18:05	19:41			20:15	31	19:52 (MO05)	20:45
4	07:44	07:26	06:46	06:53			06:07		19:21 (MO05)	05:39
	16:54	17:31	18:07	19:42			20:16	32	19:53 (MO05)	20:46
5	07:44	07:25	06:45	06:52			06:05		19:20 (MO05)	05:39
	16:55	17:32	18:08	19:44			20:17	33	19:53 (MO05)	20:47
6	07:44	07:24	06:43	06:50			06:04		19:20 (MO05)	05:38
	16:56	17:34	18:09	19:45			20:18	34	19:54 (MO05)	20:48
7	07:44	07:22	06:42	06:48			06:03		19:21 (MO05)	05:38
	16:57	17:35	18:10	19:46			20:20	35	19:56 (MO05)	20:48
8	07:44	07:21	06:40	06:47			06:02		19:21 (MO05)	05:38
	16:58	17:36	18:11	19:47			20:21	35	19:56 (MO05)	20:49
9	07:43	07:20	06:38	06:45			06:00		19:21 (MO05)	05:37
	16:59	17:38	18:13	19:48			20:22	34	19:55 (MO05)	20:50
10	07:43	07:19	06:36	06:43			05:59		19:22 (MO05)	05:37
	17:00	17:39	18:14	19:49			20:23	33	19:55 (MO05)	20:50
11	07:43	07:17	06:35	06:41			05:58		19:22 (MO05)	05:37
	17:01	17:40	18:15	19:50			20:24	33	19:55 (MO05)	20:51
12	07:43	07:16	06:33	06:40			05:57		19:22 (MO05)	05:37
	17:02	17:41	18:16	19:51			20:25	31	19:53 (MO05)	20:51
13	07:42	07:15	06:31	06:38			05:56		19:23 (MO05)	05:37
	17:03	17:43	18:17	19:53			20:26	30	19:53 (MO05)	20:52
14	07:42	07:14	06:30	06:37			05:55		19:23 (MO05)	05:37
	17:05	17:44	18:18	19:54			20:27	29	19:52 (MO05)	20:52
15	07:41	07:12	06:28	06:35			05:54		19:24 (MO05)	05:37
	17:06	17:45	18:20	19:55			20:28	27	19:51 (MO05)	20:53
16	07:41	07:11	06:26	06:33			05:53		19:25 (MO05)	05:37
	17:07	17:47	18:21	19:56			20:29	25	19:50 (MO05)	20:53
17	07:41	07:09	06:25	06:32			05:52		19:27 (MO05)	05:37
	17:08	17:48	18:22	19:57			20:30	23	19:50 (MO05)	20:53
18	07:40	07:08	06:23	06:30			05:51		19:28 (MO05)	05:37
	17:09	17:49	18:23	19:58			20:31	21	19:49 (MO05)	20:54
19	07:39	07:07	06:21	06:29			05:50		19:29 (MO05)	05:37
	17:11	17:50	18:24	19:59			20:32	18	19:47 (MO05)	20:54
20	07:39	07:05	06:19	06:27			05:49		19:31 (MO05)	05:37
	17:12	17:52	18:25	20:00			20:33	14	19:45 (MO05)	20:54
21	07:38	07:04	06:18	06:25		19:36 (MO05)	05:48		19:33 (MO05)	05:37
	17:13	17:53	18:27	20:02	3	19:39 (MO05)	20:34	10	19:43 (MO05)	20:55
22	07:38	07:02	06:16	06:24		19:32 (MO05)	05:47			05:37
	17:14	17:54	18:28	20:03	8	19:40 (MO05)	20:35			20:55
23	07:37	07:01	06:14	06:22		19:30 (MO05)	05:46			05:37
	17:15	17:55	18:29	20:04	11	19:41 (MO05)	20:36			20:55
24	07:36	06:59	06:12	06:21		19:28 (MO05)	05:45			05:38
	17:17	17:57	18:30	20:05	14	19:42 (MO05)	20:37			20:55
25	07:35	06:58	06:11	06:19		19:27 (MO05)	05:45			05:38
	17:18	17:58	18:31	20:06	16	19:43 (MO05)	20:38			20:55
26	07:35	06:56	06:09	06:18		19:25 (MO05)	05:44			05:38
	17:19	17:59	18:32	20:07	19	19:44 (MO05)	20:39			20:55
27	07:34	06:54	06:07	06:16		19:24 (MO05)	05:43			05:39
	17:21	18:00	18:33	20:08	21	19:45 (MO05)	20:40			20:55
28	07:33	06:53	06:05	06:15		19:24 (MO05)	05:43			05:39
	17:22	18:02	18:35	20:09	23	19:47 (MO05)	20:41			20:55
29	07:32		07:04	06:14		19:22 (MO05)	05:42			05:40
	17:23		19:36	20:11	25	19:47 (MO05)	20:41			20:55
30	07:31		07:02	06:12		19:22 (MO05)	05:41			05:40
	17:24		19:37	20:12	27	19:49 (MO05)	20:42			20:55
31	07:30		07:00				05:41			
	17:26		19:38				20:43			
Potential sun hours	293	295	369	400			452			457
Total, worst case				167			585			
Sun reduction				0.49			0.57			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.49			0.57			
Total, real				83			333			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 41 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (939)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:06		19:32 (MO05)	06:38	07:10	06:46	07:23
	20:55			20:35	32	20:04 (MO05)	19:50	18:57	17:09	16:43
2	05:41			06:07		19:32 (MO05)	06:39	07:11	06:48	07:24
	20:55			20:34	32	20:04 (MO05)	19:48	18:56	17:07	16:43
3	05:42			06:08		19:31 (MO05)	06:40	07:12	06:49	07:25
	20:55			20:33	34	20:05 (MO05)	19:47	18:54	17:06	16:42
4	05:42			06:09		19:31 (MO05)	06:41	07:14	06:50	07:26
	20:55			20:31	34	20:05 (MO05)	19:45	18:52	17:05	16:42
5	05:43			06:10		19:30 (MO05)	06:42	07:15	06:51	07:27
	20:54			20:30	35	20:05 (MO05)	19:43	18:51	17:04	16:42
6	05:43			06:11		19:30 (MO05)	06:44	07:16	06:53	07:28
	20:54			20:29	35	20:05 (MO05)	19:41	18:49	17:03	16:42
7	05:44			06:12		19:30 (MO05)	06:45	07:17	06:54	07:29
	20:54			20:28	34	20:04 (MO05)	19:40	18:47	17:01	16:42
8	05:45			06:13		19:30 (MO05)	06:46	07:18	06:55	07:30
	20:53			20:26	32	20:02 (MO05)	19:38	18:45	17:00	16:41
9	05:45			06:14		19:30 (MO05)	06:47	07:19	06:56	07:31
	20:53			20:25	31	20:01 (MO05)	19:36	18:44	16:59	16:41
10	05:46			06:15		19:29 (MO05)	06:48	07:20	06:58	07:32
	20:53			20:24	31	20:00 (MO05)	19:34	18:42	16:58	16:41
11	05:47			06:16		19:29 (MO05)	06:49	07:21	06:59	07:33
	20:52			20:22	30	19:59 (MO05)	19:33	18:40	16:57	16:41
12	05:47			06:17		19:30 (MO05)	06:50	07:23	07:00	07:34
	20:52			20:21	27	19:57 (MO05)	19:31	18:39	16:56	16:42
13	05:48			06:18		19:30 (MO05)	06:51	07:24	07:01	07:34
	20:51			20:20	26	19:56 (MO05)	19:29	18:37	16:55	16:42
14	05:49			06:19		19:30 (MO05)	06:52	07:25	07:03	07:35
	20:51			20:18	25	19:55 (MO05)	19:27	18:35	16:54	16:42
15	05:50			06:20		19:30 (MO05)	06:53	07:26	07:04	07:36
	20:50			20:17	23	19:53 (MO05)	19:26	18:34	16:53	16:42
16	05:51			06:21		19:31 (MO05)	06:54	07:27	07:05	07:37
	20:49			20:15	21	19:52 (MO05)	19:24	18:32	16:52	16:42
17	05:51			06:22		19:32 (MO05)	06:55	07:28	07:06	07:37
	20:49			20:14	18	19:50 (MO05)	19:22	18:31	16:51	16:43
18	05:52			06:23		19:33 (MO05)	06:56	07:29	07:08	07:38
	20:48			20:12	16	19:49 (MO05)	19:20	18:29	16:50	16:43
19	05:53			06:24		19:34 (MO05)	06:57	07:31	07:09	07:39
	20:47			20:11	13	19:47 (MO05)	19:19	18:27	16:50	16:43
20	05:54			06:25		19:35 (MO05)	06:58	07:32	07:10	07:39
	20:46			20:09	11	19:46 (MO05)	19:17	18:26	16:49	16:44
21	05:55			06:27		19:37 (MO05)	06:59	07:33	07:11	07:40
	20:46			20:08	7	19:44 (MO05)	19:15	18:24	16:48	16:44
22	05:56		19:46 (MO05)	06:28		19:41 (MO05)	07:00	07:34	07:13	07:40
	20:45	5	19:51 (MO05)	20:06	2	19:43 (MO05)	19:13	18:23	16:47	16:45
23	05:57		19:43 (MO05)	06:29			07:02	07:35	07:14	07:41
	20:44	12	19:55 (MO05)	20:05			19:11	18:21	16:47	16:45
24	05:58		19:41 (MO05)	06:30			07:03	07:37	07:15	07:41
	20:43	16	19:57 (MO05)	20:03			19:10	18:20	16:46	16:46
25	05:59		19:39 (MO05)	06:31			07:04	06:38	07:16	07:42
	20:42	19	19:58 (MO05)	20:01			19:08	17:18	16:46	16:46
26	06:00		19:38 (MO05)	06:32			07:05	06:39	07:17	07:42
	20:41	22	20:00 (MO05)	20:00			19:06	17:17	16:45	16:47
27	06:01		19:36 (MO05)	06:33			07:06	06:40	07:18	07:42
	20:40	24	20:00 (MO05)	19:58			19:04	17:16	16:44	16:47
28	06:02		19:35 (MO05)	06:34			07:07	06:41	07:20	07:43
	20:39	26	20:01 (MO05)	19:57			19:03	17:14	16:44	16:48
29	06:03		19:34 (MO05)	06:35			07:08	06:43	07:21	07:43
	20:38	28	20:02 (MO05)	19:55			19:01	17:13	16:44	16:49
30	06:04		19:34 (MO05)	06:36			07:09	06:44	07:22	07:43
	20:37	29	20:03 (MO05)	19:53			18:59	17:11	16:43	16:50
31	06:05		19:33 (MO05)	06:37				06:45		07:43
	20:36	30	20:03 (MO05)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		211			549					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		149			385					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 42 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (940)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:58	06:11			05:40		06:12 (MO04)
	16:51	17:27	18:03	19:39	20:13			20:44	17	06:29 (MO04)
2	07:44	07:28	06:50	06:57	06:09			05:40		06:14 (MO04)
	16:52	17:28	18:04	19:40	20:14			20:45	15	06:29 (MO04)
3	07:44	07:27	06:48	06:55	06:08			05:39		06:14 (MO04)
	16:53	17:30	18:05	19:41	20:15			20:45	14	06:28 (MO04)
4	07:44	07:26	06:46	06:53	06:07			05:39		06:15 (MO04)
	16:54	17:31	18:07	19:42	20:16			20:46	13	06:28 (MO04)
5	07:44	07:25	06:45	06:52	06:05			05:38		06:16 (MO04)
	16:55	17:32	18:08	19:44	20:17			20:47	12	06:28 (MO04)
6	07:44	07:24	06:43	06:50	06:04			05:38		06:18 (MO04)
	16:56	17:34	18:09	19:45	20:18			20:48	9	06:27 (MO04)
7	07:44	07:22	06:41	06:48	06:03			05:38		06:18 (MO04)
	16:57	17:35	18:10	19:46	20:19			20:48	7	06:25 (MO04)
8	07:44	07:21	06:40	06:46	06:02			05:38		06:20 (MO04)
	16:58	17:36	18:11	19:47	20:21			20:49	4	06:24 (MO04)
9	07:43	07:20	06:38	06:45	06:00		06:21 (MO04)	05:37		
	16:59	17:37	18:13	19:48	20:22	4	06:25 (MO04)	20:49		
10	07:43	07:19	06:36	06:43	05:59		06:20 (MO04)	05:37		
	17:00	17:39	18:14	19:49	20:23	7	06:27 (MO04)	20:50		
11	07:43	07:17	06:35	06:41	05:58		06:18 (MO04)	05:37		
	17:01	17:40	18:15	19:50	20:24	10	06:28 (MO04)	20:51		
12	07:43	07:16	06:33	06:40	05:57		06:17 (MO04)	05:37		
	17:02	17:41	18:16	19:51	20:25	12	06:29 (MO04)	20:51		
13	07:42	07:15	06:31	06:38	05:56		06:16 (MO04)	05:37		
	17:03	17:43	18:17	19:53	20:26	14	06:30 (MO04)	20:52		
14	07:42	07:14	06:30	06:36	05:55		06:15 (MO04)	05:37		
	17:05	17:44	18:18	19:54	20:27	15	06:30 (MO04)	20:52		
15	07:41	07:12	06:28	06:35	05:54		06:14 (MO04)	05:37		
	17:06	17:45	18:20	19:55	20:28	17	06:31 (MO04)	20:53		
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37		
	17:07	17:47	18:21	19:56	20:29	18	06:31 (MO04)	20:53		
17	07:41	07:09	06:24	06:32	05:52		06:12 (MO04)	05:37		
	17:08	17:48	18:22	19:57	20:30	19	06:31 (MO04)	20:53		
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO04)	05:37		
	17:09	17:49	18:23	19:58	20:31	20	06:32 (MO04)	20:54		
19	07:39	07:07	06:21	06:28	05:50		06:11 (MO04)	05:37		
	17:10	17:50	18:24	19:59	20:32	21	06:32 (MO04)	20:54		
20	07:39	07:05	06:19	06:27	05:49		06:10 (MO04)	05:37		
	17:12	17:52	18:25	20:00	20:33	22	06:32 (MO04)	20:54		
21	07:38	07:04	06:18	06:25	05:48		06:09 (MO04)	05:37		
	17:13	17:53	18:27	20:02	20:34	23	06:32 (MO04)	20:55		
22	07:38	07:02	06:16	06:24	05:47		06:08 (MO04)	05:37		
	17:14	17:54	18:28	20:03	20:35	24	06:32 (MO04)	20:55		
23	07:37	07:01	06:14	06:22	05:46		06:09 (MO04)	05:37		
	17:15	17:55	18:29	20:04	20:36	24	06:33 (MO04)	20:55		
24	07:36	06:59	06:12	06:21	05:45		06:09 (MO04)	05:38		
	17:17	17:57	18:30	20:05	20:37	23	06:32 (MO04)	20:55		
25	07:35	06:58	06:11	06:19	05:45		06:09 (MO04)	05:38		
	17:18	17:58	18:31	20:06	20:38	23	06:32 (MO04)	20:55		
26	07:34	06:56	06:09	06:18	05:44		06:10 (MO04)	05:38		
	17:19	17:59	18:32	20:07	20:39	22	06:32 (MO04)	20:55		
27	07:34	06:54	06:07	06:16	05:43		06:10 (MO04)	05:39		
	17:21	18:00	18:33	20:08	20:40	22	06:32 (MO04)	20:55		
28	07:33	06:53	06:05	06:15	05:43		06:10 (MO04)	05:39		
	17:22	18:02	18:34	20:09	20:41	21	06:31 (MO04)	20:55		
29	07:32		07:04	06:13	05:42		06:11 (MO04)	05:39		
	17:23		19:36	20:11	20:41	20	06:31 (MO04)	20:55		
30	07:31		07:02	06:12	05:41		06:11 (MO04)	05:40		
	17:24		19:37	20:12	20:42	19	06:30 (MO04)	20:55		
31	07:30		07:00		05:41		06:12 (MO04)			
	17:26		19:38		20:43	18	06:30 (MO04)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						418			91	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						238			56	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 42 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (940)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:06		06:28 (MO04)	06:38	07:10	06:46	07:23
	20:55			20:35	11	06:39 (MO04)	19:50	18:57	17:09	16:43
2	05:41			06:07		06:29 (MO04)	06:39	07:11	06:48	07:24
	20:55			20:34	9	06:38 (MO04)	19:48	18:56	17:07	16:42
3	05:41			06:08		06:30 (MO04)	06:40	07:12	06:49	07:25
	20:55			20:33	6	06:36 (MO04)	19:47	18:54	17:06	16:42
4	05:42			06:09		06:31 (MO04)	06:41	07:13	06:50	07:26
	20:55			20:31	2	06:33 (MO04)	19:45	18:52	17:05	16:42
5	05:43		06:25 (MO04)	06:10			06:42	07:15	06:51	07:27
	20:54	6	06:31 (MO04)	20:30			19:43	18:50	17:04	16:42
6	05:43		06:24 (MO04)	06:11			06:43	07:16	06:53	07:28
	20:54	9	06:33 (MO04)	20:29			19:41	18:49	17:02	16:42
7	05:44		06:23 (MO04)	06:12			06:45	07:17	06:54	07:29
	20:54	11	06:34 (MO04)	20:28			19:40	18:47	17:01	16:41
8	05:44		06:23 (MO04)	06:13			06:46	07:18	06:55	07:30
	20:53	12	06:35 (MO04)	20:26			19:38	18:45	17:00	16:41
9	05:45		06:21 (MO04)	06:14			06:47	07:19	06:56	07:31
	20:53	14	06:35 (MO04)	20:25			19:36	18:44	16:59	16:41
10	05:46		06:21 (MO04)	06:15			06:48	07:20	06:58	07:32
	20:53	15	06:36 (MO04)	20:24			19:34	18:42	16:58	16:41
11	05:47		06:21 (MO04)	06:16			06:49	07:21	06:59	07:33
	20:52	16	06:37 (MO04)	20:22			19:33	18:40	16:57	16:41
12	05:47		06:21 (MO04)	06:17			06:50	07:22	07:00	07:33
	20:52	17	06:38 (MO04)	20:21			19:31	18:39	16:56	16:41
13	05:48		06:20 (MO04)	06:18			06:51	07:24	07:01	07:34
	20:51	18	06:38 (MO04)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:19 (MO04)	06:19			06:52	07:25	07:03	07:35
	20:51	20	06:39 (MO04)	20:18			19:27	18:35	16:54	16:42
15	05:50		06:19 (MO04)	06:20			06:53	07:26	07:04	07:36
	20:50	21	06:40 (MO04)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:19 (MO04)	06:21			06:54	07:27	07:05	07:37
	20:49	22	06:41 (MO04)	20:15			19:24	18:32	16:52	16:42
17	05:51		06:19 (MO04)	06:22			06:55	07:28	07:06	07:37
	20:49	22	06:41 (MO04)	20:14			19:22	18:31	16:51	16:42
18	05:52		06:18 (MO04)	06:23			06:56	07:29	07:08	07:38
	20:48	23	06:41 (MO04)	20:12			19:20	18:29	16:50	16:43
19	05:53		06:18 (MO04)	06:24			06:57	07:31	07:09	07:39
	20:47	23	06:41 (MO04)	20:11			19:19	18:27	16:50	16:43
20	05:54		06:18 (MO04)	06:25			06:58	07:32	07:10	07:39
	20:46	24	06:42 (MO04)	20:09			19:17	18:26	16:49	16:44
21	05:55		06:18 (MO04)	06:27			06:59	07:33	07:11	07:40
	20:46	24	06:42 (MO04)	20:08			19:15	18:24	16:48	16:44
22	05:56		06:19 (MO04)	06:28			07:00	07:34	07:12	07:40
	20:45	24	06:43 (MO04)	20:06			19:13	18:23	16:47	16:45
23	05:57		06:20 (MO04)	06:29			07:01	07:35	07:14	07:41
	20:44	23	06:43 (MO04)	20:05			19:11	18:21	16:47	16:45
24	05:58		06:21 (MO04)	06:30			07:03	07:37	07:15	07:41
	20:43	22	06:43 (MO04)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:22 (MO04)	06:31			07:04	06:38	07:16	07:42
	20:42	21	06:43 (MO04)	20:01			19:08	17:18	16:46	16:46
26	06:00		06:22 (MO04)	06:32			07:05	06:39	07:17	07:42
	20:41	20	06:42 (MO04)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:23 (MO04)	06:33			07:06	06:40	07:18	07:42
	20:40	19	06:42 (MO04)	19:58			19:04	17:16	16:44	16:47
28	06:01		06:24 (MO04)	06:34			07:07	06:41	07:20	07:43
	20:39	17	06:41 (MO04)	19:57			19:03	17:14	16:44	16:48
29	06:02		06:25 (MO04)	06:35			07:08	06:43	07:21	07:43
	20:38	16	06:41 (MO04)	19:55			19:01	17:13	16:44	16:49
30	06:03		06:26 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	15	06:41 (MO04)	19:53			18:59	17:11	16:43	16:50
31	06:04		06:27 (MO04)	06:37				06:45		07:43
	20:36	13	06:40 (MO04)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		487			28					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		343			20					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 43 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (941)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June	July			August			September	October	November	December
1	07:44	07:29	06:51	06:58	06:11			05:40	05:40			06:06		06:28 (MO04)	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13			20:44	20:55			20:35	17	06:45 (MO04)	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09			05:40	05:41			06:07		06:29 (MO04)	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14			20:45	20:55			20:34	15	06:44 (MO04)	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08			05:39	05:41			06:08		06:30 (MO04)	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15			20:45	20:55			20:33	14	06:44 (MO04)	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07			05:39	05:42			06:09		06:31 (MO04)	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16			20:46	20:55			20:31	12	06:43 (MO04)	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05			05:38	05:43			06:10		06:32 (MO04)	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17			20:47	20:54			20:30	10	06:42 (MO04)	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04		06:24 (MO04)	05:38	05:43			06:11		06:33 (MO04)	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	5	06:29 (MO04)	20:48	20:54			20:29	7	06:40 (MO04)	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03		06:23 (MO04)	05:38	05:44			06:12		06:34 (MO04)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	8	06:31 (MO04)	20:48	20:54			20:28	4	06:38 (MO04)	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02		06:22 (MO04)	05:38	05:44			06:13			06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	10	06:32 (MO04)	20:49	20:53			20:26			19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00		06:21 (MO04)	05:37	05:45			06:14			06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	12	06:33 (MO04)	20:49	20:53			20:25			19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59		06:20 (MO04)	05:37	05:46			06:15			06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	14	06:34 (MO04)	20:50	20:53			20:24			19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58		06:18 (MO04)	05:37	05:47			06:16			06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	16	06:34 (MO04)	20:51	20:52			20:22			19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57		06:17 (MO04)	05:37	05:47		06:32 (MO04)	06:17			06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	17	06:34 (MO04)	20:51	20:52	2	06:34 (MO04)	20:21			19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56		06:16 (MO04)	05:37	05:48		06:28 (MO04)	06:18			06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	19	06:35 (MO04)	20:52	20:51	8	06:36 (MO04)	20:20			19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55		06:15 (MO04)	05:37	05:49		06:27 (MO04)	06:19			06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20	06:35 (MO04)	20:52	20:51	11	06:38 (MO04)	20:18			19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54		06:14 (MO04)	05:37	05:50		06:26 (MO04)	06:20			06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	21	06:35 (MO04)	20:53	20:50	14	06:40 (MO04)	20:17			19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37	05:51		06:26 (MO04)	06:21			06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	22	06:35 (MO04)	20:53	20:49	15	06:41 (MO04)	20:15			19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52		06:12 (MO04)	05:37	05:51		06:25 (MO04)	06:22			06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	23	06:35 (MO04)	20:53	20:49	17	06:42 (MO04)	20:14			19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO04)	05:37	05:52		06:24 (MO04)	06:23			06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	24	06:36 (MO04)	20:54	20:48	18	06:42 (MO04)	20:12			19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50		06:12 (MO04)	05:37	05:53		06:23 (MO04)	06:24			06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	24	06:36 (MO04)	20:54	20:47	20	06:43 (MO04)	20:11			19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49		06:12 (MO04)	05:37	05:54		06:23 (MO04)	06:25			06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	23	06:35 (MO04)	20:54	20:46	21	06:44 (MO04)	20:09			19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48		06:12 (MO04)	05:37	05:55		06:23 (MO04)	06:27			06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	23	06:35 (MO04)	20:55	20:46	21	06:44 (MO04)	20:08			19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47		06:12 (MO04)	05:37	05:56		06:23 (MO04)	06:28			07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	22	06:34 (MO04)	20:55	20:45	22	06:45 (MO04)	20:06			19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46		06:13 (MO04)	05:37	05:57		06:22 (MO04)	06:29			07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	22	06:35 (MO04)	20:55	20:44	23	06:45 (MO04)	20:05			19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45		06:14 (MO04)	05:38	05:58		06:22 (MO04)	06:30			07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20	06:34 (MO04)	20:55	20:43	24	06:46 (MO04)	20:03			19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45		06:14 (MO04)	05:38	05:59		06:22 (MO04)	06:31			07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	19	06:33 (MO04)	20:55	20:42	24	06:46 (MO04)	20:01			19:08	17:18	16:46	16:46
26	07:34	06:56	06:09	06:18	05:44		06:16 (MO04)	05:38	06:00		06:22 (MO04)	06:32			07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	17	06:33 (MO04)	20:55	20:41	23	06:45 (MO04)	20:00			19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43		06:16 (MO04)	05:39	06:01		06:23 (MO04)	06:33			07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	16	06:32 (MO04)	20:55	20:40	23	06:46 (MO04)	19:58			19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43		06:17 (MO04)	05:39	06:01		06:24 (MO04)	06:34			07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	14	06:31 (MO04)	20:55	20:39	22	06:46 (MO04)	19:57			19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42		06:18 (MO04)	05:39	06:02		06:25 (MO04)	06:35			07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	12	06:30 (MO04)	20:55	20:38	21	06:46 (MO04)	19:55			19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41		06:19 (MO04)	05:40	06:03		06:26 (MO04)	06:36			07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	10	06:29 (MO04)	20:55	20:37	19	06:45 (MO04)	19:53			18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:22 (MO04)		06:04		06:27 (MO04)	06:37				06:45		07:43
	17:26		19:38		20:43	6	06:28 (MO04)		20:36	18	06:45 (MO04)	19:52				17:10		16:50
Potential sun hours	293	295	369	400	452			457	463			431			376	344	295	283
Total, worst case						439				366			79					
Sun reduction						0.57				0.71			0.70					
Oper. time red.						1.00				1.00			1.00					
Wind dir. red.						1.00				1.00			1.00					
Total reduction						0.57				0.71			0.70					
Total, real						250				258			55					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 44 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (942)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:51	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 45 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (943)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 46 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (944)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 47 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (945)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
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	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
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	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
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25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
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	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
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	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 48 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (946)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June		July		August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40		05:40	20:27 (MO04)	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44		20:55	2 20:29 (MO04)	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40		05:41	20:27 (MO04)	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45		20:55	2 20:29 (MO04)	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39		05:41		06:07	06:40	07:12	06:49	07:25
	16:53	17:29	18:05	19:41	20:15	20:45		20:55		20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39		05:42		06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46		20:54		20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38		05:42		06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47		20:54		20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38		05:43		06:11	06:43	07:16	06:52	07:28
	16:56	17:33	18:09	19:45	20:18	20:47		20:54		20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38		05:44		06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48		20:54		20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37		05:44		06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49		20:53		20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37		05:45		06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49		20:53		20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37		05:46		06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50		20:52		20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	20:22 (MO04)	05:46		06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	2 20:24 (MO04)	20:52		20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	20:22 (MO04)	05:47		06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	3 20:25 (MO04)	20:51		20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	20:22 (MO04)	05:48		06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	3 20:25 (MO04)	20:51		20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:29	06:36	05:55	05:36	20:21 (MO04)	05:49		06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	5 20:26 (MO04)	20:50		20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	20:21 (MO04)	05:50		06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	5 20:26 (MO04)	20:50		20:17	19:25	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	20:21 (MO04)	05:50		06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	5 20:26 (MO04)	20:49		20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:31	05:51	05:36	20:21 (MO04)	05:51		06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	6 20:27 (MO04)	20:49		20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:50	05:36	20:21 (MO04)	05:52		06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	6 20:27 (MO04)	20:48		20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	20:22 (MO04)	05:53		06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	6 20:28 (MO04)	20:47		20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	20:22 (MO04)	05:54		06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	6 20:28 (MO04)	20:46		20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	20:22 (MO04)	05:55		06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	6 20:28 (MO04)	20:46		20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	20:22 (MO04)	05:56		06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	6 20:28 (MO04)	20:45		20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	20:22 (MO04)	05:57		06:28	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	6 20:28 (MO04)	20:44		20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	20:23 (MO04)	05:58		06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	6 20:29 (MO04)	20:43		20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	20:23 (MO04)	05:58		06:31	07:03	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	6 20:29 (MO04)	20:42		20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	20:23 (MO04)	05:59		06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	5 20:28 (MO04)	20:41		20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	20:24 (MO04)	06:00		06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	5 20:29 (MO04)	20:40		19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	20:24 (MO04)	06:01		06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	5 20:29 (MO04)	20:39		19:56	19:02	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	20:25 (MO04)	06:02		06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	4 20:29 (MO04)	20:38		19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	20:26 (MO04)	06:03		06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	3 20:29 (MO04)	20:37		19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41			06:04		06:37		06:45		07:43
	17:26		19:38		20:43			20:36		19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457		463		431	376	344	295	283
Total, worst case							99		4					
Sun reduction							0.61		0.71					
Oper. time red.							1.00		1.00					
Wind dir. red.							1.00		1.00					
Total reduction							0.61		0.71					
Total, real							60		3					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 49 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (947)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:20	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 50 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (948)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June		
1	07:44		07:29		06:51		06:58			06:11		06:30 (MO02)	05:40		06:02 (MO01)
	16:51		17:27		18:03		19:39			20:13	26	06:56 (MO02)	20:44	22	06:24 (MO01)
2	07:44		07:28		06:50		06:57			06:09		06:29 (MO02)	05:40		06:02 (MO01)
	16:52		17:28		18:04		19:40			20:14	27	06:56 (MO02)	20:45	23	06:25 (MO01)
3	07:44		07:27		06:48		06:55			06:08		06:28 (MO02)	05:39		06:01 (MO01)
	16:53		17:30		18:05		19:41			20:15	28	06:56 (MO02)	20:46	25	06:26 (MO01)
4	07:44		07:26		06:46		06:53			06:07		06:27 (MO02)	05:39		06:01 (MO01)
	16:54		17:31		18:07		19:42			20:16	29	06:56 (MO02)	20:46	26	06:27 (MO01)
5	07:44		07:25		06:45		06:52			06:05		06:27 (MO02)	05:38		06:01 (MO01)
	16:55		17:32		18:08		19:44			20:17	27	06:54 (MO02)	20:47	27	06:28 (MO01)
6	07:44		07:24		06:43		06:50			06:04		06:27 (MO02)	05:38		06:00 (MO01)
	16:56		17:34		18:09		19:45			20:18	27	06:54 (MO02)	20:48	28	06:28 (MO01)
7	07:44		07:22		06:42		06:48			06:03		06:28 (MO02)	05:38		06:00 (MO01)
	16:57		17:35		18:10		19:46			20:20	26	06:54 (MO02)	20:48	29	06:29 (MO01)
8	07:44		07:21		06:40		06:46			06:02		06:29 (MO02)	05:37		06:00 (MO01)
	16:58		17:36		18:11		19:47			20:21	24	06:53 (MO02)	20:49	30	06:30 (MO01)
9	07:43		07:20		06:38		06:45			06:00		06:29 (MO02)	05:37		06:00 (MO01)
	16:59		17:37		18:13		19:48			20:22	23	06:52 (MO02)	20:50	30	06:30 (MO01)
10	07:43		07:19		06:37		06:43			05:59		06:30 (MO02)	05:37		06:00 (MO01)
	17:00		17:39		18:14		19:49			20:23	22	06:52 (MO02)	20:50	31	06:31 (MO01)
11	07:43		07:18		06:35		06:41			05:58		06:31 (MO02)	05:37		06:00 (MO01)
	17:01		17:40		18:15		19:50			20:24	18	06:49 (MO02)	20:51	32	06:32 (MO01)
12	07:43		07:16		06:33		06:40			05:57		06:32 (MO02)	05:37		05:59 (MO01)
	17:02		17:41		18:16		19:52			20:25	16	06:48 (MO02)	20:51	32	06:31 (MO01)
13	07:42		07:15		06:31		06:38			05:56		06:34 (MO02)	05:37		05:59 (MO01)
	17:03		17:43		18:17		19:53			20:26	12	06:46 (MO02)	20:52	33	06:32 (MO01)
14	07:42		07:14		06:30		06:36			05:55		06:37 (MO02)	05:37		05:59 (MO01)
	17:05		17:44		18:18		19:54			20:27	6	06:43 (MO02)	20:52	33	06:32 (MO01)
15	07:42		07:12		06:28		06:35			05:54			05:36		05:59 (MO01)
	17:06		17:45		18:20		19:55			20:28			20:53	34	06:33 (MO01)
16	07:41		07:11		06:26		06:33			05:53			05:36		05:59 (MO01)
	17:07		17:47		18:21		19:56			20:29			20:53	34	06:33 (MO01)
17	07:41		07:09		06:25		06:32			05:52			05:37		05:59 (MO01)
	17:08		17:48		18:22		19:57			20:30			20:53	34	06:33 (MO01)
18	07:40		07:08		06:23		06:30			05:51			05:37		06:00 (MO01)
	17:09		17:49		18:23		19:58			20:31			20:54	34	06:34 (MO01)
19	07:40		07:07		06:21		06:28			05:50			05:37		06:00 (MO01)
	17:10		17:50		18:24		19:59			20:32			20:54	35	06:35 (MO01)
20	07:39		07:05		06:19		06:27			05:49			05:37		06:00 (MO01)
	17:12		17:52		18:25		20:01			20:33			20:54	35	06:35 (MO01)
21	07:38		07:04		06:18		06:25		06:45 (MO02)	05:48			05:37		06:00 (MO01)
	17:13		17:53		18:27		20:02	3	06:48 (MO02)	20:34			20:55	35	06:35 (MO01)
22	07:38		07:02		06:16		06:24		06:43 (MO02)	05:47			05:37		06:00 (MO01)
	17:14		17:54		18:28		20:03	7	06:50 (MO02)	20:35			20:55	35	06:35 (MO01)
23	07:37		07:01		06:14		06:22		06:42 (MO02)	05:46			05:37		06:01 (MO01)
	17:15		17:55		18:29		20:04	11	06:53 (MO02)	20:36			20:55	35	06:36 (MO01)
24	07:36		06:59		06:12		06:21		06:40 (MO02)	05:45			05:38		06:01 (MO01)
	17:17		17:57		18:30		20:05	13	06:53 (MO02)	20:37			20:55	35	06:36 (MO01)
25	07:35		06:58		06:11		06:19		06:39 (MO02)	05:45			05:38		06:01 (MO01)
	17:18		17:58		18:31		20:06	16	06:55 (MO02)	20:38			20:55	34	06:35 (MO01)
26	07:35		06:56		06:09		06:18		06:37 (MO02)	05:44			05:38		06:02 (MO01)
	17:19		17:59		18:32		20:07	18	06:55 (MO02)	20:39			20:55	34	06:36 (MO01)
27	07:34		06:55		06:07		06:16		06:36 (MO02)	05:43		06:10 (MO01)	05:39		06:02 (MO01)
	17:21		18:00		18:33		20:08	20	06:56 (MO02)	20:40	3	06:13 (MO01)	20:55	34	06:36 (MO01)
28	07:33		06:53		06:05		06:15		06:34 (MO02)	05:43		06:05 (MO01)	05:39		06:02 (MO01)
	17:22		18:02		18:35		20:10	21	06:55 (MO02)	20:41	12	06:17 (MO01)	20:55	33	06:35 (MO01)
29	07:32				07:04		06:13		06:33 (MO02)	05:42		06:04 (MO01)	05:39		06:03 (MO01)
	17:23				19:36		20:11	23	06:56 (MO02)	20:42	16	06:20 (MO01)	20:55	33	06:36 (MO01)
30	07:31				07:02		06:12		06:32 (MO02)	05:41		06:03 (MO01)	05:40		06:03 (MO01)
	17:24				19:37		20:12	24	06:56 (MO02)	20:42	18	06:21 (MO01)	20:55	33	06:36 (MO01)
31	07:30				07:00					05:41		06:03 (MO01)			
	17:26				19:38					20:43	20	06:23 (MO01)			
Potential sun hours	293		295		369		400			452			457		
Total, worst case								156			380			948	
Sun reduction								0.49			0.57			0.61	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								1.00			1.00			1.00	
Total reduction								0.49			0.57			0.61	
Total, real								77			216			579	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 50 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (948)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40		06:04 (MO01)	06:05		06:42 (MO02)	06:38	07:10	06:46	07:23
	20:55	32	06:36 (MO01)	20:35	17	06:59 (MO02)	19:50	18:57	17:09	16:43
2	05:41		06:04 (MO01)	06:07		06:41 (MO02)	06:39	07:11	06:48	07:24
	20:55	31	06:35 (MO01)	20:34	20	07:01 (MO02)	19:48	18:56	17:07	16:42
3	05:41		06:05 (MO01)	06:08		06:40 (MO02)	06:40	07:12	06:49	07:25
	20:55	31	06:36 (MO01)	20:33	22	07:02 (MO02)	19:47	18:54	17:06	16:42
4	05:42		06:05 (MO01)	06:09		06:39 (MO02)	06:41	07:14	06:50	07:26
	20:55	30	06:35 (MO01)	20:32	23	07:02 (MO02)	19:45	18:52	17:05	16:42
5	05:43		06:06 (MO01)	06:10		06:38 (MO02)	06:42	07:15	06:51	07:27
	20:54	29	06:35 (MO01)	20:30	25	07:03 (MO02)	19:43	18:50	17:04	16:42
6	05:43		06:06 (MO01)	06:11		06:37 (MO02)	06:44	07:16	06:53	07:28
	20:54	28	06:34 (MO01)	20:29	27	07:04 (MO02)	19:41	18:49	17:02	16:42
7	05:44		06:07 (MO01)	06:12		06:37 (MO02)	06:45	07:17	06:54	07:29
	20:54	27	06:34 (MO01)	20:28	27	07:04 (MO02)	19:40	18:47	17:01	16:41
8	05:44		06:08 (MO01)	06:13		06:36 (MO02)	06:46	07:18	06:55	07:30
	20:54	26	06:34 (MO01)	20:26	28	07:04 (MO02)	19:38	18:45	17:00	16:41
9	05:45		06:08 (MO01)	06:14		06:36 (MO02)	06:47	07:19	06:57	07:31
	20:53	25	06:33 (MO01)	20:25	28	07:04 (MO02)	19:36	18:44	16:59	16:41
10	05:46		06:09 (MO01)	06:15		06:37 (MO02)	06:48	07:20	06:58	07:32
	20:53	24	06:33 (MO01)	20:24	27	07:04 (MO02)	19:35	18:42	16:58	16:41
11	05:47		06:10 (MO01)	06:16		06:38 (MO02)	06:49	07:21	06:59	07:33
	20:52	22	06:32 (MO01)	20:22	26	07:04 (MO02)	19:33	18:40	16:57	16:41
12	05:47		06:11 (MO01)	06:17		06:39 (MO02)	06:50	07:23	07:00	07:34
	20:52	21	06:32 (MO01)	20:21	25	07:04 (MO02)	19:31	18:39	16:56	16:41
13	05:48		06:11 (MO01)	06:18		06:40 (MO02)	06:51	07:24	07:02	07:34
	20:51	19	06:30 (MO01)	20:20	24	07:04 (MO02)	19:29	18:37	16:55	16:42
14	05:49		06:12 (MO01)	06:19		06:41 (MO02)	06:52	07:25	07:03	07:35
	20:51	17	06:29 (MO01)	20:18	22	07:03 (MO02)	19:27	18:35	16:54	16:42
15	05:50		06:13 (MO01)	06:20		06:42 (MO02)	06:53	07:26	07:04	07:36
	20:50	14	06:27 (MO01)	20:17	21	07:03 (MO02)	19:26	18:34	16:53	16:42
16	05:50		06:16 (MO01)	06:21		06:43 (MO02)	06:54	07:27	07:05	07:37
	20:49	9	06:25 (MO01)	20:15	19	07:02 (MO02)	19:24	18:32	16:52	16:42
17	05:51			06:22		06:44 (MO02)	06:55	07:28	07:06	07:37
	20:49			20:14	17	07:01 (MO02)	19:22	18:31	16:51	16:42
18	05:52			06:23		06:45 (MO02)	06:56	07:29	07:08	07:38
	20:48			20:12	15	07:00 (MO02)	19:20	18:29	16:50	16:43
19	05:53			06:24		06:46 (MO02)	06:57	07:31	07:09	07:39
	20:47			20:11	13	06:59 (MO02)	19:19	18:27	16:50	16:43
20	05:54			06:25		06:47 (MO02)	06:58	07:32	07:10	07:39
	20:47			20:09	10	06:57 (MO02)	19:17	18:26	16:49	16:44
21	05:55			06:27		06:48 (MO02)	06:59	07:33	07:11	07:40
	20:46			20:08	7	06:55 (MO02)	19:15	18:24	16:48	16:44
22	05:56			06:28		06:49 (MO02)	07:00	07:34	07:13	07:40
	20:45			20:06	2	06:51 (MO02)	19:13	18:23	16:47	16:44
23	05:57			06:29			07:02	07:35	07:14	07:41
	20:44			20:05			19:12	18:21	16:47	16:45
24	05:58			06:30			07:03	07:37	07:15	07:41
	20:43			20:03			19:10	18:20	16:46	16:46
25	05:59			06:31			07:04	06:38	07:16	07:42
	20:42			20:02			19:08	17:18	16:45	16:46
26	06:00			06:32			07:05	06:39	07:17	07:42
	20:41			20:00			19:06	17:17	16:45	16:47
27	06:00			06:33			07:06	06:40	07:18	07:43
	20:40			19:58			19:04	17:16	16:44	16:47
28	06:01			06:34			07:07	06:42	07:20	07:43
	20:39			19:57			19:03	17:14	16:44	16:48
29	06:02			06:35			07:08	06:43	07:21	07:43
	20:38			19:55			19:01	17:13	16:44	16:49
30	06:03		06:46 (MO02)	06:36			07:09	06:44	07:22	07:43
	20:37	9	06:55 (MO02)	19:53			18:59	17:11	16:43	16:50
31	06:04		06:44 (MO02)	06:37				06:45		07:44
	20:36	14	06:58 (MO02)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		408			445					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		288			312					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 51 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (949)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March			April			May			June		
1	07:44		07:29		06:51			06:59		18:11 (MO06)	06:11		18:12 (MO06)	05:40		
	16:52		17:27		18:03			19:39	59	19:10 (MO06)	20:13	48	19:00 (MO06)	20:44		
2	07:44		07:28		06:50			06:57		18:11 (MO06)	06:09		18:12 (MO06)	05:40		
	16:52		17:28		18:04			19:40	60	19:11 (MO06)	20:14	46	18:58 (MO06)	20:45		
3	07:44		07:27		06:48			06:55		18:10 (MO06)	06:08		18:14 (MO06)	05:39		
	16:53		17:30		18:05			19:41	62	19:12 (MO06)	20:15	42	18:56 (MO06)	20:46		
4	07:44		07:26		06:47			06:53		18:08 (MO06)	06:07		18:16 (MO06)	05:39		
	16:54		17:31		18:07			19:43	64	19:12 (MO06)	20:16	39	18:55 (MO06)	20:46		
5	07:44		07:25		06:45			06:52		18:08 (MO06)	06:05		18:17 (MO06)	05:39		
	16:55		17:32		18:08			19:44	65	19:13 (MO06)	20:17	36	18:53 (MO06)	20:47		
6	07:44		07:24		06:43			06:50		18:07 (MO06)	06:04		18:19 (MO06)	05:38		
	16:56		17:34		18:09			19:45	66	19:13 (MO06)	20:19	32	18:51 (MO06)	20:48		
7	07:44		07:23		06:42			06:48		18:06 (MO06)	06:03		18:21 (MO06)	05:38		
	16:57		17:35		18:10			19:46	67	19:13 (MO06)	20:20	28	18:49 (MO06)	20:48		
8	07:44		07:21		06:40			06:47		18:06 (MO06)	06:02		18:24 (MO06)	05:38		
	16:58		17:36		18:12			19:47	67	19:13 (MO06)	20:21	22	18:46 (MO06)	20:49		
9	07:44		07:20		06:38			06:45		18:05 (MO06)	06:01		18:27 (MO06)	05:37		
	16:59		17:38		18:13			19:48	68	19:13 (MO06)	20:22	16	18:43 (MO06)	20:50		
10	07:43		07:19		06:37			06:43		18:04 (MO06)	05:59			05:37		
	17:00		17:39		18:14			19:49	69	19:13 (MO06)	20:23			20:50		
11	07:43		07:18		06:35			06:42		18:05 (MO06)	05:58			05:37		
	17:01		17:40		18:15			19:50	68	19:13 (MO06)	20:24			20:51		
12	07:43		07:16		06:33			06:40		18:04 (MO06)	05:57			05:37		
	17:02		17:42		18:16			19:52	69	19:13 (MO06)	20:25			20:51		
13	07:42		07:15		06:32			06:38		18:03 (MO06)	05:56			05:37		
	17:04		17:43		18:17			19:53	69	19:12 (MO06)	20:26			20:52		
14	07:42		07:14		06:30			06:37		18:04 (MO06)	05:55			05:37		
	17:05		17:44		18:19			19:54	69	19:13 (MO06)	20:27			20:52		
15	07:42		07:12		06:28			06:35		18:03 (MO06)	05:54			05:37		
	17:06		17:45		18:20			19:55	69	19:12 (MO06)	20:28			20:53		
16	07:41		07:11		06:26			06:33		18:03 (MO06)	05:53			05:37		
	17:07		17:47		18:21			19:56	68	19:11 (MO06)	20:29			20:53		
17	07:41		07:10		06:25			06:32		18:04 (MO06)	05:52			05:37		
	17:08		17:48		18:22			19:57	67	19:11 (MO06)	20:30			20:54		
18	07:40		07:08		06:23			06:30		18:03 (MO06)	05:51			05:37		
	17:09		17:49		18:23			19:58	67	19:10 (MO06)	20:31			20:54		
19	07:40		07:07		06:21			06:29		18:04 (MO06)	05:50			05:37		
	17:11		17:51		18:24			20:00	66	19:10 (MO06)	20:32			20:54		
20	07:39		07:05		06:19			06:27		18:04 (MO06)	05:49			05:37		
	17:12		17:52		18:26			20:01	65	19:09 (MO06)	20:33			20:54		
21	07:38		07:04		06:18			06:25		18:05 (MO06)	05:48			05:37		
	17:13		17:53		18:27			20:02	64	19:09 (MO06)	20:34			20:55		
22	07:38		07:02		06:16		17:39 (MO06)	06:24		18:04 (MO06)	05:47			05:37		
	17:14		17:54		18:28	11	17:50 (MO06)	20:03	64	19:08 (MO06)	20:35			20:55		
23	07:37		07:01		06:14		17:32 (MO06)	06:22		18:05 (MO06)	05:46			05:38		
	17:16		17:56		18:29	24	17:56 (MO06)	20:04	63	19:08 (MO06)	20:36			20:55		
24	07:36		06:59		06:12		17:28 (MO06)	06:21		18:05 (MO06)	05:46			05:38		
	17:17		17:57		18:30	31	17:59 (MO06)	20:05	61	19:06 (MO06)	20:37			20:55		
25	07:35		06:58		06:11		17:26 (MO06)	06:19		18:06 (MO06)	05:45			05:38		
	17:18		17:58		18:31	36	18:02 (MO06)	20:06	60	19:06 (MO06)	20:38			20:55		
26	07:35		06:56		06:09		17:23 (MO06)	06:18		18:07 (MO06)	05:44			05:38		
	17:19		17:59		18:32	41	18:04 (MO06)	20:07	57	19:04 (MO06)	20:39			20:55		
27	07:34		06:55		06:07		17:20 (MO06)	06:16		18:08 (MO06)	05:43			05:39		
	17:21		18:01		18:34	45	18:05 (MO06)	20:09	56	19:04 (MO06)	20:40			20:56		
28	07:33		06:53		06:06		17:18 (MO06)	06:15		18:09 (MO06)	05:43			05:39		
	17:22		18:02		18:35	48	18:06 (MO06)	20:10	54	19:03 (MO06)	20:41			20:56		
29	07:32				07:04		18:17 (MO06)	06:14		18:09 (MO06)	05:42			05:40		
	17:23				19:36	51	19:08 (MO06)	20:11	52	19:01 (MO06)	20:42			20:55		
30	07:31				07:02		18:15 (MO06)	06:12		18:11 (MO06)	05:41			05:40		
	17:25				19:37	54	19:09 (MO06)	20:12	50	19:01 (MO06)	20:42			20:55		
31	07:30				07:00		18:13 (MO06)				05:41					
	17:26				19:38	57	19:10 (MO06)				20:43					
Potential sun hours	293		295		369			400			452			457		
Total, worst case						398			1905			309				
Sun reduction						0.46			0.49			0.57				
Oper. time red.						1.00			1.00			1.00				
Wind dir. red.						1.00			1.00			1.00				
Total reduction						0.46			0.49			0.57				
Total, real						182			942			176				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 51 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (949)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August			September			October		November	December
1	05:41		06:06			06:38			18:04 (MO06)		07:10	06:47	07:23
	20:55		20:35			19:50	68		19:12 (MO06)		18:58	17:09	16:43
2	05:41		06:07			06:39			18:03 (MO06)		07:11	06:48	07:24
	20:55		20:34			19:48	69		19:12 (MO06)		18:56	17:08	16:43
3	05:42		06:08		18:41 (MO06)	06:40			18:03 (MO06)		07:13	06:49	07:25
	20:55		20:33	8	18:49 (MO06)	19:47	68		19:11 (MO06)		18:54	17:06	16:42
4	05:42		06:09		18:36 (MO06)	06:42			18:03 (MO06)		07:14	06:50	07:26
	20:55		20:32	18	18:54 (MO06)	19:45	67		19:10 (MO06)		18:52	17:05	16:42
5	05:43		06:10		18:32 (MO06)	06:43			18:03 (MO06)		07:15	06:52	07:27
	20:55		20:30	25	18:57 (MO06)	19:43	67		19:10 (MO06)		18:51	17:04	16:42
6	05:43		06:11		18:30 (MO06)	06:44			18:03 (MO06)		07:16	06:53	07:28
	20:54		20:29	29	18:59 (MO06)	19:42	66		19:09 (MO06)		18:49	17:03	16:42
7	05:44		06:12		18:28 (MO06)	06:45			18:03 (MO06)		07:17	06:54	07:29
	20:54		20:28	33	19:01 (MO06)	19:40	65		19:08 (MO06)		18:47	17:01	16:42
8	05:45		06:13		18:26 (MO06)	06:46			18:03 (MO06)		07:18	06:55	07:30
	20:54		20:27	37	19:03 (MO06)	19:38	64		19:07 (MO06)		18:46	17:00	16:41
9	05:45		06:14		18:24 (MO06)	06:47			18:04 (MO06)		07:19	06:57	07:31
	20:53		20:25	40	19:04 (MO06)	19:36	62		19:06 (MO06)		18:44	16:59	16:41
10	05:46		06:15		18:22 (MO06)	06:48			18:04 (MO06)		07:20	06:58	07:32
	20:53		20:24	44	19:06 (MO06)	19:35	61		19:05 (MO06)		18:42	16:58	16:41
11	05:47		06:16		18:21 (MO06)	06:49			18:04 (MO06)		07:22	06:59	07:33
	20:52		20:23	46	19:07 (MO06)	19:33	59		19:03 (MO06)		18:40	16:57	16:42
12	05:47		06:17		18:19 (MO06)	06:50			18:05 (MO06)		07:23	07:00	07:34
	20:52		20:21	49	19:08 (MO06)	19:31	57		19:02 (MO06)		18:39	16:56	16:42
13	05:48		06:18		18:18 (MO06)	06:51			18:06 (MO06)		07:24	07:02	07:35
	20:51		20:20	51	19:09 (MO06)	19:29	54		19:00 (MO06)		18:37	16:55	16:42
14	05:49		06:19		18:17 (MO06)	06:52			18:07 (MO06)		07:25	07:03	07:35
	20:51		20:18	52	19:09 (MO06)	19:28	52		18:59 (MO06)		18:36	16:54	16:42
15	05:50		06:20		18:15 (MO06)	06:53			18:08 (MO06)		07:26	07:04	07:36
	20:50		20:17	55	19:10 (MO06)	19:26	49		18:57 (MO06)		18:34	16:53	16:42
16	05:51		06:21		18:14 (MO06)	06:54			18:09 (MO06)		07:27	07:05	07:37
	20:50		20:15	57	19:11 (MO06)	19:24	46		18:55 (MO06)		18:32	16:52	16:42
17	05:51		06:22		18:13 (MO06)	06:55			18:11 (MO06)		07:28	07:07	07:37
	20:49		20:14	58	19:11 (MO06)	19:22	42		18:53 (MO06)		18:31	16:51	16:43
18	05:52		06:23		18:12 (MO06)	06:56			18:12 (MO06)		07:30	07:08	07:38
	20:48		20:13	60	19:12 (MO06)	19:20	38		18:50 (MO06)		18:29	16:51	16:43
19	05:53		06:25		18:11 (MO06)	06:57			18:15 (MO06)		07:31	07:09	07:39
	20:47		20:11	61	19:12 (MO06)	19:19	32		18:47 (MO06)		18:28	16:50	16:43
20	05:54		06:26		18:10 (MO06)	06:58			18:18 (MO06)		07:32	07:10	07:39
	20:47		20:09	63	19:13 (MO06)	19:17	25		18:43 (MO06)		18:26	16:49	16:44
21	05:55		06:27		18:09 (MO06)	07:00			18:22 (MO06)		07:33	07:11	07:40
	20:46		20:08	64	19:13 (MO06)	19:15	16		18:38 (MO06)		18:24	16:48	16:44
22	05:56		06:28		18:08 (MO06)	07:01					07:34	07:13	07:40
	20:45		20:06	65	19:13 (MO06)	19:13					18:23	16:48	16:45
23	05:57		06:29		18:08 (MO06)	07:02					07:36	07:14	07:41
	20:44		20:05	66	19:14 (MO06)	19:12					18:21	16:47	16:45
24	05:58		06:30		18:08 (MO06)	07:03					07:37	07:15	07:41
	20:43		20:03	66	19:14 (MO06)	19:10					18:20	16:46	16:46
25	05:59		06:31		18:07 (MO06)	07:04					06:38	07:16	07:42
	20:42		20:02	67	19:14 (MO06)	19:08					17:19	16:46	16:46
26	06:00		06:32		18:06 (MO06)	07:05					06:39	07:17	07:42
	20:41		20:00	68	19:14 (MO06)	19:06					17:17	16:45	16:47
27	06:01		06:33		18:06 (MO06)	07:06					06:40	07:19	07:43
	20:40		19:58	68	19:14 (MO06)	19:05					17:16	16:45	16:48
28	06:02		06:34		18:05 (MO06)	07:07					06:42	07:20	07:43
	20:39		19:57	69	19:14 (MO06)	19:03					17:14	16:44	16:48
29	06:03		06:35		18:05 (MO06)	07:08					06:43	07:21	07:43
	20:38		19:55	68	19:13 (MO06)	19:01					17:13	16:44	16:49
30	06:04		06:36		18:04 (MO06)	07:09					06:44	07:22	07:43
	20:37		19:53	69	19:13 (MO06)	18:59					17:12	16:43	16:50
31	06:05		06:37		18:04 (MO06)						06:45		07:44
	20:36		19:52	69	19:13 (MO06)						17:10		16:51
Potential sun hours	463		431			376			344		295	283	
Total, worst case				1525			1127						
Sun reduction				0.70			0.62						
Oper. time red.				1.00			1.00						
Wind dir. red.				1.00			1.00						
Total reduction				0.70			0.62						
Total, real				1068			704						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 52 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (950)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April		May		June	
1	07:44	07:29	06:51			06:59		18:39 (MO06)	06:11		18:20 (MO06)	05:40
	16:52	17:27	18:03			19:39	31	19:10 (MO06)	20:13	58	19:18 (MO06)	20:44
2	07:44	07:28	06:50			06:57		18:37 (MO06)	06:09		18:19 (MO06)	05:40
	16:52	17:28	18:04			19:40	36	19:13 (MO06)	20:14	58	19:17 (MO06)	20:45
3	07:44	07:27	06:48			06:55		18:34 (MO06)	06:08		18:20 (MO06)	05:39
	16:53	17:30	18:05			19:41	40	19:14 (MO06)	20:15	56	19:16 (MO06)	20:46
4	07:44	07:26	06:47			06:53		18:32 (MO06)	06:07		18:21 (MO06)	05:39
	16:54	17:31	18:07			19:43	43	19:15 (MO06)	20:16	55	19:16 (MO06)	20:46
5	07:44	07:25	06:45			06:52		18:31 (MO06)	06:05		18:21 (MO06)	05:39
	16:55	17:32	18:08			19:44	46	19:17 (MO06)	20:17	53	19:14 (MO06)	20:47
6	07:44	07:24	06:43			06:50		18:29 (MO06)	06:04		18:22 (MO06)	05:38
	16:56	17:34	18:09			19:45	49	19:18 (MO06)	20:19	51	19:13 (MO06)	20:48
7	07:44	07:23	06:42			06:48		18:27 (MO06)	06:03		18:23 (MO06)	05:38
	16:57	17:35	18:10			19:46	52	19:19 (MO06)	20:20	50	19:13 (MO06)	20:48
8	07:44	07:21	06:40			06:47		18:26 (MO06)	06:02		18:25 (MO06)	05:38
	16:58	17:36	18:12			19:47	54	19:20 (MO06)	20:21	47	19:12 (MO06)	20:49
9	07:44	07:20	06:38			06:45		18:24 (MO06)	06:01		18:26 (MO06)	05:37
	16:59	17:38	18:13			19:48	57	19:21 (MO06)	20:22	45	19:11 (MO06)	20:50
10	07:43	07:19	06:37			06:43		18:23 (MO06)	05:59		18:27 (MO06)	05:37
	17:00	17:39	18:14			19:49	58	19:21 (MO06)	20:23	43	19:10 (MO06)	20:50
11	07:43	07:18	06:35			06:42		18:23 (MO06)	05:58		18:28 (MO06)	05:37
	17:01	17:40	18:15			19:50	59	19:22 (MO06)	20:24	40	19:08 (MO06)	20:51
12	07:43	07:16	06:33			06:40		18:21 (MO06)	05:57		18:30 (MO06)	05:37
	17:02	17:42	18:16			19:52	61	19:22 (MO06)	20:25	37	19:07 (MO06)	20:51
13	07:42	07:15	06:32			06:38		18:20 (MO06)	05:56		18:30 (MO06)	05:37
	17:04	17:43	18:17			19:53	62	19:22 (MO06)	20:26	35	19:05 (MO06)	20:52
14	07:42	07:14	06:30			06:37		18:20 (MO06)	05:55		18:32 (MO06)	05:37
	17:05	17:44	18:19			19:54	63	19:23 (MO06)	20:27	31	19:03 (MO06)	20:52
15	07:42	07:12	06:28			06:35		18:19 (MO06)	05:54		18:35 (MO06)	05:37
	17:06	17:45	18:20			19:55	64	19:23 (MO06)	20:28	27	19:02 (MO06)	20:53
16	07:41	07:11	06:26			06:33		18:18 (MO06)	05:53		18:37 (MO06)	05:37
	17:07	17:47	18:21			19:56	64	19:22 (MO06)	20:29	23	19:00 (MO06)	20:53
17	07:41	07:10	06:25			06:32		18:18 (MO06)	05:52		18:40 (MO06)	05:37
	17:08	17:48	18:22			19:57	65	19:23 (MO06)	20:30	18	18:58 (MO06)	20:54
18	07:40	07:08	06:23			06:30		18:17 (MO06)	05:51		18:44 (MO06)	05:37
	17:09	17:49	18:23			19:58	65	19:22 (MO06)	20:31	9	18:53 (MO06)	20:54
19	07:40	07:07	06:21			06:29		18:18 (MO06)	05:50			05:37
	17:11	17:51	18:24			20:00	65	19:23 (MO06)	20:32			20:54
20	07:39	07:05	06:19			06:27		18:17 (MO06)	05:49			05:37
	17:12	17:52	18:26			20:01	65	19:22 (MO06)	20:33			20:54
21	07:38	07:04	06:18			06:25		18:17 (MO06)	05:48			05:37
	17:13	17:53	18:27			20:02	66	19:23 (MO06)	20:34			20:55
22	07:38	07:02	06:16			06:24		18:17 (MO06)	05:47			05:37
	17:14	17:54	18:28			20:03	65	19:22 (MO06)	20:35			20:55
23	07:37	07:01	06:14			06:22		18:17 (MO06)	05:46			05:38
	17:16	17:56	18:29			20:04	65	19:22 (MO06)	20:36			20:55
24	07:36	06:59	06:12			06:21		18:17 (MO06)	05:46			05:38
	17:17	17:57	18:30			20:05	64	19:21 (MO06)	20:37			20:55
25	07:35	06:58	06:11			06:19		18:17 (MO06)	05:45			05:38
	17:18	17:58	18:31			20:06	64	19:21 (MO06)	20:38			20:55
26	07:35	06:56	06:09			06:18		18:17 (MO06)	05:44			05:38
	17:19	17:59	18:32			20:07	63	19:20 (MO06)	20:39			20:55
27	07:34	06:55	06:07			06:16		18:18 (MO06)	05:43			05:39
	17:21	18:01	18:34			20:09	62	19:20 (MO06)	20:40			20:55
28	07:33	06:53	06:06			06:15		18:18 (MO06)	05:43			05:39
	17:22	18:02	18:35			20:10	62	19:20 (MO06)	20:41			20:56
29	07:32		07:04			06:14		18:18 (MO06)	05:42			05:40
	17:23		19:36			20:11	61	19:19 (MO06)	20:42			20:55
30	07:31		07:02		18:49 (MO06)	06:12		18:19 (MO06)	05:41			05:40
	17:25		19:37	13	19:02 (MO06)	20:12	59	19:18 (MO06)	20:42			20:55
31	07:30		07:00		18:43 (MO06)				05:41			
	17:26		19:38	24	19:07 (MO06)				20:43			
Potential sun hours	293	295	369			400			452			457
Total, worst case				37			1730			736		
Sun reduction				0.46			0.49			0.57		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				1.00			1.00			1.00		
Total reduction				0.46			0.49			0.57		
Total, real				17			855			419		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 52 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (950)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September			October	November	December
1	05:41			06:06		18:39 (MO06)	06:38		18:22 (MO06)	07:10	06:47	07:23
	20:55			20:35	38	19:17 (MO06)	19:50	59	19:21 (MO06)	18:58	17:09	16:43
2	05:41			06:07		18:37 (MO06)	06:39		18:22 (MO06)	07:11	06:48	07:24
	20:55			20:34	42	19:19 (MO06)	19:48	58	19:20 (MO06)	18:56	17:08	16:43
3	05:42			06:08		18:36 (MO06)	06:40		18:22 (MO06)	07:13	06:49	07:25
	20:55			20:33	44	19:20 (MO06)	19:47	57	19:19 (MO06)	18:54	17:06	16:42
4	05:42			06:09		18:35 (MO06)	06:42		18:23 (MO06)	07:14	06:50	07:26
	20:55			20:32	46	19:21 (MO06)	19:45	54	19:17 (MO06)	18:52	17:05	16:42
5	05:43			06:10		18:34 (MO06)	06:43		18:24 (MO06)	07:15	06:52	07:27
	20:55			20:30	48	19:22 (MO06)	19:43	52	19:16 (MO06)	18:51	17:04	16:42
6	05:43			06:11		18:33 (MO06)	06:44		18:25 (MO06)	07:16	06:53	07:28
	20:54			20:29	49	19:22 (MO06)	19:42	49	19:14 (MO06)	18:49	17:03	16:42
7	05:44			06:12		18:32 (MO06)	06:45		18:26 (MO06)	07:17	06:54	07:29
	20:54			20:28	51	19:23 (MO06)	19:40	47	19:13 (MO06)	18:47	17:01	16:42
8	05:45			06:13		18:31 (MO06)	06:46		18:27 (MO06)	07:18	06:55	07:30
	20:54			20:27	53	19:24 (MO06)	19:38	44	19:11 (MO06)	18:46	17:00	16:41
9	05:45			06:14		18:30 (MO06)	06:47		18:28 (MO06)	07:19	06:57	07:31
	20:53			20:25	54	19:24 (MO06)	19:36	41	19:09 (MO06)	18:44	16:59	16:41
10	05:46			06:15		18:29 (MO06)	06:48		18:30 (MO06)	07:20	06:58	07:32
	20:53			20:24	56	19:25 (MO06)	19:35	36	19:06 (MO06)	18:42	16:58	16:41
11	05:47			06:16		18:28 (MO06)	06:49		18:32 (MO06)	07:21	06:59	07:33
	20:52			20:23	57	19:25 (MO06)	19:33	31	19:03 (MO06)	18:40	16:57	16:42
12	05:47			06:17		18:27 (MO06)	06:50		18:35 (MO06)	07:23	07:00	07:34
	20:52			20:21	59	19:26 (MO06)	19:31	24	18:59 (MO06)	18:39	16:56	16:42
13	05:48			06:18		18:26 (MO06)	06:51		18:39 (MO06)	07:24	07:02	07:35
	20:51			20:20	60	19:26 (MO06)	19:29	15	18:54 (MO06)	18:37	16:55	16:42
14	05:49			06:19		18:26 (MO06)	06:52			07:25	07:03	07:35
	20:51			20:18	60	19:26 (MO06)	19:28			18:36	16:54	16:42
15	05:50			06:20		18:25 (MO06)	06:53			07:26	07:04	07:36
	20:50			20:17	62	19:27 (MO06)	19:26			18:34	16:53	16:42
16	05:51			06:21		18:24 (MO06)	06:54			07:27	07:05	07:37
	20:50			20:15	63	19:27 (MO06)	19:24			18:32	16:52	16:42
17	05:51			06:22		18:24 (MO06)	06:55			07:28	07:07	07:37
	20:49			20:14	63	19:27 (MO06)	19:22			18:31	16:51	16:43
18	05:52			06:23		18:23 (MO06)	06:56			07:30	07:08	07:38
	20:48			20:13	64	19:27 (MO06)	19:20			18:29	16:51	16:43
19	05:53			06:25		18:23 (MO06)	06:57			07:31	07:09	07:39
	20:47			20:11	64	19:27 (MO06)	19:19			18:28	16:50	16:43
20	05:54			06:26		18:22 (MO06)	06:58			07:32	07:10	07:39
	20:47			20:09	65	19:27 (MO06)	19:17			18:26	16:49	16:44
21	05:55			06:27		18:22 (MO06)	07:00			07:33	07:11	07:40
	20:46			20:08	65	19:27 (MO06)	19:15			18:24	16:48	16:44
22	05:56			06:28		18:21 (MO06)	07:01			07:34	07:13	07:40
	20:45			20:06	65	19:26 (MO06)	19:13			18:23	16:48	16:45
23	05:57			06:29		18:22 (MO06)	07:02			07:36	07:14	07:41
	20:44			20:05	65	19:27 (MO06)	19:12			18:21	16:47	16:45
24	05:58			06:30		18:22 (MO06)	07:03			07:37	07:15	07:41
	20:43			20:03	65	19:27 (MO06)	19:10			18:20	16:46	16:46
25	05:59			06:31		18:21 (MO06)	07:04			06:38	07:16	07:42
	20:42			20:02	65	19:26 (MO06)	19:08			17:19	16:46	16:46
26	06:00		18:52 (MO06)	06:32		18:21 (MO06)	07:05			06:39	07:17	07:42
	20:41	14	19:06 (MO06)	20:00	65	19:26 (MO06)	19:06			17:17	16:45	16:47
27	06:01		18:49 (MO06)	06:33		18:21 (MO06)	07:06			06:40	07:19	07:43
	20:40	20	19:09 (MO06)	19:58	64	19:25 (MO06)	19:05			17:16	16:45	16:48
28	06:02		18:46 (MO06)	06:34		18:21 (MO06)	07:07			06:42	07:20	07:43
	20:39	25	19:11 (MO06)	19:57	63	19:24 (MO06)	19:03			17:14	16:44	16:48
29	06:03		18:44 (MO06)	06:35		18:21 (MO06)	07:08			06:43	07:21	07:43
	20:38	29	19:13 (MO06)	19:55	63	19:24 (MO06)	19:01			17:13	16:44	16:49
30	06:04		18:42 (MO06)	06:36		18:21 (MO06)	07:09			06:44	07:22	07:43
	20:37	32	19:14 (MO06)	19:53	62	19:23 (MO06)	18:59			17:11	16:43	16:50
31	06:05		18:40 (MO06)	06:37		18:21 (MO06)				06:45		07:44
	20:36	36	19:16 (MO06)	19:52	61	19:22 (MO06)				17:10		16:51
Potential sun hours	463			431			376			344	295	283
Total, worst case		156			1801			567				
Sun reduction		0.71			0.70			0.62				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		1.00			1.00			1.00				
Total reduction		0.71			0.70			0.62				
Total, real		110			1262			354				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 53 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (951)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March			April			May			June		
1	07:44		07:29		06:51			06:59			18:20 (MO06)	06:11		18:21 (MO06)	05:40	
	16:52		17:27		18:03			19:39	50		19:10 (MO06)	20:13	37	18:58 (MO06)	20:44	
2	07:44		07:28		06:50			06:57			18:19 (MO06)	06:09		18:22 (MO06)	05:40	
	16:52		17:28		18:04			19:40	53		19:12 (MO06)	20:14	34	18:56 (MO06)	20:45	
3	07:44		07:27		06:48			06:55			18:18 (MO06)	06:08		18:24 (MO06)	05:39	
	16:53		17:30		18:05			19:41	54		19:12 (MO06)	20:15	30	18:54 (MO06)	20:46	
4	07:44		07:26		06:47			06:53			18:16 (MO06)	06:07		18:27 (MO06)	05:39	
	16:54		17:31		18:07			19:43	56		19:12 (MO06)	20:16	25	18:52 (MO06)	20:46	
5	07:44		07:25		06:45			06:52			18:16 (MO06)	06:05		18:29 (MO06)	05:39	
	16:55		17:32		18:08			19:44	58		19:14 (MO06)	20:17	20	18:49 (MO06)	20:47	
6	07:44		07:24		06:43			06:50			18:15 (MO06)	06:04		18:33 (MO06)	05:38	
	16:56		17:34		18:09			19:45	59		19:14 (MO06)	20:19	12	18:45 (MO06)	20:48	
7	07:44		07:23		06:42			06:48			18:14 (MO06)	06:03			05:38	
	16:57		17:35		18:10			19:46	59		19:13 (MO06)	20:20			20:48	
8	07:44		07:21		06:40			06:47			18:14 (MO06)	06:02			05:38	
	16:58		17:36		18:12			19:47	60		19:14 (MO06)	20:21			20:49	
9	07:44		07:20		06:38			06:45			18:13 (MO06)	06:01			05:37	
	16:59		17:38		18:13			19:48	61		19:14 (MO06)	20:22			20:50	
10	07:43		07:19		06:37			06:43			18:12 (MO06)	05:59			05:37	
	17:00		17:39		18:14			19:49	62		19:14 (MO06)	20:23			20:50	
11	07:43		07:18		06:35			06:42			18:12 (MO06)	05:58			05:37	
	17:01		17:40		18:15			19:50	62		19:14 (MO06)	20:24			20:51	
12	07:43		07:16		06:33			06:40			18:12 (MO06)	05:57			05:37	
	17:02		17:42		18:16			19:52	62		19:14 (MO06)	20:25			20:51	
13	07:42		07:15		06:32			06:38			18:11 (MO06)	05:56			05:37	
	17:04		17:43		18:17			19:53	62		19:13 (MO06)	20:26			20:52	
14	07:42		07:14		06:30			06:37			18:11 (MO06)	05:55			05:37	
	17:05		17:44		18:19			19:54	62		19:13 (MO06)	20:27			20:52	
15	07:42		07:12		06:28			06:35			18:11 (MO06)	05:54			05:37	
	17:06		17:45		18:20			19:55	62		19:13 (MO06)	20:28			20:53	
16	07:41		07:11		06:26			06:33			18:10 (MO06)	05:53			05:37	
	17:07		17:47		18:21			19:56	62		19:12 (MO06)	20:29			20:53	
17	07:41		07:10		06:25			06:32			18:11 (MO06)	05:52			05:37	
	17:08		17:48		18:22			19:57	61		19:12 (MO06)	20:30			20:54	
18	07:40		07:08		06:23			06:30			18:11 (MO06)	05:51			05:37	
	17:09		17:49		18:23			19:58	60		19:11 (MO06)	20:31			20:54	
19	07:40		07:07		06:21			06:29			18:12 (MO06)	05:50			05:37	
	17:11		17:51		18:24			20:00	59		19:11 (MO06)	20:32			20:54	
20	07:39		07:05		06:19			06:27			18:11 (MO06)	05:49			05:37	
	17:12		17:52		18:26			20:01	59		19:10 (MO06)	20:33			20:54	
21	07:38		07:04		06:18			06:25			18:12 (MO06)	05:48			05:37	
	17:13		17:53		18:27			20:02	58		19:10 (MO06)	20:34			20:55	
22	07:38		07:02		06:16			06:24			18:12 (MO06)	05:47			05:37	
	17:14		17:54		18:28			20:03	56		19:08 (MO06)	20:35			20:55	
23	07:37		07:01		06:14			06:22			18:13 (MO06)	05:46			05:38	
	17:16		17:56		18:29			20:04	55		19:08 (MO06)	20:36			20:55	
24	07:36		06:59		06:12		17:42 (MO06)	06:21			18:13 (MO06)	05:46			05:38	
	17:17		17:57		18:30	11	17:53 (MO06)	20:05	54		19:07 (MO06)	20:37			20:55	
25	07:35		06:58		06:11		17:37 (MO06)	06:19			18:15 (MO06)	05:45			05:38	
	17:18		17:58		18:31	22	17:59 (MO06)	20:06	51		19:06 (MO06)	20:38			20:55	
26	07:35		06:56		06:09		17:33 (MO06)	06:18			18:15 (MO06)	05:44			05:38	
	17:19		17:59		18:32	29	18:02 (MO06)	20:07	49		19:04 (MO06)	20:39			20:55	
27	07:34		06:55		06:07		17:30 (MO06)	06:16			18:16 (MO06)	05:43			05:39	
	17:21		18:01		18:34	34	18:04 (MO06)	20:09	48		19:04 (MO06)	20:40			20:55	
28	07:33		06:53		06:06		17:27 (MO06)	06:15			18:17 (MO06)	05:43			05:39	
	17:22		18:02		18:35	39	18:06 (MO06)	20:10	46		19:03 (MO06)	20:41			20:56	
29	07:32				07:04		18:26 (MO06)	06:14			18:18 (MO06)	05:42			05:40	
	17:23				19:36	42	19:08 (MO06)	20:11	43		19:01 (MO06)	20:42			20:55	
30	07:31				07:02		18:23 (MO06)	06:12			18:19 (MO06)	05:41			05:40	
	17:25				19:37	46	19:09 (MO06)	20:12	41		19:00 (MO06)	20:42			20:55	
31	07:30				07:00		18:21 (MO06)					05:41				
	17:26				19:38	49	19:10 (MO06)					20:43				
Potential sun hours	293		295		369			400				452			457	
Total, worst case						272			1684				158			
Sun reduction						0.46			0.49				0.57			
Oper. time red.						1.00			1.00				1.00			
Wind dir. red.						1.00			1.00				1.00			
Total reduction						0.46			0.49				0.57			
Total, real						125			833				90			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 53 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (951)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August			September			October	November	December
1	05:41	06:06			06:38		18:11 (MO06)	07:10	06:47	07:23
	20:55	20:35			19:50	62	19:13 (MO06)	18:58	17:09	16:43
2	05:41	06:07			06:39		18:11 (MO06)	07:11	06:48	07:24
	20:55	20:34			19:48	62	19:13 (MO06)	18:56	17:08	16:43
3	05:42	06:08			06:40		18:11 (MO06)	07:13	06:49	07:25
	20:55	20:33			19:47	61	19:12 (MO06)	18:54	17:06	16:42
4	05:42	06:09			06:42		18:11 (MO06)	07:14	06:50	07:26
	20:55	20:32			19:45	60	19:11 (MO06)	18:52	17:05	16:42
5	05:43	06:10			06:43		18:11 (MO06)	07:15	06:52	07:27
	20:55	20:30			19:43	60	19:11 (MO06)	18:51	17:04	16:42
6	05:43	06:11			06:44		18:11 (MO06)	07:16	06:53	07:28
	20:54	20:29			19:42	59	19:10 (MO06)	18:49	17:03	16:42
7	05:44	06:12		18:41 (MO06)	06:45		18:11 (MO06)	07:17	06:54	07:29
	20:54	20:28	15	18:56 (MO06)	19:40	58	19:09 (MO06)	18:47	17:01	16:42
8	05:45	06:13		18:37 (MO06)	06:46		18:11 (MO06)	07:18	06:55	07:30
	20:54	20:27	22	18:59 (MO06)	19:38	57	19:08 (MO06)	18:45	17:00	16:41
9	05:45	06:14		18:34 (MO06)	06:47		18:12 (MO06)	07:19	06:57	07:31
	20:53	20:25	28	19:02 (MO06)	19:36	54	19:06 (MO06)	18:44	16:59	16:41
10	05:46	06:15		18:32 (MO06)	06:48		18:12 (MO06)	07:20	06:58	07:32
	20:53	20:24	32	19:04 (MO06)	19:35	53	19:05 (MO06)	18:42	16:58	16:41
11	05:47	06:16		18:30 (MO06)	06:49		18:13 (MO06)	07:21	06:59	07:33
	20:52	20:23	35	19:05 (MO06)	19:33	51	19:04 (MO06)	18:40	16:57	16:42
12	05:47	06:17		18:28 (MO06)	06:50		18:13 (MO06)	07:23	07:00	07:34
	20:52	20:21	39	19:07 (MO06)	19:31	49	19:02 (MO06)	18:39	16:56	16:42
13	05:48	06:18		18:27 (MO06)	06:51		18:14 (MO06)	07:24	07:02	07:35
	20:51	20:20	41	19:08 (MO06)	19:29	46	19:00 (MO06)	18:37	16:55	16:42
14	05:49	06:19		18:25 (MO06)	06:52		18:15 (MO06)	07:25	07:03	07:35
	20:51	20:18	44	19:09 (MO06)	19:28	44	18:59 (MO06)	18:36	16:54	16:42
15	05:50	06:20		18:24 (MO06)	06:53		18:17 (MO06)	07:26	07:04	07:36
	20:50	20:17	46	19:10 (MO06)	19:26	39	18:56 (MO06)	18:34	16:53	16:42
16	05:51	06:21		18:23 (MO06)	06:54		18:18 (MO06)	07:27	07:05	07:37
	20:50	20:15	48	19:11 (MO06)	19:24	36	18:54 (MO06)	18:32	16:52	16:42
17	05:51	06:22		18:21 (MO06)	06:55		18:21 (MO06)	07:28	07:07	07:37
	20:49	20:14	50	19:11 (MO06)	19:22	30	18:51 (MO06)	18:31	16:51	16:43
18	05:52	06:23		18:20 (MO06)	06:56		18:23 (MO06)	07:30	07:08	07:38
	20:48	20:13	52	19:12 (MO06)	19:20	24	18:47 (MO06)	18:29	16:51	16:43
19	05:53	06:25		18:19 (MO06)	06:57		18:28 (MO06)	07:31	07:09	07:39
	20:47	20:11	53	19:12 (MO06)	19:19	14	18:42 (MO06)	18:28	16:50	16:43
20	05:54	06:26		18:18 (MO06)	06:58			07:32	07:10	07:39
	20:47	20:09	55	19:13 (MO06)	19:17			18:26	16:49	16:44
21	05:55	06:27		18:17 (MO06)	07:00			07:33	07:11	07:40
	20:46	20:08	56	19:13 (MO06)	19:15			18:24	16:48	16:44
22	05:56	06:28		18:16 (MO06)	07:01			07:34	07:13	07:40
	20:45	20:06	57	19:13 (MO06)	19:13			18:23	16:47	16:45
23	05:57	06:29		18:16 (MO06)	07:02			07:36	07:14	07:41
	20:44	20:05	59	19:15 (MO06)	19:12			18:21	16:47	16:45
24	05:58	06:30		18:15 (MO06)	07:03			07:37	07:15	07:41
	20:43	20:03	60	19:15 (MO06)	19:10			18:20	16:46	16:46
25	05:59	06:31		18:15 (MO06)	07:04			06:38	07:16	07:42
	20:42	20:02	60	19:15 (MO06)	19:08			17:19	16:46	16:46
26	06:00	06:32		18:14 (MO06)	07:05			06:39	07:17	07:42
	20:41	20:00	61	19:15 (MO06)	19:06			17:17	16:45	16:47
27	06:01	06:33		18:13 (MO06)	07:06			06:40	07:19	07:43
	20:40	19:58	62	19:15 (MO06)	19:05			17:16	16:45	16:48
28	06:02	06:34		18:13 (MO06)	07:07			06:42	07:20	07:43
	20:39	19:57	62	19:15 (MO06)	19:03			17:14	16:44	16:48
29	06:03	06:35		18:12 (MO06)	07:08			06:43	07:21	07:43
	20:38	19:55	62	19:14 (MO06)	19:01			17:13	16:44	16:49
30	06:04	06:36		18:12 (MO06)	07:09			06:44	07:22	07:43
	20:37	19:53	62	19:14 (MO06)	18:59			17:11	16:43	16:50
31	06:05	06:37		18:11 (MO06)				06:45		07:44
	20:36	19:52	63	19:14 (MO06)				17:10		16:51
Potential sun hours	463	431			376			344	295	283
Total, worst case			1224			919				
Sun reduction			0.70			0.62				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.70			0.62				
Total, real			857			574				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 54 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (952)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 55 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (953)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April			May			June		
1	07:44	07:29	06:51	06:58			06:11		19:16 (MO04)	05:40		19:04 (MO04)
	16:51	17:27	18:03	19:39			20:13	33	19:49 (MO04)	20:44	59	20:03 (MO04)
2	07:44	07:28	06:50	06:57			06:09		19:15 (MO04)	05:40		19:05 (MO04)
	16:52	17:28	18:04	19:40			20:14	35	19:50 (MO04)	20:45	58	20:03 (MO04)
3	07:44	07:27	06:48	06:55			06:08		19:13 (MO04)	05:39		19:04 (MO04)
	16:53	17:30	18:05	19:41			20:15	39	19:52 (MO04)	20:45	59	20:03 (MO04)
4	07:44	07:26	06:46	06:53			06:07		19:11 (MO04)	05:39		19:05 (MO04)
	16:54	17:31	18:06	19:42			20:16	41	19:52 (MO04)	20:46	58	20:03 (MO04)
5	07:44	07:25	06:45	06:51			06:05		19:10 (MO04)	05:38		19:06 (MO04)
	16:55	17:32	18:08	19:43			20:17	43	19:53 (MO04)	20:47	58	20:04 (MO04)
6	07:44	07:23	06:43	06:50			06:04		19:09 (MO04)	05:38		19:05 (MO04)
	16:56	17:33	18:09	19:45			20:18	45	19:54 (MO04)	20:47	58	20:03 (MO04)
7	07:44	07:22	06:41	06:48			06:03		19:08 (MO04)	05:38		19:06 (MO04)
	16:57	17:35	18:10	19:46			20:19	48	19:56 (MO04)	20:48	57	20:03 (MO04)
8	07:43	07:21	06:40	06:46			06:01		19:08 (MO04)	05:37		19:06 (MO04)
	16:58	17:36	18:11	19:47			20:20	49	19:57 (MO04)	20:49	58	20:04 (MO04)
9	07:43	07:20	06:38	06:45			06:00		19:07 (MO04)	05:37		19:07 (MO04)
	16:59	17:37	18:12	19:48			20:22	51	19:58 (MO04)	20:49	57	20:04 (MO04)
10	07:43	07:19	06:36	06:43			05:59		19:05 (MO04)	05:37		19:07 (MO04)
	17:00	17:39	18:14	19:49			20:23	53	19:58 (MO04)	20:50	57	20:04 (MO04)
11	07:43	07:17	06:35	06:41			05:58		19:05 (MO04)	05:37		19:07 (MO04)
	17:01	17:40	18:15	19:50			20:24	53	19:58 (MO04)	20:51	56	20:03 (MO04)
12	07:42	07:16	06:33	06:40			05:57		19:04 (MO04)	05:37		19:07 (MO04)
	17:02	17:41	18:16	19:51			20:25	55	19:59 (MO04)	20:51	57	20:04 (MO04)
13	07:42	07:15	06:31	06:38			05:56		19:04 (MO04)	05:37		19:08 (MO04)
	17:03	17:43	18:17	19:52			20:26	55	19:59 (MO04)	20:52	56	20:04 (MO04)
14	07:42	07:13	06:30	06:36			05:55		19:04 (MO04)	05:36		19:08 (MO04)
	17:04	17:44	18:18	19:54			20:27	56	20:00 (MO04)	20:52	56	20:04 (MO04)
15	07:41	07:12	06:28	06:35			05:54		19:03 (MO04)	05:36		19:08 (MO04)
	17:06	17:45	18:19	19:55			20:28	57	20:00 (MO04)	20:52	56	20:04 (MO04)
16	07:41	07:11	06:26	06:33			05:52		19:03 (MO04)	05:36		19:08 (MO04)
	17:07	17:46	18:21	19:56			20:29	57	20:00 (MO04)	20:53	56	20:04 (MO04)
17	07:40	07:09	06:24	06:32			05:51		19:03 (MO04)	05:36		19:09 (MO04)
	17:08	17:48	18:22	19:57			20:30	58	20:01 (MO04)	20:53	55	20:04 (MO04)
18	07:40	07:08	06:23	06:30			05:51		19:02 (MO04)	05:36		19:09 (MO04)
	17:09	17:49	18:23	19:58			20:31	59	20:01 (MO04)	20:54	55	20:04 (MO04)
19	07:39	07:06	06:21	06:28			05:50		19:03 (MO04)	05:37		19:10 (MO04)
	17:10	17:50	18:24	19:59			20:32	59	20:02 (MO04)	20:54	55	20:05 (MO04)
20	07:39	07:05	06:19	06:27			05:49		19:03 (MO04)	05:37		19:10 (MO04)
	17:12	17:52	18:25	20:00			20:33	59	20:02 (MO04)	20:54	55	20:05 (MO04)
21	07:38	07:04	06:17	06:25			05:48		19:03 (MO04)	05:37		19:10 (MO04)
	17:13	17:53	18:26	20:01			20:34	59	20:02 (MO04)	20:54	55	20:05 (MO04)
22	07:37	07:02	06:16	06:24			05:47		19:02 (MO04)	05:37		19:10 (MO04)
	17:14	17:54	18:28	20:03			20:35	60	20:02 (MO04)	20:55	55	20:05 (MO04)
23	07:37	07:01	06:14	06:22			05:46		19:02 (MO04)	05:37		19:10 (MO04)
	17:15	17:55	18:29	20:04			20:36	60	20:02 (MO04)	20:55	55	20:05 (MO04)
24	07:36	06:59	06:12	06:21			05:45		19:03 (MO04)	05:38		19:11 (MO04)
	17:17	17:57	18:30	20:05			20:37	60	20:03 (MO04)	20:55	55	20:06 (MO04)
25	07:35	06:57	06:10	06:19			05:45		19:03 (MO04)	05:38		19:11 (MO04)
	17:18	17:58	18:31	20:06			20:38	59	20:02 (MO04)	20:55	55	20:06 (MO04)
26	07:34	06:56	06:09	06:18			05:44		19:03 (MO04)	05:38		19:11 (MO04)
	17:19	17:59	18:32	20:07			20:39	59	20:02 (MO04)	20:55	55	20:06 (MO04)
27	07:34	06:54	06:07	06:16			05:43		19:03 (MO04)	05:39		19:11 (MO04)
	17:20	18:00	18:33	20:08			20:40	60	20:03 (MO04)	20:55	56	20:07 (MO04)
28	07:33	06:53	06:05	06:15		19:26 (MO04)	05:42		19:03 (MO04)	05:39		19:11 (MO04)
	17:22	18:02	18:34	20:09	14	19:40 (MO04)	20:40	59	20:02 (MO04)	20:55	56	20:07 (MO04)
29	07:32		07:03	06:13		19:22 (MO04)	05:42		19:04 (MO04)	05:39		19:12 (MO04)
	17:23		19:36	20:10	22	19:44 (MO04)	20:41	59	20:03 (MO04)	20:55	56	20:08 (MO04)
30	07:31		07:02	06:12		19:19 (MO04)	05:41		19:04 (MO04)	05:40		19:11 (MO04)
	17:24		19:37	20:12	28	19:47 (MO04)	20:42	59	20:03 (MO04)	20:55	57	20:08 (MO04)
31	07:30		07:00				05:41		19:04 (MO04)			
	17:26		19:38				20:43	59	20:03 (MO04)			
Potential sun hours	293	295	369	400			452			457		
Total, worst case					64			1658			1691	
Sun reduction					0.49			0.57			0.61	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					1.00			1.00			1.00	
Total reduction					0.49			0.57			0.61	
Total, real					32			944			1033	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 55 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (953)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40		19:12 (MO04)	06:05		19:15 (MO04)	06:38	07:10	06:46	07:23
	20:55	56	20:08 (MO04)	20:35	54	20:09 (MO04)	19:50	18:57	17:09	16:43
2	05:41		19:12 (MO04)	06:06		19:16 (MO04)	06:39	07:11	06:48	07:24
	20:55	56	20:08 (MO04)	20:34	53	20:09 (MO04)	19:48	18:56	17:07	16:42
3	05:41		19:12 (MO04)	06:07		19:16 (MO04)	06:40	07:12	06:49	07:25
	20:55	57	20:09 (MO04)	20:33	52	20:08 (MO04)	19:46	18:54	17:06	16:42
4	05:42		19:12 (MO04)	06:08		19:17 (MO04)	06:41	07:13	06:50	07:26
	20:54	57	20:09 (MO04)	20:31	50	20:07 (MO04)	19:45	18:52	17:05	16:42
5	05:42		19:12 (MO04)	06:09		19:18 (MO04)	06:42	07:14	06:51	07:27
	20:54	57	20:09 (MO04)	20:30	48	20:06 (MO04)	19:43	18:50	17:04	16:42
6	05:43		19:12 (MO04)	06:11		19:18 (MO04)	06:43	07:16	06:53	07:28
	20:54	57	20:09 (MO04)	20:29	47	20:05 (MO04)	19:41	18:49	17:02	16:41
7	05:44		19:12 (MO04)	06:12		19:19 (MO04)	06:44	07:17	06:54	07:29
	20:54	58	20:10 (MO04)	20:28	45	20:04 (MO04)	19:40	18:47	17:01	16:41
8	05:44		19:12 (MO04)	06:13		19:20 (MO04)	06:45	07:18	06:55	07:30
	20:53	58	20:10 (MO04)	20:26	42	20:02 (MO04)	19:38	18:45	17:00	16:41
9	05:45		19:12 (MO04)	06:14		19:21 (MO04)	06:47	07:19	06:56	07:31
	20:53	58	20:10 (MO04)	20:25	40	20:01 (MO04)	19:36	18:44	16:59	16:41
10	05:46		19:12 (MO04)	06:15		19:23 (MO04)	06:48	07:20	06:58	07:32
	20:52	58	20:10 (MO04)	20:24	37	20:00 (MO04)	19:34	18:42	16:58	16:41
11	05:46		19:12 (MO04)	06:16		19:24 (MO04)	06:49	07:21	06:59	07:33
	20:52	59	20:11 (MO04)	20:22	35	19:59 (MO04)	19:33	18:40	16:57	16:41
12	05:47		19:12 (MO04)	06:17		19:26 (MO04)	06:50	07:22	07:00	07:33
	20:52	59	20:11 (MO04)	20:21	31	19:57 (MO04)	19:31	18:39	16:56	16:41
13	05:48		19:12 (MO04)	06:18		19:28 (MO04)	06:51	07:24	07:01	07:34
	20:51	59	20:11 (MO04)	20:20	26	19:54 (MO04)	19:29	18:37	16:55	16:41
14	05:49		19:12 (MO04)	06:19		19:30 (MO04)	06:52	07:25	07:03	07:35
	20:50	59	20:11 (MO04)	20:18	21	19:51 (MO04)	19:27	18:35	16:54	16:42
15	05:50		19:13 (MO04)	06:20		19:35 (MO04)	06:53	07:26	07:04	07:36
	20:50	59	20:12 (MO04)	20:17	12	19:47 (MO04)	19:26	18:34	16:53	16:42
16	05:50		19:13 (MO04)	06:21			06:54	07:27	07:05	07:36
	20:49	59	20:12 (MO04)	20:15			19:24	18:32	16:52	16:42
17	05:51		19:12 (MO04)	06:22			06:55	07:28	07:06	07:37
	20:49	59	20:11 (MO04)	20:14			19:22	18:30	16:51	16:42
18	05:52		19:12 (MO04)	06:23			06:56	07:29	07:08	07:38
	20:48	60	20:12 (MO04)	20:12			19:20	18:29	16:50	16:43
19	05:53		19:12 (MO04)	06:24			06:57	07:30	07:09	07:38
	20:47	60	20:12 (MO04)	20:11			19:18	18:27	16:49	16:43
20	05:54		19:13 (MO04)	06:25			06:58	07:32	07:10	07:39
	20:46	59	20:12 (MO04)	20:09			19:17	18:26	16:49	16:43
21	05:55		19:13 (MO04)	06:26			06:59	07:33	07:11	07:40
	20:46	59	20:12 (MO04)	20:08			19:15	18:24	16:48	16:44
22	05:56		19:13 (MO04)	06:27			07:00	07:34	07:12	07:40
	20:45	59	20:12 (MO04)	20:06			19:13	18:23	16:47	16:44
23	05:57		19:13 (MO04)	06:29			07:01	07:35	07:14	07:41
	20:44	59	20:12 (MO04)	20:05			19:11	18:21	16:47	16:45
24	05:58		19:14 (MO04)	06:30			07:02	07:36	07:15	07:41
	20:43	58	20:12 (MO04)	20:03			19:10	18:20	16:46	16:45
25	05:58		19:13 (MO04)	06:31			07:04	06:38	07:16	07:42
	20:42	58	20:11 (MO04)	20:01			19:08	17:18	16:45	16:46
26	05:59		19:13 (MO04)	06:32			07:05	06:39	07:17	07:42
	20:41	58	20:11 (MO04)	20:00			19:06	17:17	16:45	16:47
27	06:00		19:13 (MO04)	06:33			07:06	06:40	07:18	07:42
	20:40	58	20:11 (MO04)	19:58			19:04	17:15	16:44	16:47
28	06:01		19:14 (MO04)	06:34			07:07	06:41	07:19	07:43
	20:39	57	20:11 (MO04)	19:56			19:03	17:14	16:44	16:48
29	06:02		19:14 (MO04)	06:35			07:08	06:43	07:21	07:43
	20:38	57	20:11 (MO04)	19:55			19:01	17:13	16:43	16:49
30	06:03		19:14 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	56	20:10 (MO04)	19:53			18:59	17:11	16:43	16:49
31	06:04		19:15 (MO04)	06:37				06:45		07:43
	20:36	55	20:10 (MO04)	19:51				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		1798			593					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		1268			415					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 56 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (954)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March			April	May	June
1	07:44	07:29			06:51		16:49 (MO04)	06:58	06:11	05:40
	16:51	17:27			18:03	51	17:40 (MO04)	19:39	20:13	20:44
2	07:44	07:28			06:50		16:48 (MO04)	06:57	06:09	05:40
	16:52	17:28			18:04	52	17:40 (MO04)	19:40	20:14	20:45
3	07:44	07:27			06:48		16:47 (MO04)	06:55	06:08	05:39
	16:53	17:30			18:05	53	17:40 (MO04)	19:41	20:15	20:45
4	07:44	07:26			06:46		16:47 (MO04)	06:53	06:07	05:39
	16:54	17:31			18:06	54	17:41 (MO04)	19:42	20:16	20:46
5	07:44	07:25			06:45		16:46 (MO04)	06:51	06:05	05:38
	16:55	17:32			18:08	55	17:41 (MO04)	19:43	20:17	20:47
6	07:44	07:23			06:43		16:45 (MO04)	06:50	06:04	05:38
	16:56	17:33			18:09	55	17:40 (MO04)	19:45	20:18	20:47
7	07:44	07:22			06:41		16:45 (MO04)	06:48	06:03	05:38
	16:57	17:35			18:10	56	17:41 (MO04)	19:46	20:19	20:48
8	07:43	07:21			06:40		16:45 (MO04)	06:46	06:01	05:37
	16:58	17:36			18:11	56	17:41 (MO04)	19:47	20:20	20:49
9	07:43	07:20			06:38		16:44 (MO04)	06:45	06:00	05:37
	16:59	17:37			18:12	56	17:40 (MO04)	19:48	20:22	20:49
10	07:43	07:19			06:36		16:45 (MO04)	06:43	05:59	05:37
	17:00	17:39			18:14	56	17:41 (MO04)	19:49	20:23	20:50
11	07:43	07:17			06:35		16:44 (MO04)	06:41	05:58	05:37
	17:01	17:40			18:15	56	17:40 (MO04)	19:50	20:24	20:51
12	07:42	07:16			06:33		16:44 (MO04)	06:40	05:57	05:37
	17:02	17:41			18:16	55	17:39 (MO04)	19:51	20:25	20:51
13	07:42	07:15			06:31		16:44 (MO04)	06:38	05:56	05:37
	17:03	17:43			18:17	54	17:38 (MO04)	19:52	20:26	20:52
14	07:42	07:13			06:30		16:45 (MO04)	06:36	05:55	05:36
	17:04	17:44			18:18	54	17:39 (MO04)	19:54	20:27	20:52
15	07:41	07:12			06:28		16:45 (MO04)	06:35	05:54	05:36
	17:06	17:45			18:19	53	17:38 (MO04)	19:55	20:28	20:52
16	07:41	07:11			06:26		16:45 (MO04)	06:33	05:52	05:36
	17:07	17:46			18:21	51	17:36 (MO04)	19:56	20:29	20:53
17	07:40	07:09			06:24		16:45 (MO04)	06:32	05:51	05:36
	17:08	17:48			18:22	50	17:35 (MO04)	19:57	20:30	20:53
18	07:40	07:08			06:23		16:47 (MO04)	06:30	05:51	05:36
	17:09	17:49			18:23	48	17:35 (MO04)	19:58	20:31	20:54
19	07:39	07:06		17:09 (MO04)	06:21		16:47 (MO04)	06:28	05:50	05:37
	17:10	17:50	12	17:21 (MO04)	18:24	46	17:33 (MO04)	19:59	20:32	20:54
20	07:39	07:05		17:04 (MO04)	06:19		16:48 (MO04)	06:27	05:49	05:37
	17:12	17:52	22	17:26 (MO04)	18:25	44	17:32 (MO04)	20:00	20:33	20:54
21	07:38	07:04		17:01 (MO04)	06:17		16:49 (MO04)	06:25	05:48	05:37
	17:13	17:53	28	17:29 (MO04)	18:26	41	17:30 (MO04)	20:01	20:34	20:54
22	07:37	07:02		16:59 (MO04)	06:16		16:51 (MO04)	06:24	05:47	05:37
	17:14	17:54	32	17:31 (MO04)	18:28	38	17:29 (MO04)	20:03	20:35	20:55
23	07:37	07:01		16:56 (MO04)	06:14		16:52 (MO04)	06:22	05:46	05:37
	17:15	17:55	37	17:33 (MO04)	18:29	34	17:26 (MO04)	20:04	20:36	20:55
24	07:36	06:59		16:55 (MO04)	06:12		16:54 (MO04)	06:21	05:45	05:38
	17:17	17:57	40	17:35 (MO04)	18:30	30	17:24 (MO04)	20:05	20:37	20:55
25	07:35	06:57		16:53 (MO04)	06:10		16:56 (MO04)	06:19	05:45	05:38
	17:18	17:58	43	17:36 (MO04)	18:31	25	17:21 (MO04)	20:06	20:38	20:55
26	07:34	06:56		16:51 (MO04)	06:09		17:00 (MO04)	06:18	05:44	05:38
	17:19	17:59	45	17:36 (MO04)	18:32	18	17:18 (MO04)	20:07	20:39	20:55
27	07:34	06:54		16:51 (MO04)	06:07			06:16	05:43	05:39
	17:20	18:00	47	17:38 (MO04)	18:33			20:08	20:40	20:55
28	07:33	06:53		16:49 (MO04)	06:05			06:15	05:42	05:39
	17:22	18:02	49	17:38 (MO04)	18:34			20:09	20:40	20:55
29	07:32				07:03			06:13	05:42	05:39
	17:23				19:36			20:10	20:41	20:55
30	07:31				07:02			06:12	05:41	05:40
	17:24				19:37			20:12	20:42	20:55
31	07:30				07:00				05:41	
	17:26				19:38				20:43	
Potential sun hours	293	295			369			400	452	457
Total, worst case			355			1241				
Sun reduction			0.46			0.46				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.46			0.46				
Total, real			164			569				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 56 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (954)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September			October			November	December
1	05:40	06:05	06:38			07:10		17:24 (MO04)	06:46	07:23
	20:55	20:35	19:50			18:57	55	18:19 (MO04)	17:09	16:43
2	05:41	06:06	06:39			07:11		17:23 (MO04)	06:48	07:24
	20:55	20:34	19:48			18:56	56	18:19 (MO04)	17:07	16:42
3	05:41	06:07	06:40			07:12		17:22 (MO04)	06:49	07:25
	20:55	20:33	19:46			18:54	56	18:18 (MO04)	17:06	16:42
4	05:42	06:08	06:41			07:13		17:22 (MO04)	06:50	07:26
	20:55	20:31	19:45			18:52	56	18:18 (MO04)	17:05	16:42
5	05:42	06:09	06:42			07:14		17:21 (MO04)	06:51	07:27
	20:54	20:30	19:43			18:50	56	18:17 (MO04)	17:04	16:42
6	05:43	06:11	06:43			07:16		17:21 (MO04)	06:53	07:28
	20:54	20:29	19:41			18:49	56	18:17 (MO04)	17:02	16:41
7	05:44	06:12	06:44			07:17		17:20 (MO04)	06:54	07:29
	20:54	20:28	19:40			18:47	56	18:16 (MO04)	17:01	16:41
8	05:44	06:13	06:45			07:18		17:20 (MO04)	06:55	07:30
	20:53	20:26	19:38			18:45	56	18:16 (MO04)	17:00	16:41
9	05:45	06:14	06:47			07:19		17:21 (MO04)	06:56	07:31
	20:53	20:25	19:36			18:44	55	18:16 (MO04)	16:59	16:41
10	05:46	06:15	06:48			07:20		17:21 (MO04)	06:58	07:32
	20:53	20:24	19:34			18:42	54	18:15 (MO04)	16:58	16:41
11	05:46	06:16	06:49			07:21		17:21 (MO04)	06:59	07:33
	20:52	20:22	19:33			18:40	53	18:14 (MO04)	16:57	16:41
12	05:47	06:17	06:50			07:22		17:21 (MO04)	07:00	07:33
	20:52	20:21	19:31			18:39	52	18:13 (MO04)	16:56	16:41
13	05:48	06:18	06:51			07:24		17:22 (MO04)	07:01	07:34
	20:51	20:20	19:29			18:37	50	18:12 (MO04)	16:55	16:41
14	05:49	06:19	06:52			07:25		17:23 (MO04)	07:03	07:35
	20:50	20:18	19:27			18:35	48	18:11 (MO04)	16:54	16:42
15	05:50	06:20	06:53			07:26		17:24 (MO04)	07:04	07:36
	20:50	20:17	19:26			18:34	46	18:10 (MO04)	16:53	16:42
16	05:50	06:21	06:54			07:27		17:24 (MO04)	07:05	07:36
	20:49	20:15	19:24			18:32	44	18:08 (MO04)	16:52	16:42
17	05:51	06:22	06:55		17:49 (MO04)	07:28		17:25 (MO04)	07:06	07:37
	20:49	20:14	19:22	16	18:05 (MO04)	18:30	42	18:07 (MO04)	16:51	16:42
18	05:52	06:23	06:56		17:45 (MO04)	07:29		17:26 (MO04)	07:08	07:38
	20:48	20:12	19:20	23	18:08 (MO04)	18:29	39	18:05 (MO04)	16:50	16:43
19	05:53	06:24	06:57		17:42 (MO04)	07:30		17:29 (MO04)	07:09	07:38
	20:47	20:11	19:18	29	18:11 (MO04)	18:27	35	18:04 (MO04)	16:49	16:43
20	05:54	06:25	06:58		17:39 (MO04)	07:32		17:30 (MO04)	07:10	07:39
	20:46	20:09	19:17	33	18:12 (MO04)	18:26	31	18:01 (MO04)	16:49	16:43
21	05:55	06:26	06:59		17:37 (MO04)	07:33		17:32 (MO04)	07:11	07:40
	20:46	20:08	19:15	37	18:14 (MO04)	18:24	26	17:58 (MO04)	16:48	16:44
22	05:56	06:27	07:00		17:34 (MO04)	07:34		17:35 (MO04)	07:12	07:40
	20:45	20:06	19:13	41	18:15 (MO04)	18:23	20	17:55 (MO04)	16:47	16:44
23	05:57	06:29	07:01		17:33 (MO04)	07:35		17:41 (MO04)	07:14	07:41
	20:44	20:05	19:11	43	18:16 (MO04)	18:21	9	17:50 (MO04)	16:47	16:45
24	05:58	06:30	07:02		17:31 (MO04)	07:36			07:15	07:41
	20:43	20:03	19:10	45	18:16 (MO04)	18:20			16:46	16:45
25	05:58	06:31	07:04		17:29 (MO04)	06:38			07:16	07:42
	20:42	20:01	19:08	48	18:17 (MO04)	17:18			16:45	16:46
26	05:59	06:32	07:05		17:28 (MO04)	06:39			07:17	07:42
	20:41	20:00	19:06	49	18:17 (MO04)	17:17			16:45	16:47
27	06:00	06:33	07:06		17:27 (MO04)	06:40			07:18	07:42
	20:40	19:58	19:04	51	18:18 (MO04)	17:15			16:44	16:47
28	06:01	06:34	07:07		17:26 (MO04)	06:41			07:19	07:43
	20:39	19:56	19:03	52	18:18 (MO04)	17:14			16:44	16:48
29	06:02	06:35	07:08		17:24 (MO04)	06:43			07:21	07:43
	20:38	19:55	19:01	54	18:18 (MO04)	17:13			16:43	16:49
30	06:03	06:36	07:09		17:24 (MO04)	06:44			07:22	07:43
	20:37	19:53	18:59	54	18:18 (MO04)	17:11			16:43	16:49
31	06:04	06:37				06:45				07:43
	20:36	19:51				17:10				16:50
Potential sun hours	463	431	376			344			295	283
Total, worst case				575			1051			
Sun reduction				0.62			0.55			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.62			0.55			
Total, real				359			576			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 57 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (955)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:28 (MO02)	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46			07:23		08:16 (MO02)
	16:51	52	09:20 (MO02)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09			16:43	47	09:03 (MO02)
2	07:44		08:29 (MO02)	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48			07:24		08:16 (MO02)
	16:52	51	09:20 (MO02)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07			16:42	48	09:04 (MO02)
3	07:44		08:29 (MO02)	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49			07:25		08:16 (MO02)
	16:53	51	09:20 (MO02)	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	49	09:05 (MO02)
4	07:44		08:30 (MO02)	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50			07:26		08:17 (MO02)
	16:54	51	09:21 (MO02)	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	49	09:06 (MO02)
5	07:44		08:31 (MO02)	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51			07:27		08:17 (MO02)
	16:55	50	09:21 (MO02)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04			16:42	50	09:07 (MO02)
6	07:44		08:31 (MO02)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53			07:28		08:18 (MO02)
	16:56	50	09:21 (MO02)	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02			16:41	49	09:07 (MO02)
7	07:44		08:31 (MO02)	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		08:18 (MO02)
	16:57	50	09:21 (MO02)	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01			16:41	50	09:08 (MO02)
8	07:44		08:32 (MO02)	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55			07:30		08:18 (MO02)
	16:58	49	09:21 (MO02)	17:36	18:11	19:47	20:21	20:49	20:54	20:26	19:38	18:45	17:00			16:41	51	09:09 (MO02)
9	07:43		08:33 (MO02)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56			07:31		08:17 (MO02)
	16:59	49	09:22 (MO02)	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:41	51	09:08 (MO02)
10	07:43		08:34 (MO02)	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		08:18 (MO02)
	17:00	48	09:22 (MO02)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58			16:41	51	09:09 (MO02)
11	07:43		08:34 (MO02)	07:18	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59			07:33		08:18 (MO02)
	17:01	47	09:21 (MO02)	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57			16:41	52	09:10 (MO02)
12	07:43		08:35 (MO02)	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00			07:34		08:19 (MO02)
	17:02	47	09:22 (MO02)	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:41	51	09:10 (MO02)
13	07:42		08:35 (MO02)	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:34		08:19 (MO02)
	17:03	46	09:21 (MO02)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:41	52	09:11 (MO02)
14	07:42		08:37 (MO02)	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03			07:35		08:20 (MO02)
	17:04	45	09:22 (MO02)	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54			16:42	52	09:12 (MO02)
15	07:42		08:38 (MO02)	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04		08:29 (MO02)	07:36		08:20 (MO02)
	17:06	44	09:22 (MO02)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	11	08:40 (MO02)	16:42	51	09:11 (MO02)
16	07:41		08:38 (MO02)	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05		08:27 (MO02)	07:37		08:20 (MO02)
	17:07	43	09:21 (MO02)	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	18	08:45 (MO02)	16:42	52	09:12 (MO02)
17	07:41		08:39 (MO02)	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06		08:24 (MO02)	07:37		08:21 (MO02)
	17:08	41	09:20 (MO02)	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	23	08:47 (MO02)	16:42	52	09:13 (MO02)
18	07:40		08:41 (MO02)	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08		08:22 (MO02)	07:38		08:21 (MO02)
	17:09	40	09:21 (MO02)	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	27	08:49 (MO02)	16:43	52	09:13 (MO02)
19	07:40		08:41 (MO02)	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09		08:22 (MO02)	07:39		08:22 (MO02)
	17:10	39	09:20 (MO02)	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	29	08:51 (MO02)	16:43	52	09:14 (MO02)
20	07:39		08:42 (MO02)	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10		08:20 (MO02)	07:39		08:22 (MO02)
	17:12	37	09:19 (MO02)	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	33	08:53 (MO02)	16:43	52	09:14 (MO02)
21	07:38		08:44 (MO02)	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11		08:19 (MO02)	07:40		08:23 (MO02)
	17:13	35	09:19 (MO02)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	35	08:54 (MO02)	16:44	52	09:15 (MO02)
22	07:38		08:45 (MO02)	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13		08:18 (MO02)	07:40		08:23 (MO02)
	17:14	33	09:18 (MO02)	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	37	08:55 (MO02)	16:44	52	09:15 (MO02)
23	07:37		08:47 (MO02)	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14		08:18 (MO02)	07:41		08:24 (MO02)
	17:15	29	09:16 (MO02)	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	39	08:57 (MO02)	16:45	52	09:16 (MO02)
24	07:36		08:48 (MO02)	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15		08:18 (MO02)	07:41		08:24 (MO02)
	17:17	27	09:15 (MO02)	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	40	08:58 (MO02)	16:45	52	09:16 (MO02)
25	07:35		08:51 (MO02)	06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16		08:17 (MO02)	07:42		08:25 (MO02)
	17:18	23	09:14 (MO02)	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	41	08:58 (MO02)	16:46	52	09:17 (MO02)
26	07:35		08:54 (MO02)	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17		08:16 (MO02)	07:42		08:25 (MO02)
	17:19	18	09:12 (MO02)	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	43	08:59 (MO02)	16:47	52	09:17 (MO02)
27	07:34		08:57 (MO02)	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18		08:17 (MO02)	07:43		08:25 (MO02)
	17:20	11	09:08 (MO02)	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	44	09:01 (MO02)	16:47	52	09:17 (MO02)
28	07:33			06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:42	07:20		08:17 (MO02)	07:43		08:26 (MO02)
	17:22			18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	45	09:02 (MO02)	16:48	51	09:17 (MO02)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21		08:16 (MO02)	07:43		08:27 (MO02)
	17:23				19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:43	46	09:02 (MO02)	16:49	52	09:19 (MO02)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22		08:16 (MO02)	07:43		08:27 (MO02)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	47	09:03 (MO02)	16:50	52	09:19 (MO02)
31	07:30				07:00		05:41		06:04	06:37		06:45				07:44		08:28 (MO02)
	17:26				19:38		20:43		20:36	19:52		17:10				16:50	51	09:19 (MO02)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		1106												558			1583	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		465												255			684	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 58 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (956)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June
1	07:44	07:29	06:51			06:58		07:17 (MO01)	06:11	05:40
	16:51	17:27	18:03			19:39	18	07:35 (MO01)	20:13	20:44
2	07:44	07:28	06:50			06:57		07:16 (MO01)	06:09	05:40
	16:52	17:28	18:04			19:40	20	07:36 (MO01)	20:14	20:45
3	07:44	07:27	06:48			06:55		07:14 (MO01)	06:08	05:39
	16:53	17:30	18:05			19:41	22	07:36 (MO01)	20:15	20:46
4	07:44	07:26	06:47			06:53		07:12 (MO01)	06:07	05:39
	16:54	17:31	18:07			19:43	23	07:35 (MO01)	20:16	20:46
5	07:44	07:25	06:45			06:52		07:10 (MO01)	06:05	05:38
	16:55	17:32	18:08			19:44	25	07:35 (MO01)	20:17	20:47
6	07:44	07:24	06:43			06:50		07:09 (MO01)	06:04	05:38
	16:56	17:34	18:09			19:45	26	07:35 (MO01)	20:19	20:48
7	07:44	07:23	06:42			06:48		07:08 (MO01)	06:03	05:38
	16:57	17:35	18:10			19:46	26	07:34 (MO01)	20:20	20:48
8	07:44	07:21	06:40			06:47		07:08 (MO01)	06:02	05:38
	16:58	17:36	18:11			19:47	24	07:32 (MO01)	20:21	20:49
9	07:44	07:20	06:38			06:45		07:09 (MO01)	06:00	05:37
	16:59	17:38	18:13			19:48	23	07:32 (MO01)	20:22	20:50
10	07:43	07:19	06:37			06:43		07:10 (MO01)	05:59	05:37
	17:00	17:39	18:14			19:49	20	07:30 (MO01)	20:23	20:50
11	07:43	07:18	06:35			06:41		07:10 (MO01)	05:58	05:37
	17:01	17:40	18:15			19:50	18	07:28 (MO01)	20:24	20:51
12	07:43	07:16	06:33			06:40		07:13 (MO01)	05:57	05:37
	17:02	17:41	18:16			19:52	13	07:26 (MO01)	20:25	20:51
13	07:42	07:15	06:31			06:38		07:16 (MO01)	05:56	05:37
	17:03	17:43	18:17			19:53	6	07:22 (MO01)	20:26	20:52
14	07:42	07:14	06:30			06:37			05:55	05:37
	17:05	17:44	18:19			19:54			20:27	20:52
15	07:42	07:12	06:28			06:35			05:54	05:37
	17:06	17:45	18:20			19:55			20:28	20:53
16	07:41	07:11	06:26			06:33			05:53	05:36
	17:07	17:47	18:21			19:56			20:29	20:53
17	07:41	07:10	06:25			06:32			05:52	05:37
	17:08	17:48	18:22			19:57			20:30	20:54
18	07:40	07:08	06:23			06:30			05:51	05:37
	17:09	17:49	18:23			19:58			20:31	20:54
19	07:40	07:07	06:21			06:28			05:50	05:37
	17:10	17:50	18:24			19:59			20:32	20:54
20	07:39	07:05	06:19			06:27			05:49	05:37
	17:12	17:52	18:25			20:01			20:33	20:54
21	07:38	07:04	06:18			06:25			05:48	05:37
	17:13	17:53	18:27			20:02			20:34	20:55
22	07:38	07:02	06:16			06:24			05:47	05:37
	17:14	17:54	18:28			20:03			20:35	20:55
23	07:37	07:01	06:14			06:22			05:46	05:37
	17:15	17:55	18:29			20:04			20:36	20:55
24	07:36	06:59	06:12			06:21			05:45	05:38
	17:17	17:57	18:30			20:05			20:37	20:55
25	07:35	06:58	06:11			06:19			05:45	05:38
	17:18	17:58	18:31			20:06			20:38	20:55
26	07:35	06:56	06:09			06:18			05:44	05:38
	17:19	17:59	18:32			20:07			20:39	20:55
27	07:34	06:55	06:07		06:26 (MO01)	06:16			05:43	05:39
	17:21	18:00	18:33	3	06:29 (MO01)	20:08			20:40	20:55
28	07:33	06:53	06:05		06:24 (MO01)	06:15			05:43	05:39
	17:22	18:02	18:35	7	06:31 (MO01)	20:10			20:41	20:55
29	07:32		07:04		07:23 (MO01)	06:13			05:42	05:39
	17:23		19:36	11	07:34 (MO01)	20:11			20:42	20:55
30	07:31		07:02		07:21 (MO01)	06:12			05:41	05:40
	17:24		19:37	13	07:34 (MO01)	20:12			20:42	20:55
31	07:30		07:00		07:19 (MO01)				05:41	
	17:26		19:38	16	07:35 (MO01)				20:43	
Potential sun hours	293	295	369			400			452	457
Total, worst case				50			264			
Sun reduction				0.46			0.49			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.46			0.49			
Total, real				23			131			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 58 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (956)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August			September			October	November	December
1	05:40	06:06			06:38		07:10 (MO01)	07:10	06:47	07:23
	20:55	20:35			19:50	18	07:28 (MO01)	18:57	17:09	16:43
2	05:41	06:07			06:39		07:09 (MO01)	07:11	06:48	07:24
	20:55	20:34			19:48	20	07:29 (MO01)	18:56	17:07	16:42
3	05:41	06:08			06:40		07:07 (MO01)	07:12	06:49	07:25
	20:55	20:33			19:47	23	07:30 (MO01)	18:54	17:06	16:42
4	05:42	06:09			06:41		07:06 (MO01)	07:14	06:50	07:26
	20:55	20:32			19:45	24	07:30 (MO01)	18:52	17:05	16:42
5	05:43	06:10			06:42		07:05 (MO01)	07:15	06:52	07:27
	20:55	20:30			19:43	26	07:31 (MO01)	18:51	17:04	16:42
6	05:43	06:11			06:44		07:05 (MO01)	07:16	06:53	07:28
	20:54	20:29			19:41	26	07:31 (MO01)	18:49	17:03	16:42
7	05:44	06:12			06:45		07:06 (MO01)	07:17	06:54	07:29
	20:54	20:28			19:40	25	07:31 (MO01)	18:47	17:01	16:41
8	05:44	06:13			06:46		07:07 (MO01)	07:18	06:55	07:30
	20:54	20:27			19:38	23	07:30 (MO01)	18:45	17:00	16:41
9	05:45	06:14			06:47		07:08 (MO01)	07:19	06:57	07:31
	20:53	20:25			19:36	22	07:30 (MO01)	18:44	16:59	16:41
10	05:46	06:15			06:48		07:09 (MO01)	07:20	06:58	07:32
	20:53	20:24			19:35	20	07:29 (MO01)	18:42	16:58	16:41
11	05:47	06:16			06:49		07:10 (MO01)	07:21	06:59	07:33
	20:52	20:23			19:33	18	07:28 (MO01)	18:40	16:57	16:41
12	05:47	06:17			06:50		07:11 (MO01)	07:23	07:00	07:34
	20:52	20:21			19:31	16	07:27 (MO01)	18:39	16:56	16:41
13	05:48	06:18			06:51		07:12 (MO01)	07:24	07:02	07:34
	20:51	20:20			19:29	14	07:26 (MO01)	18:37	16:55	16:42
14	05:49	06:19			06:52		07:13 (MO01)	07:25	07:03	07:35
	20:51	20:18			19:27	11	07:24 (MO01)	18:35	16:54	16:42
15	05:50	06:20			06:53		07:14 (MO01)	07:26	07:04	07:36
	20:50	20:17			19:26	8	07:22 (MO01)	18:34	16:53	16:42
16	05:51	06:21			06:54		07:15 (MO01)	07:27	07:05	07:37
	20:49	20:15			19:24	4	07:19 (MO01)	18:32	16:52	16:42
17	05:51	06:22			06:55			07:28	07:07	07:37
	20:49	20:14			19:22			18:31	16:51	16:42
18	05:52	06:23			06:56			07:30	07:08	07:38
	20:48	20:12			19:20			18:29	16:50	16:43
19	05:53	06:24			06:57			07:31	07:09	07:39
	20:47	20:11			19:19			18:27	16:50	16:43
20	05:54	06:25			06:58			07:32	07:10	07:39
	20:47	20:09			19:17			18:26	16:49	16:44
21	05:55	06:27			06:59			07:33	07:11	07:40
	20:46	20:08			19:15			18:24	16:48	16:44
22	05:56	06:28			07:00			07:34	07:13	07:40
	20:45	20:06			19:13			18:23	16:47	16:44
23	05:57	06:29			07:02			07:35	07:14	07:41
	20:44	20:05			19:12			18:21	16:47	16:45
24	05:58	06:30			07:03			07:37	07:15	07:41
	20:43	20:03			19:10			18:20	16:46	16:46
25	05:59	06:31			07:04			06:38	07:16	07:42
	20:42	20:02			19:08			17:18	16:46	16:46
26	06:00	06:32			07:05			06:39	07:17	07:42
	20:41	20:00			19:06			17:17	16:45	16:47
27	06:01	06:33			07:06			06:40	07:19	07:43
	20:40	19:58			19:04			17:16	16:44	16:47
28	06:01	06:34			07:07			06:42	07:20	07:43
	20:39	19:57			19:03			17:14	16:44	16:48
29	06:02	06:35			07:08			06:43	07:21	07:43
	20:38	19:55			19:01			17:13	16:44	16:49
30	06:03	06:36		07:16 (MO01)	07:09			06:44	07:22	07:43
	20:37	19:53	8	07:24 (MO01)	18:59			17:11	16:43	16:50
31	06:04	06:37		07:13 (MO01)				06:45		07:44
	20:36	19:52	14	07:27 (MO01)				17:10		16:50
Potential sun hours	463	431			376			344	295	283
Total, worst case			22			298				
Sun reduction			0.70			0.62				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.70			0.62				
Total, real			15			186				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 59 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (957)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November	December		
1	07:44		08:12 (MO02)	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:47	07:23		
	16:51	18	08:30 (MO02)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43		
2	07:44		08:12 (MO02)	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24		
	16:52	18	08:30 (MO02)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42		
3	07:44		08:13 (MO02)	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25		08:07 (MO02)
	16:53	17	08:30 (MO02)	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42	2	08:09 (MO02)
4	07:44		08:14 (MO02)	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50	07:26		08:04 (MO02)
	16:54	16	08:30 (MO02)	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42	8	08:12 (MO02)
5	07:44		08:15 (MO02)	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:52	07:27		08:03 (MO02)
	16:55	15	08:30 (MO02)	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:50	17:04	16:42	11	08:14 (MO02)
6	07:44		08:17 (MO02)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28		08:03 (MO02)
	16:56	12	08:29 (MO02)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:41	18:49	17:02	16:42	12	08:15 (MO02)
7	07:44		08:18 (MO02)	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29		08:03 (MO02)
	16:57	11	08:29 (MO02)	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:41	14	08:17 (MO02)
8	07:44		08:19 (MO02)	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30		08:02 (MO02)
	16:58	8	08:27 (MO02)	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41	16	08:18 (MO02)
9	07:44		08:22 (MO02)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31		08:02 (MO02)
	16:59	4	08:26 (MO02)	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41	17	08:19 (MO02)
10	07:43			07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		08:01 (MO02)
	17:00			17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41	18	08:19 (MO02)
11	07:43			07:18	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33		08:02 (MO02)
	17:01			17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41	18	08:20 (MO02)
12	07:43			07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34		08:02 (MO02)
	17:02			17:41	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41	19	08:21 (MO02)
13	07:42			07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34		08:02 (MO02)
	17:03			17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42	19	08:21 (MO02)
14	07:42			07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35		08:03 (MO02)
	17:05			17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42	19	08:22 (MO02)
15	07:42			07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36		08:02 (MO02)
	17:06			17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42	20	08:22 (MO02)
16	07:41			07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37		08:03 (MO02)
	17:07			17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42	20	08:23 (MO02)
17	07:41			07:09	06:25	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:07	07:37		08:04 (MO02)
	17:08			17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:42	20	08:24 (MO02)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38		08:03 (MO02)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43	21	08:24 (MO02)
19	07:40			07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39		08:04 (MO02)
	17:10			17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43	21	08:25 (MO02)
20	07:39			07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39		08:05 (MO02)
	17:12			17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44	21	08:26 (MO02)
21	07:38			07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40		08:05 (MO02)
	17:13			17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44	21	08:26 (MO02)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40		08:06 (MO02)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44	21	08:27 (MO02)
23	07:37			07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:02	07:35	07:14	07:41		08:06 (MO02)
	17:15			17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45	21	08:27 (MO02)
24	07:36			06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41		08:06 (MO02)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45	21	08:27 (MO02)
25	07:35			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42		08:07 (MO02)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:45	16:46	21	08:28 (MO02)
26	07:35			06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42		08:08 (MO02)
	17:19			17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47	20	08:28 (MO02)
27	07:34			06:55	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:19	07:43		08:08 (MO02)
	17:20			18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47	20	08:28 (MO02)
28	07:33			06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:42	07:20	07:43		08:09 (MO02)
	17:22			18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48	20	08:29 (MO02)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43		08:10 (MO02)
	17:23				19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:43	16:49	19	08:29 (MO02)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43		08:10 (MO02)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50	19	08:29 (MO02)
31	07:30				07:00		05:41		06:04	06:37		06:45		07:44		08:11 (MO02)
	17:26				19:38		20:43		20:36	19:52		17:10		16:50	19	08:30 (MO02)
Potential sun hours	293			295	369	401	452	457	463	431	376	344	295	283		
Total, worst case		119													518	
Sun reduction		0.42													0.43	
Oper. time red.		1.00													1.00	
Wind dir. red.		1.00													1.00	
Total reduction		0.42													0.43	
Total, real		50													224	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 60 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (958)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:47	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:41	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
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	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:25	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:40	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
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	17:12	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:43
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:02	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:19	07:43
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	401	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 61 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (959)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:20	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
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	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 62 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (960)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 63 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (961)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 64 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (962)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 65 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (963)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 66 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (964)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 67 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (965)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
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	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 68 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (966)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
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24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
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28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
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29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 69 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (967)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 70 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (968)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 71 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (969)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
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15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
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24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 72 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (970)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 73 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (971)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 74 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (972)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
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	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
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	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 75 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (973)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
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13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
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19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
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22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 76 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (974)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 77 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (975)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 78 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (976)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 79 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (977)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:40
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:39	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 80 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (978)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23		
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43		
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24		
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	16:43		
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25		
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42		
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26		
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42		
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27		
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51	17:04	16:42		
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28		
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42		
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29		
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	16:42		
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30		
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42		
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31		
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42		
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42		
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33		
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42		
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34		
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42		
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35		08:21 (MO06)
	17:04	17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42	3	08:24 (MO06)
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35		08:20 (MO06)
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42	6	08:26 (MO06)
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36		08:20 (MO06)
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42	8	08:28 (MO06)
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37		08:19 (MO06)
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42	9	08:28 (MO06)
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38		08:19 (MO06)
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43	10	08:29 (MO06)
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38		08:20 (MO06)
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43	11	08:31 (MO06)
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39		08:19 (MO06)
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43	12	08:31 (MO06)
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:40		08:20 (MO06)
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44	12	08:32 (MO06)
21	07:39	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40		08:20 (MO06)
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44	12	08:32 (MO06)
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41		08:21 (MO06)
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45	12	08:33 (MO06)
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41		08:21 (MO06)
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45	12	08:33 (MO06)
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42		08:21 (MO06)
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46	12	08:33 (MO06)
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42		08:23 (MO06)
	17:18	17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46	16:46	11	08:34 (MO06)
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42		08:23 (MO06)
	17:19	17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47	11	08:34 (MO06)
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43		08:24 (MO06)
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48	9	08:33 (MO06)
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43		08:25 (MO06)
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48	9	08:34 (MO06)
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43		08:26 (MO06)
	17:23		19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	16:49	7	08:33 (MO06)
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44		08:28 (MO06)
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50	5	08:33 (MO06)
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44		
	17:26		19:38		20:43		20:36	19:52		17:10		16:51		
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283		
Total, worst case													171	
Sun reduction													0.43	
Oper. time red.													1.00	
Wind dir. red.													1.00	
Total reduction													0.43	
Total, real													74	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 81 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (979)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April			May			June
1	07:44	07:29	06:52	06:59			06:11		06:31 (MO06)	05:40
	16:52	17:27	18:03	19:39			20:13	12	06:43 (MO06)	20:44
2	07:44	07:28	06:50	06:57			06:10		06:29 (MO06)	05:40
	16:53	17:29	18:04	19:40			20:14	15	06:44 (MO06)	20:45
3	07:44	07:27	06:48	06:55			06:08		06:28 (MO06)	05:40
	16:53	17:30	18:06	19:42			20:15	17	06:45 (MO06)	20:46
4	07:44	07:26	06:47	06:54			06:07		06:27 (MO06)	05:39
	16:54	17:31	18:07	19:43			20:16	18	06:45 (MO06)	20:46
5	07:44	07:25	06:45	06:52			06:06		06:26 (MO06)	05:39
	16:55	17:32	18:08	19:44			20:18	20	06:46 (MO06)	20:47
6	07:44	07:24	06:43	06:50			06:04		06:24 (MO06)	05:38
	16:56	17:34	18:09	19:45			20:19	21	06:45 (MO06)	20:48
7	07:44	07:23	06:42	06:48			06:03		06:23 (MO06)	05:38
	16:57	17:35	18:10	19:46			20:20	23	06:46 (MO06)	20:49
8	07:44	07:21	06:40	06:47			06:02		06:22 (MO06)	05:38
	16:58	17:36	18:12	19:47			20:21	24	06:46 (MO06)	20:49
9	07:44	07:20	06:38	06:45			06:01		06:21 (MO06)	05:38
	16:59	17:38	18:13	19:48			20:22	25	06:46 (MO06)	20:50
10	07:43	07:19	06:37	06:43			05:59		06:20 (MO06)	05:37
	17:00	17:39	18:14	19:49			20:23	26	06:46 (MO06)	20:50
11	07:43	07:18	06:35	06:42			05:58		06:20 (MO06)	05:37
	17:01	17:40	18:15	19:51			20:24	26	06:46 (MO06)	20:51
12	07:43	07:16	06:33	06:40			05:57		06:20 (MO06)	05:37
	17:03	17:42	18:16	19:52			20:25	25	06:45 (MO06)	20:51
13	07:43	07:15	06:32	06:38			05:56		06:21 (MO06)	05:37
	17:04	17:43	18:18	19:53			20:26	24	06:45 (MO06)	20:52
14	07:42	07:14	06:30	06:37			05:55		06:21 (MO06)	05:37
	17:05	17:44	18:19	19:54			20:27	24	06:45 (MO06)	20:52
15	07:42	07:12	06:28	06:35			05:54		06:22 (MO06)	05:37
	17:06	17:46	18:20	19:55			20:28	22	06:44 (MO06)	20:53
16	07:41	07:11	06:26	06:33			05:53		06:22 (MO06)	05:37
	17:07	17:47	18:21	19:56			20:29	21	06:43 (MO06)	20:53
17	07:41	07:10	06:25	06:32			05:52		06:23 (MO06)	05:37
	17:08	17:48	18:22	19:57			20:30	19	06:42 (MO06)	20:54
18	07:40	07:08	06:23	06:30			05:51		06:24 (MO06)	05:37
	17:10	17:49	18:23	19:58			20:31	17	06:41 (MO06)	20:54
19	07:40	07:07	06:21	06:29			05:50		06:25 (MO06)	05:37
	17:11	17:51	18:24	20:00			20:32	15	06:40 (MO06)	20:54
20	07:39	07:05	06:20	06:27			05:49		06:26 (MO06)	05:37
	17:12	17:52	18:26	20:01			20:33	13	06:39 (MO06)	20:55
21	07:38	07:04	06:18	06:26			05:48		06:28 (MO06)	05:37
	17:13	17:53	18:27	20:02			20:34	8	06:36 (MO06)	20:55
22	07:38	07:02	06:16	06:24			05:47			05:37
	17:14	17:54	18:28	20:03			20:35			20:55
23	07:37	07:01	06:14	06:23			05:46			05:38
	17:16	17:56	18:29	20:04			20:36			20:55
24	07:36	06:59	06:13	06:21			05:46			05:38
	17:17	17:57	18:30	20:05			20:37			20:55
25	07:36	06:58	06:11	06:20			05:45			05:38
	17:18	17:58	18:31	20:06			20:38			20:55
26	07:35	06:56	06:09	06:18			05:44			05:39
	17:19	17:59	18:32	20:07			20:39			20:56
27	07:34	06:55	06:07	06:17			05:43			05:39
	17:21	18:01	18:34	20:09			20:40			20:56
28	07:33	06:53	06:06	06:15		06:35 (MO06)	05:43			05:39
	17:22	18:02	18:35	20:10	2	06:37 (MO06)	20:41			20:56
29	07:32		07:04	06:14		06:33 (MO06)	05:42			05:40
	17:23		19:36	20:11	7	06:40 (MO06)	20:42			20:56
30	07:31		07:02	06:12		06:32 (MO06)	05:42			05:40
	17:25		19:37	20:12	10	06:42 (MO06)	20:43			20:56
31	07:30		07:00				05:41			
	17:26		19:38				20:43			
Potential sun hours	293	295	369	400			452			457
Total, worst case					19			415		
Sun reduction					0.49			0.57		
Oper. time red.					1.00			1.00		
Wind dir. red.					1.00			1.00		
Total reduction					0.49			0.57		
Total, real					9			236		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 81 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (979)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:41			06:06		06:30 (MO06)	06:38	07:10	06:47	07:23
	20:55			20:35	25	06:55 (MO06)	19:50	18:58	17:09	16:43
2	05:41			06:07		06:30 (MO06)	06:40	07:12	06:48	07:24
	20:55			20:34	25	06:55 (MO06)	19:49	18:56	17:08	16:43
3	05:42			06:08		06:30 (MO06)	06:41	07:13	06:49	07:25
	20:55			20:33	26	06:56 (MO06)	19:47	18:54	17:06	16:42
4	05:42			06:09		06:31 (MO06)	06:42	07:14	06:50	07:26
	20:55			20:32	25	06:56 (MO06)	19:45	18:52	17:05	16:42
5	05:43			06:10		06:32 (MO06)	06:43	07:15	06:52	07:27
	20:55			20:30	23	06:55 (MO06)	19:43	18:51	17:04	16:42
6	05:43			06:11		06:33 (MO06)	06:44	07:16	06:53	07:28
	20:54			20:29	22	06:55 (MO06)	19:42	18:49	17:03	16:42
7	05:44			06:12		06:34 (MO06)	06:45	07:17	06:54	07:29
	20:54			20:28	21	06:55 (MO06)	19:40	18:47	17:02	16:42
8	05:45			06:13		06:35 (MO06)	06:46	07:18	06:55	07:30
	20:54			20:27	19	06:54 (MO06)	19:38	18:46	17:00	16:42
9	05:45			06:14		06:36 (MO06)	06:47	07:19	06:57	07:31
	20:53			20:25	18	06:54 (MO06)	19:36	18:44	16:59	16:42
10	05:46			06:15		06:37 (MO06)	06:48	07:20	06:58	07:32
	20:53			20:24	16	06:53 (MO06)	19:35	18:42	16:58	16:42
11	05:47			06:16		06:38 (MO06)	06:49	07:22	06:59	07:33
	20:52			20:23	14	06:52 (MO06)	19:33	18:41	16:57	16:42
12	05:48			06:17		06:39 (MO06)	06:50	07:23	07:00	07:34
	20:52			20:21	12	06:51 (MO06)	19:31	18:39	16:56	16:42
13	05:48			06:18		06:40 (MO06)	06:51	07:24	07:02	07:35
	20:51			20:20	9	06:49 (MO06)	19:29	18:37	16:55	16:42
14	05:49			06:19		06:41 (MO06)	06:52	07:25	07:03	07:35
	20:51			20:18	6	06:47 (MO06)	19:28	18:36	16:54	16:42
15	05:50			06:20			06:53	07:26	07:04	07:36
	20:50			20:17			19:26	18:34	16:53	16:42
16	05:51			06:21			06:54	07:27	07:05	07:37
	20:50			20:16			19:24	18:32	16:52	16:42
17	05:52			06:22			06:55	07:29	07:07	07:38
	20:49			20:14			19:22	18:31	16:51	16:43
18	05:52			06:24			06:56	07:30	07:08	07:38
	20:48			20:13			19:21	18:29	16:51	16:43
19	05:53			06:25			06:57	07:31	07:09	07:39
	20:48			20:11			19:19	18:28	16:50	16:43
20	05:54			06:26			06:59	07:32	07:10	07:39
	20:47			20:10			19:17	18:26	16:49	16:44
21	05:55			06:27			07:00	07:33	07:12	07:40
	20:46			20:08			19:15	18:25	16:48	16:44
22	05:56		06:40 (MO06)	06:28			07:01	07:34	07:13	07:41
	20:45	5	06:45 (MO06)	20:06			19:13	18:23	16:48	16:45
23	05:57		06:38 (MO06)	06:29			07:02	07:36	07:14	07:41
	20:44	10	06:48 (MO06)	20:05			19:12	18:22	16:47	16:45
24	05:58		06:36 (MO06)	06:30			07:03	07:37	07:15	07:42
	20:43	14	06:50 (MO06)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:35 (MO06)	06:31			07:04	06:38	07:16	07:42
	20:42	16	06:51 (MO06)	20:02			19:08	17:19	16:46	16:46
26	06:00		06:34 (MO06)	06:32			07:05	06:39	07:18	07:42
	20:42	18	06:52 (MO06)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:33 (MO06)	06:33			07:06	06:41	07:19	07:43
	20:41	20	06:53 (MO06)	19:58			19:05	17:16	16:45	16:48
28	06:02		06:33 (MO06)	06:34			07:07	06:42	07:20	07:43
	20:40	21	06:54 (MO06)	19:57			19:03	17:14	16:44	16:48
29	06:03		06:32 (MO06)	06:35			07:08	06:43	07:21	07:43
	20:38	23	06:55 (MO06)	19:55			19:01	17:13	16:44	16:49
30	06:04		06:32 (MO06)	06:36			07:09	06:44	07:22	07:43
	20:37	23	06:55 (MO06)	19:54			18:59	17:12	16:43	16:50
31	06:05		06:30 (MO06)	06:37				06:45		07:44
	20:36	25	06:55 (MO06)	19:52				17:10		16:51
Potential sun hours	463			431			376	344	295	283
Total, worst case		175			261					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		123			183					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 82 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (980)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June	July			August			September	October	November	December
1	07:44	07:29	06:52	06:59	06:11			05:40	05:41			06:06		06:28 (MO06)	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13			20:44	20:55			20:35	23	06:51 (MO06)	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10		06:29 (MO06)	05:40	05:41			06:07		06:29 (MO06)	06:40	07:12	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	2	06:31 (MO06)	20:45	20:55			20:34	22	06:51 (MO06)	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08		06:28 (MO06)	05:40	05:42			06:08		06:30 (MO06)	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	7	06:35 (MO06)	20:46	20:55			20:33	20	06:50 (MO06)	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:54	06:07		06:27 (MO06)	05:39	05:42			06:09		06:31 (MO06)	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	10	06:37 (MO06)	20:46	20:55			20:32	19	06:50 (MO06)	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06		06:26 (MO06)	05:39	05:43			06:10		06:32 (MO06)	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	12	06:38 (MO06)	20:47	20:55			20:30	17	06:49 (MO06)	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04		06:24 (MO06)	05:38	05:43			06:11		06:33 (MO06)	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	14	06:38 (MO06)	20:48	20:54			20:29	16	06:49 (MO06)	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03		06:23 (MO06)	05:38	05:44			06:12		06:34 (MO06)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	16	06:39 (MO06)	20:49	20:54			20:28	14	06:48 (MO06)	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02		06:22 (MO06)	05:38	05:45			06:13		06:35 (MO06)	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	18	06:40 (MO06)	20:49	20:54			20:27	11	06:46 (MO06)	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01		06:21 (MO06)	05:38	05:45			06:14		06:36 (MO06)	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20	06:41 (MO06)	20:50	20:53			20:25	9	06:45 (MO06)	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59		06:20 (MO06)	05:37	05:46			06:15		06:37 (MO06)	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	21	06:41 (MO06)	20:50	20:53			20:24	5	06:42 (MO06)	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58		06:19 (MO06)	05:37	05:47			06:16			06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	22	06:41 (MO06)	20:51	20:52			20:23			19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57		06:18 (MO06)	05:37	05:48			06:17			06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	23	06:41 (MO06)	20:51	20:52			20:21			19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56		06:17 (MO06)	05:37	05:48			06:18			06:51	07:24	07:02	07:35
	17:04	17:43	18:18	19:53	20:26	25	06:42 (MO06)	20:52	20:51			20:20			19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55		06:16 (MO06)	05:37	05:49			06:19			06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	25	06:41 (MO06)	20:52	20:51			20:18			19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54		06:15 (MO06)	05:37	05:50		06:34 (MO06)	06:20			06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	26	06:41 (MO06)	20:53	20:50	6	06:40 (MO06)	20:17			19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53		06:15 (MO06)	05:37	05:51		06:32 (MO06)	06:21			06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	26	06:41 (MO06)	20:53	20:50	11	06:43 (MO06)	20:16			19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52		06:15 (MO06)	05:37	05:52		06:31 (MO06)	06:22			06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	26	06:41 (MO06)	20:54	20:49	14	06:45 (MO06)	20:14			19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51		06:15 (MO06)	05:37	05:52		06:30 (MO06)	06:24			06:56	07:30	07:08	07:38
	17:10	17:49	18:23	19:58	20:31	25	06:40 (MO06)	20:54	20:48	16	06:46 (MO06)	20:13			19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50		06:16 (MO06)	05:37	05:53		06:29 (MO06)	06:25			06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	24	06:40 (MO06)	20:54	20:48	17	06:46 (MO06)	20:11			19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49		06:16 (MO06)	05:37	05:54		06:28 (MO06)	06:26			06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	23	06:39 (MO06)	20:55	20:47	19	06:47 (MO06)	20:10			19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48		06:16 (MO06)	05:37	05:55		06:28 (MO06)	06:27			07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	23	06:39 (MO06)	20:55	20:46	20	06:48 (MO06)	20:08			19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47		06:18 (MO06)	05:37	05:56		06:27 (MO06)	06:28			07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	21	06:39 (MO06)	20:55	20:45	22	06:49 (MO06)	20:06			19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:23	05:46		06:18 (MO06)	05:38	05:57		06:27 (MO06)	06:29			07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20	06:38 (MO06)	20:55	20:44	23	06:50 (MO06)	20:05			19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46		06:19 (MO06)	05:38	05:58		06:26 (MO06)	06:30			07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	18	06:37 (MO06)	20:55	20:43	24	06:50 (MO06)	20:03			19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:20	05:45		06:19 (MO06)	05:38	05:59		06:26 (MO06)	06:31			07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	17	06:36 (MO06)	20:55	20:42	25	06:51 (MO06)	20:02			19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44		06:21 (MO06)	05:39	06:00		06:26 (MO06)	06:32			07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	15	06:36 (MO06)	20:56	20:42	25	06:51 (MO06)	20:00			19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43		06:22 (MO06)	05:39	06:01		06:26 (MO06)	06:33			07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	12	06:34 (MO06)	20:56	20:41	26	06:52 (MO06)	19:58			19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43		06:25 (MO06)	05:39	06:02		06:25 (MO06)	06:34			07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	8	06:33 (MO06)	20:56	20:40	27	06:52 (MO06)	19:57			19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42		06:27 (MO06)	05:40	06:03		06:26 (MO06)	06:35			07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	3	06:30 (MO06)	20:56	20:38	26	06:52 (MO06)	19:55			19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42			05:40	06:04		06:27 (MO06)	06:36			07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43			20:55	20:37	25	06:52 (MO06)	19:54			18:59	17:12	16:43	16:50
31	07:30		07:00		05:41				06:05		06:27 (MO06)	06:37				06:45		07:44
	17:26		19:38		20:43				20:36	24	06:51 (MO06)	19:52				17:10		16:51
Potential sun hours	293	295	369	400	452			457	463			431			376	344	295	283
Total, worst case						502				350			156					
Sun reduction						0.57				0.71			0.70					
Oper. time red.						1.00				1.00			1.00					
Wind dir. red.						1.00				1.00			1.00					
Total reduction						0.57				0.71			0.70					
Total, real						286				247			109					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 83 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (981)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June	July	August		September	October	November	December
1	07:44	07:29	06:52	06:59		06:11	06:36 (MO06)	05:40	05:41	06:06		06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39		20:13	25 07:01 (MO06)	20:44	20:55	20:35		19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57		06:10	06:36 (MO06)	05:40	05:41	06:07		06:39	07:12	06:48	07:24
	16:53	17:29	18:04	19:40		20:14	24 07:00 (MO06)	20:45	20:55	20:34		19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55		06:08	06:37 (MO06)	05:40	05:42	06:08		06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42		20:15	22 06:59 (MO06)	20:46	20:55	20:33		19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:54		06:07	06:39 (MO06)	05:39	05:42	06:09		06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43		20:16	19 06:58 (MO06)	20:46	20:55	20:32		19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52		06:06	06:40 (MO06)	05:39	05:43	06:10		06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44		20:18	17 06:57 (MO06)	20:47	20:55	20:30		19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50		06:04	06:41 (MO06)	05:38	05:43	06:11	06:52 (MO06)	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45		20:19	13 06:54 (MO06)	20:48	20:54	20:29	10 07:02 (MO06)	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48		06:03	06:44 (MO06)	05:38	05:44	06:12	06:50 (MO06)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46		20:20	8 06:52 (MO06)	20:49	20:54	20:28	15 07:05 (MO06)	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47		06:02		05:38	05:45	06:13	06:48 (MO06)	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47		20:21		20:49	20:54	20:27	18 07:06 (MO06)	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45		06:01		05:38	05:45	06:14	06:47 (MO06)	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48		20:22		20:50	20:53	20:25	20 07:07 (MO06)	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43		05:59		05:37	05:46	06:15	06:46 (MO06)	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49		20:23		20:50	20:53	20:24	22 07:08 (MO06)	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42		05:58		05:37	05:47	06:16	06:45 (MO06)	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51		20:24		20:51	20:52	20:23	24 07:09 (MO06)	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40		05:57		05:37	05:48	06:17	06:44 (MO06)	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52		20:25		20:51	20:52	20:21	25 07:09 (MO06)	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38		05:56		05:37	05:48	06:18	06:43 (MO06)	06:51	07:24	07:02	07:35
	17:04	17:43	18:18	19:53		20:26		20:52	20:51	20:20	26 07:09 (MO06)	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37		05:55		05:37	05:49	06:19	06:43 (MO06)	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54		20:27		20:52	20:51	20:18	27 07:10 (MO06)	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35		05:54		05:37	05:50	06:20	06:42 (MO06)	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55		20:28		20:53	20:50	20:17	28 07:10 (MO06)	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33		05:53		05:37	05:51	06:21	06:43 (MO06)	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56		20:29		20:53	20:50	20:16	27 07:10 (MO06)	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	06:51 (MO06)	05:52		05:37	05:52	06:22	06:45 (MO06)	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	5 06:56 (MO06)	20:30		20:54	20:49	20:14	25 07:10 (MO06)	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	06:49 (MO06)	05:51		05:37	05:52	06:24	06:46 (MO06)	06:56	07:30	07:08	07:38
	17:10	17:49	18:23	19:58	9 06:58 (MO06)	20:31		20:54	20:48	20:13	24 07:10 (MO06)	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	06:48 (MO06)	05:50		05:37	05:53	06:25	06:47 (MO06)	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	12 07:00 (MO06)	20:32		20:54	20:48	20:11	23 07:10 (MO06)	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	06:46 (MO06)	05:49		05:37	05:54	06:26	06:48 (MO06)	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	15 07:01 (MO06)	20:33		20:55	20:47	20:10	21 07:09 (MO06)	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	06:45 (MO06)	05:48		05:37	05:55	06:27	06:49 (MO06)	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	17 07:02 (MO06)	20:34		20:55	20:46	20:08	19 07:08 (MO06)	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	06:43 (MO06)	05:47		05:37	05:56	06:28	06:50 (MO06)	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	19 07:02 (MO06)	20:35		20:55	20:45	20:06	17 07:07 (MO06)	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:23	06:42 (MO06)	05:46		05:38	05:57	06:29	06:51 (MO06)	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	21 07:03 (MO06)	20:36		20:55	20:44	20:05	15 07:06 (MO06)	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	06:40 (MO06)	05:46		05:38	05:58	06:30	06:52 (MO06)	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	23 07:03 (MO06)	20:37		20:55	20:43	20:03	12 07:04 (MO06)	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:20	06:39 (MO06)	05:45		05:38	05:59	06:31	06:53 (MO06)	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	24 07:03 (MO06)	20:38		20:55	20:42	20:02	9 07:02 (MO06)	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	06:38 (MO06)	05:44		05:39	06:00	06:32	06:54 (MO06)	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	26 07:04 (MO06)	20:39		20:56	20:42	20:00	5 06:59 (MO06)	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	06:36 (MO06)	05:43		05:39	06:01	06:33		07:06	06:41	07:19	07:43
	17:21	18:01	18:34	20:09	27 07:03 (MO06)	20:40		20:56	20:41	19:58		19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	06:36 (MO06)	05:43		05:39	06:02	06:34		07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	27 07:03 (MO06)	20:41		20:56	20:40	19:57		19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	06:35 (MO06)	05:42		05:40	06:03	06:35		07:08	06:43	07:21	07:43
	17:23		19:36	20:11	27 07:02 (MO06)	20:42		20:56	20:38	19:55		19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	06:36 (MO06)	05:42		05:40	06:04	06:36		07:09	06:44	07:22	07:43
	17:25		19:37	20:12	26 07:02 (MO06)	20:43		20:56	20:37	19:54		18:59	17:12	16:43	16:50
31	07:30		07:00			05:41			06:05	06:37			06:45		07:44
	17:26		19:38			20:43			20:36	19:52			17:10		16:51
Potential sun hours	293	295	369	400		452		457	463	431		376	344	295	283
Total, worst case					278		128				412				
Sun reduction					0.49		0.57				0.70				
Oper. time red.					1.00		1.00				1.00				
Wind dir. red.					1.00		1.00				1.00				
Total reduction					0.49		0.57				0.70				
Total, real					137		73				289				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 84 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (982)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March		April	May	June	July	August	September		October		November	December
1	07:44	07:29	06:52		06:59	06:11	05:40	05:41	06:06	06:38		07:10		07:31 (MO06)	06:47	07:23
	16:52	17:27	18:03		19:39	20:13	20:44	20:55	20:35	19:50		18:58	14	07:45 (MO06)	17:09	16:43
2	07:44	07:28	06:50		06:57	06:10	05:40	05:41	06:07	06:39		07:12		07:32 (MO06)	06:48	07:24
	16:53	17:29	18:04		19:40	20:14	20:45	20:55	20:34	19:49		18:56	11	07:43 (MO06)	17:08	16:43
3	07:44	07:27	06:48		06:55	06:08	05:40	05:42	06:08	06:41		07:13		07:33 (MO06)	06:49	07:25
	16:53	17:30	18:06		19:42	20:15	20:46	20:55	20:33	19:47		18:54	8	07:41 (MO06)	17:06	16:42
4	07:44	07:26	06:47		06:54	06:07	05:39	05:42	06:09	06:42		07:14		07:34 (MO06)	06:50	07:26
	16:54	17:31	18:07		19:43	20:16	20:46	20:55	20:32	19:45		18:52	4	07:38 (MO06)	17:05	16:42
5	07:44	07:25	06:45		06:52	06:06	05:39	05:43	06:10	06:43		07:15			06:52	07:27
	16:55	17:32	18:08		19:44	20:18	20:47	20:55	20:30	19:43		18:51			17:04	16:42
6	07:44	07:24	06:43		06:50	06:04	05:38	05:43	06:11	06:44		07:16			06:53	07:28
	16:56	17:34	18:09		19:45	20:19	20:48	20:54	20:29	19:42		18:49			17:03	16:42
7	07:44	07:23	06:42		06:48	06:03	05:38	05:44	06:12	06:45		07:17			06:54	07:29
	16:57	17:35	18:10		19:46	20:20	20:49	20:54	20:28	19:40		18:47			17:02	16:42
8	07:44	07:21	06:40		06:47	06:02	05:38	05:45	06:13	06:46		07:18			06:55	07:30
	16:58	17:36	18:12		19:47	20:21	20:49	20:54	20:27	19:38		18:46			17:00	16:42
9	07:44	07:20	06:38	06:58 (MO06)	06:45	06:01	05:37	05:45	06:14	06:47		07:19			06:57	07:31
	16:59	17:38	18:13	2 07:00 (MO06)	19:48	20:22	20:50	20:53	20:25	19:36		18:44			16:59	16:42
10	07:43	07:19	06:37	06:56 (MO06)	06:43	05:59	05:37	05:46	06:15	06:48		07:20			06:58	07:32
	17:00	17:39	18:14	6 07:02 (MO06)	19:49	20:23	20:50	20:53	20:24	19:35		18:42			16:58	16:42
11	07:43	07:18	06:35	06:54 (MO06)	06:42	05:58	05:37	05:47	06:16	06:49		07:22			06:59	07:33
	17:01	17:40	18:15	10 07:04 (MO06)	19:51	20:24	20:51	20:52	20:23	19:33		18:41			16:57	16:42
12	07:43	07:16	06:33	06:52 (MO06)	06:40	05:57	05:37	05:48	06:17	06:50		07:23			07:00	07:34
	17:03	17:42	18:16	13 07:05 (MO06)	19:52	20:25	20:51	20:52	20:21	19:31		18:39			16:56	16:42
13	07:43	07:15	06:32	06:51 (MO06)	06:38	05:56	05:37	05:48	06:18	06:51		07:24			07:02	07:35
	17:04	17:43	18:18	15 07:06 (MO06)	19:53	20:26	20:52	20:51	20:20	19:29		18:37			16:55	16:42
14	07:42	07:14	06:30	06:49 (MO06)	06:37	05:55	05:37	05:49	06:19	06:52		07:25			07:03	07:35
	17:05	17:44	18:19	17 07:06 (MO06)	19:54	20:27	20:52	20:51	20:18	19:28		18:36			16:54	16:42
15	07:42	07:12	06:28	06:47 (MO06)	06:35	05:54	05:37	05:50	06:20	06:53		07:26			07:04	07:36
	17:06	17:46	18:20	19 07:06 (MO06)	19:55	20:28	20:53	20:50	20:17	19:26		18:34			16:53	16:42
16	07:41	07:11	06:26	06:46 (MO06)	06:33	05:53	05:37	05:51	06:21	06:54		07:27			07:05	07:37
	17:07	17:47	18:21	21 07:07 (MO06)	19:56	20:29	20:53	20:50	20:16	19:24		18:32			16:52	16:42
17	07:41	07:10	06:25	06:44 (MO06)	06:32	05:52	05:37	05:52	06:22	06:55		07:29			07:07	07:38
	17:08	17:48	18:22	22 07:06 (MO06)	19:57	20:30	20:54	20:49	20:14	19:22		18:31			16:51	16:43
18	07:40	07:08	06:23	06:42 (MO06)	06:30	05:51	05:37	05:52	06:24	06:56		07:30			07:08	07:38
	17:09	17:49	18:23	23 07:05 (MO06)	19:58	20:31	20:54	20:48	20:13	19:21		18:29			16:51	16:43
19	07:40	07:07	06:21	06:40 (MO06)	06:29	05:50	05:37	05:53	06:25	06:57	07:34 (MO06)	07:31			07:09	07:39
	17:11	17:51	18:24	24 07:04 (MO06)	20:00	20:32	20:54	20:48	20:11	19:19	8 07:42 (MO06)	18:28			16:50	16:43
20	07:39	07:05	06:20	06:41 (MO06)	06:27	05:49	05:37	05:54	06:26	06:59	07:31 (MO06)	07:32			07:10	07:39
	17:12	17:52	18:26	23 07:04 (MO06)	20:01	20:33	20:55	20:47	20:10	19:17	14 07:45 (MO06)	18:26			16:49	16:44
21	07:39	07:04	06:18	06:42 (MO06)	06:26	05:48	05:37	05:55	06:27	07:00	07:28 (MO06)	07:33			07:12	07:40
	17:13	17:53	18:27	21 07:03 (MO06)	20:02	20:34	20:55	20:46	20:08	19:15	18 07:46 (MO06)	18:25			16:48	16:44
22	07:38	07:02	06:16	06:43 (MO06)	06:24	05:47	05:37	05:56	06:28	07:01	07:27 (MO06)	07:34			07:13	07:41
	17:14	17:54	18:28	18 07:01 (MO06)	20:03	20:35	20:55	20:45	20:06	19:13	20 07:47 (MO06)	18:23			16:48	16:45
23	07:37	07:01	06:14	06:44 (MO06)	06:23	05:46	05:38	05:57	06:29	07:02	07:25 (MO06)	07:36			07:14	07:41
	17:16	17:56	18:29	15 06:59 (MO06)	20:04	20:36	20:55	20:44	20:05	19:12	22 07:47 (MO06)	18:22			16:47	16:45
24	07:36	06:59	06:13	06:46 (MO06)	06:21	05:46	05:38	05:58	06:30	07:03	07:24 (MO06)	07:37			07:15	07:42
	17:17	17:57	18:30	9 06:55 (MO06)	20:05	20:37	20:55	20:43	20:03	19:10	24 07:48 (MO06)	18:20			16:46	16:46
25	07:36	06:58	06:11		06:20	05:45	05:38	05:59	06:31	07:04	07:24 (MO06)	06:38			07:16	07:42
	17:18	17:58	18:31		20:06	20:38	20:55	20:42	20:02	19:08	24 07:48 (MO06)	17:19			16:46	16:46
26	07:35	06:56	06:09		06:18	05:44	05:39	06:00	06:32	07:05	07:26 (MO06)	06:39			07:18	07:42
	17:19	17:59	18:32		20:08	20:39	20:56	20:42	20:00	19:06	23 07:49 (MO06)	17:17			16:45	16:47
27	07:34	06:55	06:07		06:17	05:43	05:39	06:01	06:33	07:06	07:27 (MO06)	06:41			07:19	07:43
	17:21	18:01	18:34		20:09	20:40	20:56	20:41	19:58	19:05	21 07:48 (MO06)	17:16			16:45	16:48
28	07:33	06:53	06:06		06:15	05:43	05:39	06:02	06:34	07:07	07:28 (MO06)	06:42			07:20	07:43
	17:22	18:02	18:35		20:10	20:41	20:56	20:40	19:57	19:03	20 07:48 (MO06)	17:14			16:44	16:48
29	07:32		07:04		06:14	05:42	05:40	06:03	06:35	07:08	07:29 (MO06)	06:43			07:21	07:43
	17:23		19:36		20:11	20:42	20:56	20:39	19:55	19:01	18 07:47 (MO06)	17:13			16:44	16:49
30	07:31		07:02		06:12	05:42	05:40	06:04	06:36	07:09	07:30 (MO06)	06:44			07:22	07:44
	17:25		19:37		20:12	20:43	20:56	20:37	19:54	18:59	16 07:46 (MO06)	17:12			16:43	16:50
31	07:30		07:00			05:41		06:05	06:37			06:45				07:44
	17:26		19:38			20:43		20:36	19:52			17:10				16:51
Potential sun hours	293	295	369		400	452	457	463	431	376		344		295	283	
Total, worst case				258							228		37			
Sun reduction				0.46							0.62		0.55			
Oper. time red.				1.00							1.00		1.00			
Wind dir. red.				1.00							1.00		1.00			
Total reduction				0.46							0.62		0.55			
Total, real				118							142		20			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 85 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (983)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March			April		May		June		July		August		September			October		November		December
1	07:44		07:29		06:52			06:59		06:11		05:40		05:41		06:06		06:38			07:10		06:47		07:23	
	16:52		17:27		18:03			19:39		20:13		20:44		20:55		20:35		19:50			18:58		17:09		16:43	
2	07:44		07:28		06:50			06:57		06:10		05:40		05:41		06:07		06:40			07:12		06:48		07:24	
	16:53		17:29		18:04			19:40		20:14		20:45		20:55		20:34		19:49			18:56		17:08		16:43	
3	07:44		07:27		06:48			06:55		06:08		05:40		05:42		06:08		06:41			07:13		06:49		07:25	
	16:53		17:30		18:06			19:42		20:15		20:46		20:55		20:33		19:47			18:54		17:06		16:42	
4	07:44		07:26		06:47			06:54		06:07		05:39		05:42		06:09		06:42			07:14		06:50		07:26	
	16:54		17:31		18:07			19:43		20:16		20:46		20:55		20:32		19:45			18:52		17:05		16:42	
5	07:44		07:25		06:45			06:52		06:06		05:39		05:43		06:10		06:43			07:15		06:52		07:27	
	16:55		17:32		18:08			19:44		20:18		20:47		20:55		20:31		19:43			18:51		17:04		16:42	
6	07:44		07:24		06:43			06:50		06:04		05:38		05:43		06:11		06:44			07:16		06:53		07:28	
	16:56		17:34		18:09			19:45		20:19		20:48		20:54		20:29		19:42			18:49		17:03		16:42	
7	07:44		07:23		06:42			06:48		06:03		05:38		05:44		06:12		06:45			07:17		06:54		07:29	
	16:57		17:35		18:10			19:46		20:20		20:49		20:54		20:28		19:40			18:47		17:02		16:42	
8	07:44		07:21		06:40			06:47		06:02		05:38		05:45		06:13		06:46			07:18		06:55		07:30	
	16:58		17:36		18:12			19:47		20:21		20:49		20:54		20:27		19:38			18:46		17:00		16:42	
9	07:44		07:20		06:38			06:45		06:01		05:38		05:45		06:14		06:47			07:19		06:57		07:31	
	16:59		17:38		18:13			19:48		20:22		20:50		20:53		20:25		19:36			18:44		16:59		16:42	
10	07:43		07:19		06:37			06:43		05:59		05:37		05:46		06:15		06:48			07:20		06:58		07:32	
	17:00		17:39		18:14			19:49		20:23		20:50		20:53		20:24		19:35			18:42		16:58		16:42	
11	07:43		07:18		06:35			06:42		05:58		05:37		05:47		06:16		06:49			07:22		06:59		07:33	
	17:01		17:40		18:15			19:51		20:24		20:51		20:52		20:23		19:33			18:41		16:57		16:42	
12	07:43		07:16		06:33			06:40		05:57		05:37		05:48		06:17		06:50			07:23		07:00		07:34	
	17:03		17:42		18:16			19:52		20:25		20:51		20:52		20:21		19:31			18:39		16:56		16:42	
13	07:43		07:15		06:32			06:38		05:56		05:37		05:48		06:18		06:51			07:24		07:02		07:35	
	17:04		17:43		18:18			19:53		20:26		20:52		20:51		20:20		19:29			18:37		16:55		16:42	
14	07:42		07:14		06:30			06:37		05:55		05:37		05:49		06:19		06:52		07:28 (MO06)	07:25		07:03		07:35	
	17:05		17:44		18:19			19:54		20:27		20:52		20:51		20:18		19:28	7	07:35 (MO06)	18:36		16:54		16:42	
15	07:42		07:12		06:28		06:47 (MO06)	06:35		05:54		05:37		05:50		06:20		06:53		07:25 (MO06)	07:26		07:04		07:36	
	17:06		17:46		18:20	4	06:51 (MO06)	19:55		20:28		20:53		20:50		20:17		19:26	13	07:38 (MO06)	18:34		16:53		16:42	
16	07:41		07:11		06:26		06:46 (MO06)	06:33		05:53		05:37		05:51		06:21		06:54		07:23 (MO06)	07:27		07:05		07:37	
	17:07		17:47		18:21	8	06:54 (MO06)	19:56		20:29		20:53		20:50		20:16		19:24	17	07:40 (MO06)	18:32		16:52		16:42	
17	07:41		07:10		06:25		06:44 (MO06)	06:32		05:52		05:37		05:52		06:22		06:55		07:21 (MO06)	07:29		07:07		07:38	
	17:08		17:48		18:22	11	06:55 (MO06)	19:57		20:30		20:54		20:49		20:14		19:22	20	07:41 (MO06)	18:31		16:51		16:43	
18	07:40		07:08		06:23		06:42 (MO06)	06:30		05:51		05:37		05:52		06:24		06:56		07:19 (MO06)	07:30		07:08		07:38	
	17:10		17:49		18:23	14	06:56 (MO06)	19:58		20:31		20:54		20:48		20:13		19:21	22	07:41 (MO06)	18:29		16:51		16:43	
19	07:40		07:07		06:21		06:40 (MO06)	06:29		05:50		05:37		05:53		06:25		06:57		07:18 (MO06)	07:31		07:09		07:39	
	17:11		17:51		18:24	16	06:56 (MO06)	20:00		20:32		20:54		20:48		20:11		19:19	23	07:41 (MO06)	18:28		16:50		16:43	
20	07:39		07:05		06:20		06:39 (MO06)	06:27		05:49		05:37		05:54		06:26		06:59		07:19 (MO06)	07:32		07:10		07:39	
	17:12		17:52		18:26	18	06:57 (MO06)	20:01		20:33		20:55		20:47		20:10		19:17	22	07:41 (MO06)	18:26		16:49		16:44	
21	07:39		07:04		06:18		06:37 (MO06)	06:26		05:48		05:37		05:55		06:27		07:00		07:20 (MO06)	07:33		07:12		07:40	
	17:13		17:53		18:27	19	06:56 (MO06)	20:02		20:34		20:55		20:46		20:08		19:15	21	07:41 (MO06)	18:25		16:48		16:44	
22	07:38		07:02		06:16		06:35 (MO06)	06:24		05:47		05:37		05:56		06:28		07:01		07:21 (MO06)	07:34		07:13		07:41	
	17:14		17:54		18:28	21	06:56 (MO06)	20:03		20:35		20:55		20:45		20:06		19:13	20	07:41 (MO06)	18:23		16:48		16:45	
23	07:37		07:01		06:14		06:33 (MO06)	06:23		05:46		05:38		05:57		06:29		07:02		07:22 (MO06)	07:36		07:14		07:41	
	17:16		17:56		18:29	22	06:55 (MO06)	20:04		20:36		20:55		20:44		20:05		19:12	18	07:40 (MO06)	18:22		16:47		16:45	
24	07:36		06:59		06:13		06:31 (MO06)	06:21		05:46		05:38		05:58		06:30		07:03		07:23 (MO06)	07:37		07:15		07:42	
	17:17		17:57		18:30	23	06:54 (MO06)	20:05		20:37		20:55		20:43		20:03		19:10	16	07:39 (MO06)	18:20		16:46		16:46	
25	07:36		06:58		06:11		06:32 (MO06)	06:20		05:45		05:38		05:59		06:31		07:04		07:24 (MO06)	06:38		07:16		07:42	
	17:18		17:58		18:31	22	06:54 (MO06)	20:06		20:38		20:55		20:42		20:02		19:08	14	07:38 (MO06)	17:19		16:46		16:46	
26	07:35		06:56		06:09		06:32 (MO06)	06:18		05:44		05:39		06:00		06:32		07:05		07:26 (MO06)	06:39		07:18		07:42	
	17:19		17:59		18:32	21	06:53 (MO06)	20:08		20:39		20:56		20:42		20:00		19:06	12	07:38 (MO06)	17:17		16:45		16:47	
27	07:34		06:55		06:07		06:33 (MO06)	06:17		05:43		05:39		06:01		06:33		07:06		07:27 (MO06)	06:41		07:19		07:43	
	17:21		18:01		18:34	18	06:51 (MO06)	20:09		20:40		20:56		20:41		19:58		19:05	9	07:36 (MO06)	17:16		16:45		16:48	
28	07:33		06:53		06:06		06:34 (MO06)	06:15		05:43		05:39		06:02		06:34		07:07		07:28 (MO06)	06:42		07:20		07:43	
	17:22		18:02		18:35	14	06:48 (MO06)	20:10		20:41		20:56		20:40		19:57		19:03	6	07:34 (MO06)	17:14		16:44		16:48	
29	07:32				07:04		07:37 (MO06)	06:14		05:42		05:40		06:03		06:35		07:08		07:29 (MO06)	06:43		07:21		07:43	
	17:23				19:36	9	07:46 (MO06)	20:11		20:42		20:56		20:39		19:55		19:01	1	07:30 (MO06)	17:13		16:44		16:49	
30	07:31				07:02			06:12		05:42		05:40		06:04		06:36		07:09			06:44		07:22		07:44	
	17:25				19:37			20:12		20:43		20:56		20:37		19:54		18:59			17:12		16:43		16:50	
31	07:30				07:00					05:41				06:05		06:37					06:45				07:44	
	17:26				19:38					20:43				20:36		19:52					17:10				16:51	
Potential sun hours	293		295		369			400		452		457		463		431		376			344		295		283	
Total, worst case						240													241							
Sun reduction						0.46													0.62							
Oper. time red.						1.00													1.00							
Wind dir. red.						1.00													1.00							
Total reduction						0.46													0.62							
Total, real						110													151							

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 86 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (984)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March		April		May	June	July	August	September		October	November	December
1	07:44	07:29	06:52		06:59	07:29 (MO06)	06:11	05:40	05:41	06:06	06:38		07:10	06:47	07:23
	16:52	17:27	18:03		19:39	13 07:42 (MO06)	20:13	20:44	20:55	20:35	19:50		18:58	17:09	16:43
2	07:44	07:28	06:50		06:57	07:32 (MO06)	06:10	05:40	05:41	06:07	06:40		07:12	06:48	07:24
	16:53	17:29	18:04		19:40	6 07:38 (MO06)	20:14	20:45	20:55	20:34	19:49		18:56	17:08	16:43
3	07:44	07:27	06:48		06:55		06:08	05:40	05:42	06:08	06:41		07:13	06:49	07:25
	16:53	17:30	18:06		19:42		20:15	20:46	20:55	20:33	19:47		18:54	17:06	16:42
4	07:44	07:26	06:47		06:54		06:07	05:39	05:42	06:09	06:42		07:14	06:50	07:26
	16:54	17:31	18:07		19:43		20:16	20:46	20:55	20:32	19:45		18:52	17:05	16:42
5	07:44	07:25	06:45		06:52		06:06	05:39	05:43	06:10	06:43		07:15	06:52	07:27
	16:55	17:32	18:08		19:44		20:18	20:47	20:55	20:30	19:43		18:51	17:04	16:42
6	07:44	07:24	06:43		06:50		06:04	05:38	05:43	06:11	06:44		07:16	06:53	07:28
	16:56	17:34	18:09		19:45		20:19	20:48	20:54	20:29	19:42		18:49	17:03	16:42
7	07:44	07:23	06:42		06:48		06:03	05:38	05:44	06:12	06:45		07:17	06:54	07:29
	16:57	17:35	18:10		19:46		20:20	20:49	20:54	20:28	19:40		18:47	17:02	16:42
8	07:44	07:21	06:40		06:47		06:02	05:38	05:45	06:13	06:46		07:18	06:55	07:30
	16:58	17:36	18:12		19:47		20:21	20:49	20:54	20:27	19:38		18:46	17:00	16:42
9	07:44	07:20	06:38		06:45		06:01	05:38	05:45	06:14	06:47		07:19	06:57	07:31
	16:59	17:38	18:13		19:48		20:22	20:50	20:53	20:25	19:36		18:44	16:59	16:42
10	07:43	07:19	06:37		06:43		05:59	05:37	05:46	06:15	06:48	07:25 (MO06)	07:20	06:58	07:32
	17:00	17:39	18:14		19:49		20:23	20:50	20:53	20:24	19:35	6 07:31 (MO06)	18:42	16:58	16:42
11	07:43	07:18	06:35		06:42		05:58	05:37	05:47	06:16	06:49	07:21 (MO06)	07:22	06:59	07:33
	17:01	17:40	18:15		19:51		20:24	20:51	20:52	20:23	19:33	13 07:34 (MO06)	18:41	16:57	16:42
12	07:43	07:16	06:33		06:40		05:57	05:37	05:48	06:17	06:50	07:19 (MO06)	07:23	07:00	07:34
	17:03	17:42	18:16		19:52		20:25	20:51	20:52	20:21	19:31	17 07:36 (MO06)	18:39	16:56	16:42
13	07:43	07:15	06:32		06:38		05:56	05:37	05:48	06:18	06:51	07:17 (MO06)	07:24	07:02	07:35
	17:04	17:43	18:18		19:53		20:26	20:52	20:51	20:20	19:29	20 07:37 (MO06)	18:37	16:55	16:42
14	07:42	07:14	06:30		06:37		05:55	05:37	05:49	06:19	06:52	07:16 (MO06)	07:25	07:03	07:35
	17:05	17:44	18:19		19:54		20:27	20:52	20:51	20:18	19:28	21 07:37 (MO06)	18:36	16:54	16:42
15	07:42	07:12	06:28		06:35		05:54	05:37	05:50	06:20	06:53	07:15 (MO06)	07:26	07:04	07:36
	17:06	17:46	18:20		19:55		20:28	20:53	20:50	20:17	19:26	23 07:38 (MO06)	18:34	16:53	16:42
16	07:41	07:11	06:26		06:33		05:53	05:37	05:51	06:21	06:54	07:15 (MO06)	07:27	07:05	07:37
	17:07	17:47	18:21		19:56		20:29	20:53	20:50	20:16	19:24	23 07:38 (MO06)	18:32	16:52	16:42
17	07:41	07:10	06:25		06:32		05:52	05:37	05:52	06:22	06:55	07:16 (MO06)	07:29	07:07	07:38
	17:08	17:48	18:22		19:57		20:30	20:54	20:49	20:14	19:22	21 07:37 (MO06)	18:31	16:51	16:43
18	07:40	07:08	06:23		06:30		05:51	05:37	05:52	06:24	06:56	07:17 (MO06)	07:30	07:08	07:38
	17:10	17:49	18:23		19:58		20:31	20:54	20:48	20:13	19:21	20 07:37 (MO06)	18:29	16:51	16:43
19	07:40	07:07	06:21	06:40 (MO06)	06:29		05:50	05:37	05:53	06:25	06:57	07:18 (MO06)	07:31	07:09	07:39
	17:11	17:51	18:24	5 06:45 (MO06)	20:00		20:32	20:54	20:48	20:11	19:19	18 07:36 (MO06)	18:28	16:50	16:43
20	07:39	07:05	06:20	06:39 (MO06)	06:27		05:49	05:37	05:54	06:26	06:59	07:19 (MO06)	07:32	07:10	07:39
	17:12	17:52	18:26	9 06:48 (MO06)	20:01		20:33	20:55	20:47	20:10	19:17	17 07:36 (MO06)	18:26	16:49	16:44
21	07:39	07:04	06:18	06:37 (MO06)	06:26		05:48	05:37	05:55	06:27	07:00	07:20 (MO06)	07:33	07:12	07:40
	17:13	17:53	18:27	12 06:49 (MO06)	20:02		20:34	20:55	20:46	20:08	19:15	15 07:35 (MO06)	18:25	16:48	16:44
22	07:38	07:02	06:16	06:35 (MO06)	06:24		05:47	05:37	05:56	06:28	07:01	07:21 (MO06)	07:34	07:13	07:41
	17:14	17:54	18:28	14 06:49 (MO06)	20:03		20:35	20:55	20:45	20:06	19:13	12 07:33 (MO06)	18:23	16:48	16:45
23	07:37	07:01	06:14	06:33 (MO06)	06:23		05:46	05:38	05:57	06:29	07:02	07:22 (MO06)	07:36	07:14	07:41
	17:16	17:56	18:29	16 06:49 (MO06)	20:04		20:36	20:55	20:44	20:05	19:12	10 07:32 (MO06)	18:22	16:47	16:45
24	07:36	06:59	06:13	06:31 (MO06)	06:21		05:46	05:38	05:58	06:30	07:03	07:23 (MO06)	07:37	07:15	07:42
	17:17	17:57	18:30	18 06:49 (MO06)	20:05		20:37	20:55	20:43	20:03	19:10	7 07:30 (MO06)	18:20	16:46	16:46
25	07:36	06:58	06:11	06:30 (MO06)	06:20		05:45	05:38	05:59	06:31	07:04	07:24 (MO06)	06:38	07:16	07:42
	17:18	17:58	18:31	20 06:50 (MO06)	20:06		20:38	20:55	20:42	20:02	19:08	2 07:26 (MO06)	17:19	16:46	16:46
26	07:35	06:56	06:09	06:28 (MO06)	06:18		05:44	05:39	06:00	06:32	07:05		06:39	07:18	07:42
	17:19	17:59	18:32	21 06:49 (MO06)	20:08		20:39	20:56	20:42	20:00	19:06		17:17	16:45	16:47
27	07:34	06:55	06:07	06:26 (MO06)	06:17		05:43	05:39	06:01	06:33	07:06		06:41	07:19	07:43
	17:21	18:01	18:34	22 06:48 (MO06)	20:09		20:40	20:56	20:41	19:58	19:05		17:16	16:45	16:48
28	07:33	06:53	06:06	06:24 (MO06)	06:15		05:43	05:39	06:02	06:34	07:07		06:42	07:20	07:43
	17:22	18:02	18:35	23 06:47 (MO06)	20:10		20:41	20:56	20:40	19:57	19:03		17:14	16:44	16:48
29	07:32		07:04	07:25 (MO06)	06:14		05:42	05:40	06:03	06:35	07:08		06:43	07:21	07:43
	17:23		19:36	22 07:47 (MO06)	20:11		20:42	20:56	20:39	19:55	19:01		17:13	16:44	16:49
30	07:31		07:02	07:26 (MO06)	06:12		05:42	05:40	06:04	06:36	07:09		06:44	07:22	07:44
	17:25		19:37	20 07:46 (MO06)	20:12		20:43	20:56	20:37	19:54	18:59		17:12	16:43	16:50
31	07:30		07:00	07:27 (MO06)			05:41		06:05	06:37			06:45		07:44
	17:26		19:38	17 07:44 (MO06)			20:43		20:36	19:52			17:10		16:51
Potential sun hours	293	295	369		400		452	457	463	431	376		344	295	283
Total, worst case				219		19						245			
Sun reduction				0.46		0.49						0.62			
Oper. time red.				1.00		1.00						1.00			
Wind dir. red.				1.00		1.00						1.00			
Total reduction				0.46		0.49						0.62			
Total, real				100		9						153			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 87 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (985)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June	July	August	September			October	November	December
1	07:44	07:29	06:52			06:59		07:32 (MO06)	06:11	05:40	05:41	06:06	06:38			07:10	06:47	07:23
	16:52	17:27	18:03			19:39	9	07:41 (MO06)	20:13	20:44	20:55	20:35	19:50			18:58	17:09	16:43
2	07:44	07:28	06:50			06:57			06:10	05:40	05:41	06:07	06:40			07:12	06:48	07:24
	16:53	17:29	18:04			19:40			20:14	20:45	20:55	20:34	19:49			18:56	17:08	16:43
3	07:44	07:27	06:48			06:55			06:08	05:40	05:42	06:08	06:41			07:13	06:49	07:25
	16:53	17:30	18:06			19:42			20:15	20:46	20:55	20:33	19:47			18:54	17:06	16:42
4	07:44	07:26	06:47			06:54			06:07	05:39	05:42	06:09	06:42			07:14	06:50	07:26
	16:54	17:31	18:07			19:43			20:16	20:46	20:55	20:32	19:45			18:52	17:05	16:42
5	07:44	07:25	06:45			06:52			06:06	05:39	05:43	06:10	06:43			07:15	06:52	07:27
	16:55	17:32	18:08			19:44			20:18	20:47	20:55	20:31	19:43			18:51	17:04	16:42
6	07:44	07:24	06:43			06:50			06:04	05:38	05:43	06:11	06:44			07:16	06:53	07:28
	16:56	17:34	18:09			19:45			20:19	20:48	20:54	20:29	19:42			18:49	17:03	16:42
7	07:44	07:23	06:42			06:48			06:03	05:38	05:44	06:12	06:45			07:17	06:54	07:29
	16:57	17:35	18:10			19:46			20:20	20:49	20:54	20:28	19:40			18:47	17:02	16:42
8	07:44	07:21	06:40			06:47			06:02	05:38	05:45	06:13	06:46			07:18	06:55	07:30
	16:58	17:36	18:12			19:47			20:21	20:49	20:54	20:27	19:38			18:46	17:00	16:42
9	07:44	07:20	06:38			06:45			06:01	05:38	05:45	06:14	06:47			07:19	06:57	07:31
	16:59	17:38	18:13			19:48			20:22	20:50	20:53	20:25	19:36			18:44	16:59	16:42
10	07:43	07:19	06:37			06:43			05:59	05:37	05:46	06:15	06:48			07:20	06:58	07:32
	17:00	17:39	18:14			19:49			20:23	20:50	20:53	20:24	19:35			18:42	16:58	16:42
11	07:43	07:18	06:35			06:42			05:58	05:37	05:47	06:16	06:49		07:24 (MO06)	07:22	06:59	07:33
	17:01	17:40	18:15			19:51			20:24	20:51	20:52	20:23	19:33	8	07:32 (MO06)	18:41	16:57	16:42
12	07:43	07:16	06:33			06:40			05:57	05:37	05:48	06:17	06:50		07:21 (MO06)	07:23	07:00	07:34
	17:03	17:42	18:16			19:52			20:25	20:51	20:52	20:21	19:31	14	07:35 (MO06)	18:39	16:56	16:42
13	07:43	07:15	06:32			06:38			05:56	05:37	05:48	06:18	06:51		07:19 (MO06)	07:24	07:02	07:35
	17:04	17:43	18:18			19:53			20:26	20:52	20:51	20:20	19:29	17	07:36 (MO06)	18:37	16:55	16:42
14	07:42	07:14	06:30			06:37			05:55	05:37	05:49	06:19	06:52		07:17 (MO06)	07:25	07:03	07:35
	17:05	17:44	18:19			19:54			20:27	20:52	20:51	20:18	19:28	20	07:37 (MO06)	18:36	16:54	16:42
15	07:42	07:12	06:28			06:35			05:54	05:37	05:50	06:20	06:53		07:16 (MO06)	07:26	07:04	07:36
	17:06	17:46	18:20			19:55			20:28	20:53	20:50	20:17	19:26	21	07:37 (MO06)	18:34	16:53	16:42
16	07:41	07:11	06:26			06:33			05:53	05:37	05:51	06:21	06:54		07:15 (MO06)	07:27	07:05	07:37
	17:07	17:47	18:21			19:56			20:29	20:53	20:50	20:16	19:24	23	07:38 (MO06)	18:32	16:52	16:42
17	07:41	07:10	06:25			06:32			05:52	05:37	05:52	06:22	06:55		07:16 (MO06)	07:29	07:07	07:38
	17:08	17:48	18:22			19:57			20:30	20:54	20:49	20:14	19:22	22	07:38 (MO06)	18:31	16:51	16:43
18	07:40	07:08	06:23		06:42 (MO06)	06:30			05:51	05:37	05:52	06:24	06:56		07:17 (MO06)	07:30	07:08	07:38
	17:10	17:49	18:23	3	06:45 (MO06)	19:58			20:31	20:54	20:48	20:13	19:21	20	07:37 (MO06)	18:29	16:51	16:43
19	07:40	07:07	06:21		06:40 (MO06)	06:29			05:50	05:37	05:53	06:25	06:57		07:18 (MO06)	07:31	07:09	07:39
	17:11	17:51	18:24	7	06:47 (MO06)	20:00			20:32	20:54	20:48	20:11	19:19	19	07:37 (MO06)	18:28	16:50	16:43
20	07:39	07:05	06:20		06:39 (MO06)	06:27			05:49	05:37	05:54	06:26	06:59		07:19 (MO06)	07:32	07:10	07:39
	17:12	17:52	18:26	10	06:49 (MO06)	20:01			20:33	20:55	20:47	20:10	19:17	17	07:36 (MO06)	18:26	16:49	16:44
21	07:39	07:04	06:18		06:37 (MO06)	06:26			05:48	05:37	05:55	06:27	07:00		07:20 (MO06)	07:33	07:12	07:40
	17:13	17:53	18:27	13	06:50 (MO06)	20:02			20:34	20:55	20:46	20:08	19:15	15	07:35 (MO06)	18:25	16:48	16:44
22	07:38	07:02	06:16		06:35 (MO06)	06:24			05:47	05:37	05:56	06:28	07:01		07:21 (MO06)	07:34	07:13	07:41
	17:14	17:54	18:28	15	06:50 (MO06)	20:03			20:35	20:55	20:45	20:06	19:14	13	07:34 (MO06)	18:23	16:48	16:45
23	07:37	07:01	06:14		06:33 (MO06)	06:23			05:46	05:38	05:57	06:29	07:02		07:22 (MO06)	07:36	07:14	07:41
	17:16	17:56	18:29	17	06:50 (MO06)	20:04			20:36	20:55	20:44	20:05	19:12	11	07:33 (MO06)	18:22	16:47	16:45
24	07:36	06:59	06:13		06:31 (MO06)	06:21			05:46	05:38	05:58	06:30	07:03		07:23 (MO06)	07:37	07:15	07:42
	17:17	17:57	18:30	19	06:50 (MO06)	20:05			20:37	20:55	20:43	20:03	19:10	8	07:31 (MO06)	18:20	16:46	16:46
25	07:36	06:58	06:11		06:30 (MO06)	06:20			05:45	05:38	05:59	06:31	07:04		07:24 (MO06)	06:38	07:16	07:42
	17:18	17:58	18:31	20	06:50 (MO06)	20:06			20:38	20:55	20:42	20:02	19:08	4	07:28 (MO06)	17:19	16:46	16:46
26	07:35	06:56	06:09		06:28 (MO06)	06:18			05:44	05:39	06:00	06:32	07:05			06:39	07:18	07:42
	17:19	17:59	18:32	21	06:49 (MO06)	20:08			20:39	20:56	20:42	20:00	19:06			17:17	16:45	16:47
27	07:34	06:55	06:07		06:26 (MO06)	06:17			05:43	05:39	06:01	06:33	07:06			06:41	07:19	07:43
	17:21	18:01	18:34	22	06:48 (MO06)	20:09			20:40	20:56	20:41	19:58	19:05			17:16	16:45	16:48
28	07:33	06:53	06:06		06:25 (MO06)	06:15			05:43	05:39	06:02	06:34	07:07			06:42	07:20	07:43
	17:22	18:02	18:35	22	06:47 (MO06)	20:10			20:41	20:56	20:40	19:57	19:03			17:14	16:44	16:48
29	07:32		07:04		07:27 (MO06)	06:14			05:42	05:40	06:03	06:35	07:08			06:43	07:21	07:43
	17:23		19:36	20	07:47 (MO06)	20:11			20:42	20:56	20:39	19:55	19:01			17:13	16:44	16:49
30	07:31		07:02		07:27 (MO06)	06:12			05:42	05:40	06:04	06:36	07:09			06:44	07:22	07:44
	17:25		19:37	18	07:45 (MO06)	20:12			20:43	20:56	20:37	19:54	18:59			17:12	16:43	16:50
31	07:30		07:00		07:28 (MO06)				05:41		06:05	06:37				06:45		07:44
	17:26		19:38	15	07:43 (MO06)				20:43		20:36	19:52				17:10		16:51
Potential sun hours	293	295	369			400			452	457	463	431	376			344	295	283
Total, worst case				222			9							232				
Sun reduction				0.46			0.49							0.62				
Oper. time red.				1.00			1.00							1.00				
Wind dir. red.				1.00			1.00							1.00				
Total reduction				0.46			0.49							0.62				
Total, real				102			4							145				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 88 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (986)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March		April		May	June	July	August	September		October	November	December
1	07:44	07:29	06:52		06:59	07:34 (MO06)	06:11	05:40	05:41	06:06	06:38		07:10	06:47	07:23
	16:52	17:27	18:03		19:39	6 07:40 (MO06)	20:13	20:44	20:55	20:35	19:50		18:58	17:09	16:43
2	07:44	07:28	06:50		06:57		06:10	05:40	05:41	06:07	06:40		07:12	06:48	07:24
	16:53	17:29	18:04		19:40		20:14	20:45	20:55	20:34	19:49		18:56	17:08	16:43
3	07:44	07:27	06:48		06:55		06:08	05:40	05:42	06:08	06:41		07:13	06:49	07:25
	16:53	17:30	18:06		19:42		20:15	20:46	20:55	20:33	19:47		18:54	17:06	16:42
4	07:44	07:26	06:47		06:54		06:07	05:39	05:42	06:09	06:42		07:14	06:50	07:26
	16:54	17:31	18:07		19:43		20:16	20:46	20:55	20:32	19:45		18:52	17:05	16:42
5	07:44	07:25	06:45		06:52		06:06	05:39	05:43	06:10	06:43		07:15	06:52	07:27
	16:55	17:32	18:08		19:44		20:18	20:47	20:55	20:31	19:43		18:51	17:04	16:42
6	07:44	07:24	06:43		06:50		06:04	05:38	05:43	06:11	06:44		07:16	06:53	07:28
	16:56	17:34	18:09		19:45		20:19	20:48	20:54	20:29	19:42		18:49	17:03	16:42
7	07:44	07:23	06:42		06:48		06:03	05:38	05:44	06:12	06:45		07:17	06:54	07:29
	16:57	17:35	18:10		19:46		20:20	20:49	20:54	20:28	19:40		18:47	17:02	16:42
8	07:44	07:21	06:40		06:47		06:02	05:38	05:45	06:13	06:46		07:18	06:55	07:30
	16:58	17:36	18:12		19:47		20:21	20:49	20:54	20:27	19:38		18:46	17:00	16:42
9	07:44	07:20	06:38		06:45		06:01	05:38	05:45	06:14	06:47		07:19	06:57	07:31
	16:59	17:38	18:13		19:48		20:22	20:50	20:53	20:25	19:36		18:44	16:59	16:42
10	07:43	07:19	06:37		06:43		05:59	05:37	05:46	06:15	06:48		07:20	06:58	07:32
	17:00	17:39	18:14		19:49		20:23	20:50	20:53	20:24	19:35		18:42	16:58	16:42
11	07:43	07:18	06:35		06:42		05:58	05:37	05:47	06:16	06:49	07:27 (MO06)	07:22	06:59	07:33
	17:01	17:40	18:15		19:51		20:24	20:51	20:52	20:23	19:33	4 07:31 (MO06)	18:41	16:57	16:42
12	07:43	07:16	06:33		06:40		05:57	05:37	05:48	06:17	06:50	07:23 (MO06)	07:23	07:00	07:34
	17:03	17:42	18:16		19:52		20:25	20:51	20:52	20:21	19:31	12 07:35 (MO06)	18:39	16:56	16:42
13	07:43	07:15	06:32		06:38		05:56	05:37	05:48	06:18	06:51	07:20 (MO06)	07:24	07:02	07:35
	17:04	17:43	18:18		19:53		20:26	20:52	20:51	20:20	19:29	17 07:37 (MO06)	18:37	16:55	16:42
14	07:42	07:14	06:30		06:37		05:55	05:37	05:49	06:19	06:52	07:19 (MO06)	07:25	07:03	07:35
	17:05	17:44	18:19		19:54		20:27	20:52	20:51	20:18	19:28	19 07:38 (MO06)	18:36	16:54	16:42
15	07:42	07:12	06:28		06:35		05:54	05:37	05:50	06:20	06:53	07:17 (MO06)	07:26	07:04	07:36
	17:06	17:46	18:20		19:55		20:28	20:53	20:50	20:17	19:26	21 07:38 (MO06)	18:34	16:53	16:42
16	07:41	07:11	06:26		06:33		05:53	05:37	05:51	06:21	06:54	07:16 (MO06)	07:27	07:05	07:37
	17:07	17:47	18:21		19:56		20:29	20:53	20:50	20:16	19:24	23 07:39 (MO06)	18:32	16:52	16:42
17	07:41	07:10	06:25	06:44 (MO06)	06:32		05:52	05:37	05:52	06:22	06:55	07:16 (MO06)	07:29	07:07	07:38
	17:08	17:48	18:22	1 06:45 (MO06)	19:57		20:30	20:54	20:49	20:14	19:22	23 07:39 (MO06)	18:31	16:51	16:43
18	07:40	07:08	06:23	06:42 (MO06)	06:30		05:51	05:37	05:52	06:24	06:56	07:17 (MO06)	07:30	07:08	07:38
	17:10	17:49	18:23	6 06:48 (MO06)	19:58		20:31	20:54	20:48	20:13	19:21	22 07:39 (MO06)	18:29	16:51	16:43
19	07:40	07:07	06:21	06:40 (MO06)	06:29		05:50	05:37	05:53	06:25	06:57	07:18 (MO06)	07:31	07:09	07:39
	17:11	17:51	18:24	9 06:49 (MO06)	20:00		20:32	20:54	20:48	20:11	19:19	20 07:38 (MO06)	18:28	16:50	16:43
20	07:39	07:05	06:20	06:39 (MO06)	06:27		05:49	05:37	05:54	06:26	06:59	07:19 (MO06)	07:32	07:10	07:39
	17:12	17:52	18:26	12 06:51 (MO06)	20:01		20:33	20:55	20:47	20:10	19:17	19 07:38 (MO06)	18:26	16:49	16:44
21	07:39	07:04	06:18	06:37 (MO06)	06:26		05:48	05:37	05:55	06:27	07:00	07:20 (MO06)	07:33	07:12	07:40
	17:13	17:53	18:27	14 06:51 (MO06)	20:02		20:34	20:55	20:46	20:08	19:15	17 07:37 (MO06)	18:25	16:48	16:44
22	07:38	07:02	06:16	06:35 (MO06)	06:24		05:47	05:37	05:56	06:28	07:01	07:21 (MO06)	07:34	07:13	07:41
	17:14	17:54	18:28	17 06:52 (MO06)	20:03		20:35	20:55	20:45	20:06	19:13	15 07:36 (MO06)	18:23	16:48	16:45
23	07:37	07:01	06:14	06:33 (MO06)	06:23		05:46	05:38	05:57	06:29	07:02	07:22 (MO06)	07:36	07:14	07:41
	17:16	17:56	18:29	18 06:51 (MO06)	20:04		20:36	20:55	20:44	20:05	19:12	13 07:35 (MO06)	18:22	16:47	16:45
24	07:36	06:59	06:13	06:31 (MO06)	06:21		05:46	05:38	05:58	06:30	07:03	07:23 (MO06)	07:37	07:15	07:42
	17:17	17:57	18:30	20 06:51 (MO06)	20:05		20:37	20:55	20:43	20:03	19:10	10 07:33 (MO06)	18:20	16:46	16:46
25	07:36	06:58	06:11	06:30 (MO06)	06:20		05:45	05:38	05:59	06:31	07:04	07:24 (MO06)	06:38	07:16	07:42
	17:18	17:58	18:31	21 06:51 (MO06)	20:06		20:38	20:55	20:42	20:02	19:08	7 07:31 (MO06)	17:19	16:46	16:46
26	07:35	06:56	06:09	06:28 (MO06)	06:18		05:44	05:39	06:00	06:32	07:05	07:26 (MO06)	06:39	07:18	07:42
	17:19	17:59	18:32	23 06:51 (MO06)	20:08		20:39	20:56	20:42	20:00	19:06	3 07:29 (MO06)	17:17	16:45	16:47
27	07:34	06:55	06:07	06:27 (MO06)	06:17		05:43	05:39	06:01	06:33	07:06		06:41	07:19	07:43
	17:21	18:01	18:34	23 06:50 (MO06)	20:09		20:40	20:56	20:41	19:58	19:05		17:16	16:45	16:48
28	07:33	06:53	06:06	06:27 (MO06)	06:15		05:43	05:39	06:02	06:34	07:07		06:42	07:20	07:43
	17:22	18:02	18:35	21 06:48 (MO06)	20:10		20:41	20:56	20:40	19:57	19:03		17:14	16:44	16:48
29	07:32		07:04	07:28 (MO06)	06:14		05:42	05:40	06:03	06:35	07:08		06:43	07:21	07:43
	17:23		19:36	20 07:48 (MO06)	20:11		20:42	20:56	20:39	19:55	19:01		17:13	16:44	16:49
30	07:31		07:02	07:29 (MO06)	06:12		05:42	05:40	06:04	06:36	07:09		06:44	07:22	07:44
	17:25		19:37	17 07:46 (MO06)	20:12		20:43	20:56	20:37	19:54	18:59		17:12	16:43	16:50
31	07:30		07:00	07:30 (MO06)			05:41		06:05	06:37			06:45		07:44
	17:26		19:38	13 07:43 (MO06)			20:43		20:36	19:52			17:10		16:51
Potential sun hours	293	295	369		400		452	457	463	431	376		344	295	283
Total, worst case				235		6						245			
Sun reduction				0.46		0.49						0.62			
Oper. time red.				1.00		1.00						1.00			
Wind dir. red.				1.00		1.00						1.00			
Total reduction				0.46		0.49						0.62			
Total, real				108		3						153			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 89 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (987)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	06:31 (MO06)	05:40	05:41	06:06	06:28 (MO06)	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13 5	06:36 (MO06)	20:44	20:55	20:35 25	06:53 (MO06)	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	06:29 (MO06)	05:40	05:41	06:07	06:29 (MO06)	06:40	07:12	06:48	07:24
	16:53	17:29	18:04	19:40	20:14 8	06:37 (MO06)	20:45	20:55	20:34 24	06:53 (MO06)	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	06:28 (MO06)	05:40	05:42	06:08	06:30 (MO06)	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15 11	06:39 (MO06)	20:46	20:55	20:33 23	06:53 (MO06)	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:54	06:07	06:27 (MO06)	05:39	05:42	06:09	06:31 (MO06)	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16 13	06:40 (MO06)	20:46	20:55	20:32 21	06:52 (MO06)	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	06:26 (MO06)	05:39	05:43	06:10	06:32 (MO06)	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18 15	06:41 (MO06)	20:47	20:55	20:30 20	06:52 (MO06)	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	06:24 (MO06)	05:38	05:43	06:11	06:33 (MO06)	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19 17	06:41 (MO06)	20:48	20:54	20:29 18	06:51 (MO06)	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	06:23 (MO06)	05:38	05:44	06:12	06:34 (MO06)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20 19	06:42 (MO06)	20:49	20:54	20:28 17	06:51 (MO06)	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	06:22 (MO06)	05:38	05:45	06:13	06:35 (MO06)	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21 20	06:42 (MO06)	20:49	20:54	20:27 15	06:50 (MO06)	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	06:21 (MO06)	05:38	05:45	06:14	06:36 (MO06)	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22 22	06:43 (MO06)	20:50	20:53	20:25 13	06:49 (MO06)	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	06:20 (MO06)	05:37	05:46	06:15	06:37 (MO06)	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23 23	06:43 (MO06)	20:50	20:53	20:24 10	06:47 (MO06)	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	06:19 (MO06)	05:37	05:47	06:16	06:38 (MO06)	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24 24	06:43 (MO06)	20:51	20:52	20:23 7	06:45 (MO06)	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	06:18 (MO06)	05:37	05:48	06:17	06:39 (MO06)	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25 25	06:43 (MO06)	20:51	20:52	20:21 4	06:43 (MO06)	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	06:17 (MO06)	05:37	05:48	06:18		06:51	07:24	07:02	07:35
	17:04	17:43	18:18	19:53	20:26 26	06:43 (MO06)	20:52	20:51	20:20		19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	06:17 (MO06)	05:37	05:49	06:19		06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27 26	06:43 (MO06)	20:52	20:51	20:18		19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	06:17 (MO06)	05:37	05:50	06:20		06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28 26	06:43 (MO06)	20:53	20:50	20:17		19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	06:17 (MO06)	05:37	05:51	06:21		06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29 25	06:42 (MO06)	20:53	20:50	20:16		19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	06:18 (MO06)	05:37	05:52	06:22		06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30 24	06:42 (MO06)	20:54	20:49	20:14		19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	06:18 (MO06)	05:37	05:52 06:37 (MO06)	06:24		06:56	07:30	07:08	07:38
	17:10	17:49	18:23	19:58	20:31 23	06:41 (MO06)	20:54	20:48 6 06:43 (MO06)	20:13		19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	06:19 (MO06)	05:37	05:53 06:34 (MO06)	06:25		06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32 21	06:40 (MO06)	20:54	20:48 10 06:44 (MO06)	20:11		19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	06:19 (MO06)	05:37	05:54 06:33 (MO06)	06:26		06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33 21	06:40 (MO06)	20:55	20:47 13 06:46 (MO06)	20:10		19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	06:20 (MO06)	05:37	05:55 06:32 (MO06)	06:27		07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34 19	06:39 (MO06)	20:55	20:46 16 06:48 (MO06)	20:08		19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	06:22 (MO06)	05:37	05:56 06:31 (MO06)	06:28		07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35 17	06:39 (MO06)	20:55	20:45 18 06:49 (MO06)	20:06		19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:23	05:46	06:23 (MO06)	05:38	05:57 06:30 (MO06)	06:29		07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36 14	06:37 (MO06)	20:55	20:44 20 06:50 (MO06)	20:05		19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	06:24 (MO06)	05:38	05:58 06:30 (MO06)	06:30		07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37 12	06:36 (MO06)	20:55	20:43 21 06:51 (MO06)	20:03		19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:20	05:45	06:25 (MO06)	05:38	05:59 06:29 (MO06)	06:31		07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38 9	06:34 (MO06)	20:55	20:42 22 06:51 (MO06)	20:02		19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44		05:39	06:00 06:29 (MO06)	06:32		07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39		20:56	20:42 23 06:52 (MO06)	20:00		19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43		05:39	06:01 06:28 (MO06)	06:33		07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40		20:56	20:41 25 06:53 (MO06)	19:58		19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43		05:39	06:02 06:28 (MO06)	06:34		07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41		20:56	20:40 25 06:53 (MO06)	19:57		19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42		05:40	06:03 06:28 (MO06)	06:35		07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42		20:56	20:38 25 06:53 (MO06)	19:55		19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42		05:40	06:04 06:27 (MO06)	06:36		07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43		20:55	20:37 27 06:54 (MO06)	19:54		18:59	17:12	16:43	16:50
31	07:30		07:00		05:41			06:05 06:27 (MO06)	06:37			06:45		07:44
	17:26		19:38		20:43			20:36 26 06:53 (MO06)	19:52			17:10		16:51
Potential sun hours	293	295	369	400	452		457	463	431		376	344	295	283
Total, worst case					465			277	197					
Sun reduction					0.57			0.71	0.70					
Oper. time red.					1.00			1.00	1.00					
Wind dir. red.					1.00			1.00	1.00					
Total reduction					0.57			0.71	0.70					
Total, real					265			195	138					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 90 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (988)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:59	06:11			05:40		06:12 (MO06)
	16:52	17:27	18:03	19:39	20:13			20:44	70	07:22 (MO06)
2	07:44	07:28	06:50	06:57	06:10			05:40		06:13 (MO06)
	16:53	17:29	18:04	19:40	20:14			20:45	70	07:23 (MO06)
3	07:44	07:27	06:48	06:55	06:08			05:39		06:13 (MO06)
	16:53	17:30	18:06	19:42	20:15			20:46	71	07:24 (MO06)
4	07:44	07:26	06:47	06:53	06:07			05:39		06:12 (MO06)
	16:54	17:31	18:07	19:43	20:16			20:46	71	07:23 (MO06)
5	07:44	07:25	06:45	06:52	06:06			05:39		06:13 (MO06)
	16:55	17:32	18:08	19:44	20:18			20:47	71	07:24 (MO06)
6	07:44	07:24	06:43	06:50	06:04			05:38		06:13 (MO06)
	16:56	17:34	18:09	19:45	20:19			20:48	72	07:25 (MO06)
7	07:44	07:23	06:42	06:48	06:03		06:37 (MO06)	05:38		06:12 (MO06)
	16:57	17:35	18:10	19:46	20:20	19	06:56 (MO06)	20:48	72	07:24 (MO06)
8	07:44	07:21	06:40	06:47	06:02		06:34 (MO06)	05:38		06:13 (MO06)
	16:58	17:36	18:12	19:47	20:21	26	07:00 (MO06)	20:49	72	07:25 (MO06)
9	07:44	07:20	06:38	06:45	06:01		06:31 (MO06)	05:37		06:13 (MO06)
	16:59	17:38	18:13	19:48	20:22	32	07:03 (MO06)	20:50	72	07:25 (MO06)
10	07:43	07:19	06:37	06:43	05:59		06:29 (MO06)	05:37		06:13 (MO06)
	17:00	17:39	18:14	19:49	20:23	36	07:05 (MO06)	20:50	73	07:26 (MO06)
11	07:43	07:18	06:35	06:42	05:58		06:27 (MO06)	05:37		06:13 (MO06)
	17:01	17:40	18:15	19:51	20:24	40	07:07 (MO06)	20:51	73	07:26 (MO06)
12	07:43	07:16	06:33	06:40	05:57		06:26 (MO06)	05:37		06:13 (MO06)
	17:03	17:42	18:16	19:52	20:25	43	07:09 (MO06)	20:51	73	07:26 (MO06)
13	07:42	07:15	06:32	06:38	05:56		06:24 (MO06)	05:37		06:14 (MO06)
	17:04	17:43	18:17	19:53	20:26	46	07:10 (MO06)	20:52	73	07:27 (MO06)
14	07:42	07:14	06:30	06:37	05:55		06:23 (MO06)	05:37		06:14 (MO06)
	17:05	17:44	18:19	19:54	20:27	48	07:11 (MO06)	20:52	73	07:27 (MO06)
15	07:42	07:12	06:28	06:35	05:54		06:22 (MO06)	05:37		06:14 (MO06)
	17:06	17:45	18:20	19:55	20:28	50	07:12 (MO06)	20:53	73	07:27 (MO06)
16	07:41	07:11	06:26	06:33	05:53		06:21 (MO06)	05:37		06:14 (MO06)
	17:07	17:47	18:21	19:56	20:29	52	07:13 (MO06)	20:53	73	07:27 (MO06)
17	07:41	07:10	06:25	06:32	05:52		06:20 (MO06)	05:37		06:14 (MO06)
	17:08	17:48	18:22	19:57	20:30	54	07:14 (MO06)	20:54	74	07:28 (MO06)
18	07:40	07:08	06:23	06:30	05:51		06:19 (MO06)	05:37		06:14 (MO06)
	17:09	17:49	18:23	19:58	20:31	56	07:15 (MO06)	20:54	74	07:28 (MO06)
19	07:40	07:07	06:21	06:29	05:50		06:18 (MO06)	05:37		06:14 (MO06)
	17:11	17:51	18:24	20:00	20:32	58	07:16 (MO06)	20:54	74	07:28 (MO06)
20	07:39	07:05	06:19	06:27	05:49		06:17 (MO06)	05:37		06:14 (MO06)
	17:12	17:52	18:26	20:01	20:33	59	07:16 (MO06)	20:55	74	07:28 (MO06)
21	07:38	07:04	06:18	06:26	05:48		06:16 (MO06)	05:37		06:14 (MO06)
	17:13	17:53	18:27	20:02	20:34	61	07:17 (MO06)	20:55	74	07:28 (MO06)
22	07:38	07:02	06:16	06:24	05:47		06:16 (MO06)	05:37		06:15 (MO06)
	17:14	17:54	18:28	20:03	20:35	62	07:18 (MO06)	20:55	74	07:29 (MO06)
23	07:37	07:01	06:14	06:22	05:46		06:15 (MO06)	05:38		06:15 (MO06)
	17:16	17:56	18:29	20:04	20:36	64	07:19 (MO06)	20:55	74	07:29 (MO06)
24	07:36	06:59	06:13	06:21	05:46		06:15 (MO06)	05:38		06:15 (MO06)
	17:17	17:57	18:30	20:05	20:37	64	07:19 (MO06)	20:55	74	07:29 (MO06)
25	07:36	06:58	06:11	06:19	05:45		06:14 (MO06)	05:38		06:15 (MO06)
	17:18	17:58	18:31	20:06	20:38	65	07:19 (MO06)	20:55	74	07:29 (MO06)
26	07:35	06:56	06:09	06:18	05:44		06:14 (MO06)	05:38		06:16 (MO06)
	17:19	17:59	18:32	20:07	20:39	66	07:20 (MO06)	20:56	74	07:30 (MO06)
27	07:34	06:55	06:07	06:17	05:43		06:14 (MO06)	05:39		06:16 (MO06)
	17:21	18:01	18:34	20:09	20:40	67	07:21 (MO06)	20:56	73	07:29 (MO06)
28	07:33	06:53	06:06	06:15	05:43		06:14 (MO06)	05:39		06:17 (MO06)
	17:22	18:02	18:35	20:10	20:41	68	07:22 (MO06)	20:56	73	07:30 (MO06)
29	07:32		07:04	06:14	05:42		06:13 (MO06)	05:40		06:17 (MO06)
	17:23		19:36	20:11	20:42	69	07:22 (MO06)	20:56	73	07:30 (MO06)
30	07:31		07:02	06:12	05:42		06:13 (MO06)	05:40		06:17 (MO06)
	17:25		19:37	20:12	20:43	68	07:21 (MO06)	20:55	73	07:30 (MO06)
31	07:30		07:00		05:41		06:13 (MO06)			
	17:26		19:38		20:43	69	07:22 (MO06)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						1342			2184	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						764			1333	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 90 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (988)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:41		06:17 (MO06)	06:06		06:36 (MO06)	06:38	07:10	06:47	07:23
	20:55	73	07:30 (MO06)	20:35	42	07:18 (MO06)	19:50	18:58	17:09	16:43
2	05:41		06:17 (MO06)	06:07		06:37 (MO06)	06:39	07:11	06:48	07:24
	20:55	73	07:30 (MO06)	20:34	39	07:16 (MO06)	19:48	18:56	17:08	16:43
3	05:42		06:18 (MO06)	06:08		06:39 (MO06)	06:41	07:13	06:49	07:25
	20:55	72	07:30 (MO06)	20:33	35	07:14 (MO06)	19:47	18:54	17:06	16:42
4	05:42		06:18 (MO06)	06:09		06:42 (MO06)	06:42	07:14	06:50	07:26
	20:55	72	07:30 (MO06)	20:32	29	07:11 (MO06)	19:45	18:52	17:05	16:42
5	05:43		06:18 (MO06)	06:10		06:45 (MO06)	06:43	07:15	06:52	07:27
	20:55	72	07:30 (MO06)	20:30	23	07:08 (MO06)	19:43	18:51	17:04	16:42
6	05:43		06:19 (MO06)	06:11		06:49 (MO06)	06:44	07:16	06:53	07:28
	20:54	72	07:31 (MO06)	20:29	15	07:04 (MO06)	19:42	18:49	17:03	16:42
7	05:44		06:19 (MO06)	06:12			06:45	07:17	06:54	07:29
	20:54	71	07:30 (MO06)	20:28			19:40	18:47	17:02	16:42
8	05:45		06:19 (MO06)	06:13			06:46	07:18	06:55	07:30
	20:54	72	07:31 (MO06)	20:27			19:38	18:46	17:00	16:42
9	05:45		06:20 (MO06)	06:14			06:47	07:19	06:57	07:31
	20:53	71	07:31 (MO06)	20:25			19:36	18:44	16:59	16:42
10	05:46		06:20 (MO06)	06:15			06:48	07:20	06:58	07:32
	20:53	70	07:30 (MO06)	20:24			19:35	18:42	16:58	16:42
11	05:47		06:20 (MO06)	06:16			06:49	07:22	06:59	07:33
	20:52	71	07:31 (MO06)	20:23			19:33	18:41	16:57	16:42
12	05:48		06:21 (MO06)	06:17			06:50	07:23	07:00	07:34
	20:52	70	07:31 (MO06)	20:21			19:31	18:39	16:56	16:42
13	05:48		06:22 (MO06)	06:18			06:51	07:24	07:02	07:35
	20:51	69	07:31 (MO06)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:21 (MO06)	06:19			06:52	07:25	07:03	07:35
	20:51	69	07:30 (MO06)	20:18			19:28	18:36	16:54	16:42
15	05:50		06:22 (MO06)	06:20			06:53	07:26	07:04	07:36
	20:50	68	07:30 (MO06)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:23 (MO06)	06:21			06:54	07:27	07:05	07:37
	20:50	67	07:30 (MO06)	20:16			19:24	18:32	16:52	16:42
17	05:52		06:23 (MO06)	06:22			06:55	07:28	07:07	07:38
	20:49	67	07:30 (MO06)	20:14			19:22	18:31	16:51	16:43
18	05:52		06:24 (MO06)	06:24			06:56	07:30	07:08	07:38
	20:48	66	07:30 (MO06)	20:13			19:21	18:29	16:51	16:43
19	05:53		06:24 (MO06)	06:25			06:57	07:31	07:09	07:39
	20:47	65	07:29 (MO06)	20:11			19:19	18:28	16:50	16:43
20	05:54		06:25 (MO06)	06:26			06:58	07:32	07:10	07:39
	20:47	63	07:28 (MO06)	20:10			19:17	18:26	16:49	16:44
21	05:55		06:25 (MO06)	06:27			07:00	07:33	07:12	07:40
	20:46	63	07:28 (MO06)	20:08			19:15	18:25	16:48	16:44
22	05:56		06:26 (MO06)	06:28			07:01	07:34	07:13	07:41
	20:45	62	07:28 (MO06)	20:06			19:13	18:23	16:48	16:45
23	05:57		06:27 (MO06)	06:29			07:02	07:36	07:14	07:41
	20:44	60	07:27 (MO06)	20:05			19:12	18:22	16:47	16:45
24	05:58		06:28 (MO06)	06:30			07:03	07:37	07:15	07:41
	20:43	59	07:27 (MO06)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:29 (MO06)	06:31			07:04	06:38	07:16	07:42
	20:42	57	07:26 (MO06)	20:02			19:08	17:19	16:46	16:46
26	06:00		06:30 (MO06)	06:32			07:05	06:39	07:17	07:42
	20:41	55	07:25 (MO06)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:31 (MO06)	06:33			07:06	06:40	07:19	07:43
	20:40	54	07:25 (MO06)	19:58			19:05	17:16	16:45	16:48
28	06:02		06:32 (MO06)	06:34			07:07	06:42	07:20	07:43
	20:39	52	07:24 (MO06)	19:57			19:03	17:14	16:44	16:48
29	06:03		06:32 (MO06)	06:35			07:08	06:43	07:21	07:43
	20:38	50	07:22 (MO06)	19:55			19:01	17:13	16:44	16:49
30	06:04		06:33 (MO06)	06:36			07:09	06:44	07:22	07:43
	20:37	47	07:20 (MO06)	19:53			18:59	17:12	16:43	16:50
31	06:05		06:34 (MO06)	06:37				06:45		07:44
	20:36	45	07:19 (MO06)	19:52				17:10		16:51
Potential sun hours	463			431			376	344	295	283
Total, worst case		1997			183					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		1408			128					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 91 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (989)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June			July			August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11			05:40		06:08 (MO06)	05:41		06:09 (MO06)	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13			20:44	36	06:44 (MO06)	20:55	48	06:57 (MO06)	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10			05:40		06:08 (MO06)	05:41		06:09 (MO06)	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14			20:45	38	06:46 (MO06)	20:55	47	06:56 (MO06)	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08			05:39		06:07 (MO06)	05:42		06:10 (MO06)	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15			20:46	40	06:47 (MO06)	20:55	47	06:57 (MO06)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07			05:39		06:06 (MO06)	05:42		06:10 (MO06)	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16			20:46	41	06:47 (MO06)	20:55	46	06:56 (MO06)	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06			05:39		06:06 (MO06)	05:43		06:11 (MO06)	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18			20:47	43	06:49 (MO06)	20:55	45	06:56 (MO06)	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04			05:38		06:06 (MO06)	05:43		06:12 (MO06)	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19			20:48	44	06:50 (MO06)	20:54	44	06:56 (MO06)	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03			05:38		06:05 (MO06)	05:44		06:12 (MO06)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20			20:48	45	06:50 (MO06)	20:54	43	06:55 (MO06)	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02			05:38		06:05 (MO06)	05:45		06:13 (MO06)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21			20:49	46	06:51 (MO06)	20:54	42	06:55 (MO06)	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01			05:37		06:05 (MO06)	05:45		06:14 (MO06)	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22			20:50	46	06:51 (MO06)	20:53	41	06:55 (MO06)	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59			05:37		06:05 (MO06)	05:46		06:15 (MO06)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23			20:50	47	06:52 (MO06)	20:53	39	06:54 (MO06)	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58			05:37		06:05 (MO06)	05:47		06:16 (MO06)	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24			20:51	48	06:53 (MO06)	20:52	37	06:53 (MO06)	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57			05:37		06:05 (MO06)	05:48		06:17 (MO06)	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25			20:51	48	06:53 (MO06)	20:52	36	06:53 (MO06)	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56			05:37		06:05 (MO06)	05:48		06:19 (MO06)	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26			20:52	49	06:54 (MO06)	20:51	33	06:52 (MO06)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55			05:37		06:05 (MO06)	05:49		06:19 (MO06)	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27			20:52	49	06:54 (MO06)	20:51	31	06:50 (MO06)	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54			05:37		06:05 (MO06)	05:50		06:21 (MO06)	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28			20:53	50	06:55 (MO06)	20:50	28	06:49 (MO06)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53			05:37		06:05 (MO06)	05:51		06:23 (MO06)	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29			20:53	50	06:55 (MO06)	20:50	24	06:47 (MO06)	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52			05:37		06:05 (MO06)	05:52		06:26 (MO06)	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30			20:54	50	06:55 (MO06)	20:49	20	06:46 (MO06)	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51			05:37		06:05 (MO06)	05:52		06:29 (MO06)	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31			20:54	51	06:56 (MO06)	20:48	14	06:43 (MO06)	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50			05:37		06:05 (MO06)	05:53			06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32			20:54	51	06:56 (MO06)	20:47			20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49			05:37		06:05 (MO06)	05:54			06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33			20:55	51	06:56 (MO06)	20:47			20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48			05:37		06:05 (MO06)	05:55			06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34			20:55	51	06:56 (MO06)	20:46			20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47			05:37		06:06 (MO06)	05:56			06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35			20:55	51	06:57 (MO06)	20:45			20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46			05:38		06:06 (MO06)	05:57			06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36			20:55	51	06:57 (MO06)	20:44			20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46			05:38		06:06 (MO06)	05:58			06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37			20:55	51	06:57 (MO06)	20:43			20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45		06:21 (MO06)	05:38		06:06 (MO06)	05:59			06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	9	06:30 (MO06)	20:55	50	06:56 (MO06)	20:42			20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44		06:18 (MO06)	05:38		06:07 (MO06)	06:00			06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	17	06:35 (MO06)	20:56	50	06:57 (MO06)	20:41			20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43		06:15 (MO06)	05:39		06:07 (MO06)	06:01			06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	22	06:37 (MO06)	20:56	50	06:57 (MO06)	20:40			19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43		06:14 (MO06)	05:39		06:08 (MO06)	06:02			06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	26	06:40 (MO06)	20:56	50	06:58 (MO06)	20:39			19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42		06:12 (MO06)	05:40		06:08 (MO06)	06:03			06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	29	06:41 (MO06)	20:56	49	06:57 (MO06)	20:38			19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42		06:10 (MO06)	05:40		06:08 (MO06)	06:04			06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	32	06:42 (MO06)	20:55	49	06:57 (MO06)	20:37			19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:09 (MO06)				06:05			06:37		06:45		07:44
	17:26		19:38		20:43	35	06:44 (MO06)				20:36			19:52		17:10		16:51
Potential sun hours	293	295	369	400	452			457			463			431	376	344	295	283
Total, worst case						170			1425			665						
Sun reduction						0.57			0.61			0.71						
Oper. time red.						1.00			1.00			1.00						
Wind dir. red.						1.00			1.00			1.00						
Total reduction						0.57			0.61			0.71						
Total, real						97			870			469						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 92 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (990)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:59	06:11			05:40		06:15 (MO06)
	16:52	17:27	18:03	19:39	20:13			20:44	71	07:26 (MO06)
2	07:44	07:28	06:50	06:57	06:10			05:40		06:15 (MO06)
	16:53	17:29	18:04	19:40	20:14			20:45	71	07:26 (MO06)
3	07:44	07:27	06:48	06:55	06:08		06:41 (MO06)	05:39		06:16 (MO06)
	16:53	17:30	18:06	19:42	20:15	18	06:59 (MO06)	20:46	71	07:27 (MO06)
4	07:44	07:26	06:47	06:53	06:07		06:38 (MO06)	05:39		06:15 (MO06)
	16:54	17:31	18:07	19:43	20:16	25	07:03 (MO06)	20:46	72	07:27 (MO06)
5	07:44	07:25	06:45	06:52	06:06		06:35 (MO06)	05:39		06:16 (MO06)
	16:55	17:32	18:08	19:44	20:18	31	07:06 (MO06)	20:47	71	07:27 (MO06)
6	07:44	07:24	06:43	06:50	06:04		06:32 (MO06)	05:38		06:16 (MO06)
	16:56	17:34	18:09	19:45	20:19	36	07:08 (MO06)	20:48	72	07:28 (MO06)
7	07:44	07:23	06:42	06:48	06:03		06:30 (MO06)	05:38		06:15 (MO06)
	16:57	17:35	18:10	19:46	20:20	40	07:10 (MO06)	20:48	72	07:27 (MO06)
8	07:44	07:21	06:40	06:47	06:02		06:28 (MO06)	05:38		06:16 (MO06)
	16:58	17:36	18:12	19:47	20:21	43	07:11 (MO06)	20:49	72	07:28 (MO06)
9	07:44	07:20	06:38	06:45	06:01		06:27 (MO06)	05:37		06:16 (MO06)
	16:59	17:38	18:13	19:48	20:22	46	07:13 (MO06)	20:50	72	07:28 (MO06)
10	07:43	07:19	06:37	06:43	05:59		06:26 (MO06)	05:37		06:16 (MO06)
	17:00	17:39	18:14	19:49	20:23	48	07:14 (MO06)	20:50	72	07:28 (MO06)
11	07:43	07:18	06:35	06:42	05:58		06:25 (MO06)	05:37		06:17 (MO06)
	17:01	17:40	18:15	19:51	20:24	51	07:16 (MO06)	20:51	72	07:29 (MO06)
12	07:43	07:16	06:33	06:40	05:57		06:24 (MO06)	05:37		06:17 (MO06)
	17:03	17:42	18:16	19:52	20:25	53	07:17 (MO06)	20:51	72	07:29 (MO06)
13	07:42	07:15	06:32	06:38	05:56		06:23 (MO06)	05:37		06:17 (MO06)
	17:04	17:43	18:17	19:53	20:26	55	07:18 (MO06)	20:52	72	07:29 (MO06)
14	07:42	07:14	06:30	06:37	05:55		06:22 (MO06)	05:37		06:17 (MO06)
	17:05	17:44	18:19	19:54	20:27	57	07:19 (MO06)	20:52	73	07:30 (MO06)
15	07:42	07:12	06:28	06:35	05:54		06:21 (MO06)	05:37		06:17 (MO06)
	17:06	17:45	18:20	19:55	20:28	58	07:19 (MO06)	20:53	73	07:30 (MO06)
16	07:41	07:11	06:26	06:33	05:53		06:20 (MO06)	05:37		06:18 (MO06)
	17:07	17:47	18:21	19:56	20:29	60	07:20 (MO06)	20:53	72	07:30 (MO06)
17	07:41	07:10	06:25	06:32	05:52		06:19 (MO06)	05:37		06:18 (MO06)
	17:08	17:48	18:22	19:57	20:30	62	07:21 (MO06)	20:54	72	07:30 (MO06)
18	07:40	07:08	06:23	06:30	05:51		06:19 (MO06)	05:37		06:18 (MO06)
	17:09	17:49	18:23	19:58	20:31	62	07:21 (MO06)	20:54	72	07:30 (MO06)
19	07:40	07:07	06:21	06:29	05:50		06:18 (MO06)	05:37		06:18 (MO06)
	17:11	17:51	18:24	20:00	20:32	63	07:21 (MO06)	20:54	72	07:30 (MO06)
20	07:39	07:05	06:19	06:27	05:49		06:18 (MO06)	05:37		06:18 (MO06)
	17:12	17:52	18:26	20:01	20:33	64	07:22 (MO06)	20:55	72	07:30 (MO06)
21	07:38	07:04	06:18	06:26	05:48		06:17 (MO06)	05:37		06:18 (MO06)
	17:13	17:53	18:27	20:02	20:34	65	07:22 (MO06)	20:55	72	07:30 (MO06)
22	07:38	07:02	06:16	06:24	05:47		06:17 (MO06)	05:37		06:19 (MO06)
	17:14	17:54	18:28	20:03	20:35	66	07:23 (MO06)	20:55	72	07:31 (MO06)
23	07:37	07:01	06:14	06:22	05:46		06:17 (MO06)	05:38		06:19 (MO06)
	17:16	17:56	18:29	20:04	20:36	67	07:24 (MO06)	20:55	72	07:31 (MO06)
24	07:36	06:59	06:13	06:21	05:46		06:16 (MO06)	05:38		06:19 (MO06)
	17:17	17:57	18:30	20:05	20:37	68	07:24 (MO06)	20:55	72	07:31 (MO06)
25	07:36	06:58	06:11	06:19	05:45		06:16 (MO06)	05:38		06:19 (MO06)
	17:18	17:58	18:31	20:06	20:38	68	07:24 (MO06)	20:55	72	07:31 (MO06)
26	07:35	06:56	06:09	06:18	05:44		06:16 (MO06)	05:38		06:20 (MO06)
	17:19	17:59	18:32	20:07	20:39	69	07:25 (MO06)	20:56	72	07:32 (MO06)
27	07:34	06:55	06:07	06:17	05:43		06:16 (MO06)	05:39		06:20 (MO06)
	17:21	18:01	18:34	20:09	20:40	69	07:25 (MO06)	20:56	72	07:32 (MO06)
28	07:33	06:53	06:06	06:15	05:43		06:16 (MO06)	05:39		06:20 (MO06)
	17:22	18:02	18:35	20:10	20:41	70	07:26 (MO06)	20:56	73	07:33 (MO06)
29	07:32		07:04	06:14	05:42		06:16 (MO06)	05:40		06:20 (MO06)
	17:23		19:36	20:11	20:42	69	07:25 (MO06)	20:56	72	07:32 (MO06)
30	07:31		07:02	06:12	05:42		06:15 (MO06)	05:40		06:20 (MO06)
	17:25		19:37	20:12	20:43	70	07:25 (MO06)	20:55	72	07:32 (MO06)
31	07:30		07:00		05:41		06:15 (MO06)			
	17:26		19:38		20:43	71	07:26 (MO06)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						1624			2159	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						924			1318	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 92 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (990)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:41		06:21 (MO06)	06:06		06:34 (MO06)	06:38	07:10	06:47	07:23
	20:55	72	07:33 (MO06)	20:35	52	07:26 (MO06)	19:50	18:58	17:09	16:43
2	05:41		06:20 (MO06)	06:07		06:35 (MO06)	06:39	07:11	06:48	07:24
	20:55	73	07:33 (MO06)	20:34	50	07:25 (MO06)	19:48	18:56	17:08	16:43
3	05:42		06:21 (MO06)	06:08		06:36 (MO06)	06:41	07:13	06:49	07:25
	20:55	72	07:33 (MO06)	20:33	47	07:23 (MO06)	19:47	18:54	17:06	16:42
4	05:42		06:21 (MO06)	06:09		06:37 (MO06)	06:42	07:14	06:50	07:26
	20:55	72	07:33 (MO06)	20:32	45	07:22 (MO06)	19:45	18:52	17:05	16:42
5	05:43		06:21 (MO06)	06:10		06:39 (MO06)	06:43	07:15	06:52	07:27
	20:55	72	07:33 (MO06)	20:30	41	07:20 (MO06)	19:43	18:51	17:04	16:42
6	05:43		06:22 (MO06)	06:11		06:40 (MO06)	06:44	07:16	06:53	07:28
	20:54	72	07:34 (MO06)	20:29	39	07:19 (MO06)	19:42	18:49	17:03	16:42
7	05:44		06:22 (MO06)	06:12		06:42 (MO06)	06:45	07:17	06:54	07:29
	20:54	71	07:33 (MO06)	20:28	35	07:17 (MO06)	19:40	18:47	17:02	16:42
8	05:45		06:22 (MO06)	06:13		06:44 (MO06)	06:46	07:18	06:55	07:30
	20:54	72	07:34 (MO06)	20:27	30	07:14 (MO06)	19:38	18:46	17:00	16:42
9	05:45		06:23 (MO06)	06:14		06:47 (MO06)	06:47	07:19	06:57	07:31
	20:53	71	07:34 (MO06)	20:25	24	07:11 (MO06)	19:36	18:44	16:59	16:42
10	05:46		06:23 (MO06)	06:15		06:52 (MO06)	06:48	07:20	06:58	07:32
	20:53	71	07:34 (MO06)	20:24	14	07:06 (MO06)	19:35	18:42	16:58	16:42
11	05:47		06:23 (MO06)	06:16			06:49	07:22	06:59	07:33
	20:52	71	07:34 (MO06)	20:23			19:33	18:41	16:57	16:42
12	05:48		06:24 (MO06)	06:17			06:50	07:23	07:00	07:34
	20:52	70	07:34 (MO06)	20:21			19:31	18:39	16:56	16:42
13	05:48		06:24 (MO06)	06:18			06:51	07:24	07:02	07:35
	20:51	71	07:35 (MO06)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:24 (MO06)	06:19			06:52	07:25	07:03	07:35
	20:51	70	07:34 (MO06)	20:18			19:28	18:36	16:54	16:42
15	05:50		06:24 (MO06)	06:20			06:53	07:26	07:04	07:36
	20:50	70	07:34 (MO06)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:25 (MO06)	06:21			06:54	07:27	07:05	07:37
	20:50	69	07:34 (MO06)	20:16			19:24	18:32	16:52	16:42
17	05:52		06:25 (MO06)	06:22			06:55	07:28	07:07	07:38
	20:49	69	07:34 (MO06)	20:14			19:22	18:31	16:51	16:43
18	05:52		06:26 (MO06)	06:24			06:56	07:30	07:08	07:38
	20:48	68	07:34 (MO06)	20:13			19:21	18:29	16:51	16:43
19	05:53		06:25 (MO06)	06:25			06:57	07:31	07:09	07:39
	20:47	68	07:33 (MO06)	20:11			19:19	18:28	16:50	16:43
20	05:54		06:26 (MO06)	06:26			06:58	07:32	07:10	07:39
	20:47	67	07:33 (MO06)	20:10			19:17	18:26	16:49	16:44
21	05:55		06:27 (MO06)	06:27			07:00	07:33	07:12	07:40
	20:46	66	07:33 (MO06)	20:08			19:15	18:25	16:48	16:44
22	05:56		06:27 (MO06)	06:28			07:01	07:34	07:13	07:41
	20:45	66	07:33 (MO06)	20:06			19:13	18:23	16:48	16:45
23	05:57		06:28 (MO06)	06:29			07:02	07:36	07:14	07:41
	20:44	65	07:33 (MO06)	20:05			19:12	18:22	16:47	16:45
24	05:58		06:28 (MO06)	06:30			07:03	07:37	07:15	07:41
	20:43	64	07:32 (MO06)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:29 (MO06)	06:31			07:04	06:38	07:16	07:42
	20:42	63	07:32 (MO06)	20:02			19:08	17:19	16:46	16:46
26	06:00		06:30 (MO06)	06:32			07:05	06:39	07:17	07:42
	20:41	61	07:31 (MO06)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:30 (MO06)	06:33			07:06	06:40	07:19	07:43
	20:40	61	07:31 (MO06)	19:58			19:05	17:16	16:45	16:48
28	06:02		06:31 (MO06)	06:34			07:07	06:42	07:20	07:43
	20:39	59	07:30 (MO06)	19:57			19:03	17:14	16:44	16:48
29	06:03		06:31 (MO06)	06:35			07:08	06:43	07:21	07:43
	20:38	58	07:29 (MO06)	19:55			19:01	17:13	16:44	16:49
30	06:04		06:32 (MO06)	06:36			07:09	06:44	07:22	07:43
	20:37	56	07:28 (MO06)	19:53			18:59	17:12	16:43	16:50
31	06:05		06:33 (MO06)	06:37				06:45		07:44
	20:36	54	07:27 (MO06)	19:52				17:10		16:51
Potential sun hours	463			431			376	344	295	283
Total, worst case		2084			377					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		1470			264					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 93 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (991)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June			July			August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11			05:40		06:08 (MO06)	05:41		06:11 (MO06)	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13			20:44	53	07:01 (MO06)	20:55	60	07:11 (MO06)	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10			05:40		06:08 (MO06)	05:41		06:11 (MO06)	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14			20:45	54	07:02 (MO06)	20:55	60	07:11 (MO06)	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08			05:39		06:08 (MO06)	05:42		06:12 (MO06)	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15			20:46	55	07:03 (MO06)	20:55	59	07:11 (MO06)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07			05:39		06:07 (MO06)	05:42		06:11 (MO06)	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16			20:46	56	07:03 (MO06)	20:55	59	07:10 (MO06)	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06			05:39		06:07 (MO06)	05:43		06:12 (MO06)	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18			20:47	57	07:04 (MO06)	20:55	59	07:11 (MO06)	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04			05:38		06:07 (MO06)	05:43		06:13 (MO06)	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19			20:48	58	07:05 (MO06)	20:54	58	07:11 (MO06)	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03			05:38		06:06 (MO06)	05:44		06:13 (MO06)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20			20:48	58	07:04 (MO06)	20:54	57	07:10 (MO06)	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02			05:38		06:06 (MO06)	05:45		06:14 (MO06)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21			20:49	59	07:05 (MO06)	20:54	56	07:10 (MO06)	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01			05:37		06:07 (MO06)	05:45		06:15 (MO06)	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22			20:50	59	07:06 (MO06)	20:53	55	07:10 (MO06)	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59			05:37		06:07 (MO06)	05:46		06:15 (MO06)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23			20:50	59	07:06 (MO06)	20:53	54	07:09 (MO06)	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58			05:37		06:07 (MO06)	05:47		06:16 (MO06)	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24			20:51	60	07:07 (MO06)	20:52	53	07:09 (MO06)	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57			05:37		06:07 (MO06)	05:48		06:17 (MO06)	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25			20:51	61	07:08 (MO06)	20:52	52	07:09 (MO06)	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56			05:37		06:07 (MO06)	05:48		06:18 (MO06)	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26			20:52	61	07:08 (MO06)	20:51	51	07:09 (MO06)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55			05:37		06:07 (MO06)	05:49		06:18 (MO06)	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27			20:52	61	07:08 (MO06)	20:51	49	07:07 (MO06)	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54			05:37		06:07 (MO06)	05:50		06:19 (MO06)	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28			20:53	62	07:09 (MO06)	20:50	48	07:07 (MO06)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53			05:37		06:07 (MO06)	05:51		06:20 (MO06)	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29			20:53	62	07:09 (MO06)	20:50	46	07:06 (MO06)	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52			05:37		06:07 (MO06)	05:52		06:22 (MO06)	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30			20:54	62	07:09 (MO06)	20:49	44	07:06 (MO06)	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51		06:31 (MO06)	05:37		06:07 (MO06)	05:52		06:23 (MO06)	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	6	06:37 (MO06)	20:54	62	07:09 (MO06)	20:48	42	07:05 (MO06)	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50		06:25 (MO06)	05:37		06:07 (MO06)	05:53		06:23 (MO06)	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	17	06:42 (MO06)	20:54	63	07:10 (MO06)	20:47	40	07:03 (MO06)	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49		06:22 (MO06)	05:37		06:07 (MO06)	05:54		06:25 (MO06)	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	23	06:45 (MO06)	20:55	63	07:10 (MO06)	20:47	37	07:02 (MO06)	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48		06:19 (MO06)	05:37		06:07 (MO06)	05:55		06:27 (MO06)	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	29	06:48 (MO06)	20:55	63	07:10 (MO06)	20:46	34	07:01 (MO06)	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47		06:18 (MO06)	05:37		06:08 (MO06)	05:56		06:29 (MO06)	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	32	06:50 (MO06)	20:55	63	07:11 (MO06)	20:45	30	06:59 (MO06)	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46		06:16 (MO06)	05:38		06:08 (MO06)	05:57		06:31 (MO06)	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	36	06:52 (MO06)	20:55	63	07:11 (MO06)	20:44	26	06:57 (MO06)	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46		06:15 (MO06)	05:38		06:08 (MO06)	05:58		06:34 (MO06)	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	38	06:53 (MO06)	20:55	62	07:10 (MO06)	20:43	21	06:55 (MO06)	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45		06:13 (MO06)	05:38		06:08 (MO06)	05:59		06:37 (MO06)	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	41	06:54 (MO06)	20:55	62	07:10 (MO06)	20:42	14	06:51 (MO06)	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44		06:13 (MO06)	05:38		06:09 (MO06)	06:00			06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	43	06:56 (MO06)	20:56	62	07:11 (MO06)	20:41			20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43		06:12 (MO06)	05:39		06:09 (MO06)	06:01			06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	45	06:57 (MO06)	20:56	62	07:11 (MO06)	20:40			19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43		06:11 (MO06)	05:39		06:10 (MO06)	06:02			06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	47	06:58 (MO06)	20:56	62	07:12 (MO06)	20:39			19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42		06:10 (MO06)	05:40		06:10 (MO06)	06:03			06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	49	06:59 (MO06)	20:56	61	07:11 (MO06)	20:38			19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42		06:09 (MO06)	05:40		06:10 (MO06)	06:04			06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	50	06:59 (MO06)	20:55	61	07:11 (MO06)	20:37			19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:09 (MO06)				06:05			06:37		06:45		07:44
	17:26		19:38		20:43	51	07:00 (MO06)				20:36			19:52		17:10		16:51
Potential sun hours	293	295	369	400	452			457			463			431	376	344	295	283
Total, worst case						507			1806			1164						
Sun reduction						0.57			0.61			0.71						
Oper. time red.						1.00			1.00			1.00						
Wind dir. red.						1.00			1.00			1.00						
Total reduction						0.57			0.61			0.71						
Total, real						289			1103			821						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 94 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (992)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:59	06:11			05:40		06:10 (MO06)
	16:52	17:27	18:03	19:39	20:13			20:44	63	07:13 (MO06)
2	07:44	07:28	06:50	06:57	06:10			05:40		06:10 (MO06)
	16:53	17:29	18:04	19:40	20:14			20:45	63	07:13 (MO06)
3	07:44	07:27	06:48	06:55	06:08			05:39		06:10 (MO06)
	16:53	17:30	18:06	19:42	20:15			20:46	64	07:14 (MO06)
4	07:44	07:26	06:47	06:53	06:07			05:39		06:10 (MO06)
	16:54	17:31	18:07	19:43	20:16			20:46	64	07:14 (MO06)
5	07:44	07:25	06:45	06:52	06:06			05:39		06:10 (MO06)
	16:55	17:32	18:08	19:44	20:18			20:47	65	07:15 (MO06)
6	07:44	07:24	06:43	06:50	06:04			05:38		06:10 (MO06)
	16:56	17:34	18:09	19:45	20:19			20:48	65	07:15 (MO06)
7	07:44	07:23	06:42	06:48	06:03			05:38		06:09 (MO06)
	16:57	17:35	18:10	19:46	20:20			20:48	66	07:15 (MO06)
8	07:44	07:21	06:40	06:47	06:02			05:38		06:10 (MO06)
	16:58	17:36	18:12	19:47	20:21			20:49	65	07:15 (MO06)
9	07:44	07:20	06:38	06:45	06:01		06:34 (MO06)	05:37		06:10 (MO06)
	16:59	17:38	18:13	19:48	20:22	13	06:47 (MO06)	20:50	66	07:16 (MO06)
10	07:43	07:19	06:37	06:43	05:59		06:30 (MO06)	05:37		06:10 (MO06)
	17:00	17:39	18:14	19:49	20:23	21	06:51 (MO06)	20:50	66	07:16 (MO06)
11	07:43	07:18	06:35	06:42	05:58		06:27 (MO06)	05:37		06:10 (MO06)
	17:01	17:40	18:15	19:51	20:24	27	06:54 (MO06)	20:51	67	07:17 (MO06)
12	07:43	07:16	06:33	06:40	05:57		06:25 (MO06)	05:37		06:11 (MO06)
	17:03	17:42	18:16	19:52	20:25	32	06:57 (MO06)	20:51	66	07:17 (MO06)
13	07:42	07:15	06:32	06:38	05:56		06:23 (MO06)	05:37		06:11 (MO06)
	17:04	17:43	18:17	19:53	20:26	36	06:59 (MO06)	20:52	66	07:17 (MO06)
14	07:42	07:14	06:30	06:37	05:55		06:21 (MO06)	05:37		06:11 (MO06)
	17:05	17:44	18:19	19:54	20:27	39	07:00 (MO06)	20:52	67	07:18 (MO06)
15	07:42	07:12	06:28	06:35	05:54		06:20 (MO06)	05:37		06:11 (MO06)
	17:06	17:45	18:20	19:55	20:28	42	07:02 (MO06)	20:53	67	07:18 (MO06)
16	07:41	07:11	06:26	06:33	05:53		06:19 (MO06)	05:37		06:11 (MO06)
	17:07	17:47	18:21	19:56	20:29	44	07:03 (MO06)	20:53	67	07:18 (MO06)
17	07:41	07:10	06:25	06:32	05:52		06:18 (MO06)	05:37		06:11 (MO06)
	17:08	17:48	18:22	19:57	20:30	46	07:04 (MO06)	20:54	67	07:18 (MO06)
18	07:40	07:08	06:23	06:30	05:51		06:17 (MO06)	05:37		06:11 (MO06)
	17:09	17:49	18:23	19:58	20:31	48	07:05 (MO06)	20:54	67	07:18 (MO06)
19	07:40	07:07	06:21	06:29	05:50		06:16 (MO06)	05:37		06:12 (MO06)
	17:11	17:51	18:24	20:00	20:32	50	07:06 (MO06)	20:54	66	07:18 (MO06)
20	07:39	07:05	06:19	06:27	05:49		06:15 (MO06)	05:37		06:12 (MO06)
	17:12	17:52	18:26	20:01	20:33	51	07:06 (MO06)	20:55	67	07:19 (MO06)
21	07:38	07:04	06:18	06:26	05:48		06:14 (MO06)	05:37		06:12 (MO06)
	17:13	17:53	18:27	20:02	20:34	53	07:07 (MO06)	20:55	67	07:19 (MO06)
22	07:38	07:02	06:16	06:24	05:47		06:14 (MO06)	05:37		06:13 (MO06)
	17:14	17:54	18:28	20:03	20:35	54	07:08 (MO06)	20:55	67	07:20 (MO06)
23	07:37	07:01	06:14	06:22	05:46		06:13 (MO06)	05:38		06:13 (MO06)
	17:16	17:56	18:29	20:04	20:36	56	07:09 (MO06)	20:55	67	07:20 (MO06)
24	07:36	06:59	06:13	06:21	05:46		06:12 (MO06)	05:38		06:13 (MO06)
	17:17	17:57	18:30	20:05	20:37	57	07:09 (MO06)	20:55	66	07:19 (MO06)
25	07:36	06:58	06:11	06:19	05:45		06:11 (MO06)	05:38		06:12 (MO06)
	17:18	17:58	18:31	20:06	20:38	58	07:09 (MO06)	20:55	67	07:19 (MO06)
26	07:35	06:56	06:09	06:18	05:44		06:12 (MO06)	05:38		06:13 (MO06)
	17:19	17:59	18:32	20:07	20:39	59	07:11 (MO06)	20:56	67	07:20 (MO06)
27	07:34	06:55	06:07	06:17	05:43		06:11 (MO06)	05:39		06:13 (MO06)
	17:21	18:01	18:34	20:09	20:40	60	07:11 (MO06)	20:56	67	07:20 (MO06)
28	07:33	06:53	06:06	06:15	05:43		06:11 (MO06)	05:39		06:14 (MO06)
	17:22	18:02	18:35	20:10	20:41	61	07:12 (MO06)	20:56	67	07:21 (MO06)
29	07:32		07:04	06:14	05:42		06:11 (MO06)	05:40		06:14 (MO06)
	17:23		19:36	20:11	20:42	61	07:12 (MO06)	20:56	66	07:20 (MO06)
30	07:31		07:02	06:12	05:42		06:10 (MO06)	05:40		06:14 (MO06)
	17:25		19:37	20:12	20:43	62	07:12 (MO06)	20:55	66	07:20 (MO06)
31	07:30		07:00		05:41		06:10 (MO06)			
	17:26		19:38		20:43	63	07:13 (MO06)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						1093			1981	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						622			1210	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 94 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (992)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:41		06:15 (MO06)	06:06		06:35 (MO06)	06:38	07:10	06:47	07:23
	20:55	66	07:21 (MO06)	20:35	30	07:05 (MO06)	19:50	18:58	17:09	16:43
2	05:41		06:14 (MO06)	06:07		06:38 (MO06)	06:39	07:11	06:48	07:24
	20:55	66	07:20 (MO06)	20:34	25	07:03 (MO06)	19:48	18:56	17:08	16:43
3	05:42		06:15 (MO06)	06:08		06:41 (MO06)	06:41	07:13	06:49	07:25
	20:55	66	07:21 (MO06)	20:33	19	07:00 (MO06)	19:47	18:54	17:06	16:42
4	05:42		06:15 (MO06)	06:09		06:47 (MO06)	06:42	07:14	06:50	07:26
	20:55	66	07:21 (MO06)	20:32	7	06:54 (MO06)	19:45	18:52	17:05	16:42
5	05:43		06:16 (MO06)	06:10			06:43	07:15	06:52	07:27
	20:55	65	07:21 (MO06)	20:30			19:43	18:51	17:04	16:42
6	05:43		06:16 (MO06)	06:11			06:44	07:16	06:53	07:28
	20:54	65	07:21 (MO06)	20:29			19:42	18:49	17:03	16:42
7	05:44		06:16 (MO06)	06:12			06:45	07:17	06:54	07:29
	20:54	65	07:21 (MO06)	20:28			19:40	18:47	17:02	16:42
8	05:45		06:17 (MO06)	06:13			06:46	07:18	06:55	07:30
	20:54	64	07:21 (MO06)	20:27			19:38	18:46	17:00	16:42
9	05:45		06:17 (MO06)	06:14			06:47	07:19	06:57	07:31
	20:53	65	07:22 (MO06)	20:25			19:36	18:44	16:59	16:42
10	05:46		06:17 (MO06)	06:15			06:48	07:20	06:58	07:32
	20:53	64	07:21 (MO06)	20:24			19:35	18:42	16:58	16:42
11	05:47		06:18 (MO06)	06:16			06:49	07:22	06:59	07:33
	20:52	63	07:21 (MO06)	20:23			19:33	18:41	16:57	16:42
12	05:48		06:18 (MO06)	06:17			06:50	07:23	07:00	07:34
	20:52	63	07:21 (MO06)	20:21			19:31	18:39	16:56	16:42
13	05:48		06:19 (MO06)	06:18			06:51	07:24	07:02	07:35
	20:51	62	07:21 (MO06)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:19 (MO06)	06:19			06:52	07:25	07:03	07:35
	20:51	61	07:20 (MO06)	20:18			19:28	18:36	16:54	16:42
15	05:50		06:19 (MO06)	06:20			06:53	07:26	07:04	07:36
	20:50	61	07:20 (MO06)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:20 (MO06)	06:21			06:54	07:27	07:05	07:37
	20:50	60	07:20 (MO06)	20:16			19:24	18:32	16:52	16:42
17	05:52		06:21 (MO06)	06:22			06:55	07:28	07:07	07:38
	20:49	59	07:20 (MO06)	20:14			19:22	18:31	16:51	16:43
18	05:52		06:22 (MO06)	06:24			06:56	07:30	07:08	07:38
	20:48	58	07:20 (MO06)	20:13			19:21	18:29	16:51	16:43
19	05:53		06:21 (MO06)	06:25			06:57	07:31	07:09	07:39
	20:47	58	07:19 (MO06)	20:11			19:19	18:28	16:50	16:43
20	05:54		06:22 (MO06)	06:26			06:58	07:32	07:10	07:39
	20:47	57	07:19 (MO06)	20:10			19:17	18:26	16:49	16:44
21	05:55		06:23 (MO06)	06:27			07:00	07:33	07:12	07:40
	20:46	55	07:18 (MO06)	20:08			19:15	18:25	16:48	16:44
22	05:56		06:24 (MO06)	06:28			07:01	07:34	07:13	07:41
	20:45	54	07:18 (MO06)	20:06			19:13	18:23	16:48	16:45
23	05:57		06:25 (MO06)	06:29			07:02	07:36	07:14	07:41
	20:44	52	07:17 (MO06)	20:05			19:12	18:22	16:47	16:45
24	05:58		06:26 (MO06)	06:30			07:03	07:37	07:15	07:41
	20:43	51	07:17 (MO06)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:27 (MO06)	06:31			07:04	06:38	07:16	07:42
	20:42	49	07:16 (MO06)	20:02			19:08	17:19	16:46	16:46
26	06:00		06:28 (MO06)	06:32			07:05	06:39	07:17	07:42
	20:41	47	07:15 (MO06)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:29 (MO06)	06:33			07:06	06:40	07:19	07:43
	20:40	45	07:14 (MO06)	19:58			19:05	17:16	16:45	16:48
28	06:02		06:30 (MO06)	06:34			07:07	06:42	07:20	07:43
	20:39	43	07:13 (MO06)	19:57			19:03	17:14	16:44	16:48
29	06:03		06:30 (MO06)	06:35			07:08	06:43	07:21	07:43
	20:38	41	07:11 (MO06)	19:55			19:01	17:13	16:44	16:49
30	06:04		06:32 (MO06)	06:36			07:09	06:44	07:22	07:43
	20:37	37	07:09 (MO06)	19:53			18:59	17:12	16:43	16:50
31	06:05		06:33 (MO06)	06:37				06:45		07:44
	20:36	34	07:07 (MO06)	19:52				17:10		16:51
Potential sun hours	463			431			376	344	295	283
Total, worst case		1762			81					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		1242			57					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 95 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (993)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 96 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (994)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March			April	May	June	July	August	September	October			November	December
1	07:44	07:29			06:52		07:14 (MO06)	06:59	06:11	05:40	05:41	06:06	06:38	07:10			06:47	07:23
	16:52	17:27			18:03	25	07:39 (MO06)	19:39	20:13	20:44	20:55	20:35	19:50	18:58			17:09	16:43
2	07:44	07:28			06:50		07:15 (MO06)	06:57	06:10	05:40	05:41	06:07	06:39	07:12			06:48	07:24
	16:53	17:29			18:04	22	07:37 (MO06)	19:40	20:14	20:45	20:55	20:34	19:49	18:56			17:08	16:43
3	07:44	07:27			06:48		07:17 (MO06)	06:55	06:08	05:40	05:42	06:08	06:41	07:13			06:49	07:25
	16:53	17:30			18:06	20	07:37 (MO06)	19:42	20:15	20:46	20:55	20:33	19:47	18:54			17:06	16:42
4	07:44	07:26			06:47		07:18 (MO06)	06:53	06:07	05:39	05:42	06:09	06:42	07:14			06:50	07:26
	16:54	17:31			18:07	16	07:34 (MO06)	19:43	20:16	20:46	20:55	20:32	19:45	18:52			17:05	16:42
5	07:44	07:25			06:45		07:20 (MO06)	06:52	06:06	05:39	05:43	06:10	06:43	07:15			06:52	07:27
	16:55	17:32			18:08	11	07:31 (MO06)	19:44	20:18	20:47	20:55	20:30	19:43	18:51			17:04	16:42
6	07:44	07:24			06:43			06:50	06:04	05:38	05:43	06:11	06:44	07:16			06:53	07:28
	16:56	17:34			18:09			19:45	20:19	20:48	20:54	20:29	19:42	18:49			17:03	16:42
7	07:44	07:23			06:42			06:48	06:03	05:38	05:44	06:12	06:45	07:17			06:54	07:29
	16:57	17:35			18:10			19:46	20:20	20:49	20:54	20:28	19:40	18:47			17:02	16:42
8	07:44	07:21			06:40			06:47	06:02	05:38	05:45	06:13	06:46	07:18		07:58 (MO06)	06:55	07:30
	16:58	17:36			18:12			19:47	20:21	20:49	20:54	20:27	19:38	18:46	7	08:05 (MO06)	17:00	16:42
9	07:44	07:20			06:38			06:45	06:01	05:37	05:45	06:14	06:47	07:19		07:54 (MO06)	06:57	07:31
	16:59	17:38			18:13			19:48	20:22	20:50	20:53	20:25	19:36	18:44	14	08:08 (MO06)	16:59	16:42
10	07:43	07:19			06:37			06:43	05:59	05:37	05:46	06:15	06:48	07:20		07:51 (MO06)	06:58	07:32
	17:00	17:39			18:14			19:49	20:23	20:50	20:53	20:24	19:35	18:42	19	08:10 (MO06)	16:58	16:42
11	07:43	07:18			06:35			06:42	05:58	05:37	05:47	06:16	06:49	07:22		07:49 (MO06)	06:59	07:33
	17:01	17:40			18:15			19:51	20:24	20:51	20:52	20:23	19:33	18:41	22	08:11 (MO06)	16:57	16:42
12	07:43	07:16			06:33			06:40	05:57	05:37	05:48	06:17	06:50	07:23		07:49 (MO06)	07:00	07:34
	17:03	17:42			18:16			19:52	20:25	20:51	20:52	20:21	19:31	18:39	23	08:12 (MO06)	16:56	16:42
13	07:43	07:15			06:32			06:38	05:56	05:37	05:48	06:18	06:51	07:24		07:48 (MO06)	07:02	07:35
	17:04	17:43			18:18			19:53	20:26	20:52	20:51	20:20	19:29	18:37	25	08:13 (MO06)	16:55	16:42
14	07:42	07:14			06:30			06:37	05:55	05:37	05:49	06:19	06:52	07:25		07:47 (MO06)	07:03	07:35
	17:05	17:44			18:19			19:54	20:27	20:52	20:51	20:18	19:28	18:36	26	08:13 (MO06)	16:54	16:42
15	07:42	07:12			06:28			06:35	05:54	05:37	05:50	06:20	06:53	07:26		07:47 (MO06)	07:04	07:36
	17:06	17:46			18:20			19:55	20:28	20:53	20:50	20:17	19:26	18:34	26	08:13 (MO06)	16:53	16:42
16	07:41	07:11		07:31 (MO06)	06:26			06:33	05:53	05:37	05:51	06:21	06:54	07:27		07:48 (MO06)	07:05	07:37
	17:07	17:47	3	07:34 (MO06)	18:21			19:56	20:29	20:53	20:50	20:16	19:24	18:32	25	08:13 (MO06)	16:52	16:42
17	07:41	07:10		07:29 (MO06)	06:25			06:32	05:52	05:37	05:52	06:22	06:55	07:29		07:50 (MO06)	07:07	07:38
	17:08	17:48	7	07:36 (MO06)	18:22			19:57	20:30	20:54	20:49	20:14	19:22	18:31	23	08:13 (MO06)	16:51	16:43
18	07:40	07:08		07:28 (MO06)	06:23			06:30	05:51	05:37	05:52	06:24	06:56	07:30		07:51 (MO06)	07:08	07:38
	17:09	17:49	10	07:38 (MO06)	18:23			19:58	20:31	20:54	20:48	20:13	19:21	18:29	22	08:13 (MO06)	16:51	16:43
19	07:40	07:07		07:27 (MO06)	06:21			06:29	05:50	05:37	05:53	06:25	06:57	07:31		07:52 (MO06)	07:09	07:39
	17:11	17:51	12	07:39 (MO06)	18:24			20:00	20:32	20:54	20:48	20:11	19:19	18:28	20	08:12 (MO06)	16:50	16:43
20	07:39	07:05		07:25 (MO06)	06:20			06:27	05:49	05:37	05:54	06:26	06:59	07:32		07:53 (MO06)	07:10	07:39
	17:12	17:52	15	07:40 (MO06)	18:26			20:01	20:33	20:55	20:47	20:10	19:17	18:26	18	08:11 (MO06)	16:49	16:44
21	07:38	07:04		07:24 (MO06)	06:18			06:26	05:48	05:37	05:55	06:27	07:00	07:33		07:55 (MO06)	07:12	07:40
	17:13	17:53	17	07:41 (MO06)	18:27			20:02	20:34	20:55	20:46	20:08	19:15	18:25	16	08:11 (MO06)	16:48	16:44
22	07:38	07:02		07:22 (MO06)	06:16			06:24	05:47	05:37	05:56	06:28	07:01	07:34		07:56 (MO06)	07:13	07:41
	17:14	17:54	19	07:41 (MO06)	18:28			20:03	20:35	20:55	20:45	20:06	19:13	18:23	14	08:10 (MO06)	16:48	16:45
23	07:37	07:01		07:20 (MO06)	06:14			06:22	05:46	05:38	05:57	06:29	07:02	07:36		07:57 (MO06)	07:14	07:41
	17:16	17:56	21	07:41 (MO06)	18:29			20:04	20:36	20:55	20:44	20:05	19:12	18:22	12	08:09 (MO06)	16:47	16:45
24	07:36	06:59		07:19 (MO06)	06:13			06:21	05:46	05:38	05:58	06:30	07:03	07:37		07:58 (MO06)	07:15	07:42
	17:17	17:57	22	07:41 (MO06)	18:30			20:05	20:37	20:55	20:43	20:03	19:10	18:20	9	08:07 (MO06)	16:46	16:46
25	07:36	06:58		07:17 (MO06)	06:11			06:19	05:45	05:38	05:59	06:31	07:04	06:38		07:00 (MO06)	07:16	07:42
	17:18	17:58	24	07:41 (MO06)	18:31			20:06	20:38	20:55	20:42	20:02	19:08	17:19	6	07:06 (MO06)	16:46	16:46
26	07:35	06:56		07:16 (MO06)	06:09			06:18	05:44	05:39	06:00	06:32	07:05	06:39		07:01 (MO06)	07:18	07:42
	17:19	17:59	25	07:41 (MO06)	18:32			20:08	20:39	20:56	20:42	20:00	19:06	17:17	2	07:03 (MO06)	16:45	16:47
27	07:34	06:55		07:14 (MO06)	06:07			06:17	05:43	05:39	06:01	06:33	07:06	06:41			07:19	07:43
	17:21	18:01	26	07:40 (MO06)	18:34			20:09	20:40	20:56	20:41	19:58	19:05	17:16			16:45	16:48
28	07:33	06:53		07:14 (MO06)	06:06			06:15	05:43	05:39	06:02	06:34	07:07	06:42			07:20	07:43
	17:22	18:02	26	07:40 (MO06)	18:35			20:10	20:41	20:56	20:40	19:57	19:03	17:14			16:44	16:48
29	07:32				07:04			06:14	05:42	05:40	06:03	06:35	07:08	06:43			07:21	07:43
	17:23				19:36			20:11	20:42	20:56	20:38	19:55	19:01	17:13			16:44	16:49
30	07:31				07:02			06:12	05:42	05:40	06:04	06:36	07:09	06:44			07:22	07:44
	17:25				19:37			20:12	20:43	20:56	20:37	19:54	18:59	17:12			16:43	16:50
31	07:30				07:00				05:41		06:05	06:37		06:45				07:44
	17:26				19:38				20:43		20:36	19:52		17:10				16:51
Potential sun hours	293	295			369			400	452	457	463	431	376	344			295	283
Total, worst case			227			94									329			
Sun reduction			0.46			0.46									0.55			
Oper. time red.			1.00			1.00									1.00			
Wind dir. red.			1.00			1.00									1.00			
Total reduction			0.46			0.46									0.55			
Total, real			105			43									180			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 97 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (995)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 98 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (996)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 99 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (997)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March			April	May	June	July	August	September	October			November	December
1	07:44	07:29			06:52		07:15 (MO06)	06:59	06:11	05:40	05:41	06:06	06:38	07:10			06:47	07:23
	16:52	17:27			18:03	25	07:40 (MO06)	19:39	20:13	20:44	20:55	20:35	19:50	18:58			17:09	16:43
2	07:44	07:28			06:50		07:15 (MO06)	06:57	06:10	05:40	05:41	06:07	06:39	07:12			06:48	07:24
	16:53	17:29			18:04	23	07:38 (MO06)	19:40	20:14	20:45	20:55	20:34	19:49	18:56			17:08	16:43
3	07:44	07:27			06:48		07:17 (MO06)	06:55	06:08	05:40	05:42	06:08	06:41	07:13			06:49	07:25
	16:53	17:30			18:06	20	07:37 (MO06)	19:42	20:15	20:46	20:55	20:33	19:47	18:54			17:06	16:42
4	07:44	07:26			06:47		07:18 (MO06)	06:53	06:07	05:39	05:42	06:09	06:42	07:14			06:50	07:26
	16:54	17:31			18:07	17	07:35 (MO06)	19:43	20:16	20:46	20:55	20:32	19:45	18:52			17:05	16:42
5	07:44	07:25			06:45		07:20 (MO06)	06:52	06:06	05:39	05:43	06:10	06:43	07:15			06:52	07:27
	16:55	17:32			18:08	12	07:32 (MO06)	19:44	20:18	20:47	20:55	20:30	19:43	18:51			17:04	16:42
6	07:44	07:24			06:43			06:50	06:04	05:38	05:43	06:11	06:44	07:16			06:53	07:28
	16:56	17:34			18:09			19:45	20:19	20:48	20:54	20:29	19:42	18:49			17:03	16:42
7	07:44	07:23			06:42			06:48	06:03	05:38	05:44	06:12	06:45	07:17			06:54	07:29
	16:57	17:35			18:10			19:46	20:20	20:49	20:54	20:28	19:40	18:47			17:02	16:42
8	07:44	07:21			06:40			06:47	06:02	05:38	05:45	06:13	06:46	07:18		07:58 (MO06)	06:55	07:30
	16:58	17:36			18:12			19:47	20:21	20:49	20:54	20:27	19:38	18:46	8	08:06 (MO06)	17:00	16:42
9	07:44	07:20			06:38			06:45	06:01	05:37	05:45	06:14	06:47	07:19		07:54 (MO06)	06:57	07:31
	16:59	17:38			18:13			19:48	20:22	20:50	20:53	20:25	19:36	18:44	15	08:09 (MO06)	16:59	16:42
10	07:43	07:19			06:37			06:43	05:59	05:37	05:46	06:15	06:48	07:20		07:52 (MO06)	06:58	07:32
	17:00	17:39			18:14			19:49	20:23	20:50	20:53	20:24	19:35	18:42	18	08:10 (MO06)	16:58	16:42
11	07:43	07:18			06:35			06:42	05:58	05:37	05:47	06:16	06:49	07:22		07:50 (MO06)	06:59	07:33
	17:01	17:40			18:15			19:51	20:24	20:51	20:52	20:23	19:33	18:41	21	08:11 (MO06)	16:57	16:42
12	07:43	07:16			06:33			06:40	05:57	05:37	05:48	06:17	06:50	07:23		07:49 (MO06)	07:00	07:34
	17:03	17:42			18:16			19:52	20:25	20:51	20:52	20:21	19:31	18:39	24	08:13 (MO06)	16:56	16:42
13	07:43	07:15			06:32			06:38	05:56	05:37	05:48	06:18	06:51	07:24		07:48 (MO06)	07:02	07:35
	17:04	17:43			18:18			19:53	20:26	20:52	20:51	20:20	19:29	18:37	26	08:14 (MO06)	16:55	16:42
14	07:42	07:14			06:30			06:37	05:55	05:37	05:49	06:19	06:52	07:25		07:47 (MO06)	07:03	07:35
	17:05	17:44			18:19			19:54	20:27	20:52	20:51	20:18	19:28	18:36	27	08:14 (MO06)	16:54	16:42
15	07:42	07:12			06:28			06:35	05:54	05:37	05:50	06:20	06:53	07:26		07:47 (MO06)	07:04	07:36
	17:06	17:46			18:20			19:55	20:28	20:53	20:50	20:17	19:26	18:34	27	08:14 (MO06)	16:53	16:42
16	07:41	07:11		07:31 (MO06)	06:26			06:33	05:53	05:37	05:51	06:21	06:54	07:27		07:48 (MO06)	07:05	07:37
	17:07	17:47	4	07:35 (MO06)	18:21			19:56	20:29	20:53	20:50	20:16	19:24	18:32	26	08:14 (MO06)	16:52	16:42
17	07:41	07:10		07:29 (MO06)	06:25			06:32	05:52	05:37	05:52	06:22	06:55	07:29		07:50 (MO06)	07:07	07:38
	17:08	17:48	8	07:37 (MO06)	18:22			19:57	20:30	20:54	20:49	20:14	19:22	18:31	24	08:14 (MO06)	16:51	16:43
18	07:40	07:08		07:28 (MO06)	06:23			06:30	05:51	05:37	05:52	06:24	06:56	07:30		07:51 (MO06)	07:08	07:38
	17:09	17:49	11	07:39 (MO06)	18:23			19:58	20:31	20:54	20:48	20:13	19:21	18:29	23	08:14 (MO06)	16:51	16:43
19	07:40	07:07		07:27 (MO06)	06:21			06:29	05:50	05:37	05:53	06:25	06:57	07:31		07:52 (MO06)	07:09	07:39
	17:11	17:51	14	07:41 (MO06)	18:24			20:00	20:32	20:54	20:48	20:11	19:19	18:28	21	08:13 (MO06)	16:50	16:43
20	07:39	07:05		07:25 (MO06)	06:20			06:27	05:49	05:37	05:54	06:26	06:59	07:32		07:53 (MO06)	07:10	07:39
	17:12	17:52	16	07:41 (MO06)	18:26			20:01	20:33	20:55	20:47	20:10	19:17	18:26	19	08:12 (MO06)	16:49	16:44
21	07:38	07:04		07:24 (MO06)	06:18			06:26	05:48	05:37	05:55	06:27	07:00	07:33		07:55 (MO06)	07:12	07:40
	17:13	17:53	18	07:42 (MO06)	18:27			20:02	20:34	20:55	20:46	20:08	19:15	18:25	17	08:12 (MO06)	16:48	16:44
22	07:38	07:02		07:22 (MO06)	06:16			06:24	05:47	05:37	05:56	06:28	07:01	07:34		07:56 (MO06)	07:13	07:41
	17:14	17:54	20	07:42 (MO06)	18:28			20:03	20:35	20:55	20:45	20:06	19:13	18:23	15	08:11 (MO06)	16:48	16:45
23	07:37	07:01		07:20 (MO06)	06:14			06:22	05:46	05:38	05:57	06:29	07:02	07:36		07:57 (MO06)	07:14	07:41
	17:16	17:56	22	07:42 (MO06)	18:29			20:04	20:36	20:55	20:44	20:05	19:12	18:22	13	08:10 (MO06)	16:47	16:45
24	07:36	06:59		07:19 (MO06)	06:13			06:21	05:46	05:38	05:58	06:30	07:03	07:37		07:58 (MO06)	07:15	07:42
	17:17	17:57	23	07:42 (MO06)	18:30			20:05	20:37	20:55	20:43	20:03	19:10	18:20	10	08:08 (MO06)	16:46	16:46
25	07:36	06:58		07:17 (MO06)	06:11			06:19	05:45	05:38	05:59	06:31	07:04	06:38		07:00 (MO06)	07:16	07:42
	17:18	17:58	25	07:42 (MO06)	18:31			20:06	20:38	20:55	20:42	20:02	19:08	17:19	7	07:07 (MO06)	16:46	16:46
26	07:35	06:56		07:16 (MO06)	06:09			06:18	05:44	05:39	06:00	06:32	07:05	06:39		07:01 (MO06)	07:18	07:42
	17:19	17:59	26	07:42 (MO06)	18:32			20:08	20:39	20:56	20:42	20:00	19:06	17:17	3	07:04 (MO06)	16:45	16:47
27	07:34	06:55		07:14 (MO06)	06:07			06:17	05:43	05:39	06:01	06:33	07:06	06:41			07:19	07:43
	17:21	18:01	27	07:41 (MO06)	18:34			20:09	20:40	20:56	20:41	19:58	19:05	17:16			16:45	16:48
28	07:33	06:53		07:15 (MO06)	06:06			06:15	05:43	05:39	06:02	06:34	07:07	06:42			07:20	07:43
	17:22	18:02	26	07:41 (MO06)	18:35			20:10	20:41	20:56	20:40	19:57	19:03	17:14			16:44	16:48
29	07:32				07:04			06:14	05:42	05:40	06:03	06:35	07:08	06:43			07:21	07:43
	17:23				19:36			20:11	20:42	20:56	20:38	19:55	19:01	17:13			16:44	16:49
30	07:31				07:02			06:12	05:42	05:40	06:04	06:36	07:09	06:44			07:22	07:44
	17:25				19:37			20:12	20:43	20:56	20:37	19:54	18:59	17:12			16:43	16:50
31	07:30				07:00				05:41		06:05	06:37		06:45				07:44
	17:26				19:38				20:43		20:36	19:52		17:10				16:51
Potential sun hours	293	295			369			400	452	457	463	431	376	344			295	283
Total, worst case			240			97									344			
Sun reduction			0.46			0.46									0.55			
Oper. time red.			1.00			1.00									1.00			
Wind dir. red.			1.00			1.00									1.00			
Total reduction			0.46			0.46									0.55			
Total, real			111			44									189			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 100 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (998)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 101 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (999)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44		08:07 (MO06)	07:29		08:10 (MO06)	06:52	06:59	06:11	05:40
	16:52	9	08:16 (MO06)	17:27	13	08:23 (MO06)	18:03	19:39	20:13	20:44
2	07:44		08:07 (MO06)	07:28		08:14 (MO06)	06:50	06:57	06:10	05:40
	16:53	10	08:17 (MO06)	17:29	5	08:19 (MO06)	18:04	19:40	20:14	20:45
3	07:44		08:07 (MO06)	07:27			06:48	06:55	06:08	05:39
	16:53	11	08:18 (MO06)	17:30			18:06	19:42	20:15	20:46
4	07:44		08:07 (MO06)	07:26			06:47	06:53	06:07	05:39
	16:54	12	08:19 (MO06)	17:31			18:07	19:43	20:16	20:46
5	07:44		08:07 (MO06)	07:25			06:45	06:52	06:06	05:39
	16:55	13	08:20 (MO06)	17:32			18:08	19:44	20:18	20:47
6	07:44		08:07 (MO06)	07:24			06:43	06:50	06:04	05:38
	16:56	14	08:21 (MO06)	17:34			18:09	19:45	20:19	20:48
7	07:44		08:07 (MO06)	07:23			06:42	06:48	06:03	05:38
	16:57	15	08:22 (MO06)	17:35			18:10	19:46	20:20	20:49
8	07:44		08:06 (MO06)	07:21			06:40	06:47	06:02	05:38
	16:58	16	08:22 (MO06)	17:36			18:12	19:47	20:21	20:49
9	07:44		08:06 (MO06)	07:20			06:38	06:45	06:01	05:37
	16:59	17	08:23 (MO06)	17:38			18:13	19:48	20:22	20:50
10	07:43		08:06 (MO06)	07:19			06:37	06:43	05:59	05:37
	17:00	18	08:24 (MO06)	17:39			18:14	19:49	20:23	20:50
11	07:43		08:05 (MO06)	07:18			06:35	06:42	05:58	05:37
	17:01	19	08:24 (MO06)	17:40			18:15	19:51	20:24	20:51
12	07:43		08:05 (MO06)	07:16			06:33	06:40	05:57	05:37
	17:03	20	08:25 (MO06)	17:42			18:16	19:52	20:25	20:51
13	07:43		08:05 (MO06)	07:15			06:32	06:38	05:56	05:37
	17:04	21	08:26 (MO06)	17:43			18:18	19:53	20:26	20:52
14	07:42		08:04 (MO06)	07:14			06:30	06:37	05:55	05:37
	17:05	22	08:26 (MO06)	17:44			18:19	19:54	20:27	20:52
15	07:42		08:04 (MO06)	07:12			06:28	06:35	05:54	05:37
	17:06	23	08:27 (MO06)	17:45			18:20	19:55	20:28	20:53
16	07:41		08:03 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	24	08:27 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:03 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	25	08:28 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:02 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	26	08:28 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:01 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	27	08:28 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:01 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	28	08:29 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:00 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	29	08:29 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		07:59 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	30	08:29 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		07:59 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	30	08:29 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		08:00 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	29	08:29 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		08:01 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	28	08:29 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		08:01 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	28	08:29 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		08:02 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	26	08:28 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		08:03 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	25	08:28 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		08:04 (MO06)				07:04	06:14	05:42	05:40
	17:23	23	08:27 (MO06)				19:36	20:11	20:42	20:56
30	07:31		08:06 (MO06)				07:02	06:12	05:42	05:40
	17:25	20	08:26 (MO06)				19:37	20:12	20:43	20:56
31	07:30		08:07 (MO06)				07:00		05:41	
	17:26	17	08:24 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		655			18					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		275			8					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 101 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (999)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November			December		
1	05:41	06:06	06:38	07:10	06:47			07:23		07:47 (MO06)
	20:55	20:35	19:50	18:58	17:09			16:43	19	08:06 (MO06)
2	05:41	06:07	06:39	07:12	06:48			07:24		07:49 (MO06)
	20:55	20:34	19:48	18:56	17:08			16:43	18	08:07 (MO06)
3	05:42	06:08	06:41	07:13	06:49			07:25		07:50 (MO06)
	20:55	20:33	19:47	18:54	17:06			16:42	17	08:07 (MO06)
4	05:42	06:09	06:42	07:14	06:50			07:26		07:51 (MO06)
	20:55	20:32	19:45	18:52	17:05			16:42	16	08:07 (MO06)
5	05:43	06:10	06:43	07:15	06:52			07:27		07:52 (MO06)
	20:55	20:30	19:43	18:51	17:04			16:42	15	08:07 (MO06)
6	05:43	06:11	06:44	07:16	06:53			07:28		07:53 (MO06)
	20:54	20:29	19:42	18:49	17:03			16:42	14	08:07 (MO06)
7	05:44	06:12	06:45	07:17	06:54			07:29		07:54 (MO06)
	20:54	20:28	19:40	18:47	17:02			16:42	13	08:07 (MO06)
8	05:45	06:13	06:46	07:18	06:55			07:30		07:55 (MO06)
	20:54	20:27	19:38	18:46	17:00			16:42	12	08:07 (MO06)
9	05:45	06:14	06:47	07:19	06:57		07:44 (MO06)	07:31		07:56 (MO06)
	20:53	20:25	19:36	18:44	16:59	7	07:51 (MO06)	16:42	11	08:07 (MO06)
10	05:46	06:15	06:48	07:20	06:58		07:40 (MO06)	07:32		07:57 (MO06)
	20:53	20:24	19:35	18:42	16:58	14	07:54 (MO06)	16:42	10	08:07 (MO06)
11	05:47	06:16	06:49	07:22	06:59		07:38 (MO06)	07:33		07:57 (MO06)
	20:52	20:23	19:33	18:41	16:57	17	07:55 (MO06)	16:42	9	08:06 (MO06)
12	05:48	06:17	06:50	07:23	07:00		07:38 (MO06)	07:34		07:58 (MO06)
	20:52	20:21	19:31	18:39	16:56	20	07:58 (MO06)	16:42	8	08:06 (MO06)
13	05:48	06:18	06:51	07:24	07:02		07:36 (MO06)	07:35		07:59 (MO06)
	20:51	20:20	19:29	18:37	16:55	23	07:59 (MO06)	16:42	8	08:07 (MO06)
14	05:49	06:19	06:52	07:25	07:03		07:35 (MO06)	07:35		08:00 (MO06)
	20:51	20:18	19:28	18:36	16:54	24	07:59 (MO06)	16:42	7	08:07 (MO06)
15	05:50	06:20	06:53	07:26	07:04		07:35 (MO06)	07:36		08:01 (MO06)
	20:50	20:17	19:26	18:34	16:53	26	08:01 (MO06)	16:42	7	08:08 (MO06)
16	05:51	06:21	06:54	07:27	07:05		07:34 (MO06)	07:37		08:01 (MO06)
	20:50	20:16	19:24	18:32	16:52	28	08:02 (MO06)	16:42	6	08:07 (MO06)
17	05:52	06:22	06:55	07:29	07:07		07:34 (MO06)	07:38		08:02 (MO06)
	20:49	20:14	19:22	18:31	16:51	28	08:02 (MO06)	16:43	6	08:08 (MO06)
18	05:52	06:24	06:56	07:30	07:08		07:34 (MO06)	07:38		08:03 (MO06)
	20:48	20:13	19:21	18:29	16:51	29	08:03 (MO06)	16:43	5	08:08 (MO06)
19	05:53	06:25	06:57	07:31	07:09		07:34 (MO06)	07:39		08:03 (MO06)
	20:48	20:11	19:19	18:28	16:50	30	08:04 (MO06)	16:43	5	08:08 (MO06)
20	05:54	06:26	06:59	07:32	07:10		07:34 (MO06)	07:39		08:04 (MO06)
	20:47	20:10	19:17	18:26	16:49	30	08:04 (MO06)	16:44	5	08:09 (MO06)
21	05:55	06:27	07:00	07:33	07:12		07:35 (MO06)	07:40		08:04 (MO06)
	20:46	20:08	19:15	18:25	16:48	29	08:04 (MO06)	16:44	5	08:09 (MO06)
22	05:56	06:28	07:01	07:34	07:13		07:37 (MO06)	07:41		08:05 (MO06)
	20:45	20:06	19:13	18:23	16:48	28	08:05 (MO06)	16:45	4	08:09 (MO06)
23	05:57	06:29	07:02	07:36	07:14		07:38 (MO06)	07:41		08:05 (MO06)
	20:44	20:05	19:12	18:22	16:47	27	08:05 (MO06)	16:45	5	08:10 (MO06)
24	05:58	06:30	07:03	07:37	07:15		07:39 (MO06)	07:42		08:05 (MO06)
	20:43	20:03	19:10	18:20	16:46	26	08:05 (MO06)	16:46	5	08:10 (MO06)
25	05:59	06:31	07:04	06:38	07:16		07:40 (MO06)	07:42		08:06 (MO06)
	20:42	20:02	19:08	17:19	16:46	25	08:05 (MO06)	16:46	5	08:11 (MO06)
26	06:00	06:32	07:05	06:39	07:18		07:42 (MO06)	07:42		08:06 (MO06)
	20:42	20:00	19:06	17:17	16:45	24	08:06 (MO06)	16:47	5	08:11 (MO06)
27	06:01	06:33	07:06	06:41	07:19		07:43 (MO06)	07:43		08:06 (MO06)
	20:41	19:58	19:05	17:16	16:45	23	08:06 (MO06)	16:48	6	08:12 (MO06)
28	06:02	06:34	07:07	06:42	07:20		07:44 (MO06)	07:43		08:07 (MO06)
	20:40	19:57	19:03	17:14	16:44	22	08:06 (MO06)	16:48	6	08:13 (MO06)
29	06:03	06:35	07:08	06:43	07:21		07:45 (MO06)	07:43		08:07 (MO06)
	20:38	19:55	19:01	17:13	16:44	21	08:06 (MO06)	16:49	7	08:14 (MO06)
30	06:04	06:36	07:09	06:44	07:22		07:46 (MO06)	07:44		08:07 (MO06)
	20:37	19:54	18:59	17:12	16:43	20	08:06 (MO06)	16:50	8	08:15 (MO06)
31	06:05	06:37		06:45				07:44		08:07 (MO06)
	20:36	19:52		17:10				16:51	8	08:15 (MO06)
Potential sun hours	463	431	376	344	295			283		
Total, worst case						521			275	
Sun reduction						0.46			0.43	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.46			0.43	
Total, real						238			119	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 102 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1000)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44			07:29		07:50 (MO06)	06:52	06:59	06:11	05:40
	16:52			17:27	29	08:19 (MO06)	18:03	19:39	20:13	20:44
2	07:44			07:28		07:49 (MO06)	06:50	06:57	06:10	05:40
	16:53			17:29	30	08:19 (MO06)	18:04	19:40	20:14	20:45
3	07:44			07:27		07:50 (MO06)	06:48	06:55	06:08	05:39
	16:53			17:30	29	08:19 (MO06)	18:06	19:42	20:15	20:46
4	07:44			07:26		07:51 (MO06)	06:47	06:53	06:07	05:39
	16:54			17:31	28	08:19 (MO06)	18:07	19:43	20:16	20:46
5	07:44			07:25		07:50 (MO06)	06:45	06:52	06:06	05:39
	16:55			17:32	28	08:18 (MO06)	18:08	19:44	20:18	20:47
6	07:44			07:24		07:52 (MO06)	06:43	06:50	06:04	05:38
	16:56			17:34	25	08:17 (MO06)	18:09	19:45	20:19	20:48
7	07:44			07:23		07:53 (MO06)	06:42	06:48	06:03	05:38
	16:57			17:35	24	08:17 (MO06)	18:10	19:46	20:20	20:49
8	07:44			07:21		07:54 (MO06)	06:40	06:47	06:02	05:38
	16:58			17:36	22	08:16 (MO06)	18:12	19:47	20:21	20:49
9	07:44			07:20		07:55 (MO06)	06:38	06:45	06:01	05:37
	16:59			17:38	19	08:14 (MO06)	18:13	19:48	20:22	20:50
10	07:43			07:19		07:58 (MO06)	06:37	06:43	05:59	05:37
	17:00			17:39	14	08:12 (MO06)	18:14	19:49	20:23	20:50
11	07:43			07:18		08:01 (MO06)	06:35	06:42	05:58	05:37
	17:01			17:40	8	08:09 (MO06)	18:15	19:51	20:24	20:51
12	07:43			07:16			06:33	06:40	05:57	05:37
	17:03			17:42			18:16	19:52	20:25	20:51
13	07:43			07:15			06:32	06:38	05:56	05:37
	17:04			17:43			18:18	19:53	20:26	20:52
14	07:42			07:14			06:30	06:37	05:55	05:37
	17:05			17:44			18:19	19:54	20:27	20:52
15	07:42			07:12			06:28	06:35	05:54	05:37
	17:06			17:46			18:20	19:55	20:28	20:53
16	07:41		08:03 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	3	08:06 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:03 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	5	08:08 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:02 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	8	08:10 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:01 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	10	08:11 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:01 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	12	08:13 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:00 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	13	08:13 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		07:59 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	15	08:14 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		07:58 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	17	08:15 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		07:58 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	19	08:17 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		07:57 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	20	08:17 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		07:56 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	22	08:18 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		07:55 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	23	08:18 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		07:54 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	24	08:18 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		07:53 (MO06)				07:04	06:14	05:42	05:40
	17:23	26	08:19 (MO06)				19:36	20:11	20:42	20:56
30	07:31		07:52 (MO06)				07:02	06:12	05:42	05:40
	17:25	27	08:19 (MO06)				19:37	20:12	20:43	20:56
31	07:30		07:51 (MO06)				07:00		05:41	
	17:26	28	08:19 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		272			256					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		114			118					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 102 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1000)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October			November			December	
1	05:41		06:06		06:38		07:10			06:47		07:27 (MO06)	07:23	
	20:55		20:35		19:50		18:58			17:09	15	07:42 (MO06)	16:43	
2	05:41		06:07		06:39		07:12			06:48		07:25 (MO06)	07:24	
	20:55		20:34		19:48		18:56			17:08	19	07:44 (MO06)	16:43	
3	05:42		06:08		06:41		07:13			06:49		07:23 (MO06)	07:25	
	20:55		20:33		19:47		18:54			17:06	22	07:45 (MO06)	16:42	
4	05:42		06:09		06:42		07:14			06:50		07:22 (MO06)	07:26	
	20:55		20:32		19:45		18:52			17:05	25	07:47 (MO06)	16:42	
5	05:43		06:10		06:43		07:15			06:52		07:21 (MO06)	07:27	
	20:55		20:30		19:43		18:51			17:04	26	07:47 (MO06)	16:42	
6	05:43		06:11		06:44		07:16			06:53		07:21 (MO06)	07:28	
	20:54		20:29		19:42		18:49			17:03	28	07:49 (MO06)	16:42	
7	05:44		06:12		06:45		07:17			06:54		07:20 (MO06)	07:29	
	20:54		20:28		19:40		18:47			17:02	29	07:49 (MO06)	16:42	
8	05:45		06:13		06:46		07:18			06:55		07:20 (MO06)	07:30	
	20:54		20:27		19:38		18:46			17:00	29	07:49 (MO06)	16:42	
9	05:45		06:14		06:47		07:19			06:57		07:20 (MO06)	07:31	
	20:53		20:25		19:36		18:44			16:59	30	07:50 (MO06)	16:42	
10	05:46		06:15		06:48		07:20			06:58		07:21 (MO06)	07:32	
	20:53		20:24		19:35		18:42			16:58	29	07:50 (MO06)	16:42	
11	05:47		06:16		06:49		07:22			06:59		07:22 (MO06)	07:33	
	20:52		20:23		19:33		18:41			16:57	28	07:50 (MO06)	16:42	
12	05:48		06:17		06:50		07:23			07:00		07:24 (MO06)	07:34	
	20:52		20:21		19:31		18:39			16:56	27	07:51 (MO06)	16:42	
13	05:48		06:18		06:51		07:24			07:02		07:25 (MO06)	07:35	
	20:51		20:20		19:29		18:37			16:55	26	07:51 (MO06)	16:42	
14	05:49		06:19		06:52		07:25			07:03		07:26 (MO06)	07:35	
	20:51		20:18		19:28		18:36			16:54	24	07:50 (MO06)	16:42	
15	05:50		06:20		06:53		07:26			07:04		07:28 (MO06)	07:36	
	20:50		20:17		19:26		18:34			16:53	23	07:51 (MO06)	16:42	
16	05:51		06:21		06:54		07:27			07:05		07:29 (MO06)	07:37	
	20:50		20:16		19:24		18:32			16:52	22	07:51 (MO06)	16:42	
17	05:52		06:22		06:55		07:29			07:07		07:30 (MO06)	07:38	
	20:49		20:14		19:22		18:31			16:51	20	07:50 (MO06)	16:43	
18	05:52		06:24		06:56		07:30			07:08		07:32 (MO06)	07:38	
	20:48		20:13		19:21		18:29			16:51	19	07:51 (MO06)	16:43	
19	05:53		06:25		06:57		07:31			07:09		07:33 (MO06)	07:39	
	20:48		20:11		19:19		18:28			16:50	17	07:50 (MO06)	16:43	
20	05:54		06:26		06:59		07:32			07:10		07:34 (MO06)	07:39	
	20:47		20:10		19:17		18:26			16:49	15	07:49 (MO06)	16:44	
21	05:55		06:27		07:00		07:33			07:12		07:35 (MO06)	07:40	
	20:46		20:08		19:15		18:25			16:48	13	07:48 (MO06)	16:44	
22	05:56		06:28		07:01		07:34			07:13		07:37 (MO06)	07:41	
	20:45		20:06		19:13		18:23			16:48	12	07:49 (MO06)	16:45	
23	05:57		06:29		07:02		07:36			07:14		07:38 (MO06)	07:41	
	20:44		20:05		19:12		18:22			16:47	10	07:48 (MO06)	16:45	
24	05:58		06:30		07:03		07:37			07:15		07:39 (MO06)	07:42	
	20:43		20:03		19:10		18:20			16:46	8	07:47 (MO06)	16:46	
25	05:59		06:31		07:04		06:38			07:16		07:40 (MO06)	07:42	
	20:42		20:02		19:08		17:19			16:46	6	07:46 (MO06)	16:46	
26	06:00		06:32		07:05		06:39			07:18		07:42 (MO06)	07:42	
	20:42		20:00		19:06		17:17			16:45	3	07:45 (MO06)	16:47	
27	06:01		06:33		07:06		06:41			07:19			07:43	
	20:41		19:58		19:05		17:16			16:45			16:48	
28	06:02		06:34		07:07		06:42			07:20			07:43	
	20:40		19:57		19:03		17:14			16:44			16:48	
29	06:03		06:35		07:08		06:43			07:21			07:43	
	20:38		19:55		19:01		17:13			16:44			16:49	
30	06:04		06:36		07:09		06:44			07:22			07:44	
	20:37		19:54		18:59		17:12			16:43			16:50	
31	06:05		06:37				06:45		07:29 (MO06)				07:44	
	20:36		19:52				17:10	9	07:38 (MO06)				16:51	
Potential sun hours	463		431		376		344			295			283	
Total, worst case								9			525			
Sun reduction								0.55			0.46			
Oper. time red.								1.00			1.00			
Wind dir. red.								1.00			1.00			
Total reduction								0.55			0.46			
Total, real								5			239			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 103 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1001)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44			07:29		07:50 (MO06)	06:52	06:59	06:11	05:40
	16:52			17:27	27	08:17 (MO06)	18:03	19:39	20:13	20:44
2	07:44			07:28		07:49 (MO06)	06:50	06:57	06:10	05:40
	16:53			17:29	28	08:17 (MO06)	18:04	19:40	20:14	20:45
3	07:44			07:27		07:48 (MO06)	06:48	06:55	06:08	05:39
	16:53			17:30	29	08:17 (MO06)	18:06	19:42	20:15	20:46
4	07:44			07:26		07:48 (MO06)	06:47	06:53	06:07	05:39
	16:54			17:31	29	08:17 (MO06)	18:07	19:43	20:16	20:46
5	07:44			07:25		07:48 (MO06)	06:45	06:52	06:06	05:39
	16:55			17:32	28	08:16 (MO06)	18:08	19:44	20:18	20:47
6	07:44			07:24		07:48 (MO06)	06:43	06:50	06:04	05:38
	16:56			17:34	28	08:16 (MO06)	18:09	19:45	20:19	20:48
7	07:44			07:23		07:49 (MO06)	06:42	06:48	06:03	05:38
	16:57			17:35	26	08:15 (MO06)	18:10	19:46	20:20	20:49
8	07:44			07:21		07:51 (MO06)	06:40	06:47	06:02	05:38
	16:58			17:36	24	08:15 (MO06)	18:12	19:47	20:21	20:49
9	07:44			07:20		07:51 (MO06)	06:38	06:45	06:01	05:37
	16:59			17:38	22	08:13 (MO06)	18:13	19:48	20:22	20:50
10	07:43			07:19		07:53 (MO06)	06:37	06:43	05:59	05:37
	17:00			17:39	19	08:12 (MO06)	18:14	19:49	20:23	20:50
11	07:43			07:18		07:55 (MO06)	06:35	06:42	05:58	05:37
	17:01			17:40	15	08:10 (MO06)	18:15	19:51	20:24	20:51
12	07:43			07:16		07:58 (MO06)	06:33	06:40	05:57	05:37
	17:03			17:42	8	08:06 (MO06)	18:16	19:52	20:25	20:51
13	07:43			07:15			06:32	06:38	05:56	05:37
	17:04			17:43			18:18	19:53	20:26	20:52
14	07:42			07:14			06:30	06:37	05:55	05:37
	17:05			17:44			18:19	19:54	20:27	20:52
15	07:42			07:12			06:28	06:35	05:54	05:37
	17:06			17:46			18:20	19:55	20:28	20:53
16	07:41			07:11			06:26	06:33	05:53	05:37
	17:07			17:47			18:21	19:56	20:29	20:53
17	07:41			07:10			06:25	06:32	05:52	05:37
	17:08			17:48			18:22	19:57	20:30	20:54
18	07:40		08:02 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	2	08:04 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:01 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	5	08:06 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:01 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	7	08:08 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:00 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	9	08:09 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		07:59 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	11	08:10 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		07:58 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	13	08:11 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		07:58 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	15	08:13 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		07:57 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	17	08:14 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		07:56 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	18	08:14 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		07:55 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	20	08:15 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		07:54 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	22	08:16 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		07:53 (MO06)				07:04	06:14	05:42	05:40
	17:23	23	08:16 (MO06)				19:36	20:11	20:42	20:56
30	07:31		07:52 (MO06)				07:02	06:12	05:42	05:40
	17:25	24	08:16 (MO06)				19:37	20:12	20:43	20:56
31	07:30		07:51 (MO06)				07:00		05:41	
	17:26	26	08:17 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		212			283					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		89			131					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 103 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1001)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October		November		December
1	05:41	06:06	06:38	07:10		06:47	07:22 (MO06)	07:23
	20:55	20:35	19:50	18:58		17:09	20 07:42 (MO06)	16:43
2	05:41	06:07	06:39	07:12		06:48	07:21 (MO06)	07:24
	20:55	20:34	19:49	18:56		17:08	22 07:43 (MO06)	16:43
3	05:42	06:08	06:41	07:13		06:49	07:19 (MO06)	07:25
	20:55	20:33	19:47	18:54		17:06	25 07:44 (MO06)	16:42
4	05:42	06:09	06:42	07:14		06:50	07:19 (MO06)	07:26
	20:55	20:32	19:45	18:52		17:05	26 07:45 (MO06)	16:42
5	05:43	06:10	06:43	07:15		06:52	07:18 (MO06)	07:27
	20:55	20:30	19:43	18:51		17:04	28 07:46 (MO06)	16:42
6	05:43	06:11	06:44	07:16		06:53	07:18 (MO06)	07:28
	20:54	20:29	19:42	18:49		17:03	29 07:47 (MO06)	16:42
7	05:44	06:12	06:45	07:17		06:54	07:18 (MO06)	07:29
	20:54	20:28	19:40	18:47		17:02	29 07:47 (MO06)	16:42
8	05:45	06:13	06:46	07:18		06:55	07:18 (MO06)	07:30
	20:54	20:27	19:38	18:46		17:00	29 07:47 (MO06)	16:42
9	05:45	06:14	06:47	07:19		06:57	07:20 (MO06)	07:31
	20:53	20:25	19:36	18:44		16:59	28 07:48 (MO06)	16:42
10	05:46	06:15	06:48	07:20		06:58	07:21 (MO06)	07:32
	20:53	20:24	19:35	18:42		16:58	27 07:48 (MO06)	16:42
11	05:47	06:16	06:49	07:22		06:59	07:22 (MO06)	07:33
	20:52	20:23	19:33	18:41		16:57	26 07:48 (MO06)	16:42
12	05:48	06:17	06:50	07:23		07:00	07:24 (MO06)	07:34
	20:52	20:21	19:31	18:39		16:56	24 07:48 (MO06)	16:42
13	05:48	06:18	06:51	07:24		07:02	07:25 (MO06)	07:35
	20:51	20:20	19:29	18:37		16:55	23 07:48 (MO06)	16:42
14	05:49	06:19	06:52	07:25		07:03	07:26 (MO06)	07:35
	20:51	20:18	19:28	18:36		16:54	21 07:47 (MO06)	16:42
15	05:50	06:20	06:53	07:26		07:04	07:28 (MO06)	07:36
	20:50	20:17	19:26	18:34		16:53	20 07:48 (MO06)	16:42
16	05:51	06:21	06:54	07:27		07:05	07:29 (MO06)	07:37
	20:50	20:16	19:24	18:32		16:52	18 07:47 (MO06)	16:42
17	05:52	06:22	06:55	07:29		07:07	07:30 (MO06)	07:38
	20:49	20:14	19:22	18:31		16:51	17 07:47 (MO06)	16:43
18	05:52	06:24	06:56	07:30		07:08	07:32 (MO06)	07:38
	20:48	20:13	19:21	18:29		16:51	15 07:47 (MO06)	16:43
19	05:53	06:25	06:57	07:31		07:09	07:33 (MO06)	07:39
	20:48	20:11	19:19	18:28		16:50	13 07:46 (MO06)	16:43
20	05:54	06:26	06:59	07:32		07:10	07:34 (MO06)	07:39
	20:47	20:10	19:17	18:26		16:49	11 07:45 (MO06)	16:44
21	05:55	06:27	07:00	07:33		07:12	07:35 (MO06)	07:40
	20:46	20:08	19:15	18:25		16:48	9 07:44 (MO06)	16:44
22	05:56	06:28	07:01	07:34		07:13	07:37 (MO06)	07:41
	20:45	20:06	19:13	18:23		16:48	7 07:44 (MO06)	16:45
23	05:57	06:29	07:02	07:36		07:14	07:38 (MO06)	07:41
	20:44	20:05	19:12	18:22		16:47	5 07:43 (MO06)	16:45
24	05:58	06:30	07:03	07:37		07:15	07:39 (MO06)	07:42
	20:43	20:03	19:10	18:20		16:46	2 07:41 (MO06)	16:46
25	05:59	06:31	07:04	06:38		07:16		07:42
	20:42	20:02	19:08	17:19		16:46		16:46
26	06:00	06:32	07:05	06:39		07:18		07:42
	20:42	20:00	19:06	17:17		16:45		16:47
27	06:01	06:33	07:06	06:41		07:19		07:43
	20:41	19:58	19:05	17:16		16:45		16:48
28	06:02	06:34	07:07	06:42		07:20		07:43
	20:40	19:57	19:03	17:14		16:44		16:48
29	06:03	06:35	07:08	06:43		07:21		07:43
	20:38	19:55	19:01	17:13		16:44		16:49
30	06:04	06:36	07:09	06:44	07:27 (MO06)	07:22		07:44
	20:37	19:54	18:59	17:12	10 07:37 (MO06)	16:43		16:50
31	06:05	06:37		06:45	07:24 (MO06)			07:44
	20:36	19:52		17:10	15 07:39 (MO06)			16:51
Potential sun hours	463	431	376	344		295		283
Total, worst case					25		474	
Sun reduction					0.55		0.46	
Oper. time red.					1.00		1.00	
Wind dir. red.					1.00		1.00	
Total reduction					0.55		0.46	
Total, real					14		216	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 104 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1002)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44			07:29		07:50 (MO06)	06:52	06:59	06:11	05:40
	16:52			17:27	29	08:19 (MO06)	18:03	19:39	20:13	20:44
2	07:44			07:28		07:49 (MO06)	06:50	06:57	06:10	05:40
	16:53			17:29	31	08:20 (MO06)	18:04	19:40	20:14	20:45
3	07:44			07:27		07:49 (MO06)	06:48	06:55	06:08	05:39
	16:53			17:30	31	08:20 (MO06)	18:06	19:42	20:15	20:46
4	07:44			07:26		07:50 (MO06)	06:47	06:53	06:07	05:39
	16:54			17:31	29	08:19 (MO06)	18:07	19:43	20:16	20:46
5	07:44			07:25		07:50 (MO06)	06:45	06:52	06:06	05:39
	16:55			17:32	28	08:18 (MO06)	18:08	19:44	20:18	20:47
6	07:44			07:24		07:51 (MO06)	06:43	06:50	06:04	05:38
	16:56			17:34	27	08:18 (MO06)	18:09	19:45	20:19	20:48
7	07:44			07:23		07:52 (MO06)	06:42	06:48	06:03	05:38
	16:57			17:35	25	08:17 (MO06)	18:10	19:46	20:20	20:49
8	07:44			07:21		07:53 (MO06)	06:40	06:47	06:02	05:38
	16:58			17:36	24	08:17 (MO06)	18:12	19:47	20:21	20:49
9	07:44			07:20		07:54 (MO06)	06:38	06:45	06:01	05:37
	16:59			17:38	21	08:15 (MO06)	18:13	19:48	20:22	20:50
10	07:43			07:19		07:56 (MO06)	06:37	06:43	05:59	05:37
	17:00			17:39	18	08:14 (MO06)	18:14	19:49	20:23	20:50
11	07:43			07:18		07:58 (MO06)	06:35	06:42	05:58	05:37
	17:01			17:40	14	08:12 (MO06)	18:15	19:51	20:24	20:51
12	07:43			07:16		08:02 (MO06)	06:33	06:40	05:57	05:37
	17:03			17:42	5	08:07 (MO06)	18:16	19:52	20:25	20:51
13	07:43			07:15			06:32	06:38	05:56	05:37
	17:04			17:43			18:18	19:53	20:26	20:52
14	07:42			07:14			06:30	06:37	05:55	05:37
	17:05			17:44			18:19	19:54	20:27	20:52
15	07:42			07:12			06:28	06:35	05:54	05:37
	17:06			17:46			18:20	19:55	20:28	20:53
16	07:41		08:03 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	1	08:04 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:03 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	4	08:07 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:02 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	7	08:09 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:01 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	9	08:10 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:01 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	11	08:12 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:00 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	13	08:13 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		07:59 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	15	08:14 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		07:58 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	17	08:15 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		07:58 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	18	08:16 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		07:57 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	20	08:17 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		07:56 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	21	08:17 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		07:55 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	23	08:18 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		07:54 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	24	08:18 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		07:53 (MO06)				07:04	06:14	05:42	05:40
	17:23	26	08:19 (MO06)				19:36	20:11	20:42	20:56
30	07:31		07:52 (MO06)				07:02	06:12	05:42	05:40
	17:25	27	08:19 (MO06)				19:37	20:12	20:43	20:56
31	07:30		07:51 (MO06)				07:00		05:41	
	17:26	28	08:19 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		264			282					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		111			130					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 104 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1002)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October			November			December
1	05:41		06:06		06:38		07:10			06:47		07:25 (MO06)	07:23
	20:55		20:35		19:50		18:58			17:09	19	07:44 (MO06)	16:43
2	05:41		06:07		06:39		07:12			06:48		07:23 (MO06)	07:24
	20:55		20:34		19:48		18:56			17:08	22	07:45 (MO06)	16:43
3	05:42		06:08		06:41		07:13			06:49		07:22 (MO06)	07:25
	20:55		20:33		19:47		18:54			17:06	24	07:46 (MO06)	16:42
4	05:42		06:09		06:42		07:14			06:50		07:21 (MO06)	07:26
	20:55		20:32		19:45		18:52			17:05	26	07:47 (MO06)	16:42
5	05:43		06:10		06:43		07:15			06:52		07:20 (MO06)	07:27
	20:55		20:30		19:43		18:51			17:04	28	07:48 (MO06)	16:42
6	05:43		06:11		06:44		07:16			06:53		07:20 (MO06)	07:28
	20:54		20:29		19:42		18:49			17:03	29	07:49 (MO06)	16:42
7	05:44		06:12		06:45		07:17			06:54		07:20 (MO06)	07:29
	20:54		20:28		19:40		18:47			17:02	29	07:49 (MO06)	16:42
8	05:45		06:13		06:46		07:18			06:55		07:19 (MO06)	07:30
	20:54		20:27		19:38		18:46			17:00	30	07:49 (MO06)	16:42
9	05:45		06:14		06:47		07:19			06:57		07:20 (MO06)	07:31
	20:53		20:25		19:36		18:44			16:59	30	07:50 (MO06)	16:42
10	05:46		06:15		06:48		07:20			06:58		07:21 (MO06)	07:32
	20:53		20:24		19:35		18:42			16:58	29	07:50 (MO06)	16:42
11	05:47		06:16		06:49		07:22			06:59		07:22 (MO06)	07:33
	20:52		20:23		19:33		18:41			16:57	28	07:50 (MO06)	16:42
12	05:48		06:17		06:50		07:23			07:00		07:24 (MO06)	07:34
	20:52		20:21		19:31		18:39			16:56	27	07:51 (MO06)	16:42
13	05:48		06:18		06:51		07:24			07:02		07:25 (MO06)	07:35
	20:51		20:20		19:29		18:37			16:55	26	07:51 (MO06)	16:42
14	05:49		06:19		06:52		07:25			07:03		07:26 (MO06)	07:35
	20:51		20:18		19:28		18:36			16:54	24	07:50 (MO06)	16:42
15	05:50		06:20		06:53		07:26			07:04		07:28 (MO06)	07:36
	20:50		20:17		19:26		18:34			16:53	23	07:51 (MO06)	16:42
16	05:51		06:21		06:54		07:27			07:05		07:29 (MO06)	07:37
	20:50		20:16		19:24		18:32			16:52	21	07:50 (MO06)	16:42
17	05:52		06:22		06:55		07:29			07:07		07:30 (MO06)	07:38
	20:49		20:14		19:22		18:31			16:51	20	07:50 (MO06)	16:43
18	05:52		06:24		06:56		07:30			07:08		07:32 (MO06)	07:38
	20:48		20:13		19:21		18:29			16:51	18	07:50 (MO06)	16:43
19	05:53		06:25		06:57		07:31			07:09		07:33 (MO06)	07:39
	20:48		20:11		19:19		18:28			16:50	17	07:50 (MO06)	16:43
20	05:54		06:26		06:59		07:32			07:10		07:34 (MO06)	07:39
	20:47		20:10		19:17		18:26			16:49	15	07:49 (MO06)	16:44
21	05:55		06:27		07:00		07:33			07:12		07:35 (MO06)	07:40
	20:46		20:08		19:15		18:25			16:48	13	07:48 (MO06)	16:44
22	05:56		06:28		07:01		07:34			07:13		07:37 (MO06)	07:41
	20:45		20:06		19:13		18:23			16:48	11	07:48 (MO06)	16:45
23	05:57		06:29		07:02		07:36			07:14		07:38 (MO06)	07:41
	20:44		20:05		19:12		18:22			16:47	9	07:47 (MO06)	16:45
24	05:58		06:30		07:03		07:37			07:15		07:39 (MO06)	07:42
	20:43		20:03		19:10		18:20			16:46	7	07:46 (MO06)	16:46
25	05:59		06:31		07:04		06:38			07:16		07:40 (MO06)	07:42
	20:42		20:02		19:08		17:19			16:46	4	07:44 (MO06)	16:46
26	06:00		06:32		07:05		06:39			07:18		07:42 (MO06)	07:42
	20:42		20:00		19:06		17:17			16:45	2	07:44 (MO06)	16:47
27	06:01		06:33		07:06		06:41			07:19			07:43
	20:41		19:58		19:05		17:16			16:45			16:48
28	06:02		06:34		07:07		06:42			07:20			07:43
	20:40		19:57		19:03		17:14			16:44			16:48
29	06:03		06:35		07:08		06:43			07:21			07:43
	20:38		19:55		19:01		17:13			16:44			16:49
30	06:04		06:36		07:09		06:44		07:30 (MO06)	07:22			07:44
	20:37		19:54		18:59		17:12	8	07:38 (MO06)	16:43			16:50
31	06:05		06:37				06:45		07:26 (MO06)				07:44
	20:36		19:52				17:10	15	07:41 (MO06)				16:51
Potential sun hours	463		431		376		344			295			283
Total, worst case								23			531		
Sun reduction								0.55			0.46		
Oper. time red.								1.00			1.00		
Wind dir. red.								1.00			1.00		
Total reduction								0.55			0.46		
Total, real								13			242		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 105 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1003)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:07 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47			07:23		07:49 (MO06)
	16:52	25	08:32 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09			16:43	30	08:19 (MO06)
2	07:44		08:07 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48			07:24		07:50 (MO06)
	16:53	26	08:33 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08			16:43	29	08:19 (MO06)
3	07:44		08:07 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49			07:25		07:50 (MO06)
	16:53	26	08:33 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	29	08:19 (MO06)
4	07:44		08:07 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50			07:26		07:51 (MO06)
	16:54	27	08:34 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	29	08:20 (MO06)
5	07:44		08:07 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52			07:27		07:52 (MO06)
	16:55	27	08:34 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04			16:42	28	08:20 (MO06)
6	07:44		08:07 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		07:53 (MO06)
	16:56	28	08:35 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03			16:42	28	08:21 (MO06)
7	07:44		08:07 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		07:54 (MO06)
	16:57	28	08:35 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02			16:42	27	08:21 (MO06)
8	07:44		08:06 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55			07:30		07:55 (MO06)
	16:58	29	08:35 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00			16:42	27	08:22 (MO06)
9	07:44		08:06 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57			07:31		07:56 (MO06)
	16:59	29	08:35 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:42	26	08:22 (MO06)
10	07:43		08:06 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		07:57 (MO06)
	17:00	30	08:36 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58			16:42	26	08:23 (MO06)
11	07:43		08:06 (MO06)	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59			07:33		07:57 (MO06)
	17:01	30	08:36 (MO06)	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57			16:42	25	08:22 (MO06)
12	07:43		08:07 (MO06)	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00			07:34		07:58 (MO06)
	17:03	29	08:36 (MO06)	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:42	25	08:23 (MO06)
13	07:43		08:09 (MO06)	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:35		07:59 (MO06)
	17:04	28	08:37 (MO06)	17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	25	08:24 (MO06)
14	07:42		08:09 (MO06)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:00 (MO06)
	17:05	27	08:36 (MO06)	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54			16:42	24	08:24 (MO06)
15	07:42		08:10 (MO06)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:01 (MO06)
	17:06	26	08:36 (MO06)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	24	08:25 (MO06)
16	07:41		08:10 (MO06)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05			07:37		08:01 (MO06)
	17:07	26	08:36 (MO06)	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52			16:42	24	08:25 (MO06)
17	07:41		08:12 (MO06)	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07			07:38		08:02 (MO06)
	17:08	24	08:36 (MO06)	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51			16:43	24	08:26 (MO06)
18	07:40		08:13 (MO06)	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08			07:38		08:03 (MO06)
	17:09	22	08:35 (MO06)	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51			16:43	23	08:26 (MO06)
19	07:40		08:13 (MO06)	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09		07:56 (MO06)	07:39		08:03 (MO06)
	17:11	22	08:35 (MO06)	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	8	08:04 (MO06)	16:43	23	08:26 (MO06)
20	07:39		08:15 (MO06)	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10		07:53 (MO06)	07:39		08:04 (MO06)
	17:12	19	08:34 (MO06)	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	14	08:07 (MO06)	16:44	23	08:27 (MO06)
21	07:38		08:17 (MO06)	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12		07:52 (MO06)	07:40		08:04 (MO06)
	17:13	16	08:33 (MO06)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16	08:08 (MO06)	16:44	23	08:27 (MO06)
22	07:38		08:18 (MO06)	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13		07:51 (MO06)	07:41		08:05 (MO06)
	17:14	14	08:32 (MO06)	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	19	08:10 (MO06)	16:45	23	08:28 (MO06)
23	07:37		08:21 (MO06)	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14		07:50 (MO06)	07:41		08:05 (MO06)
	17:16	8	08:29 (MO06)	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	22	08:12 (MO06)	16:45	23	08:28 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15		07:50 (MO06)	07:42		08:05 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	22	08:12 (MO06)	16:46	23	08:28 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		07:49 (MO06)	07:42		08:06 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	24	08:13 (MO06)	16:46	23	08:29 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		07:49 (MO06)	07:42		08:06 (MO06)
	17:19			17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	26	08:15 (MO06)	16:47	23	08:29 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19		07:49 (MO06)	07:43		08:06 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	27	08:16 (MO06)	16:48	24	08:30 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		07:49 (MO06)	07:43		08:07 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	27	08:16 (MO06)	16:48	24	08:31 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21		07:49 (MO06)	07:43		08:07 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	28	08:17 (MO06)	16:49	24	08:31 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		07:48 (MO06)	07:44		08:07 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	29	08:17 (MO06)	16:50	25	08:32 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45				07:44		08:07 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10				16:51	25	08:32 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		566												262			779	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		238												120			337	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 106 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1004)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:07 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47			07:23		07:53 (MO06)
	16:52	28	08:35 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09			16:43	27	08:20 (MO06)
2	07:44		08:07 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48			07:24		07:53 (MO06)
	16:53	28	08:35 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08			16:43	27	08:20 (MO06)
3	07:44		08:07 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49			07:25		07:53 (MO06)
	16:53	28	08:35 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	28	08:21 (MO06)
4	07:44		08:07 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50			07:26		07:53 (MO06)
	16:54	29	08:36 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	29	08:22 (MO06)
5	07:44		08:07 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52			07:27		07:53 (MO06)
	16:55	29	08:36 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04			16:42	29	08:22 (MO06)
6	07:44		08:07 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		07:53 (MO06)
	16:56	30	08:37 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03			16:42	30	08:23 (MO06)
7	07:44		08:08 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		07:54 (MO06)
	16:57	29	08:37 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02			16:42	29	08:23 (MO06)
8	07:44		08:08 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55			07:30		07:55 (MO06)
	16:58	29	08:37 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00			16:42	29	08:24 (MO06)
9	07:44		08:09 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57			07:31		07:56 (MO06)
	16:59	28	08:37 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:42	28	08:24 (MO06)
10	07:43		08:10 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		07:57 (MO06)
	17:00	27	08:37 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58			16:42	28	08:25 (MO06)
11	07:43		08:10 (MO06)	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59			07:33		07:57 (MO06)
	17:01	27	08:37 (MO06)	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57			16:42	28	08:25 (MO06)
12	07:43		08:11 (MO06)	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00			07:34		07:58 (MO06)
	17:03	26	08:37 (MO06)	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:42	27	08:25 (MO06)
13	07:43		08:12 (MO06)	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:35		07:59 (MO06)
	17:04	26	08:38 (MO06)	17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	27	08:26 (MO06)
14	07:42		08:12 (MO06)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:00 (MO06)
	17:05	25	08:37 (MO06)	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54			16:42	27	08:27 (MO06)
15	07:42		08:14 (MO06)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:01 (MO06)
	17:06	23	08:37 (MO06)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	26	08:27 (MO06)
16	07:41		08:14 (MO06)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05			07:37		08:01 (MO06)
	17:07	22	08:36 (MO06)	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52			16:42	26	08:27 (MO06)
17	07:41		08:16 (MO06)	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07			07:38		08:02 (MO06)
	17:08	20	08:36 (MO06)	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51			16:43	26	08:28 (MO06)
18	07:40		08:17 (MO06)	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08			07:38		08:03 (MO06)
	17:09	18	08:35 (MO06)	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51			16:43	26	08:29 (MO06)
19	07:40		08:18 (MO06)	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09			07:39		08:03 (MO06)
	17:11	16	08:34 (MO06)	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50			16:43	26	08:29 (MO06)
20	07:39		08:21 (MO06)	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10			07:39		08:04 (MO06)
	17:12	12	08:33 (MO06)	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49			16:44	25	08:29 (MO06)
21	07:38		08:24 (MO06)	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12		07:59 (MO06)	07:40		08:04 (MO06)
	17:13	6	08:30 (MO06)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	6	08:05 (MO06)	16:44	25	08:29 (MO06)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13		07:57 (MO06)	07:41		08:05 (MO06)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	12	08:09 (MO06)	16:45	25	08:30 (MO06)
23	07:37			07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14		07:56 (MO06)	07:41		08:05 (MO06)
	17:16			17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	15	08:11 (MO06)	16:45	25	08:30 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15		07:54 (MO06)	07:42		08:05 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	18	08:12 (MO06)	16:46	26	08:31 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		07:53 (MO06)	07:42		08:06 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	20	08:13 (MO06)	16:46	26	08:32 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		07:54 (MO06)	07:42		08:06 (MO06)
	17:19			17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	21	08:15 (MO06)	16:47	26	08:32 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19		07:53 (MO06)	07:43		08:06 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	23	08:16 (MO06)	16:48	26	08:32 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		07:52 (MO06)	07:43		08:07 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	25	08:17 (MO06)	16:48	26	08:33 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21		07:52 (MO06)	07:43		08:07 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	26	08:18 (MO06)	16:49	26	08:33 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		07:52 (MO06)	07:44		08:07 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	26	08:18 (MO06)	16:50	27	08:34 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45				07:44		08:07 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10				16:51	27	08:34 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		506												192			833	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		213												88			360	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 107 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1005)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:17 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47			07:23		08:04 (MO06)
	16:52	42	08:59 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09			16:43	40	08:44 (MO06)
2	07:44		08:18 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48			07:24		08:05 (MO06)
	16:53	42	09:00 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08			16:43	40	08:45 (MO06)
3	07:44		08:18 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49			07:25		08:06 (MO06)
	16:53	42	09:00 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	40	08:46 (MO06)
4	07:44		08:19 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50			07:26		08:06 (MO06)
	16:54	41	09:00 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	40	08:46 (MO06)
5	07:44		08:20 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52			07:27		08:06 (MO06)
	16:55	41	09:01 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04			16:42	41	08:47 (MO06)
6	07:44		08:20 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		08:06 (MO06)
	16:56	41	09:01 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03			16:42	41	08:47 (MO06)
7	07:44		08:21 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		08:07 (MO06)
	16:57	41	09:02 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01			16:42	41	08:48 (MO06)
8	07:44		08:21 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55			07:30		08:07 (MO06)
	16:58	40	09:01 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00			16:42	42	08:49 (MO06)
9	07:44		08:22 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57			07:31		08:07 (MO06)
	16:59	40	09:02 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:42	42	08:49 (MO06)
10	07:43		08:22 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		08:08 (MO06)
	17:00	40	09:02 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58			16:42	42	08:50 (MO06)
11	07:43		08:22 (MO06)	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59			07:33		08:07 (MO06)
	17:01	40	09:02 (MO06)	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57			16:42	42	08:49 (MO06)
12	07:43		08:23 (MO06)	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00			07:34		08:08 (MO06)
	17:02	39	09:02 (MO06)	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:42	42	08:50 (MO06)
13	07:43		08:24 (MO06)	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:35		08:09 (MO06)
	17:04	39	09:03 (MO06)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	42	08:51 (MO06)
14	07:42		08:25 (MO06)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:09 (MO06)
	17:05	37	09:02 (MO06)	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54			16:42	42	08:51 (MO06)
15	07:42		08:26 (MO06)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:10 (MO06)
	17:06	37	09:03 (MO06)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	42	08:52 (MO06)
16	07:41		08:26 (MO06)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05		08:14 (MO06)	07:37		08:10 (MO06)
	17:07	36	09:02 (MO06)	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	13	08:27 (MO06)	16:42	42	08:52 (MO06)
17	07:41		08:28 (MO06)	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07		08:11 (MO06)	07:38		08:11 (MO06)
	17:08	35	09:03 (MO06)	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	18	08:29 (MO06)	16:43	42	08:53 (MO06)
18	07:40		08:28 (MO06)	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08		08:10 (MO06)	07:38		08:11 (MO06)
	17:09	34	09:02 (MO06)	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	22	08:32 (MO06)	16:43	42	08:53 (MO06)
19	07:40		08:29 (MO06)	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09		08:09 (MO06)	07:39		08:11 (MO06)
	17:11	32	09:01 (MO06)	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	24	08:33 (MO06)	16:43	42	08:53 (MO06)
20	07:39		08:31 (MO06)	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10		08:08 (MO06)	07:39		08:12 (MO06)
	17:12	31	09:02 (MO06)	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	27	08:35 (MO06)	16:44	42	08:54 (MO06)
21	07:38		08:31 (MO06)	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12		08:06 (MO06)	07:40		08:12 (MO06)
	17:13	30	09:01 (MO06)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	30	08:36 (MO06)	16:44	42	08:54 (MO06)
22	07:38		08:32 (MO06)	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13		08:07 (MO06)	07:41		08:13 (MO06)
	17:14	28	09:00 (MO06)	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	31	08:38 (MO06)	16:45	42	08:55 (MO06)
23	07:37		08:34 (MO06)	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14		08:06 (MO06)	07:41		08:13 (MO06)
	17:16	24	08:58 (MO06)	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	32	08:38 (MO06)	16:45	42	08:55 (MO06)
24	07:36		08:36 (MO06)	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15		08:05 (MO06)	07:42		08:13 (MO06)
	17:17	22	08:58 (MO06)	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	34	08:39 (MO06)	16:46	42	08:55 (MO06)
25	07:36		08:38 (MO06)	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		08:05 (MO06)	07:42		08:14 (MO06)
	17:18	18	08:56 (MO06)	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	35	08:40 (MO06)	16:46	42	08:56 (MO06)
26	07:35		08:41 (MO06)	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		08:05 (MO06)	07:42		08:15 (MO06)
	17:19	13	08:54 (MO06)	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	36	08:41 (MO06)	16:47	41	08:56 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19		08:05 (MO06)	07:43		08:15 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	37	08:42 (MO06)	16:48	42	08:57 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		08:05 (MO06)	07:43		08:16 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	37	08:42 (MO06)	16:48	42	08:58 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21		08:05 (MO06)	07:43		08:16 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	38	08:43 (MO06)	16:49	42	08:58 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		08:04 (MO06)	07:43		08:17 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	39	08:43 (MO06)	16:50	41	08:58 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45				07:44		08:17 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10				16:51	42	08:59 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		905												453			1289	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		381												207			557	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 108 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1006)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:23 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47			07:23		08:11 (MO06)
	16:52	40	09:03 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09			16:43	36	08:47 (MO06)
2	07:44		08:23 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48			07:24		08:12 (MO06)
	16:53	41	09:04 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08			16:43	37	08:49 (MO06)
3	07:44		08:24 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49			07:25		08:12 (MO06)
	16:53	40	09:04 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	37	08:49 (MO06)
4	07:44		08:24 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50			07:26		08:12 (MO06)
	16:54	40	09:04 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	38	08:50 (MO06)
5	07:44		08:25 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52			07:27		08:12 (MO06)
	16:55	40	09:05 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04			16:42	39	08:51 (MO06)
6	07:44		08:26 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		08:12 (MO06)
	16:56	39	09:05 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03			16:42	39	08:51 (MO06)
7	07:44		08:27 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		08:12 (MO06)
	16:57	38	09:05 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01			16:42	40	08:52 (MO06)
8	07:44		08:27 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55			07:30		08:13 (MO06)
	16:58	38	09:05 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00			16:42	39	08:52 (MO06)
9	07:44		08:28 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57			07:31		08:13 (MO06)
	16:59	37	09:05 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:42	40	08:53 (MO06)
10	07:43		08:29 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		08:13 (MO06)
	17:00	37	09:06 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58			16:42	41	08:54 (MO06)
11	07:43		08:29 (MO06)	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59			07:33		08:13 (MO06)
	17:01	36	09:05 (MO06)	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57			16:42	40	08:53 (MO06)
12	07:43		08:30 (MO06)	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00			07:34		08:13 (MO06)
	17:02	35	09:05 (MO06)	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:42	41	08:54 (MO06)
13	07:43		08:31 (MO06)	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:35		08:14 (MO06)
	17:04	35	09:06 (MO06)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	41	08:55 (MO06)
14	07:42		08:32 (MO06)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:15 (MO06)
	17:05	33	09:05 (MO06)	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54			16:42	41	08:56 (MO06)
15	07:42		08:33 (MO06)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:15 (MO06)
	17:06	32	09:05 (MO06)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	41	08:56 (MO06)
16	07:41		08:34 (MO06)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05			07:37		08:15 (MO06)
	17:07	30	09:04 (MO06)	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52			16:42	41	08:56 (MO06)
17	07:41		08:35 (MO06)	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07			07:38		08:16 (MO06)
	17:08	29	09:04 (MO06)	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51			16:43	41	08:57 (MO06)
18	07:40		08:36 (MO06)	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08			07:38		08:16 (MO06)
	17:09	27	09:03 (MO06)	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51			16:43	42	08:58 (MO06)
19	07:40		08:37 (MO06)	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09		08:21 (MO06)	07:39		08:16 (MO06)
	17:11	25	09:02 (MO06)	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	9	08:30 (MO06)	16:43	42	08:58 (MO06)
20	07:39		08:39 (MO06)	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10		08:18 (MO06)	07:39		08:17 (MO06)
	17:12	23	09:02 (MO06)	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	15	08:33 (MO06)	16:44	42	08:59 (MO06)
21	07:38		08:41 (MO06)	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12		08:16 (MO06)	07:40		08:17 (MO06)
	17:13	19	09:00 (MO06)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	19	08:35 (MO06)	16:44	42	08:59 (MO06)
22	07:38		08:43 (MO06)	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13		08:15 (MO06)	07:41		08:18 (MO06)
	17:14	15	08:58 (MO06)	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	23	08:38 (MO06)	16:45	42	09:00 (MO06)
23	07:37		08:46 (MO06)	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14		08:14 (MO06)	07:41		08:18 (MO06)
	17:16	9	08:55 (MO06)	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	25	08:39 (MO06)	16:45	42	09:00 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15		08:13 (MO06)	07:42		08:18 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	27	08:40 (MO06)	16:46	42	09:00 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		08:12 (MO06)	07:42		08:19 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	29	08:41 (MO06)	16:46	42	09:01 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		08:13 (MO06)	07:42		08:20 (MO06)
	17:19			17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	30	08:43 (MO06)	16:47	41	09:01 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19		08:12 (MO06)	07:43		08:20 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	32	08:44 (MO06)	16:48	41	09:01 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		08:12 (MO06)	07:43		08:21 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	33	08:45 (MO06)	16:48	41	09:02 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21		08:11 (MO06)	07:43		08:21 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	35	08:46 (MO06)	16:49	41	09:02 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		08:11 (MO06)	07:43		08:22 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	35	08:46 (MO06)	16:50	41	09:03 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45				07:44		08:22 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10				16:51	41	09:03 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		738												312			1254	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		310												142			542	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 109 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1007)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:21 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47			07:23		08:09 (MO06)
	16:52	41	09:02 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09			16:43	37	08:46 (MO06)
2	07:44		08:22 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48			07:24		08:10 (MO06)
	16:53	40	09:02 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08			16:43	37	08:47 (MO06)
3	07:44		08:22 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49			07:25		08:10 (MO06)
	16:53	40	09:02 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	38	08:48 (MO06)
4	07:44		08:23 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50			07:26		08:10 (MO06)
	16:54	40	09:03 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	38	08:48 (MO06)
5	07:44		08:24 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52			07:27		08:10 (MO06)
	16:55	39	09:03 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04			16:42	39	08:49 (MO06)
6	07:44		08:24 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		08:11 (MO06)
	16:56	40	09:04 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03			16:42	39	08:50 (MO06)
7	07:44		08:25 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		08:11 (MO06)
	16:57	39	09:04 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01			16:42	39	08:50 (MO06)
8	07:44		08:25 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55			07:30		08:11 (MO06)
	16:58	38	09:03 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00			16:42	40	08:51 (MO06)
9	07:44		08:26 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57			07:31		08:11 (MO06)
	16:59	38	09:04 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:42	40	08:51 (MO06)
10	07:43		08:27 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		08:12 (MO06)
	17:00	37	09:04 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58			16:42	40	08:52 (MO06)
11	07:43		08:27 (MO06)	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59			07:33		08:11 (MO06)
	17:01	37	09:04 (MO06)	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57			16:42	41	08:52 (MO06)
12	07:43		08:28 (MO06)	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00			07:34		08:12 (MO06)
	17:02	36	09:04 (MO06)	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:42	40	08:52 (MO06)
13	07:43		08:30 (MO06)	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:35		08:12 (MO06)
	17:04	34	09:04 (MO06)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	41	08:53 (MO06)
14	07:42		08:30 (MO06)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:13 (MO06)
	17:05	34	09:04 (MO06)	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54			16:42	41	08:54 (MO06)
15	07:42		08:31 (MO06)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:14 (MO06)
	17:06	33	09:04 (MO06)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	41	08:55 (MO06)
16	07:41		08:32 (MO06)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05			07:37		08:13 (MO06)
	17:07	31	09:03 (MO06)	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52			16:42	41	08:54 (MO06)
17	07:41		08:34 (MO06)	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07			07:38		08:14 (MO06)
	17:08	29	09:03 (MO06)	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51			16:43	41	08:55 (MO06)
18	07:40		08:34 (MO06)	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08			07:38		08:15 (MO06)
	17:09	28	09:02 (MO06)	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51			16:43	41	08:56 (MO06)
19	07:40		08:35 (MO06)	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09		08:19 (MO06)	07:39		08:15 (MO06)
	17:11	26	09:01 (MO06)	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	11	08:30 (MO06)	16:43	41	08:56 (MO06)
20	07:39		08:37 (MO06)	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10		08:16 (MO06)	07:39		08:16 (MO06)
	17:12	24	09:01 (MO06)	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16	08:32 (MO06)	16:44	41	08:57 (MO06)
21	07:38		08:39 (MO06)	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12		08:14 (MO06)	07:40		08:16 (MO06)
	17:13	20	08:59 (MO06)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	20	08:34 (MO06)	16:44	41	08:57 (MO06)
22	07:38		08:41 (MO06)	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13		08:14 (MO06)	07:41		08:17 (MO06)
	17:14	16	08:57 (MO06)	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	23	08:37 (MO06)	16:45	41	08:58 (MO06)
23	07:37		08:44 (MO06)	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14		08:12 (MO06)	07:41		08:17 (MO06)
	17:16	11	08:55 (MO06)	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	26	08:38 (MO06)	16:45	41	08:58 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15		08:11 (MO06)	07:42		08:17 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	28	08:39 (MO06)	16:46	41	08:58 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		08:11 (MO06)	07:42		08:18 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	29	08:40 (MO06)	16:46	41	08:59 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		08:11 (MO06)	07:42		08:18 (MO06)
	17:19			17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	31	08:42 (MO06)	16:47	41	08:59 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19		08:10 (MO06)	07:43		08:18 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	33	08:43 (MO06)	16:48	41	08:59 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		08:10 (MO06)	07:43		08:20 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	34	08:44 (MO06)	16:48	41	09:01 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21		08:10 (MO06)	07:43		08:20 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	34	08:44 (MO06)	16:49	41	09:01 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		08:09 (MO06)	07:43		08:20 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	36	08:45 (MO06)	16:50	41	09:01 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45				07:44		08:21 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10				16:51	40	09:01 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		751												321			1246	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		316												146			539	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 110 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1008)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44		08:07 (MO06)	07:29		08:20 (MO06)	06:52	06:59	06:11	05:40
	16:52	35	08:42 (MO06)	17:27	29	08:49 (MO06)	18:03	19:39	20:13	20:44
2	07:44		08:07 (MO06)	07:28		08:21 (MO06)	06:50	06:57	06:10	05:40
	16:53	35	08:42 (MO06)	17:29	27	08:48 (MO06)	18:04	19:40	20:14	20:45
3	07:44		08:07 (MO06)	07:27		08:23 (MO06)	06:48	06:55	06:08	05:39
	16:53	36	08:43 (MO06)	17:30	24	08:47 (MO06)	18:06	19:42	20:15	20:46
4	07:44		08:07 (MO06)	07:26		08:24 (MO06)	06:47	06:53	06:07	05:39
	16:54	37	08:44 (MO06)	17:31	20	08:44 (MO06)	18:07	19:43	20:16	20:46
5	07:44		08:07 (MO06)	07:25		08:27 (MO06)	06:45	06:52	06:06	05:39
	16:55	38	08:45 (MO06)	17:32	14	08:41 (MO06)	18:08	19:44	20:18	20:47
6	07:44		08:08 (MO06)	07:24		08:33 (MO06)	06:43	06:50	06:04	05:38
	16:56	37	08:45 (MO06)	17:34	3	08:36 (MO06)	18:09	19:45	20:19	20:48
7	07:44		08:08 (MO06)	07:23			06:42	06:48	06:03	05:38
	16:57	38	08:46 (MO06)	17:35			18:10	19:46	20:20	20:49
8	07:44		08:07 (MO06)	07:21			06:40	06:47	06:02	05:38
	16:58	39	08:46 (MO06)	17:36			18:12	19:47	20:21	20:49
9	07:44		08:08 (MO06)	07:20			06:38	06:45	06:01	05:37
	16:59	39	08:47 (MO06)	17:38			18:13	19:48	20:22	20:50
10	07:43		08:08 (MO06)	07:19			06:37	06:43	05:59	05:37
	17:00	40	08:48 (MO06)	17:39			18:14	19:49	20:23	20:50
11	07:43		08:08 (MO06)	07:18			06:35	06:42	05:58	05:37
	17:01	40	08:48 (MO06)	17:40			18:15	19:51	20:24	20:51
12	07:43		08:09 (MO06)	07:16			06:33	06:40	05:57	05:37
	17:02	40	08:49 (MO06)	17:42			18:16	19:52	20:25	20:51
13	07:43		08:09 (MO06)	07:15			06:32	06:38	05:56	05:37
	17:04	41	08:50 (MO06)	17:43			18:17	19:53	20:26	20:52
14	07:42		08:09 (MO06)	07:14			06:30	06:37	05:55	05:37
	17:05	41	08:50 (MO06)	17:44			18:19	19:54	20:27	20:52
15	07:42		08:10 (MO06)	07:12			06:28	06:35	05:54	05:37
	17:06	41	08:51 (MO06)	17:45			18:20	19:55	20:28	20:53
16	07:41		08:09 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	42	08:51 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:10 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	42	08:52 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:10 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	42	08:52 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:10 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	42	08:52 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:11 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	42	08:53 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:11 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	41	08:52 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		08:12 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	40	08:52 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		08:12 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	40	08:52 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		08:13 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	40	08:53 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		08:14 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	39	08:53 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		08:14 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	38	08:52 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		08:15 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	37	08:52 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		08:15 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	37	08:52 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		08:16 (MO06)				07:04	06:14	05:42	05:40
	17:23	35	08:51 (MO06)				19:36	20:11	20:42	20:56
30	07:31		08:17 (MO06)				07:02	06:12	05:42	05:40
	17:25	34	08:51 (MO06)				19:37	20:12	20:43	20:56
31	07:30		08:18 (MO06)				07:00		05:41	
	17:26	32	08:50 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		1200			117					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		505			54					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 110 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1008)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October		November			December		
1	05:41		06:06		06:38		07:10		06:47			07:23		07:50 (MO06)
	20:55		20:35		19:50		18:58		17:09			16:43	40	08:30 (MO06)
2	05:41		06:07		06:39		07:11		06:48			07:24		07:51 (MO06)
	20:55		20:34		19:48		18:56		17:08			16:43	40	08:31 (MO06)
3	05:42		06:08		06:41		07:13		06:49			07:25		07:52 (MO06)
	20:55		20:33		19:47		18:54		17:06			16:42	39	08:31 (MO06)
4	05:42		06:09		06:42		07:14		06:50			07:26		07:53 (MO06)
	20:55		20:32		19:45		18:52		17:05			16:42	38	08:31 (MO06)
5	05:43		06:10		06:43		07:15		06:52		08:01 (MO06)	07:27		07:53 (MO06)
	20:55		20:30		19:43		18:51		17:04	6	08:07 (MO06)	16:42	38	08:31 (MO06)
6	05:43		06:11		06:44		07:16		06:53		07:57 (MO06)	07:28		07:54 (MO06)
	20:54		20:29		19:42		18:49		17:03	15	08:12 (MO06)	16:42	38	08:32 (MO06)
7	05:44		06:12		06:45		07:17		06:54		07:55 (MO06)	07:29		07:54 (MO06)
	20:54		20:28		19:40		18:47		17:02	20	08:15 (MO06)	16:42	38	08:32 (MO06)
8	05:45		06:13		06:46		07:18		06:55		07:53 (MO06)	07:30		07:55 (MO06)
	20:54		20:27		19:38		18:46		17:00	24	08:17 (MO06)	16:42	37	08:32 (MO06)
9	05:45		06:14		06:47		07:19		06:57		07:52 (MO06)	07:31		07:56 (MO06)
	20:53		20:25		19:36		18:44		16:59	27	08:19 (MO06)	16:42	36	08:32 (MO06)
10	05:46		06:15		06:48		07:20		06:58		07:50 (MO06)	07:32		07:57 (MO06)
	20:53		20:24		19:35		18:42		16:58	30	08:20 (MO06)	16:42	35	08:32 (MO06)
11	05:47		06:16		06:49		07:22		06:59		07:49 (MO06)	07:33		07:57 (MO06)
	20:52		20:23		19:33		18:41		16:57	32	08:21 (MO06)	16:42	35	08:32 (MO06)
12	05:48		06:17		06:50		07:23		07:00		07:49 (MO06)	07:34		07:58 (MO06)
	20:52		20:21		19:31		18:39		16:56	34	08:23 (MO06)	16:42	34	08:32 (MO06)
13	05:48		06:18		06:51		07:24		07:02		07:48 (MO06)	07:35		07:59 (MO06)
	20:51		20:20		19:29		18:37		16:55	35	08:23 (MO06)	16:42	34	08:33 (MO06)
14	05:49		06:19		06:52		07:25		07:03		07:47 (MO06)	07:35		08:00 (MO06)
	20:51		20:18		19:28		18:36		16:54	37	08:24 (MO06)	16:42	33	08:33 (MO06)
15	05:50		06:20		06:53		07:26		07:04		07:48 (MO06)	07:36		08:01 (MO06)
	20:50		20:17		19:26		18:34		16:53	37	08:25 (MO06)	16:42	33	08:34 (MO06)
16	05:51		06:21		06:54		07:27		07:05		07:47 (MO06)	07:37		08:01 (MO06)
	20:50		20:16		19:24		18:32		16:52	38	08:25 (MO06)	16:42	32	08:33 (MO06)
17	05:52		06:22		06:55		07:28		07:07		07:47 (MO06)	07:38		08:02 (MO06)
	20:49		20:14		19:22		18:31		16:51	39	08:26 (MO06)	16:43	32	08:34 (MO06)
18	05:52		06:24		06:56		07:30		07:08		07:47 (MO06)	07:38		08:03 (MO06)
	20:48		20:13		19:21		18:29		16:51	40	08:27 (MO06)	16:43	32	08:35 (MO06)
19	05:53		06:25		06:57		07:31		07:09		07:47 (MO06)	07:39		08:03 (MO06)
	20:48		20:11		19:19		18:28		16:50	40	08:27 (MO06)	16:43	31	08:34 (MO06)
20	05:54		06:26		06:59		07:32		07:10		07:47 (MO06)	07:39		08:04 (MO06)
	20:47		20:10		19:17		18:26		16:49	40	08:27 (MO06)	16:44	31	08:35 (MO06)
21	05:55		06:27		07:00		07:33		07:12		07:46 (MO06)	07:40		08:04 (MO06)
	20:46		20:08		19:15		18:25		16:48	41	08:27 (MO06)	16:44	31	08:35 (MO06)
22	05:56		06:28		07:01		07:34		07:13		07:47 (MO06)	07:41		08:05 (MO06)
	20:45		20:06		19:13		18:23		16:48	42	08:29 (MO06)	16:45	31	08:36 (MO06)
23	05:57		06:29		07:02		07:36		07:14		07:47 (MO06)	07:41		08:05 (MO06)
	20:44		20:05		19:12		18:22		16:47	42	08:29 (MO06)	16:45	31	08:36 (MO06)
24	05:58		06:30		07:03		07:37		07:15		07:47 (MO06)	07:42		08:05 (MO06)
	20:43		20:03		19:10		18:20		16:46	42	08:29 (MO06)	16:46	31	08:36 (MO06)
25	05:59		06:31		07:04		06:38		07:16		07:47 (MO06)	07:42		08:06 (MO06)
	20:42		20:02		19:08		17:19		16:46	42	08:29 (MO06)	16:46	32	08:38 (MO06)
26	06:00		06:32		07:05		06:39		07:18		07:49 (MO06)	07:42		08:06 (MO06)
	20:41		20:00		19:06		17:17		16:45	41	08:30 (MO06)	16:47	32	08:38 (MO06)
27	06:01		06:33		07:06		06:40		07:19		07:49 (MO06)	07:43		08:06 (MO06)
	20:41		19:58		19:05		17:16		16:45	41	08:30 (MO06)	16:48	32	08:38 (MO06)
28	06:02		06:34		07:07		06:42		07:20		07:49 (MO06)	07:43		08:07 (MO06)
	20:40		19:57		19:03		17:14		16:44	41	08:30 (MO06)	16:48	33	08:40 (MO06)
29	06:03		06:35		07:08		06:43		07:21		07:49 (MO06)	07:43		08:07 (MO06)
	20:38		19:55		19:01		17:13		16:44	41	08:30 (MO06)	16:49	33	08:40 (MO06)
30	06:04		06:36		07:09		06:44		07:22		07:50 (MO06)	07:43		08:07 (MO06)
	20:37		19:54		18:59		17:12		16:43	40	08:30 (MO06)	16:50	33	08:40 (MO06)
31	06:05		06:37				06:45					07:44		08:07 (MO06)
	20:36		19:52				17:10					16:51	34	08:41 (MO06)
Potential sun hours	463		431		376		344		295			283		
Total, worst case										907			1059	
Sun reduction										0.46			0.43	
Oper. time red.										1.00			1.00	
Wind dir. red.										1.00			1.00	
Total reduction										0.46			0.43	
Total, real										414			458	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 111 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1009)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44		08:07 (MO06)	07:29		08:16 (MO06)	06:52	06:59	06:11	05:40
	16:52	33	08:40 (MO06)	17:27	34	08:50 (MO06)	18:03	19:39	20:13	20:44
2	07:44		08:07 (MO06)	07:28		08:18 (MO06)	06:50	06:57	06:10	05:40
	16:53	33	08:40 (MO06)	17:29	31	08:49 (MO06)	18:04	19:40	20:14	20:45
3	07:44		08:07 (MO06)	07:27		08:19 (MO06)	06:48	06:55	06:08	05:39
	16:53	34	08:41 (MO06)	17:30	29	08:48 (MO06)	18:06	19:42	20:15	20:46
4	07:44		08:07 (MO06)	07:26		08:20 (MO06)	06:47	06:53	06:07	05:39
	16:54	35	08:42 (MO06)	17:31	26	08:46 (MO06)	18:07	19:43	20:16	20:46
5	07:44		08:07 (MO06)	07:25		08:22 (MO06)	06:45	06:52	06:06	05:39
	16:55	36	08:43 (MO06)	17:32	23	08:45 (MO06)	18:08	19:44	20:18	20:47
6	07:44		08:07 (MO06)	07:24		08:24 (MO06)	06:43	06:50	06:04	05:38
	16:56	37	08:44 (MO06)	17:34	19	08:43 (MO06)	18:09	19:45	20:19	20:48
7	07:44		08:07 (MO06)	07:23		08:27 (MO06)	06:42	06:48	06:03	05:38
	16:57	38	08:45 (MO06)	17:35	13	08:40 (MO06)	18:10	19:46	20:20	20:49
8	07:44		08:07 (MO06)	07:21			06:40	06:47	06:02	05:38
	16:58	38	08:45 (MO06)	17:36			18:12	19:47	20:21	20:49
9	07:44		08:07 (MO06)	07:20			06:38	06:45	06:01	05:37
	16:59	39	08:46 (MO06)	17:38			18:13	19:48	20:22	20:50
10	07:43		08:07 (MO06)	07:19			06:37	06:43	05:59	05:37
	17:00	40	08:47 (MO06)	17:39			18:14	19:49	20:23	20:50
11	07:43		08:07 (MO06)	07:18			06:35	06:42	05:58	05:37
	17:01	40	08:47 (MO06)	17:40			18:15	19:51	20:24	20:51
12	07:43		08:07 (MO06)	07:16			06:33	06:40	05:57	05:37
	17:02	41	08:48 (MO06)	17:42			18:16	19:52	20:25	20:51
13	07:43		08:08 (MO06)	07:15			06:32	06:38	05:56	05:37
	17:04	41	08:49 (MO06)	17:43			18:17	19:53	20:26	20:52
14	07:42		08:08 (MO06)	07:14			06:30	06:37	05:55	05:37
	17:05	41	08:49 (MO06)	17:44			18:19	19:54	20:27	20:52
15	07:42		08:08 (MO06)	07:12			06:28	06:35	05:54	05:37
	17:06	42	08:50 (MO06)	17:45			18:20	19:55	20:28	20:53
16	07:41		08:08 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	42	08:50 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:09 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	42	08:51 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:09 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	42	08:51 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:09 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	42	08:51 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:10 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	42	08:52 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:10 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	42	08:52 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		08:10 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	42	08:52 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		08:10 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	42	08:52 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		08:11 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	42	08:53 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		08:12 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	40	08:52 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		08:12 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	40	08:52 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		08:12 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	40	08:52 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		08:13 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	39	08:52 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		08:14 (MO06)				07:04	06:14	05:42	05:40
	17:23	37	08:51 (MO06)				19:36	20:11	20:42	20:56
30	07:31		08:14 (MO06)				07:02	06:12	05:42	05:40
	17:25	37	08:51 (MO06)				19:37	20:12	20:43	20:56
31	07:30		08:15 (MO06)				07:00		05:41	
	17:26	36	08:51 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		1215			175					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		511			81					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 111 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1009)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November			December		
1	05:41	06:06	06:38	07:10	06:47			07:23		07:49 (MO06)
	20:55	20:35	19:50	18:58	17:09			16:43	40	08:29 (MO06)
2	05:41	06:07	06:39	07:11	06:48			07:24		07:50 (MO06)
	20:55	20:34	19:48	18:56	17:08			16:43	40	08:30 (MO06)
3	05:42	06:08	06:41	07:13	06:49			07:25		07:51 (MO06)
	20:55	20:33	19:47	18:54	17:06			16:42	39	08:30 (MO06)
4	05:42	06:09	06:42	07:14	06:50		07:57 (MO06)	07:26		07:52 (MO06)
	20:55	20:32	19:45	18:52	17:05	13	08:10 (MO06)	16:42	38	08:30 (MO06)
5	05:43	06:10	06:43	07:15	06:52		07:54 (MO06)	07:27		07:52 (MO06)
	20:55	20:30	19:43	18:51	17:04	19	08:13 (MO06)	16:42	38	08:30 (MO06)
6	05:43	06:11	06:44	07:16	06:53		07:51 (MO06)	07:28		07:53 (MO06)
	20:54	20:29	19:42	18:49	17:03	24	08:15 (MO06)	16:42	37	08:30 (MO06)
7	05:44	06:12	06:45	07:17	06:54		07:50 (MO06)	07:29		07:54 (MO06)
	20:54	20:28	19:40	18:47	17:02	27	08:17 (MO06)	16:42	36	08:30 (MO06)
8	05:45	06:13	06:46	07:18	06:55		07:49 (MO06)	07:30		07:55 (MO06)
	20:54	20:27	19:38	18:46	17:00	29	08:18 (MO06)	16:42	35	08:30 (MO06)
9	05:45	06:14	06:47	07:19	06:57		07:48 (MO06)	07:31		07:56 (MO06)
	20:53	20:25	19:36	18:44	16:59	32	08:20 (MO06)	16:42	34	08:30 (MO06)
10	05:46	06:15	06:48	07:20	06:58		07:47 (MO06)	07:32		07:57 (MO06)
	20:53	20:24	19:35	18:42	16:58	34	08:21 (MO06)	16:42	34	08:31 (MO06)
11	05:47	06:16	06:49	07:22	06:59		07:46 (MO06)	07:33		07:57 (MO06)
	20:52	20:23	19:33	18:41	16:57	35	08:21 (MO06)	16:42	33	08:30 (MO06)
12	05:48	06:17	06:50	07:23	07:00		07:46 (MO06)	07:34		07:58 (MO06)
	20:52	20:21	19:31	18:39	16:56	37	08:23 (MO06)	16:42	32	08:30 (MO06)
13	05:48	06:18	06:51	07:24	07:02		07:46 (MO06)	07:35		07:59 (MO06)
	20:51	20:20	19:29	18:37	16:55	37	08:23 (MO06)	16:42	32	08:31 (MO06)
14	05:49	06:19	06:52	07:25	07:03		07:45 (MO06)	07:35		08:00 (MO06)
	20:51	20:18	19:28	18:36	16:54	39	08:24 (MO06)	16:42	31	08:31 (MO06)
15	05:50	06:20	06:53	07:26	07:04		07:45 (MO06)	07:36		08:01 (MO06)
	20:50	20:17	19:26	18:34	16:53	40	08:25 (MO06)	16:42	31	08:32 (MO06)
16	05:51	06:21	06:54	07:27	07:05		07:45 (MO06)	07:37		08:01 (MO06)
	20:50	20:16	19:24	18:32	16:52	40	08:25 (MO06)	16:42	30	08:31 (MO06)
17	05:52	06:22	06:55	07:28	07:07		07:44 (MO06)	07:38		08:02 (MO06)
	20:49	20:14	19:22	18:31	16:51	41	08:25 (MO06)	16:43	30	08:32 (MO06)
18	05:52	06:24	06:56	07:30	07:08		07:45 (MO06)	07:38		08:03 (MO06)
	20:48	20:13	19:21	18:29	16:51	42	08:27 (MO06)	16:43	29	08:32 (MO06)
19	05:53	06:25	06:57	07:31	07:09		07:45 (MO06)	07:39		08:03 (MO06)
	20:48	20:11	19:19	18:28	16:50	42	08:27 (MO06)	16:43	29	08:32 (MO06)
20	05:54	06:26	06:59	07:32	07:10		07:45 (MO06)	07:39		08:04 (MO06)
	20:47	20:10	19:17	18:26	16:49	42	08:27 (MO06)	16:44	29	08:33 (MO06)
21	05:55	06:27	07:00	07:33	07:12		07:45 (MO06)	07:40		08:04 (MO06)
	20:46	20:08	19:15	18:25	16:48	42	08:27 (MO06)	16:44	29	08:33 (MO06)
22	05:56	06:28	07:01	07:34	07:13		07:46 (MO06)	07:41		08:05 (MO06)
	20:45	20:06	19:13	18:23	16:48	42	08:28 (MO06)	16:45	29	08:34 (MO06)
23	05:57	06:29	07:02	07:36	07:14		07:46 (MO06)	07:41		08:05 (MO06)
	20:44	20:05	19:12	18:22	16:47	42	08:28 (MO06)	16:45	29	08:34 (MO06)
24	05:58	06:30	07:03	07:37	07:15		07:46 (MO06)	07:42		08:05 (MO06)
	20:43	20:03	19:10	18:20	16:46	42	08:28 (MO06)	16:46	29	08:34 (MO06)
25	05:59	06:31	07:04	06:38	07:16		07:46 (MO06)	07:42		08:06 (MO06)
	20:42	20:02	19:08	17:19	16:46	42	08:28 (MO06)	16:46	29	08:35 (MO06)
26	06:00	06:32	07:05	06:39	07:18		07:47 (MO06)	07:42		08:06 (MO06)
	20:41	20:00	19:06	17:17	16:45	42	08:29 (MO06)	16:47	30	08:36 (MO06)
27	06:01	06:33	07:06	06:40	07:19		07:47 (MO06)	07:43		08:06 (MO06)
	20:41	19:58	19:05	17:16	16:45	42	08:29 (MO06)	16:48	30	08:36 (MO06)
28	06:02	06:34	07:07	06:42	07:20		07:48 (MO06)	07:43		08:07 (MO06)
	20:40	19:57	19:03	17:14	16:44	41	08:29 (MO06)	16:48	30	08:37 (MO06)
29	06:03	06:35	07:08	06:43	07:21		07:48 (MO06)	07:43		08:07 (MO06)
	20:38	19:55	19:01	17:13	16:44	41	08:29 (MO06)	16:49	31	08:38 (MO06)
30	06:04	06:36	07:09	06:44	07:22		07:49 (MO06)	07:43		08:07 (MO06)
	20:37	19:54	18:59	17:12	16:43	40	08:29 (MO06)	16:50	31	08:38 (MO06)
31	06:05	06:37		06:45				07:44		08:07 (MO06)
	20:36	19:52		17:10				16:51	32	08:39 (MO06)
Potential sun hours	463	431	376	344	295			283		
Total, worst case						989			1006	
Sun reduction						0.46			0.43	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.46			0.43	
Total, real						451			435	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

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Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

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	January		February		March	April	May	June
1	07:44		08:07 (MO06)	07:29	08:13 (MO06)	06:52	06:59	06:11	05:40
	16:52	28	08:35 (MO06)	17:27	35	08:48 (MO06)	18:03	19:39	20:13	20:44
2	07:44		08:07 (MO06)	07:28	08:15 (MO06)	06:50	06:57	06:10	05:40
	16:53	29	08:36 (MO06)	17:29	32	08:47 (MO06)	18:04	19:40	20:14	20:45
3	07:44		08:07 (MO06)	07:27	08:16 (MO06)	06:48	06:55	06:08	05:39
	16:53	30	08:37 (MO06)	17:30	30	08:46 (MO06)	18:06	19:42	20:15	20:46
4	07:44		08:07 (MO06)	07:26	08:16 (MO06)	06:47	06:53	06:07	05:39
	16:54	31	08:38 (MO06)	17:31	28	08:44 (MO06)	18:07	19:43	20:16	20:46
5	07:44		08:07 (MO06)	07:25	08:18 (MO06)	06:45	06:52	06:06	05:39
	16:55	32	08:39 (MO06)	17:32	25	08:43 (MO06)	18:08	19:44	20:18	20:47
6	07:44		08:07 (MO06)	07:24	08:20 (MO06)	06:43	06:50	06:04	05:38
	16:56	32	08:39 (MO06)	17:34	21	08:41 (MO06)	18:09	19:45	20:19	20:48
7	07:44		08:07 (MO06)	07:23	08:23 (MO06)	06:42	06:48	06:03	05:38
	16:57	33	08:40 (MO06)	17:35	16	08:39 (MO06)	18:10	19:46	20:20	20:49
8	07:44		08:06 (MO06)	07:21	08:27 (MO06)	06:40	06:47	06:02	05:38
	16:58	34	08:40 (MO06)	17:36	9	08:36 (MO06)	18:12	19:47	20:21	20:49
9	07:44		08:06 (MO06)	07:20		06:38	06:45	06:01	05:37
	16:59	35	08:41 (MO06)	17:38		18:13	19:48	20:22	20:50
10	07:43		08:06 (MO06)	07:19		06:37	06:43	05:59	05:37
	17:00	37	08:43 (MO06)	17:39		18:14	19:49	20:23	20:50
11	07:43		08:06 (MO06)	07:18		06:35	06:42	05:58	05:37
	17:01	37	08:43 (MO06)	17:40		18:15	19:51	20:24	20:51
12	07:43		08:06 (MO06)	07:16		06:33	06:40	05:57	05:37
	17:02	38	08:44 (MO06)	17:42		18:16	19:52	20:25	20:51
13	07:43		08:06 (MO06)	07:15		06:32	06:38	05:56	05:37
	17:04	39	08:45 (MO06)	17:43		18:17	19:53	20:26	20:52
14	07:42		08:06 (MO06)	07:14		06:30	06:37	05:55	05:37
	17:05	39	08:45 (MO06)	17:44		18:19	19:54	20:27	20:52
15	07:42		08:07 (MO06)	07:12		06:28	06:35	05:54	05:37
	17:06	39	08:46 (MO06)	17:45		18:20	19:55	20:28	20:53
16	07:41		08:06 (MO06)	07:11		06:26	06:33	05:53	05:37
	17:07	40	08:46 (MO06)	17:47		18:21	19:56	20:29	20:53
17	07:41		08:07 (MO06)	07:10		06:25	06:32	05:52	05:37
	17:08	40	08:47 (MO06)	17:48		18:22	19:57	20:30	20:54
18	07:40		08:07 (MO06)	07:08		06:23	06:30	05:51	05:37
	17:09	40	08:47 (MO06)	17:49		18:23	19:58	20:31	20:54
19	07:40		08:07 (MO06)	07:07		06:21	06:29	05:50	05:37
	17:11	40	08:47 (MO06)	17:51		18:24	20:00	20:32	20:54
20	07:39		08:08 (MO06)	07:05		06:20	06:27	05:49	05:37
	17:12	41	08:49 (MO06)	17:52		18:26	20:01	20:33	20:55
21	07:38		08:08 (MO06)	07:04		06:18	06:26	05:48	05:37
	17:13	41	08:49 (MO06)	17:53		18:27	20:02	20:34	20:55
22	07:38		08:08 (MO06)	07:02		06:16	06:24	05:47	05:37
	17:14	41	08:49 (MO06)	17:54		18:28	20:03	20:35	20:55
23	07:37		08:08 (MO06)	07:01		06:14	06:22	05:46	05:38
	17:16	41	08:49 (MO06)	17:56		18:29	20:04	20:36	20:55
24	07:36		08:09 (MO06)	06:59		06:13	06:21	05:46	05:38
	17:17	41	08:50 (MO06)	17:57		18:30	20:05	20:37	20:55
25	07:36		08:09 (MO06)	06:58		06:11	06:19	05:45	05:38
	17:18	41	08:50 (MO06)	17:58		18:31	20:06	20:38	20:55
26	07:35		08:09 (MO06)	06:56		06:09	06:18	05:44	05:38
	17:19	40	08:49 (MO06)	17:59		18:32	20:07	20:39	20:56
27	07:34		08:10 (MO06)	06:55		06:07	06:17	05:43	05:39
	17:21	39	08:49 (MO06)	18:01		18:34	20:09	20:40	20:56
28	07:33		08:10 (MO06)	06:53		06:06	06:15	05:43	05:39
	17:22	39	08:49 (MO06)	18:02		18:35	20:10	20:41	20:56
29	07:32		08:11 (MO06)			07:04	06:14	05:42	05:40
	17:23	38	08:49 (MO06)			19:36	20:11	20:42	20:56
30	07:31		08:12 (MO06)			07:02	06:12	05:42	05:40
	17:25	37	08:49 (MO06)			19:37	20:12	20:43	20:56
31	07:30		08:13 (MO06)			07:00		05:41	
	17:26	35	08:48 (MO06)			19:38		20:43	
Potential sun hours	293			295		369	400	452	457
Total, worst case		1147			196				
Sun reduction		0.42			0.46				
Oper. time red.		1.00			1.00				
Wind dir. red.		1.00			1.00				
Total reduction		0.42			0.46				
Total, real		482			91				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 112 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1010)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November			December		
1	05:41	06:06	06:38	07:10	06:47			07:23		07:48 (MO06)
	20:55	20:35	19:50	18:58	17:09			16:43	37	08:25 (MO06)
2	05:41	06:07	06:39	07:11	06:48			07:24		07:49 (MO06)
	20:55	20:34	19:48	18:56	17:08			16:43	37	08:26 (MO06)
3	05:42	06:08	06:41	07:13	06:49		07:55 (MO06)	07:25		07:50 (MO06)
	20:55	20:33	19:47	18:54	17:06	10	08:05 (MO06)	16:42	36	08:26 (MO06)
4	05:42	06:09	06:42	07:14	06:50		07:52 (MO06)	07:26		07:51 (MO06)
	20:55	20:32	19:45	18:52	17:05	18	08:10 (MO06)	16:42	35	08:26 (MO06)
5	05:43	06:10	06:43	07:15	06:52		07:50 (MO06)	07:27		07:52 (MO06)
	20:55	20:30	19:43	18:51	17:04	22	08:12 (MO06)	16:42	34	08:26 (MO06)
6	05:43	06:11	06:44	07:16	06:53		07:48 (MO06)	07:28		07:53 (MO06)
	20:54	20:29	19:42	18:49	17:03	25	08:13 (MO06)	16:42	33	08:26 (MO06)
7	05:44	06:12	06:45	07:17	06:54		07:47 (MO06)	07:29		07:54 (MO06)
	20:54	20:28	19:40	18:47	17:02	28	08:15 (MO06)	16:42	32	08:26 (MO06)
8	05:45	06:13	06:46	07:18	06:55		07:46 (MO06)	07:30		07:55 (MO06)
	20:54	20:27	19:38	18:46	17:00	30	08:16 (MO06)	16:42	31	08:26 (MO06)
9	05:45	06:14	06:47	07:19	06:57		07:45 (MO06)	07:31		07:56 (MO06)
	20:53	20:25	19:36	18:44	16:59	33	08:18 (MO06)	16:42	30	08:26 (MO06)
10	05:46	06:15	06:48	07:20	06:58		07:44 (MO06)	07:32		07:57 (MO06)
	20:53	20:24	19:35	18:42	16:58	35	08:19 (MO06)	16:42	29	08:26 (MO06)
11	05:47	06:16	06:49	07:22	06:59		07:43 (MO06)	07:33		07:57 (MO06)
	20:52	20:23	19:33	18:41	16:57	36	08:19 (MO06)	16:42	28	08:25 (MO06)
12	05:48	06:17	06:50	07:23	07:00		07:44 (MO06)	07:34		07:58 (MO06)
	20:52	20:21	19:31	18:39	16:56	36	08:20 (MO06)	16:42	28	08:26 (MO06)
13	05:48	06:18	06:51	07:24	07:02		07:43 (MO06)	07:35		07:59 (MO06)
	20:51	20:20	19:29	18:37	16:55	38	08:21 (MO06)	16:42	27	08:26 (MO06)
14	05:49	06:19	06:52	07:25	07:03		07:42 (MO06)	07:35		08:00 (MO06)
	20:51	20:18	19:28	18:36	16:54	39	08:21 (MO06)	16:42	26	08:26 (MO06)
15	05:50	06:20	06:53	07:26	07:04		07:43 (MO06)	07:36		08:01 (MO06)
	20:50	20:17	19:26	18:34	16:53	39	08:22 (MO06)	16:42	26	08:27 (MO06)
16	05:51	06:21	06:54	07:27	07:05		07:42 (MO06)	07:37		08:01 (MO06)
	20:50	20:16	19:24	18:32	16:52	40	08:22 (MO06)	16:42	25	08:26 (MO06)
17	05:52	06:22	06:55	07:28	07:07		07:42 (MO06)	07:38		08:02 (MO06)
	20:49	20:14	19:22	18:31	16:51	41	08:23 (MO06)	16:43	25	08:27 (MO06)
18	05:52	06:24	06:56	07:30	07:08		07:43 (MO06)	07:38		08:03 (MO06)
	20:48	20:13	19:21	18:29	16:51	41	08:24 (MO06)	16:43	25	08:28 (MO06)
19	05:53	06:25	06:57	07:31	07:09		07:43 (MO06)	07:39		08:03 (MO06)
	20:48	20:11	19:19	18:28	16:50	41	08:24 (MO06)	16:43	24	08:27 (MO06)
20	05:54	06:26	06:59	07:32	07:10		07:43 (MO06)	07:39		08:04 (MO06)
	20:47	20:10	19:17	18:26	16:49	41	08:24 (MO06)	16:44	24	08:28 (MO06)
21	05:55	06:27	07:00	07:33	07:12		07:43 (MO06)	07:40		08:04 (MO06)
	20:46	20:08	19:15	18:25	16:48	41	08:24 (MO06)	16:44	24	08:28 (MO06)
22	05:56	06:28	07:01	07:34	07:13		07:44 (MO06)	07:41		08:05 (MO06)
	20:45	20:06	19:13	18:23	16:48	41	08:25 (MO06)	16:45	24	08:29 (MO06)
23	05:57	06:29	07:02	07:36	07:14		07:44 (MO06)	07:41		08:05 (MO06)
	20:44	20:05	19:12	18:22	16:47	40	08:24 (MO06)	16:45	24	08:29 (MO06)
24	05:58	06:30	07:03	07:37	07:15		07:44 (MO06)	07:42		08:05 (MO06)
	20:43	20:03	19:10	18:20	16:46	40	08:24 (MO06)	16:46	24	08:29 (MO06)
25	05:59	06:31	07:04	06:38	07:16		07:44 (MO06)	07:42		08:06 (MO06)
	20:42	20:02	19:08	17:19	16:46	40	08:24 (MO06)	16:46	24	08:30 (MO06)
26	06:00	06:32	07:05	06:39	07:18		07:45 (MO06)	07:42		08:06 (MO06)
	20:41	20:00	19:06	17:17	16:45	40	08:25 (MO06)	16:47	25	08:31 (MO06)
27	06:01	06:33	07:06	06:40	07:19		07:46 (MO06)	07:43		08:06 (MO06)
	20:41	19:58	19:05	17:16	16:45	39	08:25 (MO06)	16:48	25	08:31 (MO06)
28	06:02	06:34	07:07	06:42	07:20		07:46 (MO06)	07:43		08:07 (MO06)
	20:40	19:57	19:03	17:14	16:44	39	08:25 (MO06)	16:48	26	08:33 (MO06)
29	06:03	06:35	07:08	06:43	07:21		07:47 (MO06)	07:43		08:07 (MO06)
	20:38	19:55	19:01	17:13	16:44	38	08:25 (MO06)	16:49	26	08:33 (MO06)
30	06:04	06:36	07:09	06:44	07:22		07:47 (MO06)	07:43		08:07 (MO06)
	20:37	19:54	18:59	17:12	16:43	38	08:25 (MO06)	16:50	27	08:34 (MO06)
31	06:05	06:37		06:45				07:44		08:07 (MO06)
	20:36	19:52		17:10				16:51	27	08:34 (MO06)
Potential sun hours	463	431	376	344	295			283		
Total, worst case						989			868	
Sun reduction						0.46			0.43	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.46			0.43	
Total, real						451			375	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 113 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1011)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44		08:08 (MO06)	07:29		08:27 (MO06)	06:52	06:59	06:11	05:40
	16:52	38	08:46 (MO06)	17:27	21	08:48 (MO06)	18:03	19:39	20:13	20:44
2	07:44		08:08 (MO06)	07:28		08:30 (MO06)	06:50	06:57	06:10	05:40
	16:53	39	08:47 (MO06)	17:29	16	08:46 (MO06)	18:04	19:40	20:14	20:45
3	07:44		08:09 (MO06)	07:27		08:34 (MO06)	06:48	06:55	06:08	05:39
	16:53	38	08:47 (MO06)	17:30	8	08:42 (MO06)	18:06	19:42	20:15	20:46
4	07:44		08:09 (MO06)	07:26			06:47	06:53	06:07	05:39
	16:54	39	08:48 (MO06)	17:31			18:07	19:43	20:16	20:46
5	07:44		08:09 (MO06)	07:25			06:45	06:52	06:06	05:39
	16:55	40	08:49 (MO06)	17:32			18:08	19:44	20:18	20:47
6	07:44		08:10 (MO06)	07:24			06:43	06:50	06:04	05:38
	16:56	39	08:49 (MO06)	17:34			18:09	19:45	20:19	20:48
7	07:44		08:10 (MO06)	07:23			06:42	06:48	06:03	05:38
	16:57	40	08:50 (MO06)	17:35			18:10	19:46	20:20	20:49
8	07:44		08:10 (MO06)	07:21			06:40	06:47	06:02	05:38
	16:58	40	08:50 (MO06)	17:36			18:12	19:47	20:21	20:49
9	07:44		08:10 (MO06)	07:20			06:38	06:45	06:01	05:37
	16:59	41	08:51 (MO06)	17:38			18:13	19:48	20:22	20:50
10	07:43		08:11 (MO06)	07:19			06:37	06:43	05:59	05:37
	17:00	41	08:52 (MO06)	17:39			18:14	19:49	20:23	20:50
11	07:43		08:11 (MO06)	07:18			06:35	06:42	05:58	05:37
	17:01	40	08:51 (MO06)	17:40			18:15	19:51	20:24	20:51
12	07:43		08:11 (MO06)	07:16			06:33	06:40	05:57	05:37
	17:02	41	08:52 (MO06)	17:42			18:16	19:52	20:25	20:51
13	07:43		08:12 (MO06)	07:15			06:32	06:38	05:56	05:37
	17:04	41	08:53 (MO06)	17:43			18:17	19:53	20:26	20:52
14	07:42		08:12 (MO06)	07:14			06:30	06:37	05:55	05:37
	17:05	41	08:53 (MO06)	17:44			18:19	19:54	20:27	20:52
15	07:42		08:13 (MO06)	07:12			06:28	06:35	05:54	05:37
	17:06	41	08:54 (MO06)	17:45			18:20	19:55	20:28	20:53
16	07:41		08:13 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	41	08:54 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:14 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	40	08:54 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:14 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	40	08:54 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:14 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	40	08:54 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:15 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	40	08:55 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:15 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	40	08:55 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		08:16 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	38	08:54 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		08:16 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	38	08:54 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		08:18 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	37	08:55 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		08:18 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	36	08:54 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		08:19 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	35	08:54 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		08:20 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	33	08:53 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		08:21 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	31	08:52 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		08:22 (MO06)				07:04	06:14	05:42	05:40
	17:23	29	08:51 (MO06)				19:36	20:11	20:42	20:56
30	07:31		08:23 (MO06)				07:02	06:12	05:42	05:40
	17:25	27	08:50 (MO06)				19:37	20:12	20:43	20:56
31	07:30		08:25 (MO06)				07:00		05:41	
	17:26	24	08:49 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		1168			45					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		491			21					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 113 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1011)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November			December		
1	05:41	06:06	06:38	07:10	06:47			07:23		07:53 (MO06)
	20:55	20:35	19:50	18:58	17:09			16:43	40	08:33 (MO06)
2	05:41	06:07	06:39	07:11	06:48			07:24		07:54 (MO06)
	20:55	20:34	19:48	18:56	17:08			16:43	41	08:35 (MO06)
3	05:42	06:08	06:41	07:13	06:49			07:25		07:54 (MO06)
	20:55	20:33	19:47	18:54	17:06			16:42	41	08:35 (MO06)
4	05:42	06:09	06:42	07:14	06:50			07:26		07:55 (MO06)
	20:55	20:32	19:45	18:52	17:05			16:42	40	08:35 (MO06)
5	05:43	06:10	06:43	07:15	06:52			07:27		07:55 (MO06)
	20:55	20:30	19:43	18:51	17:04			16:42	40	08:35 (MO06)
6	05:43	06:11	06:44	07:16	06:53			07:28		07:56 (MO06)
	20:54	20:29	19:42	18:49	17:03			16:42	40	08:36 (MO06)
7	05:44	06:12	06:45	07:17	06:54			07:29		07:56 (MO06)
	20:54	20:28	19:40	18:47	17:02			16:42	40	08:36 (MO06)
8	05:45	06:13	06:46	07:18	06:55		08:03 (MO06)	07:30		07:57 (MO06)
	20:54	20:27	19:38	18:46	17:00	9	08:12 (MO06)	16:42	39	08:36 (MO06)
9	05:45	06:14	06:47	07:19	06:57		08:00 (MO06)	07:31		07:58 (MO06)
	20:53	20:25	19:36	18:44	16:59	17	08:17 (MO06)	16:42	38	08:36 (MO06)
10	05:46	06:15	06:48	07:20	06:58		07:58 (MO06)	07:32		07:58 (MO06)
	20:53	20:24	19:35	18:42	16:58	21	08:19 (MO06)	16:42	39	08:37 (MO06)
11	05:47	06:16	06:49	07:22	06:59		07:56 (MO06)	07:33		07:58 (MO06)
	20:52	20:23	19:33	18:41	16:57	24	08:20 (MO06)	16:42	38	08:36 (MO06)
12	05:48	06:17	06:50	07:23	07:00		07:55 (MO06)	07:34		07:59 (MO06)
	20:52	20:21	19:31	18:39	16:56	27	08:22 (MO06)	16:42	38	08:37 (MO06)
13	05:48	06:18	06:51	07:24	07:02		07:54 (MO06)	07:35		08:00 (MO06)
	20:51	20:20	19:29	18:37	16:55	29	08:23 (MO06)	16:42	37	08:37 (MO06)
14	05:49	06:19	06:52	07:25	07:03		07:53 (MO06)	07:35		08:00 (MO06)
	20:51	20:18	19:28	18:36	16:54	31	08:24 (MO06)	16:42	38	08:38 (MO06)
15	05:50	06:20	06:53	07:26	07:04		07:53 (MO06)	07:36		08:01 (MO06)
	20:50	20:17	19:26	18:34	16:53	33	08:26 (MO06)	16:42	37	08:38 (MO06)
16	05:51	06:21	06:54	07:27	07:05		07:52 (MO06)	07:37		08:01 (MO06)
	20:50	20:16	19:24	18:32	16:52	35	08:27 (MO06)	16:42	37	08:38 (MO06)
17	05:52	06:22	06:55	07:28	07:07		07:51 (MO06)	07:38		08:02 (MO06)
	20:49	20:14	19:22	18:31	16:51	36	08:27 (MO06)	16:43	37	08:39 (MO06)
18	05:52	06:24	06:56	07:30	07:08		07:52 (MO06)	07:38		08:03 (MO06)
	20:48	20:13	19:21	18:29	16:51	37	08:29 (MO06)	16:43	37	08:40 (MO06)
19	05:53	06:25	06:57	07:31	07:09		07:51 (MO06)	07:39		08:03 (MO06)
	20:48	20:11	19:19	18:28	16:50	38	08:29 (MO06)	16:43	36	08:39 (MO06)
20	05:54	06:26	06:59	07:32	07:10		07:51 (MO06)	07:39		08:04 (MO06)
	20:47	20:10	19:17	18:26	16:49	38	08:29 (MO06)	16:44	36	08:40 (MO06)
21	05:55	06:27	07:00	07:33	07:12		07:50 (MO06)	07:40		08:04 (MO06)
	20:46	20:08	19:15	18:25	16:48	40	08:30 (MO06)	16:44	36	08:40 (MO06)
22	05:56	06:28	07:01	07:34	07:13		07:51 (MO06)	07:41		08:05 (MO06)
	20:45	20:06	19:13	18:23	16:48	40	08:31 (MO06)	16:45	36	08:41 (MO06)
23	05:57	06:29	07:02	07:36	07:14		07:51 (MO06)	07:41		08:05 (MO06)
	20:44	20:05	19:12	18:22	16:47	40	08:31 (MO06)	16:45	36	08:41 (MO06)
24	05:58	06:30	07:03	07:37	07:15		07:51 (MO06)	07:42		08:05 (MO06)
	20:43	20:03	19:10	18:20	16:46	40	08:31 (MO06)	16:46	36	08:41 (MO06)
25	05:59	06:31	07:04	06:38	07:16		07:51 (MO06)	07:42		08:06 (MO06)
	20:42	20:02	19:08	17:19	16:46	40	08:31 (MO06)	16:46	36	08:42 (MO06)
26	06:00	06:32	07:05	06:39	07:18		07:52 (MO06)	07:42		08:06 (MO06)
	20:41	20:00	19:06	17:17	16:45	41	08:33 (MO06)	16:47	37	08:43 (MO06)
27	06:01	06:33	07:06	06:40	07:19		07:52 (MO06)	07:43		08:06 (MO06)
	20:41	19:58	19:05	17:16	16:45	41	08:33 (MO06)	16:48	37	08:43 (MO06)
28	06:02	06:34	07:07	06:42	07:20		07:52 (MO06)	07:43		08:07 (MO06)
	20:40	19:57	19:03	17:14	16:44	41	08:33 (MO06)	16:48	37	08:44 (MO06)
29	06:03	06:35	07:08	06:43	07:21		07:52 (MO06)	07:43		08:07 (MO06)
	20:38	19:55	19:01	17:13	16:44	41	08:33 (MO06)	16:49	38	08:45 (MO06)
30	06:04	06:36	07:09	06:44	07:22		07:52 (MO06)	07:43		08:08 (MO06)
	20:37	19:54	18:59	17:12	16:43	41	08:33 (MO06)	16:50	37	08:45 (MO06)
31	06:05	06:37		06:45				07:44		08:08 (MO06)
	20:36	19:52		17:10				16:51	38	08:46 (MO06)
Potential sun hours	463	431	376	344	295			283		
Total, worst case						780			1173	
Sun reduction						0.46			0.43	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.46			0.43	
Total, real						356			507	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 114 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1012)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March	April	May	June
1	07:44		08:07 (MO06)	07:29	08:16 (MO06)	06:52	06:59	06:11	05:40
	16:52	31	08:38 (MO06)	17:27	31	08:47 (MO06)	18:03	19:39	20:13	20:44
2	07:44		08:07 (MO06)	07:28	08:18 (MO06)	06:50	06:57	06:10	05:40
	16:53	31	08:38 (MO06)	17:29	29	08:47 (MO06)	18:04	19:40	20:14	20:45
3	07:44		08:07 (MO06)	07:27	08:19 (MO06)	06:48	06:55	06:08	05:39
	16:53	32	08:39 (MO06)	17:30	27	08:46 (MO06)	18:06	19:42	20:15	20:46
4	07:44		08:07 (MO06)	07:26	08:20 (MO06)	06:47	06:53	06:07	05:39
	16:54	33	08:40 (MO06)	17:31	23	08:43 (MO06)	18:07	19:43	20:16	20:46
5	07:44		08:07 (MO06)	07:25	08:22 (MO06)	06:45	06:52	06:06	05:39
	16:55	34	08:41 (MO06)	17:32	20	08:42 (MO06)	18:08	19:44	20:18	20:47
6	07:44		08:07 (MO06)	07:24	08:25 (MO06)	06:43	06:50	06:04	05:38
	16:56	35	08:42 (MO06)	17:34	14	08:39 (MO06)	18:09	19:45	20:19	20:48
7	07:44		08:07 (MO06)	07:23			06:42	06:48	06:03	05:38
	16:57	36	08:43 (MO06)	17:35			18:10	19:46	20:20	20:49
8	07:44		08:06 (MO06)	07:21			06:40	06:47	06:02	05:38
	16:58	37	08:43 (MO06)	17:36			18:12	19:47	20:21	20:49
9	07:44		08:07 (MO06)	07:20			06:38	06:45	06:01	05:37
	16:59	36	08:43 (MO06)	17:38			18:13	19:48	20:22	20:50
10	07:43		08:07 (MO06)	07:19			06:37	06:43	05:59	05:37
	17:00	37	08:44 (MO06)	17:39			18:14	19:49	20:23	20:50
11	07:43		08:06 (MO06)	07:18			06:35	06:42	05:58	05:37
	17:01	38	08:44 (MO06)	17:40			18:15	19:51	20:24	20:51
12	07:43		08:07 (MO06)	07:16			06:33	06:40	05:57	05:37
	17:02	39	08:46 (MO06)	17:42			18:16	19:52	20:25	20:51
13	07:43		08:08 (MO06)	07:15			06:32	06:38	05:56	05:37
	17:04	39	08:47 (MO06)	17:43			18:17	19:53	20:26	20:52
14	07:42		08:07 (MO06)	07:14			06:30	06:37	05:55	05:37
	17:05	40	08:47 (MO06)	17:44			18:19	19:54	20:27	20:52
15	07:42		08:08 (MO06)	07:12			06:28	06:35	05:54	05:37
	17:06	40	08:48 (MO06)	17:45			18:20	19:55	20:28	20:53
16	07:41		08:08 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	40	08:48 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:08 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	41	08:49 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:08 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	41	08:49 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:08 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	41	08:49 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:09 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	41	08:50 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:09 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	41	08:50 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		08:09 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	41	08:50 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		08:09 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	41	08:50 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		08:11 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	40	08:51 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		08:11 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	39	08:50 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		08:12 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	38	08:50 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		08:12 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	38	08:50 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		08:13 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	37	08:50 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		08:13 (MO06)				07:04	06:14	05:42	05:40
	17:23	36	08:49 (MO06)				19:36	20:11	20:42	20:56
30	07:31		08:14 (MO06)				07:02	06:12	05:42	05:40
	17:25	35	08:49 (MO06)				19:37	20:12	20:43	20:56
31	07:30		08:15 (MO06)				07:00		05:41	
	17:26	33	08:48 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		1161			144					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		488			67					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 114 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1012)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November			December		
1	05:41	06:06	06:38	07:10	06:47			07:23		07:48 (MO06)
	20:55	20:35	19:50	18:58	17:09			16:43	39	08:27 (MO06)
2	05:41	06:07	06:39	07:11	06:48			07:24		07:50 (MO06)
	20:55	20:34	19:48	18:56	17:08			16:43	38	08:28 (MO06)
3	05:42	06:08	06:41	07:13	06:49			07:25		07:51 (MO06)
	20:55	20:33	19:47	18:54	17:06			16:42	37	08:28 (MO06)
4	05:42	06:09	06:42	07:14	06:50		08:00 (MO06)	07:26		07:51 (MO06)
	20:55	20:32	19:45	18:52	17:05	5	08:05 (MO06)	16:42	37	08:28 (MO06)
5	05:43	06:10	06:43	07:15	06:52		07:54 (MO06)	07:27		07:52 (MO06)
	20:55	20:30	19:43	18:51	17:04	15	08:09 (MO06)	16:42	36	08:28 (MO06)
6	05:43	06:11	06:44	07:16	06:53		07:52 (MO06)	07:28		07:53 (MO06)
	20:54	20:29	19:42	18:49	17:03	20	08:12 (MO06)	16:42	35	08:28 (MO06)
7	05:44	06:12	06:45	07:17	06:54		07:51 (MO06)	07:29		07:54 (MO06)
	20:54	20:28	19:40	18:47	17:02	23	08:14 (MO06)	16:42	34	08:28 (MO06)
8	05:45	06:13	06:46	07:18	06:55		07:49 (MO06)	07:30		07:55 (MO06)
	20:54	20:27	19:38	18:46	17:00	27	08:16 (MO06)	16:42	33	08:28 (MO06)
9	05:45	06:14	06:47	07:19	06:57		07:48 (MO06)	07:31		07:56 (MO06)
	20:53	20:25	19:36	18:44	16:59	30	08:18 (MO06)	16:42	32	08:28 (MO06)
10	05:46	06:15	06:48	07:20	06:58		07:47 (MO06)	07:32		07:57 (MO06)
	20:53	20:24	19:35	18:42	16:58	31	08:18 (MO06)	16:42	31	08:28 (MO06)
11	05:47	06:16	06:49	07:22	06:59		07:46 (MO06)	07:33		07:57 (MO06)
	20:52	20:23	19:33	18:41	16:57	33	08:19 (MO06)	16:42	31	08:28 (MO06)
12	05:48	06:17	06:50	07:23	07:00		07:46 (MO06)	07:34		07:58 (MO06)
	20:52	20:21	19:31	18:39	16:56	35	08:21 (MO06)	16:42	30	08:28 (MO06)
13	05:48	06:18	06:51	07:24	07:02		07:45 (MO06)	07:35		07:59 (MO06)
	20:51	20:20	19:29	18:37	16:55	36	08:21 (MO06)	16:42	29	08:28 (MO06)
14	05:49	06:19	06:52	07:25	07:03		07:45 (MO06)	07:35		08:00 (MO06)
	20:51	20:18	19:28	18:36	16:54	37	08:22 (MO06)	16:42	29	08:29 (MO06)
15	05:50	06:20	06:53	07:26	07:04		07:45 (MO06)	07:36		08:01 (MO06)
	20:50	20:17	19:26	18:34	16:53	38	08:23 (MO06)	16:42	28	08:29 (MO06)
16	05:51	06:21	06:54	07:27	07:05		07:44 (MO06)	07:37		08:01 (MO06)
	20:50	20:16	19:24	18:32	16:52	39	08:23 (MO06)	16:42	28	08:29 (MO06)
17	05:52	06:22	06:55	07:29	07:07		07:44 (MO06)	07:38		08:02 (MO06)
	20:49	20:14	19:22	18:31	16:51	39	08:23 (MO06)	16:43	28	08:30 (MO06)
18	05:52	06:24	06:56	07:30	07:08		07:45 (MO06)	07:38		08:03 (MO06)
	20:48	20:13	19:21	18:29	16:51	40	08:25 (MO06)	16:43	27	08:30 (MO06)
19	05:53	06:25	06:57	07:31	07:09		07:44 (MO06)	07:39		08:03 (MO06)
	20:48	20:11	19:19	18:28	16:50	41	08:25 (MO06)	16:43	27	08:30 (MO06)
20	05:54	06:26	06:59	07:32	07:10		07:44 (MO06)	07:39		08:04 (MO06)
	20:47	20:10	19:17	18:26	16:49	41	08:25 (MO06)	16:44	27	08:31 (MO06)
21	05:55	06:27	07:00	07:33	07:12		07:44 (MO06)	07:40		08:04 (MO06)
	20:46	20:08	19:15	18:25	16:48	41	08:25 (MO06)	16:44	27	08:31 (MO06)
22	05:56	06:28	07:01	07:34	07:13		07:45 (MO06)	07:41		08:05 (MO06)
	20:45	20:06	19:13	18:23	16:48	41	08:26 (MO06)	16:45	27	08:32 (MO06)
23	05:57	06:29	07:02	07:36	07:14		07:45 (MO06)	07:41		08:05 (MO06)
	20:44	20:05	19:12	18:22	16:47	41	08:26 (MO06)	16:45	27	08:32 (MO06)
24	05:58	06:30	07:03	07:37	07:15		07:45 (MO06)	07:42		08:05 (MO06)
	20:43	20:03	19:10	18:20	16:46	41	08:26 (MO06)	16:46	27	08:32 (MO06)
25	05:59	06:31	07:04	06:38	07:16		07:45 (MO06)	07:42		08:06 (MO06)
	20:42	20:02	19:08	17:19	16:46	41	08:26 (MO06)	16:46	27	08:33 (MO06)
26	06:00	06:32	07:05	06:39	07:18		07:47 (MO06)	07:42		08:06 (MO06)
	20:42	20:00	19:06	17:17	16:45	40	08:27 (MO06)	16:47	27	08:33 (MO06)
27	06:01	06:33	07:06	06:40	07:19		07:47 (MO06)	07:43		08:06 (MO06)
	20:41	19:58	19:05	17:16	16:45	40	08:27 (MO06)	16:48	28	08:34 (MO06)
28	06:02	06:34	07:07	06:42	07:20		07:47 (MO06)	07:43		08:07 (MO06)
	20:40	19:57	19:03	17:14	16:44	40	08:27 (MO06)	16:48	28	08:35 (MO06)
29	06:03	06:35	07:08	06:43	07:21		07:48 (MO06)	07:43		08:07 (MO06)
	20:38	19:55	19:01	17:13	16:44	39	08:27 (MO06)	16:49	29	08:36 (MO06)
30	06:04	06:36	07:09	06:44	07:22		07:48 (MO06)	07:43		08:07 (MO06)
	20:37	19:54	18:59	17:12	16:43	39	08:27 (MO06)	16:50	29	08:36 (MO06)
31	06:05	06:37		06:45				07:44		08:07 (MO06)
	20:36	19:52		17:10				16:51	30	08:37 (MO06)
Potential sun hours	463	431	376	344	295			283		
Total, worst case						933			942	
Sun reduction						0.46			0.43	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.46			0.43	
Total, real						426			407	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 115 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1013)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 116 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1014)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 117 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1015)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
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	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 118 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1016)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
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	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 119 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1017)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 120 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1018)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 121 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1019)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
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	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 122 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1020)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	07:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 123 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1021)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 124 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1022)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
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	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:20	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 125 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1023)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
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	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	07:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 126 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1024)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 127 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1025)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 128 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1026)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
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23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
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24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 129 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1027)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 130 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1028)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 131 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1029)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44			07:29		16:11 (MO06)	06:51	06:59	06:11	05:40
	16:52			17:27	47	16:58 (MO06)	18:03	19:39	20:13	20:44
2	07:44			07:28		16:12 (MO06)	06:50	06:57	06:09	05:40
	16:52			17:28	46	16:58 (MO06)	18:04	19:40	20:14	20:45
3	07:44			07:27		16:12 (MO06)	06:48	06:55	06:08	05:39
	16:53			17:30	46	16:58 (MO06)	18:05	19:41	20:15	20:46
4	07:44			07:26		16:11 (MO06)	06:47	06:53	06:07	05:39
	16:54			17:31	47	16:58 (MO06)	18:07	19:43	20:16	20:46
5	07:44			07:25		16:12 (MO06)	06:45	06:52	06:05	05:39
	16:55			17:32	46	16:58 (MO06)	18:08	19:44	20:17	20:47
6	07:44		16:22 (MO06)	07:24		16:13 (MO06)	06:43	06:50	06:04	05:38
	16:56	8	16:30 (MO06)	17:34	45	16:58 (MO06)	18:09	19:45	20:19	20:48
7	07:44		16:20 (MO06)	07:23		16:13 (MO06)	06:42	06:48	06:03	05:38
	16:57	11	16:31 (MO06)	17:35	45	16:58 (MO06)	18:10	19:46	20:20	20:48
8	07:44		16:18 (MO06)	07:21		16:14 (MO06)	06:40	06:47	06:02	05:38
	16:58	13	16:31 (MO06)	17:36	43	16:57 (MO06)	18:11	19:47	20:21	20:49
9	07:44		16:18 (MO06)	07:20		16:14 (MO06)	06:38	06:45	06:00	05:37
	16:59	15	16:33 (MO06)	17:38	42	16:56 (MO06)	18:13	19:48	20:22	20:50
10	07:43		16:17 (MO06)	07:19		16:15 (MO06)	06:37	06:43	05:59	05:37
	17:00	17	16:34 (MO06)	17:39	41	16:56 (MO06)	18:14	19:49	20:23	20:50
11	07:43		16:16 (MO06)	07:18		16:17 (MO06)	06:35	06:42	05:58	05:37
	17:01	19	16:35 (MO06)	17:40	38	16:55 (MO06)	18:15	19:50	20:24	20:51
12	07:43		16:15 (MO06)	07:16		16:17 (MO06)	06:33	06:40	05:57	05:37
	17:02	21	16:36 (MO06)	17:42	37	16:54 (MO06)	18:16	19:52	20:25	20:51
13	07:42		16:15 (MO06)	07:15		16:19 (MO06)	06:32	06:38	05:56	05:37
	17:04	23	16:38 (MO06)	17:43	34	16:53 (MO06)	18:17	19:53	20:26	20:52
14	07:42		16:14 (MO06)	07:14		16:20 (MO06)	06:30	06:37	05:55	05:37
	17:05	24	16:38 (MO06)	17:44	32	16:52 (MO06)	18:19	19:54	20:27	20:52
15	07:42		16:14 (MO06)	07:12		16:21 (MO06)	06:28	06:35	05:54	05:37
	17:06	26	16:40 (MO06)	17:45	29	16:50 (MO06)	18:20	19:55	20:28	20:53
16	07:41		16:13 (MO06)	07:11		16:24 (MO06)	06:26	06:33	05:53	05:37
	17:07	28	16:41 (MO06)	17:47	24	16:48 (MO06)	18:21	19:56	20:29	20:53
17	07:41		16:12 (MO06)	07:10		16:26 (MO06)	06:25	06:32	05:52	05:37
	17:08	30	16:42 (MO06)	17:48	19	16:45 (MO06)	18:22	19:57	20:30	20:54
18	07:40		16:13 (MO06)	07:08		16:30 (MO06)	06:23	06:30	05:51	05:37
	17:09	31	16:44 (MO06)	17:49	12	16:42 (MO06)	18:23	19:58	20:31	20:54
19	07:40		16:12 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	33	16:45 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		16:12 (MO06)	07:05			06:19	06:27	05:49	05:37
	17:12	35	16:47 (MO06)	17:52			18:26	20:01	20:33	20:54
21	07:38		16:12 (MO06)	07:04			06:18	06:25	05:48	05:37
	17:13	36	16:48 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		16:11 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	38	16:49 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		16:11 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	39	16:50 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		16:11 (MO06)	06:59			06:12	06:21	05:46	05:38
	17:17	40	16:51 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:35		16:11 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	42	16:53 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		16:11 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	44	16:55 (MO06)	17:59			18:32	20:07	20:39	20:55
27	07:34		16:11 (MO06)	06:55			06:07	06:16	05:43	05:39
	17:21	45	16:56 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		16:11 (MO06)	06:53			06:05	06:15	05:43	05:39
	17:22	46	16:57 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		16:11 (MO06)				07:04	06:14	05:42	05:40
	17:23	46	16:57 (MO06)				19:36	20:11	20:42	20:55
30	07:31		16:11 (MO06)				07:02	06:12	05:41	05:40
	17:25	46	16:57 (MO06)				19:37	20:12	20:42	20:55
31	07:30		16:11 (MO06)				07:00		05:41	
	17:26	47	16:58 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		803			673					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		338			311					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 131 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1029)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October			November			December		
1	05:41		06:06		06:38		07:10			06:47		15:45 (MO06)	07:23		15:58 (MO06)
	20:55		20:35		19:50		18:58			17:09	41	16:26 (MO06)	16:43	19	16:17 (MO06)
2	05:41		06:07		06:39		07:11			06:48		15:44 (MO06)	07:24		16:00 (MO06)
	20:55		20:34		19:48		18:56			17:08	42	16:26 (MO06)	16:43	17	16:17 (MO06)
3	05:42		06:08		06:40		07:13			06:49		15:43 (MO06)	07:25		16:02 (MO06)
	20:55		20:33		19:47		18:54			17:06	43	16:26 (MO06)	16:42	15	16:17 (MO06)
4	05:42		06:09		06:42		07:14			06:50		15:43 (MO06)	07:26		16:03 (MO06)
	20:55		20:32		19:45		18:52			17:05	44	16:27 (MO06)	16:42	13	16:16 (MO06)
5	05:43		06:10		06:43		07:15			06:52		15:42 (MO06)	07:27		16:05 (MO06)
	20:55		20:30		19:43		18:51			17:04	46	16:28 (MO06)	16:42	11	16:16 (MO06)
6	05:43		06:11		06:44		07:16			06:53		15:42 (MO06)	07:28		16:08 (MO06)
	20:54		20:29		19:42		18:49			17:03	46	16:28 (MO06)	16:42	8	16:16 (MO06)
7	05:44		06:12		06:45		07:17			06:54		15:42 (MO06)	07:29		16:12 (MO06)
	20:54		20:28		19:40		18:47			17:01	46	16:28 (MO06)	16:42	2	16:14 (MO06)
8	05:45		06:13		06:46		07:18			06:55		15:42 (MO06)	07:30		
	20:54		20:27		19:38		18:45			17:00	46	16:28 (MO06)	16:41		
9	05:45		06:14		06:47		07:19			06:57		15:41 (MO06)	07:31		
	20:53		20:25		19:36		18:44			16:59	47	16:28 (MO06)	16:41		
10	05:46		06:15		06:48		07:20			06:58		15:42 (MO06)	07:32		
	20:53		20:24		19:35		18:42			16:58	47	16:29 (MO06)	16:41		
11	05:47		06:16		06:49		07:21			06:59		15:42 (MO06)	07:33		
	20:52		20:23		19:33		18:40			16:57	47	16:29 (MO06)	16:41		
12	05:47		06:17		06:50		07:23			07:00		15:42 (MO06)	07:34		
	20:52		20:21		19:31		18:39			16:56	46	16:28 (MO06)	16:42		
13	05:48		06:18		06:51		07:24			07:02		15:43 (MO06)	07:35		
	20:51		20:20		19:29		18:37			16:55	46	16:29 (MO06)	16:42		
14	05:49		06:19		06:52		07:25			07:03		15:43 (MO06)	07:35		
	20:51		20:18		19:28		18:36			16:54	46	16:29 (MO06)	16:42		
15	05:50		06:20		06:53		07:26			07:04		15:43 (MO06)	07:36		
	20:50		20:17		19:26		18:34			16:53	45	16:28 (MO06)	16:42		
16	05:51		06:21		06:54		07:27			07:05		15:44 (MO06)	07:37		
	20:50		20:15		19:24		18:32			16:52	44	16:28 (MO06)	16:42		
17	05:51		06:22		06:55		07:28			07:07		15:44 (MO06)	07:37		
	20:49		20:14		19:22		18:31			16:51	42	16:26 (MO06)	16:43		
18	05:52		06:23		06:56		07:30			07:08		15:45 (MO06)	07:38		
	20:48		20:13		19:20		18:29			16:50	40	16:25 (MO06)	16:43		
19	05:53		06:24		06:57		07:31			07:09		15:46 (MO06)	07:39		
	20:47		20:11		19:19		18:28			16:50	39	16:25 (MO06)	16:43		
20	05:54		06:26		06:58		07:32			07:10		15:46 (MO06)	07:39		
	20:47		20:09		19:17		18:26			16:49	38	16:24 (MO06)	16:44		
21	05:55		06:27		06:59		07:33			07:11		15:47 (MO06)	07:40		
	20:46		20:08		19:15		18:24			16:48	36	16:23 (MO06)	16:44		
22	05:56		06:28		07:01		07:34			07:13		15:48 (MO06)	07:40		
	20:45		20:06		19:13		18:23			16:47	35	16:23 (MO06)	16:45		
23	05:57		06:29		07:02		07:36			07:14		15:49 (MO06)	07:41		
	20:44		20:05		19:12		18:21			16:47	33	16:22 (MO06)	16:45		
24	05:58		06:30		07:03		07:37		16:58 (MO06)	07:15		15:50 (MO06)	07:41		
	20:43		20:03		19:10		18:20	15	17:13 (MO06)	16:46	31	16:21 (MO06)	16:46		
25	05:59		06:31		07:04		06:38		15:56 (MO06)	07:16		15:50 (MO06)	07:42		
	20:42		20:02		19:08		17:19	21	16:17 (MO06)	16:46	30	16:20 (MO06)	16:46		
26	06:00		06:32		07:05		06:39		15:53 (MO06)	07:17		15:52 (MO06)	07:42		
	20:41		20:00		19:06		17:17	26	16:19 (MO06)	16:45	28	16:20 (MO06)	16:47		
27	06:01		06:33		07:06		06:40		15:51 (MO06)	07:19		15:53 (MO06)	07:43		
	20:40		19:58		19:05		17:16	29	16:20 (MO06)	16:45	26	16:19 (MO06)	16:48		
28	06:02		06:34		07:07		06:42		15:49 (MO06)	07:20		15:54 (MO06)	07:43		
	20:39		19:57		19:03		17:14	32	16:21 (MO06)	16:44	25	16:19 (MO06)	16:48		
29	06:03		06:35		07:08		06:43		15:48 (MO06)	07:21		15:55 (MO06)	07:43		
	20:38		19:55		19:01		17:13	35	16:23 (MO06)	16:44	23	16:18 (MO06)	16:49		
30	06:04		06:36		07:09		06:44		15:46 (MO06)	07:22		15:56 (MO06)	07:43		
	20:37		19:53		18:59		17:11	38	16:24 (MO06)	16:43	21	16:17 (MO06)	16:50		
31	06:05		06:37				06:45		15:45 (MO06)				07:44		
	20:36		19:52				17:10	39	16:24 (MO06)				16:50		
Potential sun hours	463		431		376		344			295			283		
Total, worst case								235			1169			85	
Sun reduction								0.55			0.46			0.43	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								1.00			1.00			1.00	
Total reduction								0.55			0.46			0.43	
Total, real								129			533			37	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 132 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1030)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June
1	07:44	07:29	06:51			06:58		07:17 (MO03)	06:11	05:40
	16:51	17:27	18:03			19:39	25	07:42 (MO03)	20:13	20:44
2	07:44	07:28	06:50			06:57		07:16 (MO03)	06:09	05:40
	16:52	17:28	18:04			19:40	28	07:44 (MO03)	20:14	20:45
3	07:44	07:27	06:48			06:55		07:14 (MO03)	06:08	05:39
	16:53	17:30	18:05			19:41	30	07:44 (MO03)	20:15	20:45
4	07:44	07:26	06:46			06:53		07:12 (MO03)	06:07	05:39
	16:54	17:31	18:07			19:42	31	07:43 (MO03)	20:16	20:46
5	07:44	07:25	06:45			06:52		07:10 (MO03)	06:05	05:39
	16:55	17:32	18:08			19:44	33	07:43 (MO03)	20:17	20:47
6	07:44	07:24	06:43			06:50		07:09 (MO03)	06:04	05:38
	16:56	17:34	18:09			19:45	35	07:44 (MO03)	20:18	20:48
7	07:44	07:22	06:42			06:48		07:07 (MO03)	06:03	05:38
	16:57	17:35	18:10			19:46	36	07:43 (MO03)	20:20	20:48
8	07:44	07:21	06:40			06:46		07:07 (MO03)	06:02	05:38
	16:58	17:36	18:11			19:47	35	07:42 (MO03)	20:21	20:49
9	07:43	07:20	06:38			06:45		07:07 (MO03)	06:00	05:37
	16:59	17:38	18:13			19:48	35	07:42 (MO03)	20:22	20:50
10	07:43	07:19	06:36			06:43		07:07 (MO03)	05:59	05:37
	17:00	17:39	18:14			19:49	34	07:41 (MO03)	20:23	20:50
11	07:43	07:18	06:35			06:41		07:07 (MO03)	05:58	05:37
	17:01	17:40	18:15			19:50	33	07:40 (MO03)	20:24	20:51
12	07:43	07:16	06:33			06:40		07:08 (MO03)	05:57	05:37
	17:02	17:41	18:16			19:51	32	07:40 (MO03)	20:25	20:51
13	07:42	07:15	06:31			06:38		07:08 (MO03)	05:56	05:37
	17:03	17:43	18:17			19:53	31	07:39 (MO03)	20:26	20:52
14	07:42	07:14	06:30			06:37		07:09 (MO03)	05:55	05:37
	17:05	17:44	18:18			19:54	29	07:38 (MO03)	20:27	20:52
15	07:42	07:12	06:28			06:35		07:10 (MO03)	05:54	05:37
	17:06	17:45	18:20			19:55	26	07:36 (MO03)	20:28	20:53
16	07:41	07:11	06:26			06:33		07:11 (MO03)	05:53	05:37
	17:07	17:47	18:21			19:56	23	07:34 (MO03)	20:29	20:53
17	07:41	07:09	06:25			06:32		07:13 (MO03)	05:52	05:37
	17:08	17:48	18:22			19:57	19	07:32 (MO03)	20:30	20:53
18	07:40	07:08	06:23			06:30		07:15 (MO03)	05:51	05:37
	17:09	17:49	18:23			19:58	14	07:29 (MO03)	20:31	20:54
19	07:39	07:07	06:21			06:28		07:20 (MO03)	05:50	05:37
	17:11	17:50	18:24			19:59	4	07:24 (MO03)	20:32	20:54
20	07:39	07:05	06:19			06:27			05:49	05:37
	17:12	17:52	18:25			20:01			20:33	20:54
21	07:38	07:04	06:18			06:25			05:48	05:37
	17:13	17:53	18:27			20:02			20:34	20:55
22	07:38	07:02	06:16			06:24			05:47	05:37
	17:14	17:54	18:28			20:03			20:35	20:55
23	07:37	07:01	06:14			06:22			05:46	05:37
	17:15	17:55	18:29			20:04			20:36	20:55
24	07:36	06:59	06:12			06:21			05:45	05:38
	17:17	17:57	18:30			20:05			20:37	20:55
25	07:35	06:58	06:11			06:19			05:45	05:38
	17:18	17:58	18:31			20:06			20:38	20:55
26	07:35	06:56	06:09			06:18			05:44	05:38
	17:19	17:59	18:32			20:07			20:39	20:55
27	07:34	06:54	06:07		06:26 (MO03)	06:16			05:43	05:39
	17:21	18:00	18:33	9	06:35 (MO03)	20:08			20:40	20:55
28	07:33	06:53	06:05		06:24 (MO03)	06:15			05:43	05:39
	17:22	18:02	18:35	14	06:38 (MO03)	20:10			20:41	20:55
29	07:32		07:04		07:23 (MO03)	06:13			05:42	05:39
	17:23		19:36	17	07:40 (MO03)	20:11			20:41	20:55
30	07:31		07:02		07:21 (MO03)	06:12			05:41	05:40
	17:24		19:37	20	07:41 (MO03)	20:12			20:42	20:55
31	07:30		07:00		07:19 (MO03)				05:41	
	17:26		19:38	23	07:42 (MO03)				20:43	
Potential sun hours	293	295	369			400			452	457
Total, worst case				83			533			
Sun reduction				0.46			0.49			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.46			0.49			
Total, real				38			264			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 132 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1030)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August			September			October	November	December
1	05:40	06:06			06:38		07:07 (MO03)	07:10	06:46	07:23
	20:55	20:35			19:50	33	07:40 (MO03)	18:57	17:09	16:43
2	05:41	06:07			06:39		07:06 (MO03)	07:11	06:48	07:24
	20:55	20:34			19:48	34	07:40 (MO03)	18:56	17:07	16:42
3	05:41	06:08			06:40		07:05 (MO03)	07:12	06:49	07:25
	20:55	20:33			19:47	36	07:41 (MO03)	18:54	17:06	16:42
4	05:42	06:09			06:41		07:05 (MO03)	07:14	06:50	07:26
	20:55	20:31			19:45	35	07:40 (MO03)	18:52	17:05	16:42
5	05:43	06:10			06:42		07:04 (MO03)	07:15	06:51	07:27
	20:54	20:30			19:43	36	07:40 (MO03)	18:51	17:04	16:42
6	05:43	06:11			06:44		07:05 (MO03)	07:16	06:53	07:28
	20:54	20:29			19:41	35	07:40 (MO03)	18:49	17:03	16:42
7	05:44	06:12			06:45		07:06 (MO03)	07:17	06:54	07:29
	20:54	20:28			19:40	33	07:39 (MO03)	18:47	17:01	16:41
8	05:45	06:13			06:46		07:07 (MO03)	07:18	06:55	07:30
	20:53	20:26			19:38	32	07:39 (MO03)	18:45	17:00	16:41
9	05:45	06:14			06:47		07:08 (MO03)	07:19	06:56	07:31
	20:53	20:25			19:36	30	07:38 (MO03)	18:44	16:59	16:41
10	05:46	06:15			06:48		07:09 (MO03)	07:20	06:58	07:32
	20:53	20:24			19:34	28	07:37 (MO03)	18:42	16:58	16:41
11	05:47	06:16			06:49		07:10 (MO03)	07:21	06:59	07:33
	20:52	20:22			19:33	26	07:36 (MO03)	18:40	16:57	16:41
12	05:47	06:17			06:50		07:11 (MO03)	07:23	07:00	07:34
	20:52	20:21			19:31	23	07:34 (MO03)	18:39	16:56	16:41
13	05:48	06:18			06:51		07:12 (MO03)	07:24	07:01	07:34
	20:51	20:20			19:29	21	07:33 (MO03)	18:37	16:55	16:42
14	05:49	06:19			06:52		07:13 (MO03)	07:25	07:03	07:35
	20:51	20:18			19:27	18	07:31 (MO03)	18:35	16:54	16:42
15	05:50	06:20			06:53		07:14 (MO03)	07:26	07:04	07:36
	20:50	20:17			19:26	14	07:28 (MO03)	18:34	16:53	16:42
16	05:51	06:21			06:54		07:15 (MO03)	07:27	07:05	07:37
	20:49	20:15			19:24	10	07:25 (MO03)	18:32	16:52	16:42
17	05:51	06:22			06:55			07:28	07:06	07:37
	20:49	20:14			19:22			18:31	16:51	16:43
18	05:52	06:23			06:56			07:29	07:08	07:38
	20:48	20:12			19:20			18:29	16:50	16:43
19	05:53	06:24			06:57			07:31	07:09	07:39
	20:47	20:11			19:19			18:27	16:50	16:43
20	05:54	06:25			06:58			07:32	07:10	07:39
	20:47	20:09			19:17			18:26	16:49	16:44
21	05:55	06:27			06:59			07:33	07:11	07:40
	20:46	20:08			19:15			18:24	16:48	16:44
22	05:56	06:28			07:00			07:34	07:13	07:40
	20:45	20:06			19:13			18:23	16:47	16:45
23	05:57	06:29			07:02			07:35	07:14	07:41
	20:44	20:05			19:11			18:21	16:47	16:45
24	05:58	06:30		07:22 (MO03)	07:03			07:37	07:15	07:41
	20:43	20:03	6	07:28 (MO03)	19:10			18:20	16:46	16:46
25	05:59	06:31		07:17 (MO03)	07:04			06:38	07:16	07:42
	20:42	20:01	15	07:32 (MO03)	19:08			17:18	16:46	16:46
26	06:00	06:32		07:14 (MO03)	07:05			06:39	07:17	07:42
	20:41	20:00	20	07:34 (MO03)	19:06			17:17	16:45	16:47
27	06:01	06:33		07:12 (MO03)	07:06			06:40	07:18	07:42
	20:40	19:58	24	07:36 (MO03)	19:04			17:16	16:44	16:47
28	06:02	06:34		07:11 (MO03)	07:07			06:42	07:20	07:43
	20:39	19:57	26	07:37 (MO03)	19:03			17:14	16:44	16:48
29	06:03	06:35		07:09 (MO03)	07:08			06:43	07:21	07:43
	20:38	19:55	29	07:38 (MO03)	19:01			17:13	16:44	16:49
30	06:04	06:36		07:08 (MO03)	07:09			06:44	07:22	07:43
	20:37	19:53	31	07:39 (MO03)	18:59			17:11	16:43	16:50
31	06:05	06:37		07:08 (MO03)				06:45		07:43
	20:36	19:52	32	07:40 (MO03)				17:10		16:50
Potential sun hours	463	431			376			344	295	283
Total, worst case			183			444				
Sun reduction			0.70			0.62				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.70			0.62				
Total, real			128			277				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 133 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1031)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June
1	07:44	07:29	06:51			06:58		07:17 (MO03)	06:11	05:40
	16:51	17:27	18:03			19:39	19	07:36 (MO03)	20:13	20:44
2	07:44	07:28	06:50			06:57		07:16 (MO03)	06:09	05:40
	16:52	17:28	18:04			19:40	22	07:38 (MO03)	20:14	20:45
3	07:44	07:27	06:48			06:55		07:14 (MO03)	06:08	05:39
	16:53	17:30	18:05			19:41	25	07:39 (MO03)	20:15	20:45
4	07:44	07:26	06:46			06:53		07:12 (MO03)	06:07	05:39
	16:54	17:31	18:07			19:42	27	07:39 (MO03)	20:16	20:46
5	07:44	07:25	06:45			06:52		07:10 (MO03)	06:05	05:39
	16:55	17:32	18:08			19:44	29	07:39 (MO03)	20:17	20:47
6	07:44	07:24	06:43			06:50		07:09 (MO03)	06:04	05:38
	16:56	17:34	18:09			19:45	31	07:40 (MO03)	20:18	20:48
7	07:44	07:22	06:42			06:48		07:07 (MO03)	06:03	05:38
	16:57	17:35	18:10			19:46	33	07:40 (MO03)	20:20	20:48
8	07:44	07:21	06:40			06:46		07:05 (MO03)	06:02	05:38
	16:58	17:36	18:11			19:47	35	07:40 (MO03)	20:21	20:49
9	07:43	07:20	06:38			06:45		07:04 (MO03)	06:00	05:37
	16:59	17:38	18:13			19:48	37	07:41 (MO03)	20:22	20:50
10	07:43	07:19	06:36			06:43		07:02 (MO03)	05:59	05:37
	17:00	17:39	18:14			19:49	38	07:40 (MO03)	20:23	20:50
11	07:43	07:18	06:35			06:41		07:02 (MO03)	05:58	05:37
	17:01	17:40	18:15			19:50	37	07:39 (MO03)	20:24	20:51
12	07:43	07:16	06:33			06:40		07:02 (MO03)	05:57	05:37
	17:02	17:41	18:16			19:51	38	07:40 (MO03)	20:25	20:51
13	07:42	07:15	06:31			06:38		07:02 (MO03)	05:56	05:37
	17:03	17:43	18:17			19:53	37	07:39 (MO03)	20:26	20:52
14	07:42	07:14	06:30			06:37		07:03 (MO03)	05:55	05:37
	17:05	17:44	18:18			19:54	36	07:39 (MO03)	20:27	20:52
15	07:42	07:12	06:28			06:35		07:02 (MO03)	05:54	05:37
	17:06	17:45	18:20			19:55	36	07:38 (MO03)	20:28	20:53
16	07:41	07:11	06:26			06:33		07:02 (MO03)	05:53	05:37
	17:07	17:47	18:21			19:56	34	07:36 (MO03)	20:29	20:53
17	07:41	07:09	06:25			06:32		07:03 (MO03)	05:52	05:37
	17:08	17:48	18:22			19:57	33	07:36 (MO03)	20:30	20:53
18	07:40	07:08	06:23			06:30		07:04 (MO03)	05:51	05:37
	17:09	17:49	18:23			19:58	30	07:34 (MO03)	20:31	20:54
19	07:39	07:07	06:21			06:28		07:05 (MO03)	05:50	05:37
	17:11	17:50	18:24			19:59	28	07:33 (MO03)	20:32	20:54
20	07:39	07:05	06:19			06:27		07:06 (MO03)	05:49	05:37
	17:12	17:52	18:25			20:01	25	07:31 (MO03)	20:33	20:54
21	07:38	07:04	06:18			06:25		07:08 (MO03)	05:48	05:37
	17:13	17:53	18:27			20:02	22	07:30 (MO03)	20:34	20:55
22	07:38	07:02	06:16			06:24		07:09 (MO03)	05:47	05:37
	17:14	17:54	18:28			20:03	18	07:27 (MO03)	20:35	20:55
23	07:37	07:01	06:14			06:22		07:12 (MO03)	05:46	05:37
	17:15	17:55	18:29			20:04	12	07:24 (MO03)	20:36	20:55
24	07:36	06:59	06:12			06:21			05:45	05:38
	17:17	17:57	18:30			20:05			20:37	20:55
25	07:35	06:58	06:11			06:19			05:45	05:38
	17:18	17:58	18:31			20:06			20:38	20:55
26	07:35	06:56	06:09			06:18			05:44	05:38
	17:19	17:59	18:32			20:07			20:39	20:55
27	07:34	06:54	06:07			06:16			05:43	05:39
	17:21	18:00	18:33			20:08			20:40	20:55
28	07:33	06:53	06:05			06:15			05:43	05:39
	17:22	18:02	18:35			20:10			20:41	20:55
29	07:32		07:04			06:13			05:42	05:39
	17:23		19:36			20:11			20:41	20:55
30	07:31		07:02		07:21 (MO03)	06:12			05:41	05:40
	17:24		19:37	11	07:32 (MO03)	20:12			20:42	20:55
31	07:30		07:00		07:19 (MO03)				05:41	
	17:26		19:38	15	07:34 (MO03)				20:43	
Potential sun hours	293	295	369			400			452	457
Total, worst case				26			682			
Sun reduction				0.46			0.49			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.46			0.49			
Total, real				12			337			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 133 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1031)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August			September			October	November	December
1	05:40	06:06			06:38		07:02 (MO03)	07:10	06:46	07:23
	20:55	20:35			19:50	37	07:39 (MO03)	18:57	17:09	16:43
2	05:41	06:07			06:39		07:01 (MO03)	07:11	06:48	07:24
	20:55	20:34			19:48	38	07:39 (MO03)	18:56	17:07	16:42
3	05:41	06:08			06:40		07:02 (MO03)	07:12	06:49	07:25
	20:55	20:33			19:47	37	07:39 (MO03)	18:54	17:06	16:42
4	05:42	06:09			06:41		07:03 (MO03)	07:14	06:50	07:26
	20:55	20:31			19:45	35	07:38 (MO03)	18:52	17:05	16:42
5	05:43	06:10			06:42		07:04 (MO03)	07:15	06:51	07:27
	20:54	20:30			19:43	33	07:37 (MO03)	18:50	17:04	16:42
6	05:43	06:11			06:44		07:05 (MO03)	07:16	06:53	07:28
	20:54	20:29			19:41	32	07:37 (MO03)	18:49	17:03	16:42
7	05:44	06:12			06:45		07:06 (MO03)	07:17	06:54	07:29
	20:54	20:28			19:40	30	07:36 (MO03)	18:47	17:01	16:41
8	05:45	06:13			06:46		07:07 (MO03)	07:18	06:55	07:30
	20:53	20:26			19:38	27	07:34 (MO03)	18:45	17:00	16:41
9	05:45	06:14			06:47		07:08 (MO03)	07:19	06:56	07:31
	20:53	20:25			19:36	25	07:33 (MO03)	18:44	16:59	16:41
10	05:46	06:15			06:48		07:09 (MO03)	07:20	06:58	07:32
	20:53	20:24			19:34	22	07:31 (MO03)	18:42	16:58	16:41
11	05:47	06:16			06:49		07:10 (MO03)	07:21	06:59	07:33
	20:52	20:22			19:33	19	07:29 (MO03)	18:40	16:57	16:41
12	05:47	06:17			06:50		07:11 (MO03)	07:23	07:00	07:34
	20:52	20:21			19:31	16	07:27 (MO03)	18:39	16:56	16:41
13	05:48	06:18			06:51		07:12 (MO03)	07:24	07:01	07:34
	20:51	20:20			19:29	12	07:24 (MO03)	18:37	16:55	16:42
14	05:49	06:19			06:52		07:15 (MO03)	07:25	07:03	07:35
	20:51	20:18			19:27	1	07:16 (MO03)	18:35	16:54	16:42
15	05:50	06:20			06:53			07:26	07:04	07:36
	20:50	20:17			19:26			18:34	16:53	16:42
16	05:51	06:21			06:54			07:27	07:05	07:37
	20:49	20:15			19:24			18:32	16:52	16:42
17	05:51	06:22			06:55			07:28	07:06	07:37
	20:49	20:14			19:22			18:31	16:51	16:43
18	05:52	06:23			06:56			07:29	07:08	07:38
	20:48	20:12			19:20			18:29	16:50	16:43
19	05:53	06:24			06:57			07:31	07:09	07:39
	20:47	20:11			19:19			18:27	16:50	16:43
20	05:54	06:25		07:16 (MO03)	06:58			07:32	07:10	07:39
	20:47	20:09	14	07:30 (MO03)	19:17			18:26	16:49	16:44
21	05:55	06:27		07:13 (MO03)	06:59			07:33	07:11	07:40
	20:46	20:08	19	07:32 (MO03)	19:15			18:24	16:48	16:44
22	05:56	06:28		07:11 (MO03)	07:00			07:34	07:13	07:40
	20:45	20:06	23	07:34 (MO03)	19:13			18:23	16:47	16:45
23	05:57	06:29		07:09 (MO03)	07:02			07:35	07:14	07:41
	20:44	20:05	26	07:35 (MO03)	19:11			18:21	16:47	16:45
24	05:58	06:30		07:08 (MO03)	07:03			07:37	07:15	07:41
	20:43	20:03	28	07:36 (MO03)	19:10			18:20	16:46	16:46
25	05:59	06:31		07:06 (MO03)	07:04			06:38	07:16	07:42
	20:42	20:01	31	07:37 (MO03)	19:08			17:18	16:46	16:46
26	06:00	06:32		07:05 (MO03)	07:05			06:39	07:17	07:42
	20:41	20:00	33	07:38 (MO03)	19:06			17:17	16:45	16:47
27	06:01	06:33		07:04 (MO03)	07:06			06:40	07:18	07:42
	20:40	19:58	34	07:38 (MO03)	19:04			17:16	16:44	16:47
28	06:02	06:34		07:03 (MO03)	07:07			06:42	07:20	07:43
	20:39	19:57	35	07:38 (MO03)	19:03			17:14	16:44	16:48
29	06:03	06:35		07:02 (MO03)	07:08			06:43	07:21	07:43
	20:38	19:55	37	07:39 (MO03)	19:01			17:13	16:44	16:49
30	06:04	06:36		07:02 (MO03)	07:09			06:44	07:22	07:43
	20:37	19:53	37	07:39 (MO03)	18:59			17:11	16:43	16:50
31	06:05	06:37		07:02 (MO03)				06:45		07:43
	20:36	19:52	38	07:40 (MO03)				17:10		16:50
Potential sun hours	463	431			376			344	295	283
Total, worst case			355			364				
Sun reduction			0.70			0.62				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.70			0.62				
Total, real			249			227				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 134 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1032)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June
1	07:44	07:29	06:51			06:58		07:17 (MO03)	06:11	05:40
	16:51	17:27	18:03			19:39	30	07:47 (MO03)	20:13	20:44
2	07:44	07:28	06:50			06:57		07:16 (MO03)	06:09	05:40
	16:52	17:28	18:04			19:40	32	07:48 (MO03)	20:14	20:45
3	07:44	07:27	06:48			06:55		07:14 (MO03)	06:08	05:39
	16:53	17:30	18:05			19:41	34	07:48 (MO03)	20:15	20:45
4	07:44	07:26	06:46			06:53		07:12 (MO03)	06:07	05:39
	16:54	17:31	18:07			19:42	36	07:48 (MO03)	20:16	20:46
5	07:44	07:25	06:45			06:52		07:10 (MO03)	06:05	05:39
	16:55	17:32	18:08			19:44	37	07:47 (MO03)	20:17	20:47
6	07:44	07:24	06:43			06:50		07:10 (MO03)	06:04	05:38
	16:56	17:34	18:09			19:45	38	07:48 (MO03)	20:18	20:48
7	07:44	07:22	06:42			06:48		07:10 (MO03)	06:03	05:38
	16:57	17:35	18:10			19:46	37	07:47 (MO03)	20:20	20:48
8	07:44	07:21	06:40			06:46		07:09 (MO03)	06:02	05:38
	16:58	17:36	18:11			19:47	37	07:46 (MO03)	20:21	20:49
9	07:43	07:20	06:38			06:45		07:10 (MO03)	06:00	05:37
	16:59	17:38	18:13			19:48	36	07:46 (MO03)	20:22	20:50
10	07:43	07:19	06:36			06:43		07:10 (MO03)	05:59	05:37
	17:00	17:39	18:14			19:49	35	07:45 (MO03)	20:23	20:50
11	07:43	07:18	06:35			06:41		07:10 (MO03)	05:58	05:37
	17:01	17:40	18:15			19:50	34	07:44 (MO03)	20:24	20:51
12	07:43	07:16	06:33			06:40		07:11 (MO03)	05:57	05:37
	17:02	17:41	18:16			19:51	32	07:43 (MO03)	20:25	20:51
13	07:42	07:15	06:31			06:38		07:11 (MO03)	05:56	05:37
	17:03	17:43	18:17			19:53	31	07:42 (MO03)	20:26	20:52
14	07:42	07:14	06:30			06:37		07:13 (MO03)	05:55	05:37
	17:05	17:44	18:18			19:54	28	07:41 (MO03)	20:27	20:52
15	07:42	07:12	06:28			06:35		07:13 (MO03)	05:54	05:37
	17:06	17:45	18:20			19:55	26	07:39 (MO03)	20:28	20:53
16	07:41	07:11	06:26			06:33		07:14 (MO03)	05:53	05:37
	17:07	17:47	18:21			19:56	22	07:36 (MO03)	20:29	20:53
17	07:41	07:09	06:25			06:32		07:17 (MO03)	05:52	05:37
	17:08	17:48	18:22			19:57	18	07:35 (MO03)	20:30	20:53
18	07:40	07:08	06:23			06:30		07:19 (MO03)	05:51	05:37
	17:09	17:49	18:23			19:58	12	07:31 (MO03)	20:31	20:54
19	07:39	07:07	06:21			06:28			05:50	05:37
	17:10	17:50	18:24			19:59			20:32	20:54
20	07:39	07:05	06:19			06:27			05:49	05:37
	17:12	17:52	18:25			20:01			20:33	20:54
21	07:38	07:04	06:18			06:25			05:48	05:37
	17:13	17:53	18:27			20:02			20:34	20:55
22	07:38	07:02	06:16			06:24			05:47	05:37
	17:14	17:54	18:28			20:03			20:35	20:55
23	07:37	07:01	06:14			06:22			05:46	05:37
	17:15	17:55	18:29			20:04			20:36	20:55
24	07:36	06:59	06:12			06:21			05:45	05:38
	17:17	17:57	18:30			20:05			20:37	20:55
25	07:35	06:58	06:11		06:30 (MO03)	06:19			05:45	05:38
	17:18	17:58	18:31	8	06:38 (MO03)	20:06			20:38	20:55
26	07:35	06:56	06:09		06:28 (MO03)	06:18			05:44	05:38
	17:19	17:59	18:32	13	06:41 (MO03)	20:07			20:39	20:55
27	07:34	06:54	06:07		06:26 (MO03)	06:16			05:43	05:39
	17:21	18:00	18:33	17	06:43 (MO03)	20:08			20:40	20:55
28	07:33	06:53	06:05		06:24 (MO03)	06:15			05:43	05:39
	17:22	18:02	18:35	20	06:44 (MO03)	20:10			20:41	20:55
29	07:32		07:04		07:23 (MO03)	06:13			05:42	05:39
	17:23		19:36	23	07:46 (MO03)	20:11			20:41	20:55
30	07:31		07:02		07:21 (MO03)	06:12			05:41	05:40
	17:24		19:37	26	07:47 (MO03)	20:12			20:42	20:55
31	07:30		07:00		07:19 (MO03)				05:41	
	17:26		19:38	28	07:47 (MO03)				20:43	
Potential sun hours	293	295	369			400			452	457
Total, worst case				135			555			
Sun reduction				0.46			0.49			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.46			0.49			
Total, real				62			274			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 134 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1032)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August			September			October	November	December
1	05:40	06:06			06:38		07:10 (MO03)	07:10	06:46	07:23
	20:55	20:35			19:50	34	07:44 (MO03)	18:57	17:09	16:43
2	05:41	06:07			06:39		07:09 (MO03)	07:11	06:48	07:24
	20:55	20:34			19:48	35	07:44 (MO03)	18:56	17:07	16:42
3	05:41	06:08			06:40		07:08 (MO03)	07:12	06:49	07:25
	20:55	20:33			19:47	36	07:44 (MO03)	18:54	17:06	16:42
4	05:42	06:09			06:41		07:07 (MO03)	07:14	06:50	07:26
	20:55	20:31			19:45	37	07:44 (MO03)	18:52	17:05	16:42
5	05:43	06:10			06:42		07:07 (MO03)	07:15	06:51	07:27
	20:54	20:30			19:43	37	07:44 (MO03)	18:50	17:04	16:42
6	05:43	06:11			06:44		07:06 (MO03)	07:16	06:53	07:28
	20:54	20:29			19:41	38	07:44 (MO03)	18:49	17:03	16:42
7	05:44	06:12			06:45		07:06 (MO03)	07:17	06:54	07:29
	20:54	20:28			19:40	38	07:44 (MO03)	18:47	17:01	16:41
8	05:45	06:13			06:46		07:07 (MO03)	07:18	06:55	07:30
	20:53	20:26			19:38	36	07:43 (MO03)	18:45	17:00	16:41
9	05:45	06:14			06:47		07:08 (MO03)	07:19	06:56	07:31
	20:53	20:25			19:36	34	07:42 (MO03)	18:44	16:59	16:41
10	05:46	06:15			06:48		07:09 (MO03)	07:20	06:58	07:32
	20:53	20:24			19:34	33	07:42 (MO03)	18:42	16:58	16:41
11	05:47	06:16			06:49		07:10 (MO03)	07:21	06:59	07:33
	20:52	20:22			19:33	31	07:41 (MO03)	18:40	16:57	16:41
12	05:47	06:17			06:50		07:11 (MO03)	07:23	07:00	07:34
	20:52	20:21			19:31	29	07:40 (MO03)	18:39	16:56	16:41
13	05:48	06:18			06:51		07:12 (MO03)	07:24	07:01	07:34
	20:51	20:20			19:29	26	07:38 (MO03)	18:37	16:55	16:42
14	05:49	06:19			06:52		07:13 (MO03)	07:25	07:03	07:35
	20:51	20:18			19:27	24	07:37 (MO03)	18:35	16:54	16:42
15	05:50	06:20			06:53		07:14 (MO03)	07:26	07:04	07:36
	20:50	20:17			19:26	21	07:35 (MO03)	18:34	16:53	16:42
16	05:51	06:21			06:54		07:15 (MO03)	07:27	07:05	07:37
	20:49	20:15			19:24	18	07:33 (MO03)	18:32	16:52	16:42
17	05:51	06:22			06:55		07:16 (MO03)	07:28	07:06	07:37
	20:49	20:14			19:22	14	07:30 (MO03)	18:31	16:51	16:43
18	05:52	06:23			06:56		07:17 (MO03)	07:29	07:08	07:38
	20:48	20:12			19:20	9	07:26 (MO03)	18:29	16:50	16:43
19	05:53	06:24			06:57			07:31	07:09	07:39
	20:47	20:11			19:19			18:27	16:50	16:43
20	05:54	06:25			06:58			07:32	07:10	07:39
	20:47	20:09			19:17			18:26	16:49	16:44
21	05:55	06:27			06:59			07:33	07:11	07:40
	20:46	20:08			19:15			18:24	16:48	16:44
22	05:56	06:28			07:00			07:34	07:13	07:40
	20:45	20:06			19:13			18:23	16:47	16:45
23	05:57	06:29			07:02			07:35	07:14	07:41
	20:44	20:05			19:11			18:21	16:47	16:45
24	05:58	06:30			07:03			07:37	07:15	07:41
	20:43	20:03			19:10			18:20	16:46	16:46
25	05:59	06:31		07:22 (MO03)	07:04			06:38	07:16	07:42
	20:42	20:01	12	07:34 (MO03)	19:08			17:18	16:46	16:46
26	06:00	06:32		07:18 (MO03)	07:05			06:39	07:17	07:42
	20:41	20:00	19	07:37 (MO03)	19:06			17:17	16:45	16:47
27	06:01	06:33		07:16 (MO03)	07:06			06:40	07:18	07:42
	20:40	19:58	23	07:39 (MO03)	19:04			17:16	16:44	16:47
28	06:02	06:34		07:14 (MO03)	07:07			06:42	07:20	07:43
	20:39	19:57	26	07:40 (MO03)	19:03			17:14	16:44	16:48
29	06:03	06:35		07:12 (MO03)	07:08			06:43	07:21	07:43
	20:38	19:55	29	07:41 (MO03)	19:01			17:13	16:44	16:49
30	06:04	06:36		07:11 (MO03)	07:09			06:44	07:22	07:43
	20:37	19:53	31	07:42 (MO03)	18:59			17:11	16:43	16:50
31	06:05	06:37		07:11 (MO03)				06:45		07:43
	20:36	19:52	32	07:43 (MO03)				17:10		16:50
Potential sun hours	463	431			376			344	295	283
Total, worst case			172			530				
Sun reduction			0.70			0.62				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.70			0.62				
Total, real			120			331				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 135 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1033)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June
1	07:44	07:29	06:51			06:58		07:17 (MO03)	06:11	05:40
	16:51	17:27	18:03			19:39	33	07:50 (MO03)	20:13	20:44
2	07:44	07:28	06:50			06:57		07:16 (MO03)	06:09	05:40
	16:52	17:28	18:04			19:40	34	07:50 (MO03)	20:14	20:45
3	07:44	07:27	06:48			06:55		07:14 (MO03)	06:08	05:39
	16:53	17:30	18:05			19:41	36	07:50 (MO03)	20:15	20:45
4	07:44	07:26	06:46			06:53		07:13 (MO03)	06:07	05:39
	16:54	17:31	18:07			19:42	36	07:49 (MO03)	20:16	20:46
5	07:44	07:25	06:45			06:52		07:12 (MO03)	06:05	05:39
	16:55	17:32	18:08			19:44	36	07:48 (MO03)	20:17	20:47
6	07:44	07:24	06:43			06:50		07:13 (MO03)	06:04	05:38
	16:56	17:34	18:09			19:45	36	07:49 (MO03)	20:18	20:48
7	07:44	07:22	06:42			06:48		07:13 (MO03)	06:03	05:38
	16:57	17:35	18:10			19:46	35	07:48 (MO03)	20:20	20:48
8	07:44	07:21	06:40			06:46		07:13 (MO03)	06:02	05:38
	16:58	17:36	18:11			19:47	33	07:46 (MO03)	20:21	20:49
9	07:43	07:20	06:38			06:45		07:14 (MO03)	06:00	05:37
	16:59	17:38	18:13			19:48	32	07:46 (MO03)	20:22	20:50
10	07:43	07:19	06:36			06:43		07:14 (MO03)	05:59	05:37
	17:00	17:39	18:14			19:49	31	07:45 (MO03)	20:23	20:50
11	07:43	07:18	06:35			06:41		07:14 (MO03)	05:58	05:37
	17:01	17:40	18:15			19:50	29	07:43 (MO03)	20:24	20:51
12	07:43	07:16	06:33			06:40		07:16 (MO03)	05:57	05:37
	17:02	17:41	18:16			19:51	26	07:42 (MO03)	20:25	20:51
13	07:42	07:15	06:31			06:38		07:17 (MO03)	05:56	05:37
	17:03	17:43	18:17			19:53	23	07:40 (MO03)	20:26	20:52
14	07:42	07:14	06:30			06:37		07:19 (MO03)	05:55	05:37
	17:05	17:44	18:18			19:54	19	07:38 (MO03)	20:27	20:52
15	07:42	07:12	06:28			06:35		07:21 (MO03)	05:54	05:37
	17:06	17:45	18:20			19:55	13	07:34 (MO03)	20:28	20:53
16	07:41	07:11	06:26			06:33			05:53	05:37
	17:07	17:47	18:21			19:56			20:29	20:53
17	07:41	07:09	06:25			06:32			05:52	05:37
	17:08	17:48	18:22			19:57			20:30	20:53
18	07:40	07:08	06:23			06:30			05:51	05:37
	17:09	17:49	18:23			19:58			20:31	20:54
19	07:39	07:07	06:21			06:28			05:50	05:37
	17:11	17:50	18:24			19:59			20:32	20:54
20	07:39	07:05	06:19			06:27			05:49	05:37
	17:12	17:52	18:25			20:01			20:33	20:54
21	07:38	07:04	06:18			06:25			05:48	05:37
	17:13	17:53	18:27			20:02			20:34	20:55
22	07:38	07:02	06:16			06:24			05:47	05:37
	17:14	17:54	18:28			20:03			20:35	20:55
23	07:37	07:01	06:14		06:34 (MO03)	06:22			05:46	05:37
	17:15	17:55	18:29	2	06:36 (MO03)	20:04			20:36	20:55
24	07:36	06:59	06:12		06:31 (MO03)	06:21			05:45	05:38
	17:17	17:57	18:30	11	06:42 (MO03)	20:05			20:37	20:55
25	07:35	06:58	06:11		06:30 (MO03)	06:19			05:45	05:38
	17:18	17:58	18:31	15	06:45 (MO03)	20:06			20:38	20:55
26	07:35	06:56	06:09		06:28 (MO03)	06:18			05:44	05:38
	17:19	17:59	18:32	18	06:46 (MO03)	20:07			20:39	20:55
27	07:34	06:54	06:07		06:26 (MO03)	06:16			05:43	05:39
	17:21	18:00	18:33	21	06:47 (MO03)	20:08			20:40	20:55
28	07:33	06:53	06:05		06:24 (MO03)	06:15			05:43	05:39
	17:22	18:02	18:35	24	06:48 (MO03)	20:10			20:41	20:55
29	07:32		07:04		07:23 (MO03)	06:13			05:42	05:39
	17:23		19:36	27	07:50 (MO03)	20:11			20:41	20:55
30	07:31		07:02		07:21 (MO03)	06:12			05:41	05:40
	17:24		19:37	29	07:50 (MO03)	20:12			20:42	20:55
31	07:30		07:00		07:19 (MO03)				05:41	
	17:26		19:38	31	07:50 (MO03)				20:43	
Potential sun hours	293	295	369			400			452	457
Total, worst case				178			452			
Sun reduction				0.46			0.49			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.46			0.49			
Total, real				82			223			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 135 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1033)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August			September			October	November	December
1	05:40	06:06			06:38		07:14 (MO03)	07:10	06:46	07:23
	20:55	20:35			19:50	29	07:43 (MO03)	18:57	17:09	16:43
2	05:41	06:07			06:39		07:13 (MO03)	07:11	06:48	07:24
	20:55	20:34			19:48	31	07:44 (MO03)	18:56	17:07	16:42
3	05:41	06:08			06:40		07:12 (MO03)	07:12	06:49	07:25
	20:55	20:33			19:47	32	07:44 (MO03)	18:54	17:06	16:42
4	05:42	06:09			06:41		07:11 (MO03)	07:14	06:50	07:26
	20:55	20:31			19:45	33	07:44 (MO03)	18:52	17:05	16:42
5	05:43	06:10			06:42		07:10 (MO03)	07:15	06:51	07:27
	20:54	20:30			19:43	35	07:45 (MO03)	18:51	17:04	16:42
6	05:43	06:11			06:44		07:09 (MO03)	07:16	06:53	07:28
	20:54	20:29			19:41	36	07:45 (MO03)	18:49	17:03	16:42
7	05:44	06:12			06:45		07:08 (MO03)	07:17	06:54	07:29
	20:54	20:28			19:40	36	07:44 (MO03)	18:47	17:01	16:41
8	05:45	06:13			06:46		07:08 (MO03)	07:18	06:55	07:30
	20:53	20:26			19:38	36	07:44 (MO03)	18:45	17:00	16:41
9	05:45	06:14			06:47		07:08 (MO03)	07:19	06:56	07:31
	20:53	20:25			19:36	36	07:44 (MO03)	18:44	16:59	16:41
10	05:46	06:15			06:48		07:09 (MO03)	07:20	06:58	07:32
	20:53	20:24			19:34	34	07:43 (MO03)	18:42	16:58	16:41
11	05:47	06:16			06:49		07:10 (MO03)	07:21	06:59	07:33
	20:52	20:22			19:33	33	07:43 (MO03)	18:40	16:57	16:41
12	05:47	06:17			06:50		07:11 (MO03)	07:23	07:00	07:34
	20:52	20:21			19:31	31	07:42 (MO03)	18:39	16:56	16:41
13	05:48	06:18			06:51		07:12 (MO03)	07:24	07:01	07:34
	20:51	20:20			19:29	29	07:41 (MO03)	18:37	16:55	16:42
14	05:49	06:19			06:52		07:13 (MO03)	07:25	07:03	07:35
	20:51	20:18			19:27	27	07:40 (MO03)	18:35	16:54	16:42
15	05:50	06:20			06:53		07:14 (MO03)	07:26	07:04	07:36
	20:50	20:17			19:26	25	07:39 (MO03)	18:34	16:53	16:42
16	05:51	06:21			06:54		07:15 (MO03)	07:27	07:05	07:37
	20:49	20:15			19:24	22	07:37 (MO03)	18:32	16:52	16:42
17	05:51	06:22			06:55		07:16 (MO03)	07:28	07:06	07:37
	20:49	20:14			19:22	19	07:35 (MO03)	18:31	16:51	16:43
18	05:52	06:23			06:56		07:17 (MO03)	07:29	07:08	07:38
	20:48	20:12			19:20	16	07:33 (MO03)	18:29	16:50	16:43
19	05:53	06:24			06:57		07:18 (MO03)	07:31	07:09	07:39
	20:47	20:11			19:19	12	07:30 (MO03)	18:27	16:50	16:43
20	05:54	06:25			06:58		07:19 (MO03)	07:32	07:10	07:39
	20:47	20:09			19:17	6	07:25 (MO03)	18:26	16:49	16:44
21	05:55	06:27			06:59			07:33	07:11	07:40
	20:46	20:08			19:15			18:24	16:48	16:44
22	05:56	06:28			07:00			07:34	07:13	07:40
	20:45	20:06			19:13			18:23	16:47	16:45
23	05:57	06:29			07:02			07:35	07:14	07:41
	20:44	20:05			19:11			18:21	16:47	16:45
24	05:58	06:30			07:03			07:37	07:15	07:41
	20:43	20:03			19:10			18:20	16:46	16:46
25	05:59	06:31			07:04			06:38	07:16	07:42
	20:42	20:01			19:08			17:18	16:46	16:46
26	06:00	06:32			07:05			06:39	07:17	07:42
	20:41	20:00			19:06			17:17	16:45	16:47
27	06:01	06:33			07:06			06:40	07:18	07:42
	20:40	19:58			19:04			17:16	16:44	16:47
28	06:02	06:34		07:22 (MO03)	07:07			06:42	07:20	07:43
	20:39	19:57	14	07:36 (MO03)	19:03			17:14	16:44	16:48
29	06:03	06:35		07:19 (MO03)	07:08			06:43	07:21	07:43
	20:38	19:55	19	07:38 (MO03)	19:01			17:13	16:44	16:49
30	06:04	06:36		07:17 (MO03)	07:09			06:44	07:22	07:43
	20:37	19:53	23	07:40 (MO03)	18:59			17:11	16:43	16:50
31	06:05	06:37		07:16 (MO03)				06:45		07:43
	20:36	19:52	26	07:42 (MO03)				17:10		16:50
Potential sun hours	463	431			376			344	295	283
Total, worst case			82			558				
Sun reduction			0.70			0.62				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.70			0.62				
Total, real			57			349				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 136 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1034)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June
1	07:44	07:29	06:51			06:58		07:17 (MO03)	06:11	05:40
	16:51	17:27	18:03			19:39	22	07:39 (MO03)	20:13	20:44
2	07:44	07:28	06:50			06:57		07:16 (MO03)	06:09	05:40
	16:52	17:28	18:04			19:40	25	07:41 (MO03)	20:14	20:45
3	07:44	07:27	06:48			06:55		07:14 (MO03)	06:08	05:39
	16:53	17:30	18:05			19:41	27	07:41 (MO03)	20:15	20:45
4	07:44	07:26	06:46			06:53		07:12 (MO03)	06:07	05:39
	16:54	17:31	18:07			19:42	29	07:41 (MO03)	20:16	20:46
5	07:44	07:25	06:45			06:52		07:10 (MO03)	06:05	05:39
	16:55	17:32	18:08			19:44	31	07:41 (MO03)	20:17	20:47
6	07:44	07:24	06:43			06:50		07:09 (MO03)	06:04	05:38
	16:56	17:34	18:09			19:45	33	07:42 (MO03)	20:18	20:48
7	07:44	07:22	06:42			06:48		07:07 (MO03)	06:03	05:38
	16:57	17:35	18:10			19:46	35	07:42 (MO03)	20:20	20:48
8	07:44	07:21	06:40			06:46		07:05 (MO03)	06:02	05:38
	16:58	17:36	18:11			19:47	36	07:41 (MO03)	20:21	20:49
9	07:43	07:20	06:38			06:45		07:05 (MO03)	06:00	05:37
	16:59	17:38	18:13			19:48	37	07:42 (MO03)	20:22	20:50
10	07:43	07:19	06:36			06:43		07:04 (MO03)	05:59	05:37
	17:00	17:39	18:14			19:49	37	07:41 (MO03)	20:23	20:50
11	07:43	07:18	06:35			06:41		07:04 (MO03)	05:58	05:37
	17:01	17:40	18:15			19:50	36	07:40 (MO03)	20:24	20:51
12	07:43	07:16	06:33			06:40		07:04 (MO03)	05:57	05:37
	17:02	17:41	18:16			19:51	36	07:40 (MO03)	20:25	20:51
13	07:42	07:15	06:31			06:38		07:04 (MO03)	05:56	05:37
	17:03	17:43	18:17			19:53	35	07:39 (MO03)	20:26	20:52
14	07:42	07:14	06:30			06:37		07:05 (MO03)	05:55	05:37
	17:05	17:44	18:18			19:54	34	07:39 (MO03)	20:27	20:52
15	07:42	07:12	06:28			06:35		07:05 (MO03)	05:54	05:37
	17:06	17:45	18:20			19:55	32	07:37 (MO03)	20:28	20:53
16	07:41	07:11	06:26			06:33		07:05 (MO03)	05:53	05:37
	17:07	17:47	18:21			19:56	31	07:36 (MO03)	20:29	20:53
17	07:41	07:09	06:25			06:32		07:07 (MO03)	05:52	05:37
	17:08	17:48	18:22			19:57	28	07:35 (MO03)	20:30	20:53
18	07:40	07:08	06:23			06:30		07:07 (MO03)	05:51	05:37
	17:09	17:49	18:23			19:58	26	07:33 (MO03)	20:31	20:54
19	07:39	07:07	06:21			06:28		07:09 (MO03)	05:50	05:37
	17:11	17:50	18:24			19:59	23	07:32 (MO03)	20:32	20:54
20	07:39	07:05	06:19			06:27		07:10 (MO03)	05:49	05:37
	17:12	17:52	18:25			20:01	19	07:29 (MO03)	20:33	20:54
21	07:38	07:04	06:18			06:25		07:13 (MO03)	05:48	05:37
	17:13	17:53	18:27			20:02	13	07:26 (MO03)	20:34	20:55
22	07:38	07:02	06:16			06:24			05:47	05:37
	17:14	17:54	18:28			20:03			20:35	20:55
23	07:37	07:01	06:14			06:22			05:46	05:37
	17:15	17:55	18:29			20:04			20:36	20:55
24	07:36	06:59	06:12			06:21			05:45	05:38
	17:17	17:57	18:30			20:05			20:37	20:55
25	07:35	06:58	06:11			06:19			05:45	05:38
	17:18	17:58	18:31			20:06			20:38	20:55
26	07:35	06:56	06:09			06:18			05:44	05:38
	17:19	17:59	18:32			20:07			20:39	20:55
27	07:34	06:54	06:07			06:16			05:43	05:39
	17:21	18:00	18:33			20:08			20:40	20:55
28	07:33	06:53	06:05		06:25 (MO03)	06:15			05:43	05:39
	17:22	18:02	18:35	3	06:28 (MO03)	20:10			20:41	20:55
29	07:32		07:04		07:23 (MO03)	06:13			05:42	05:39
	17:23		19:36	11	07:34 (MO03)	20:11			20:41	20:55
30	07:31		07:02		07:21 (MO03)	06:12			05:41	05:40
	17:24		19:37	16	07:37 (MO03)	20:12			20:42	20:55
31	07:30		07:00		07:19 (MO03)				05:41	
	17:26		19:38	19	07:38 (MO03)				20:43	
Potential sun hours	293	295	369			400			452	457
Total, worst case				49			625			
Sun reduction				0.46			0.49			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.46			0.49			
Total, real				22			309			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 136 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1034)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August			September			October	November	December
1	05:40	06:06			06:38		07:04 (MO03)	07:10	06:46	07:23
	20:55	20:35			19:50	36	07:40 (MO03)	18:57	17:09	16:43
2	05:41	06:07			06:39		07:03 (MO03)	07:11	06:48	07:24
	20:55	20:34			19:48	37	07:40 (MO03)	18:56	17:07	16:42
3	05:41	06:08			06:40		07:03 (MO03)	07:12	06:49	07:25
	20:55	20:33			19:47	37	07:40 (MO03)	18:54	17:06	16:42
4	05:42	06:09			06:41		07:03 (MO03)	07:14	06:50	07:26
	20:55	20:31			19:45	36	07:39 (MO03)	18:52	17:05	16:42
5	05:43	06:10			06:42		07:04 (MO03)	07:15	06:51	07:27
	20:54	20:30			19:43	35	07:39 (MO03)	18:50	17:04	16:42
6	05:43	06:11			06:44		07:05 (MO03)	07:16	06:53	07:28
	20:54	20:29			19:41	33	07:38 (MO03)	18:49	17:03	16:42
7	05:44	06:12			06:45		07:06 (MO03)	07:17	06:54	07:29
	20:54	20:28			19:40	31	07:37 (MO03)	18:47	17:01	16:41
8	05:45	06:13			06:46		07:07 (MO03)	07:18	06:55	07:30
	20:53	20:26			19:38	29	07:36 (MO03)	18:45	17:00	16:41
9	05:45	06:14			06:47		07:08 (MO03)	07:19	06:56	07:31
	20:53	20:25			19:36	27	07:35 (MO03)	18:44	16:59	16:41
10	05:46	06:15			06:48		07:09 (MO03)	07:20	06:58	07:32
	20:53	20:24			19:34	25	07:34 (MO03)	18:42	16:58	16:41
11	05:47	06:16			06:49		07:10 (MO03)	07:21	06:59	07:33
	20:52	20:22			19:33	22	07:32 (MO03)	18:40	16:57	16:41
12	05:47	06:17			06:50		07:11 (MO03)	07:23	07:00	07:34
	20:52	20:21			19:31	19	07:30 (MO03)	18:39	16:56	16:41
13	05:48	06:18			06:51		07:12 (MO03)	07:24	07:01	07:34
	20:51	20:20			19:29	16	07:28 (MO03)	18:37	16:55	16:42
14	05:49	06:19			06:52		07:13 (MO03)	07:25	07:03	07:35
	20:51	20:18			19:27	12	07:25 (MO03)	18:35	16:54	16:42
15	05:50	06:20			06:53		07:14 (MO03)	07:26	07:04	07:36
	20:50	20:17			19:26	6	07:20 (MO03)	18:34	16:53	16:42
16	05:51	06:21			06:54			07:27	07:05	07:37
	20:49	20:15			19:24			18:32	16:52	16:42
17	05:51	06:22			06:55			07:28	07:06	07:37
	20:49	20:14			19:22			18:31	16:51	16:43
18	05:52	06:23			06:56			07:29	07:08	07:38
	20:48	20:12			19:20			18:29	16:50	16:43
19	05:53	06:24			06:57			07:31	07:09	07:39
	20:47	20:11			19:19			18:27	16:50	16:43
20	05:54	06:25			06:58			07:32	07:10	07:39
	20:47	20:09			19:17			18:26	16:49	16:44
21	05:55	06:27		07:22 (MO03)	06:59			07:33	07:11	07:40
	20:46	20:08	4	07:26 (MO03)	19:15			18:24	16:48	16:44
22	05:56	06:28		07:17 (MO03)	07:00			07:34	07:13	07:40
	20:45	20:06	14	07:31 (MO03)	19:13			18:23	16:47	16:45
23	05:57	06:29		07:14 (MO03)	07:02			07:35	07:14	07:41
	20:44	20:05	19	07:33 (MO03)	19:11			18:21	16:47	16:45
24	05:58	06:30		07:12 (MO03)	07:03			07:37	07:15	07:41
	20:43	20:03	23	07:35 (MO03)	19:10			18:20	16:46	16:46
25	05:59	06:31		07:10 (MO03)	07:04			06:38	07:16	07:42
	20:42	20:01	26	07:36 (MO03)	19:08			17:18	16:46	16:46
26	06:00	06:32		07:08 (MO03)	07:05			06:39	07:17	07:42
	20:41	20:00	29	07:37 (MO03)	19:06			17:17	16:45	16:47
27	06:01	06:33		07:07 (MO03)	07:06			06:40	07:18	07:42
	20:40	19:58	31	07:38 (MO03)	19:04			17:16	16:44	16:47
28	06:02	06:34		07:06 (MO03)	07:07			06:42	07:20	07:43
	20:39	19:57	32	07:38 (MO03)	19:03			17:14	16:44	16:48
29	06:03	06:35		07:05 (MO03)	07:08			06:43	07:21	07:43
	20:38	19:55	34	07:39 (MO03)	19:01			17:13	16:44	16:49
30	06:04	06:36		07:04 (MO03)	07:09			06:44	07:22	07:43
	20:37	19:53	35	07:39 (MO03)	18:59			17:11	16:43	16:50
31	06:05	06:37		07:04 (MO03)				06:45		07:43
	20:36	19:52	36	07:40 (MO03)				17:10		16:50
Potential sun hours	463	431			376			344	295	283
Total, worst case			283			401				
Sun reduction			0.70			0.62				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.70			0.62				
Total, real			198			250				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 137 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1035)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March	April	May	June	July	August	September	October		November		December
1	07:44	07:29		06:51	06:58	06:11	05:40	05:40	06:06	06:38	07:10		06:46	07:09 (MO03)	07:23
	16:51	17:27		18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57		17:09	19 07:28 (MO03)	16:43
2	07:44	07:28	07:49 (MO03)	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11		06:48	07:10 (MO03)	07:24
	16:52	17:28	3 07:52 (MO03)	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56		17:07	17 07:27 (MO03)	16:42
3	07:44	07:27	07:47 (MO03)	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12		06:49	07:11 (MO03)	07:25
	16:53	17:30	6 07:53 (MO03)	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54		17:06	16 07:27 (MO03)	16:42
4	07:44	07:26	07:46 (MO03)	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14		06:50	07:13 (MO03)	07:26
	16:54	17:31	8 07:54 (MO03)	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52		17:05	14 07:27 (MO03)	16:42
5	07:44	07:25	07:45 (MO03)	06:45	06:52	06:05	05:39	05:43	06:10	06:42	07:15		06:51	07:14 (MO03)	07:27
	16:55	17:32	10 07:55 (MO03)	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51		17:04	12 07:26 (MO03)	16:42
6	07:44	07:24	07:44 (MO03)	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16		06:53	07:15 (MO03)	07:28
	16:56	17:34	12 07:56 (MO03)	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49		17:03	10 07:25 (MO03)	16:42
7	07:44	07:22	07:43 (MO03)	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17		06:54	07:17 (MO03)	07:29
	16:57	17:35	14 07:57 (MO03)	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47		17:01	8 07:25 (MO03)	16:41
8	07:44	07:21	07:41 (MO03)	06:40	06:46	06:02	05:38	05:45	06:13	06:46	07:18		06:55	07:18 (MO03)	07:30
	16:58	17:36	16 07:57 (MO03)	18:11	19:47	20:21	20:49	20:54	20:26	19:38	18:45		17:00	5 07:23 (MO03)	16:41
9	07:43	07:20	07:40 (MO03)	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19		06:56	07:19 (MO03)	07:31
	16:59	17:38	18 07:58 (MO03)	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44		16:59	3 07:22 (MO03)	16:41
10	07:43	07:19	07:39 (MO03)	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20		06:58		07:32
	17:00	17:39	19 07:58 (MO03)	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42		16:58		16:41
11	07:43	07:18	07:38 (MO03)	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21		06:59		07:33
	17:01	17:40	21 07:59 (MO03)	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40		16:57		16:41
12	07:43	07:16	07:36 (MO03)	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23		07:00		07:34
	17:02	17:41	22 07:58 (MO03)	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39		16:56		16:41
13	07:42	07:15	07:35 (MO03)	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24		07:02		07:34
	17:03	17:43	23 07:58 (MO03)	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37		16:55		16:42
14	07:42	07:14	07:34 (MO03)	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25		07:03		07:35
	17:05	17:44	24 07:58 (MO03)	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35		16:54		16:42
15	07:42	07:12	07:33 (MO03)	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26		07:04		07:36
	17:06	17:45	23 07:56 (MO03)	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34		16:53		16:42
16	07:41	07:11	07:35 (MO03)	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27		07:05		07:37
	17:07	17:47	21 07:56 (MO03)	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32		16:52		16:42
17	07:41	07:09	07:35 (MO03)	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28		07:06		07:37
	17:08	17:48	19 07:54 (MO03)	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31		16:51		16:43
18	07:40	07:08	07:37 (MO03)	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29		07:08		07:38
	17:09	17:49	16 07:53 (MO03)	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29		16:50		16:43
19	07:40	07:07	07:39 (MO03)	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31		07:09		07:39
	17:11	17:50	11 07:50 (MO03)	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27		16:50		16:43
20	07:39	07:05		06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32		07:10		07:39
	17:12	17:52		18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26		16:49		16:44
21	07:38	07:04		06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33		07:11		07:40
	17:13	17:53		18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24		16:48		16:44
22	07:38	07:02		06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	08:13 (MO03)	07:13		07:40
	17:14	17:54		18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	5 08:18 (MO03)	16:47		16:45
23	07:37	07:01		06:14	06:22	05:46	05:37	05:57	06:29	07:02	07:35	08:09 (MO03)	07:14		07:41
	17:15	17:55		18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	13 08:22 (MO03)	16:47		16:45
24	07:36	06:59		06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	08:06 (MO03)	07:15		07:41
	17:17	17:57		18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	17 08:23 (MO03)	16:46		16:46
25	07:35	06:58		06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:04 (MO03)	07:16		07:42
	17:18	17:58		18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	20 07:24 (MO03)	16:46		16:46
26	07:35	06:56		06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:04 (MO03)	07:17		07:42
	17:19	17:59		18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	22 07:26 (MO03)	16:45		16:47
27	07:34	06:55		06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:03 (MO03)	07:18		07:42
	17:21	18:00		18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:16	23 07:26 (MO03)	16:44		16:47
28	07:33	06:53		06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:03 (MO03)	07:20		07:43
	17:22	18:02		18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	24 07:27 (MO03)	16:44		16:48
29	07:32			07:04	06:14	05:42	05:39	06:03	06:35	07:08	06:43	07:05 (MO03)	07:21		07:43
	17:23			19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	23 07:28 (MO03)	16:44		16:49
30	07:31			07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:06 (MO03)	07:22		07:43
	17:24			19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	22 07:28 (MO03)	16:43		16:50
31	07:30			07:00		05:41		06:05	06:37		06:45	07:07 (MO03)			07:43
	17:26			19:38		20:43		20:36	19:52		17:10	20 07:27 (MO03)			16:50
Potential sun hours	293	295		369	400	452	457	463	431	376	344		295		283
Total, worst case			286									189		104	
Sun reduction			0.46									0.55		0.46	
Oper. time red.			1.00									1.00		1.00	
Wind dir. red.			1.00									1.00		1.00	
Total reduction			0.46									0.55		0.46	
Total, real			132									104		47	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 138 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1036)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:07 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:06	06:38	07:10	06:46			07:23		07:47 (MO03)
	16:51	15	08:22 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09			16:43	22	08:09 (MO03)
2	07:44		08:07 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48			07:24		07:48 (MO03)
	16:52	16	08:23 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07			16:42	21	08:09 (MO03)
3	07:44		08:07 (MO03)	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49			07:25		07:49 (MO03)
	16:53	16	08:23 (MO03)	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	20	08:09 (MO03)
4	07:44		08:07 (MO03)	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50			07:26		07:51 (MO03)
	16:54	17	08:24 (MO03)	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	20	08:11 (MO03)
5	07:44		08:07 (MO03)	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51			07:27		07:52 (MO03)
	16:55	18	08:25 (MO03)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04			16:42	19	08:11 (MO03)
6	07:44		08:07 (MO03)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		07:53 (MO03)
	16:56	18	08:25 (MO03)	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02			16:42	18	08:11 (MO03)
7	07:44		08:06 (MO03)	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		07:54 (MO03)
	16:57	19	08:25 (MO03)	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01			16:41	18	08:12 (MO03)
8	07:44		08:06 (MO03)	07:21	06:40	06:46	06:02	05:38	05:44	06:13	06:46	07:18	06:55			07:30		07:55 (MO03)
	16:58	20	08:26 (MO03)	17:36	18:11	19:47	20:21	20:49	20:54	20:26	19:38	18:45	17:00			16:41	17	08:12 (MO03)
9	07:43		08:06 (MO03)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56			07:31		07:55 (MO03)
	16:59	20	08:26 (MO03)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:41	16	08:11 (MO03)
10	07:43		08:06 (MO03)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		07:56 (MO03)
	17:00	21	08:27 (MO03)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58			16:41	16	08:12 (MO03)
11	07:43		08:05 (MO03)	07:18	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59			07:33		07:57 (MO03)
	17:01	22	08:27 (MO03)	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57			16:41	15	08:12 (MO03)
12	07:43		08:05 (MO03)	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00			07:34		07:58 (MO03)
	17:02	22	08:27 (MO03)	17:41	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:41	15	08:13 (MO03)
13	07:42		08:04 (MO03)	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:34		07:59 (MO03)
	17:03	23	08:27 (MO03)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	14	08:13 (MO03)
14	07:42		08:04 (MO03)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:00 (MO03)
	17:05	24	08:28 (MO03)	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54			16:42	14	08:14 (MO03)
15	07:42		08:03 (MO03)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:00 (MO03)
	17:06	25	08:28 (MO03)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	13	08:13 (MO03)
16	07:41		08:03 (MO03)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05		07:50 (MO03)	07:37		08:01 (MO03)
	17:07	25	08:28 (MO03)	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	2	07:52 (MO03)	16:42	13	08:14 (MO03)
17	07:41		08:02 (MO03)	07:09	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06		07:46 (MO03)	07:37		08:02 (MO03)
	17:08	26	08:28 (MO03)	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	10	07:56 (MO03)	16:42	13	08:15 (MO03)
18	07:40		08:03 (MO03)	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08		07:44 (MO03)	07:38		08:02 (MO03)
	17:09	25	08:28 (MO03)	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	14	07:58 (MO03)	16:43	13	08:15 (MO03)
19	07:40		08:04 (MO03)	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09		07:43 (MO03)	07:39		08:03 (MO03)
	17:10	24	08:28 (MO03)	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	18	08:01 (MO03)	16:43	12	08:15 (MO03)
20	07:39		08:04 (MO03)	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10		07:42 (MO03)	07:39		08:03 (MO03)
	17:12	23	08:27 (MO03)	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	20	08:02 (MO03)	16:44	12	08:15 (MO03)
21	07:38		08:06 (MO03)	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11		07:41 (MO03)	07:40		08:04 (MO03)
	17:13	21	08:27 (MO03)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	21	08:02 (MO03)	16:44	12	08:16 (MO03)
22	07:38		08:07 (MO03)	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13		07:40 (MO03)	07:40		08:04 (MO03)
	17:14	20	08:27 (MO03)	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	23	08:03 (MO03)	16:44	12	08:16 (MO03)
23	07:37		08:08 (MO03)	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:02	07:35	07:14		07:41 (MO03)	07:41		08:05 (MO03)
	17:15	18	08:26 (MO03)	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	24	08:05 (MO03)	16:45	12	08:17 (MO03)
24	07:36		08:10 (MO03)	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15		07:40 (MO03)	07:41		08:05 (MO03)
	17:17	14	08:24 (MO03)	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	25	08:05 (MO03)	16:46	12	08:17 (MO03)
25	07:35		08:12 (MO03)	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		07:40 (MO03)	07:42		08:06 (MO03)
	17:18	10	08:22 (MO03)	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:46	26	08:06 (MO03)	16:46	12	08:18 (MO03)
26	07:35		08:18 (MO03)	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17		07:41 (MO03)	07:42		08:06 (MO03)
	17:19	1	08:19 (MO03)	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	25	08:06 (MO03)	16:47	13	08:19 (MO03)
27	07:34			06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18		07:43 (MO03)	07:42		08:06 (MO03)
	17:21			18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:16	16:44	25	08:08 (MO03)	16:47	13	08:19 (MO03)
28	07:33			06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		07:44 (MO03)	07:43		08:06 (MO03)
	17:22			18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	24	08:08 (MO03)	16:48	13	08:19 (MO03)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21		07:45 (MO03)	07:43		08:07 (MO03)
	17:23				19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	23	08:08 (MO03)	16:49	14	08:21 (MO03)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22		07:46 (MO03)	07:43		08:07 (MO03)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	22	08:08 (MO03)	16:50	14	08:21 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45				07:43		08:07 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10				16:50	14	08:21 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		503												302			462	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		212												138			200	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 139 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1037)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June	July	August	September			October	November	December
1	07:44	07:29	06:51			06:58		07:22 (MO03)	06:11	05:40	05:40	06:06	06:38			07:10	06:46	07:23
	16:52	17:27	18:03			19:39	22	07:44 (MO03)	20:13	20:44	20:55	20:35	19:50			18:57	17:09	16:43
2	07:44	07:28	06:50			06:57		07:23 (MO03)	06:09	05:40	05:41	06:07	06:39			07:11	06:48	07:24
	16:52	17:28	18:04			19:40	21	07:44 (MO03)	20:14	20:45	20:55	20:34	19:48			18:56	17:07	16:42
3	07:44	07:27	06:48			06:55		07:24 (MO03)	06:08	05:39	05:41	06:08	06:40			07:12	06:49	07:25
	16:53	17:30	18:05			19:41	17	07:41 (MO03)	20:15	20:46	20:55	20:33	19:47			18:54	17:06	16:42
4	07:44	07:26	06:46			06:53		07:26 (MO03)	06:07	05:39	05:42	06:09	06:41			07:14	06:50	07:26
	16:54	17:31	18:07			19:42	12	07:38 (MO03)	20:16	20:46	20:55	20:31	19:45			18:52	17:05	16:42
5	07:44	07:25	06:45			06:52		07:31 (MO03)	06:05	05:39	05:43	06:10	06:42			07:15	06:51	07:27
	16:55	17:32	18:08			19:44	1	07:32 (MO03)	20:17	20:47	20:54	20:30	19:43			18:51	17:04	16:42
6	07:44	07:24	06:43			06:50			06:04	05:38	05:43	06:11	06:44			07:16	06:53	07:28
	16:56	17:34	18:09			19:45			20:18	20:48	20:54	20:29	19:41			18:49	17:03	16:42
7	07:44	07:22	06:42			06:48			06:03	05:38	05:44	06:12	06:45			07:17	06:54	07:29
	16:57	17:35	18:10			19:46			20:20	20:48	20:54	20:28	19:40			18:47	17:01	16:41
8	07:44	07:21	06:40			06:47			06:02	05:38	05:45	06:13	06:46		07:21 (MO03)	07:18	06:55	07:30
	16:58	17:36	18:11			19:47			20:21	20:49	20:53	20:26	19:38	12	07:33 (MO03)	18:45	17:00	16:41
9	07:43	07:20	06:38			06:45			06:00	05:37	05:45	06:14	06:47		07:19 (MO03)	07:19	06:56	07:31
	16:59	17:38	18:13			19:48			20:22	20:50	20:53	20:25	19:36	16	07:35 (MO03)	18:44	16:59	16:41
10	07:43	07:19	06:37			06:43			05:59	05:37	05:46	06:15	06:48		07:17 (MO03)	07:20	06:58	07:32
	17:00	17:39	18:14			19:49			20:23	20:50	20:53	20:24	19:35	20	07:37 (MO03)	18:42	16:58	16:41
11	07:43	07:18	06:35			06:41			05:58	05:37	05:47	06:16	06:49		07:15 (MO03)	07:21	06:59	07:33
	17:01	17:40	18:15			19:50			20:24	20:51	20:52	20:22	19:33	22	07:37 (MO03)	18:40	16:57	16:41
12	07:43	07:16	06:33			06:40			05:57	05:37	05:47	06:17	06:50		07:14 (MO03)	07:23	07:00	07:34
	17:02	17:41	18:16			19:52			20:25	20:51	20:52	20:21	19:31	24	07:38 (MO03)	18:39	16:56	16:42
13	07:42	07:15	06:31			06:38			05:56	05:37	05:48	06:18	06:51		07:13 (MO03)	07:24	07:01	07:34
	17:03	17:43	18:17			19:53			20:26	20:52	20:51	20:20	19:29	25	07:38 (MO03)	18:37	16:55	16:42
14	07:42	07:14	06:30			06:37			05:55	05:37	05:49	06:19	06:52		07:13 (MO03)	07:25	07:03	07:35
	17:05	17:44	18:18			19:54			20:27	20:52	20:51	20:18	19:27	25	07:38 (MO03)	18:35	16:54	16:42
15	07:42	07:12	06:28			06:35			05:54	05:37	05:50	06:20	06:53		07:14 (MO03)	07:26	07:04	07:36
	17:06	17:45	18:20			19:55			20:28	20:53	20:50	20:17	19:26	24	07:38 (MO03)	18:34	16:53	16:42
16	07:41	07:11	06:26			06:33			05:53	05:37	05:51	06:21	06:54		07:15 (MO03)	07:27	07:05	07:37
	17:07	17:47	18:21			19:56			20:29	20:53	20:49	20:15	19:24	23	07:38 (MO03)	18:32	16:52	16:42
17	07:41	07:09	06:25			06:32			05:52	05:37	05:51	06:22	06:55		07:16 (MO03)	07:28	07:06	07:37
	17:08	17:48	18:22			19:57			20:30	20:53	20:49	20:14	19:22	21	07:37 (MO03)	18:31	16:51	16:43
18	07:40	07:08	06:23			06:30			05:51	05:37	05:52	06:23	06:56		07:17 (MO03)	07:29	07:08	07:38
	17:09	17:49	18:23			19:58			20:31	20:54	20:48	20:12	19:20	20	07:37 (MO03)	18:29	16:50	16:43
19	07:40	07:07	06:21		06:40 (MO03)	06:29			05:50	05:37	05:53	06:24	06:57		07:18 (MO03)	07:31	07:09	07:39
	17:11	17:50	18:24	1	06:41 (MO03)	19:59			20:32	20:54	20:47	20:11	19:19	18	07:36 (MO03)	18:27	16:50	16:43
20	07:39	07:05	06:19		06:38 (MO03)	06:27			05:49	05:37	05:54	06:25	06:58		07:19 (MO03)	07:32	07:10	07:39
	17:12	17:52	18:25	6	06:44 (MO03)	20:01			20:33	20:54	20:47	20:09	19:17	16	07:35 (MO03)	18:26	16:49	16:44
21	07:38	07:04	06:18		06:37 (MO03)	06:25			05:48	05:37	05:55	06:27	06:59		07:20 (MO03)	07:33	07:11	07:40
	17:13	17:53	18:27	10	06:47 (MO03)	20:02			20:34	20:55	20:46	20:08	19:15	13	07:33 (MO03)	18:24	16:48	16:44
22	07:38	07:02	06:16		06:35 (MO03)	06:24			05:47	05:37	05:56	06:28	07:00		07:21 (MO03)	07:34	07:13	07:40
	17:14	17:54	18:28	12	06:47 (MO03)	20:03			20:35	20:55	20:45	20:06	19:13	10	07:31 (MO03)	18:23	16:47	16:45
23	07:37	07:01	06:14		06:33 (MO03)	06:22			05:46	05:37	05:57	06:29	07:02		07:22 (MO03)	07:35	07:14	07:41
	17:15	17:55	18:29	15	06:48 (MO03)	20:04			20:36	20:55	20:44	20:05	19:12	7	07:29 (MO03)	18:21	16:47	16:45
24	07:36	06:59	06:12		06:31 (MO03)	06:21			05:45	05:38	05:58	06:30	07:03		07:23 (MO03)	07:37	07:15	07:41
	17:17	17:57	18:30	17	06:48 (MO03)	20:05			20:37	20:55	20:43	20:03	19:10	3	07:26 (MO03)	18:20	16:46	16:46
25	07:35	06:58	06:11		06:30 (MO03)	06:19			05:45	05:38	05:59	06:31	07:04			06:38	07:16	07:42
	17:18	17:58	18:31	19	06:49 (MO03)	20:06			20:38	20:55	20:42	20:02	19:08			17:18	16:46	16:46
26	07:35	06:56	06:09		06:28 (MO03)	06:18			05:44	05:38	06:00	06:32	07:05			06:39	07:17	07:42
	17:19	17:59	18:32	21	06:49 (MO03)	20:07			20:39	20:55	20:41	20:00	19:06			17:17	16:45	16:47
27	07:34	06:55	06:07		06:26 (MO03)	06:16			05:43	05:39	06:01	06:33	07:06			06:40	07:18	07:42
	17:21	18:00	18:33	23	06:49 (MO03)	20:08			20:40	20:55	20:40	19:58	19:04			17:16	16:44	16:47
28	07:33	06:53	06:05		06:24 (MO03)	06:15			05:43	05:39	06:02	06:34	07:07			06:42	07:20	07:43
	17:22	18:02	18:35	24	06:48 (MO03)	20:10			20:41	20:55	20:39	19:57	19:03			17:14	16:44	16:48
29	07:32		07:04		07:23 (MO03)	06:14			05:42	05:40	06:03	06:35	07:08			06:43	07:21	07:43
	17:23		19:36	25	07:48 (MO03)	20:11			20:42	20:55	20:38	19:55	19:01			17:13	16:44	16:49
30	07:31		07:02		07:22 (MO03)	06:12			05:41	05:40	06:04	06:36	07:09			06:44	07:22	07:43
	17:24		19:37	25	07:47 (MO03)	20:12			20:42	20:55	20:37	19:53	18:59			17:11	16:43	16:50
31	07:30		07:00		07:22 (MO03)				05:41		06:05	06:37				06:45		07:43
	17:26		19:38	24	07:46 (MO03)				20:43		20:36	19:52				17:10		16:50
Potential sun hours	293	295	369			400			452	457	463	431	376			344	295	283
Total, worst case				222			73							299				
Sun reduction				0.46			0.49							0.62				
Oper. time red.				1.00			1.00							1.00				
Wind dir. red.				1.00			1.00							1.00				
Total reduction				0.46			0.49							0.62				
Total, real				102			36							187				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 140 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1038)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:07 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:06	06:38	07:10	06:46			07:23		07:47 (MO03)
	16:51	10	08:17 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09			16:43	18	08:05 (MO03)
2	07:44		08:07 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48			07:24		07:48 (MO03)
	16:52	10	08:17 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07			16:42	17	08:05 (MO03)
3	07:44		08:07 (MO03)	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49			07:25		07:49 (MO03)
	16:53	11	08:18 (MO03)	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	16	08:05 (MO03)
4	07:44		08:07 (MO03)	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50			07:26		07:51 (MO03)
	16:54	12	08:19 (MO03)	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	15	08:06 (MO03)
5	07:44		08:07 (MO03)	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51			07:27		07:52 (MO03)
	16:55	13	08:20 (MO03)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04			16:42	14	08:06 (MO03)
6	07:44		08:07 (MO03)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		07:53 (MO03)
	16:56	14	08:21 (MO03)	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02			16:42	14	08:07 (MO03)
7	07:44		08:06 (MO03)	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		07:54 (MO03)
	16:57	14	08:20 (MO03)	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01			16:41	13	08:07 (MO03)
8	07:44		08:06 (MO03)	07:21	06:40	06:46	06:02	05:38	05:44	06:13	06:46	07:18	06:55			07:30		07:55 (MO03)
	16:58	15	08:21 (MO03)	17:36	18:11	19:47	20:21	20:49	20:54	20:26	19:38	18:45	17:00			16:41	12	08:07 (MO03)
9	07:43		08:06 (MO03)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56			07:31		07:55 (MO03)
	16:59	16	08:22 (MO03)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:41	11	08:06 (MO03)
10	07:43		08:06 (MO03)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		07:56 (MO03)
	17:00	17	08:23 (MO03)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58			16:41	11	08:07 (MO03)
11	07:43		08:05 (MO03)	07:18	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59			07:33		07:57 (MO03)
	17:01	18	08:23 (MO03)	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57			16:41	10	08:07 (MO03)
12	07:43		08:05 (MO03)	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00			07:34		07:58 (MO03)
	17:02	19	08:24 (MO03)	17:41	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:41	9	08:07 (MO03)
13	07:42		08:04 (MO03)	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02		07:43 (MO03)	07:34		07:59 (MO03)
	17:03	20	08:24 (MO03)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	8	07:51 (MO03)	16:42	9	08:08 (MO03)
14	07:42		08:04 (MO03)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03		07:40 (MO03)	07:35		08:00 (MO03)
	17:05	21	08:25 (MO03)	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	13	07:53 (MO03)	16:42	8	08:08 (MO03)
15	07:42		08:03 (MO03)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04		07:38 (MO03)	07:36		08:00 (MO03)
	17:06	21	08:24 (MO03)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	17	07:55 (MO03)	16:42	8	08:08 (MO03)
16	07:41		08:03 (MO03)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05		07:38 (MO03)	07:37		08:01 (MO03)
	17:07	22	08:25 (MO03)	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	19	07:57 (MO03)	16:42	7	08:08 (MO03)
17	07:41		08:02 (MO03)	07:09	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06		07:37 (MO03)	07:37		08:02 (MO03)
	17:08	23	08:25 (MO03)	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	21	07:58 (MO03)	16:42	7	08:09 (MO03)
18	07:40		08:02 (MO03)	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08		07:36 (MO03)	07:38		08:02 (MO03)
	17:09	24	08:26 (MO03)	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	23	07:59 (MO03)	16:43	6	08:08 (MO03)
19	07:40		08:01 (MO03)	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09		07:36 (MO03)	07:39		08:03 (MO03)
	17:10	25	08:26 (MO03)	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	24	08:00 (MO03)	16:43	6	08:09 (MO03)
20	07:39		08:00 (MO03)	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10		07:35 (MO03)	07:39		08:03 (MO03)
	17:12	25	08:25 (MO03)	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	26	08:01 (MO03)	16:44	6	08:09 (MO03)
21	07:38		08:00 (MO03)	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11		07:35 (MO03)	07:40		08:04 (MO03)
	17:13	26	08:26 (MO03)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	26	08:01 (MO03)	16:44	6	08:10 (MO03)
22	07:38		08:00 (MO03)	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13		07:36 (MO03)	07:40		08:04 (MO03)
	17:14	26	08:26 (MO03)	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	25	08:01 (MO03)	16:44	6	08:10 (MO03)
23	07:37		08:01 (MO03)	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:02	07:35	07:14		07:38 (MO03)	07:41		08:05 (MO03)
	17:15	24	08:25 (MO03)	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	25	08:03 (MO03)	16:45	6	08:11 (MO03)
24	07:36		08:02 (MO03)	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15		07:39 (MO03)	07:41		08:05 (MO03)
	17:17	23	08:25 (MO03)	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	24	08:03 (MO03)	16:46	6	08:11 (MO03)
25	07:35		08:03 (MO03)	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		07:40 (MO03)	07:42		08:06 (MO03)
	17:18	21	08:24 (MO03)	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:46	23	08:03 (MO03)	16:46	6	08:12 (MO03)
26	07:35		08:05 (MO03)	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17		07:41 (MO03)	07:42		08:06 (MO03)
	17:19	19	08:24 (MO03)	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	22	08:03 (MO03)	16:47	7	08:13 (MO03)
27	07:34		08:06 (MO03)	06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18		07:43 (MO03)	07:42		08:06 (MO03)
	17:21	17	08:23 (MO03)	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:16	16:44	21	08:04 (MO03)	16:47	7	08:13 (MO03)
28	07:33		08:08 (MO03)	06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		07:44 (MO03)	07:43		08:06 (MO03)
	17:22	13	08:21 (MO03)	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	21	08:05 (MO03)	16:48	7	08:13 (MO03)
29	07:32		08:11 (MO03)		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21		07:45 (MO03)	07:43		08:07 (MO03)
	17:23	8	08:19 (MO03)		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	20	08:05 (MO03)	16:49	8	08:15 (MO03)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22		07:46 (MO03)	07:43		08:07 (MO03)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	19	08:05 (MO03)	16:50	8	08:15 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45				07:43		08:07 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10				16:50	9	08:16 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		527												377			293	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		222												172			127	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 141 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1039)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June	July	August	September			October	November	December
1	07:44	07:29	06:51			06:58		07:17 (MO03)	06:11	05:40	05:40	06:06	06:38			07:10	06:46	07:23
	16:52	17:27	18:03			19:39	26	07:43 (MO03)	20:13	20:44	20:55	20:35	19:50			18:57	17:09	16:43
2	07:44	07:28	06:50			06:57		07:17 (MO03)	06:09	05:40	05:41	06:07	06:39			07:11	06:48	07:24
	16:52	17:28	18:04			19:40	25	07:42 (MO03)	20:14	20:45	20:55	20:34	19:48			18:56	17:07	16:42
3	07:44	07:27	06:48			06:55		07:17 (MO03)	06:08	05:39	05:41	06:08	06:40			07:12	06:49	07:25
	16:53	17:30	18:05			19:41	24	07:41 (MO03)	20:15	20:46	20:55	20:33	19:47			18:54	17:06	16:42
4	07:44	07:26	06:46			06:53		07:18 (MO03)	06:07	05:39	05:42	06:09	06:41			07:14	06:50	07:26
	16:54	17:31	18:07			19:42	22	07:40 (MO03)	20:16	20:46	20:55	20:31	19:45			18:52	17:05	16:42
5	07:44	07:25	06:45			06:52		07:18 (MO03)	06:05	05:39	05:43	06:10	06:42		07:20 (MO03)	07:15	06:51	07:27
	16:55	17:32	18:08			19:44	20	07:38 (MO03)	20:17	20:47	20:54	20:30	19:43	10	07:30 (MO03)	18:51	17:04	16:42
6	07:44	07:24	06:43			06:50		07:20 (MO03)	06:04	05:38	05:43	06:11	06:44		07:17 (MO03)	07:16	06:53	07:28
	16:56	17:34	18:09			19:45	16	07:36 (MO03)	20:18	20:48	20:54	20:29	19:41	15	07:32 (MO03)	18:49	17:03	16:42
7	07:44	07:22	06:42			06:48		07:22 (MO03)	06:03	05:38	05:44	06:12	06:45		07:15 (MO03)	07:17	06:54	07:29
	16:57	17:35	18:10			19:46	11	07:33 (MO03)	20:20	20:48	20:54	20:28	19:40	19	07:34 (MO03)	18:47	17:01	16:41
8	07:44	07:21	06:40			06:47			06:02	05:38	05:45	06:13	06:46		07:13 (MO03)	07:18	06:55	07:30
	16:58	17:36	18:11			19:47			20:21	20:49	20:53	20:26	19:38	22	07:35 (MO03)	18:45	17:00	16:41
9	07:43	07:20	06:38			06:45			06:00	05:37	05:45	06:14	06:47		07:12 (MO03)	07:19	06:56	07:31
	16:59	17:38	18:13			19:48			20:22	20:50	20:53	20:25	19:36	23	07:35 (MO03)	18:44	16:59	16:41
10	07:43	07:19	06:37			06:43			05:59	05:37	05:46	06:15	06:48		07:10 (MO03)	07:20	06:58	07:32
	17:00	17:39	18:14			19:49			20:23	20:50	20:53	20:24	19:35	26	07:36 (MO03)	18:42	16:58	16:41
11	07:43	07:18	06:35			06:41			05:58	05:37	05:47	06:16	06:49		07:10 (MO03)	07:21	06:59	07:33
	17:01	17:40	18:15			19:50			20:24	20:51	20:52	20:22	19:33	26	07:36 (MO03)	18:40	16:57	16:41
12	07:43	07:16	06:33			06:40			05:57	05:37	05:47	06:17	06:50		07:11 (MO03)	07:23	07:00	07:34
	17:02	17:41	18:16			19:52			20:25	20:51	20:52	20:21	19:31	25	07:36 (MO03)	18:39	16:56	16:42
13	07:42	07:15	06:31			06:38			05:56	05:37	05:48	06:18	06:51		07:12 (MO03)	07:24	07:01	07:34
	17:03	17:43	18:17			19:53			20:26	20:52	20:51	20:20	19:29	23	07:35 (MO03)	18:37	16:55	16:42
14	07:42	07:14	06:30			06:37			05:55	05:37	05:49	06:19	06:52		07:13 (MO03)	07:25	07:03	07:35
	17:05	17:44	18:18			19:54			20:27	20:52	20:51	20:18	19:27	22	07:35 (MO03)	18:35	16:54	16:42
15	07:42	07:12	06:28			06:35			05:54	05:37	05:50	06:20	06:53		07:14 (MO03)	07:26	07:04	07:36
	17:06	17:45	18:20			19:55			20:28	20:53	20:50	20:17	19:26	20	07:34 (MO03)	18:34	16:53	16:42
16	07:41	07:11	06:26			06:33			05:53	05:37	05:51	06:21	06:54		07:15 (MO03)	07:27	07:05	07:37
	17:07	17:47	18:21			19:56			20:29	20:53	20:49	20:15	19:24	18	07:33 (MO03)	18:32	16:52	16:42
17	07:41	07:09	06:25			06:32			05:52	05:37	05:51	06:22	06:55		07:16 (MO03)	07:28	07:06	07:37
	17:08	17:48	18:22			19:57			20:30	20:53	20:49	20:14	19:22	16	07:32 (MO03)	18:31	16:51	16:43
18	07:40	07:08	06:23			06:30			05:51	05:37	05:52	06:23	06:56		07:17 (MO03)	07:29	07:08	07:38
	17:09	17:49	18:23			19:58			20:31	20:54	20:48	20:12	19:20	14	07:31 (MO03)	18:29	16:50	16:43
19	07:40	07:07	06:21			06:29			05:50	05:37	05:53	06:24	06:57		07:18 (MO03)	07:31	07:09	07:39
	17:11	17:50	18:24			19:59			20:32	20:54	20:47	20:11	19:19	12	07:30 (MO03)	18:27	16:50	16:43
20	07:39	07:05	06:19			06:27			05:49	05:37	05:54	06:25	06:58		07:19 (MO03)	07:32	07:10	07:39
	17:12	17:52	18:25			20:01			20:33	20:54	20:47	20:09	19:17	9	07:28 (MO03)	18:26	16:49	16:44
21	07:38	07:04	06:18			06:25			05:48	05:37	05:55	06:27	06:59		07:20 (MO03)	07:33	07:11	07:40
	17:13	17:53	18:27			20:02			20:34	20:55	20:46	20:08	19:15	5	07:25 (MO03)	18:24	16:48	16:44
22	07:38	07:02	06:16		06:35 (MO03)	06:24			05:47	05:37	05:56	06:28	07:00			07:34	07:13	07:40
	17:14	17:54	18:28	3	06:38 (MO03)	20:03			20:35	20:55	20:45	20:06	19:13			18:23	16:47	16:45
23	07:37	07:01	06:14		06:33 (MO03)	06:22			05:46	05:37	05:57	06:29	07:02			07:35	07:14	07:41
	17:15	17:55	18:29	8	06:41 (MO03)	20:04			20:36	20:55	20:44	20:05	19:12			18:21	16:47	16:45
24	07:36	06:59	06:12		06:31 (MO03)	06:21			05:45	05:38	05:58	06:30	07:03			07:37	07:15	07:41
	17:17	17:57	18:30	11	06:42 (MO03)	20:05			20:37	20:55	20:43	20:03	19:10			18:20	16:46	16:46
25	07:35	06:58	06:11		06:30 (MO03)	06:19			05:45	05:38	05:59	06:31	07:04			06:38	07:16	07:42
	17:18	17:58	18:31	14	06:44 (MO03)	20:06			20:38	20:55	20:42	20:02	19:08			17:18	16:46	16:46
26	07:35	06:56	06:09		06:28 (MO03)	06:18			05:44	05:38	06:00	06:32	07:05			06:39	07:17	07:42
	17:19	17:59	18:32	16	06:44 (MO03)	20:07			20:39	20:55	20:41	20:00	19:06			17:17	16:45	16:47
27	07:34	06:55	06:07		06:26 (MO03)	06:16			05:43	05:39	06:01	06:33	07:06			06:40	07:18	07:42
	17:21	18:00	18:33	18	06:44 (MO03)	20:08			20:40	20:55	20:40	19:58	19:04			17:16	16:44	16:47
28	07:33	06:53	06:05		06:24 (MO03)	06:15			05:43	05:39	06:02	06:34	07:07			06:42	07:20	07:43
	17:22	18:02	18:35	20	06:44 (MO03)	20:10			20:41	20:55	20:39	19:57	19:03			17:14	16:44	16:48
29	07:32		07:04		07:23 (MO03)	06:14			05:42	05:40	06:03	06:35	07:08			06:43	07:21	07:43
	17:23		19:36	22	07:45 (MO03)	20:11			20:42	20:55	20:38	19:55	19:01			17:13	16:44	16:49
30	07:31		07:02		07:21 (MO03)	06:12			05:41	05:40	06:04	06:36	07:09			06:44	07:22	07:43
	17:24		19:37	23	07:44 (MO03)	20:12			20:42	20:55	20:37	19:53	18:59			17:11	16:43	16:50
31	07:30		07:00		07:19 (MO03)				05:41		06:05	06:37				06:45		07:43
	17:26		19:38	24	07:43 (MO03)				20:43		20:36	19:52				17:10		16:50
Potential sun hours	293	295	369			400			452	457	463	431	376			344	295	283
Total, worst case				159			144							305				
Sun reduction				0.46			0.49							0.62				
Oper. time red.				1.00			1.00							1.00				
Wind dir. red.				1.00			1.00							1.00				
Total reduction				0.46			0.49							0.62				
Total, real				73			71							191				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 142 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1040)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June	July	August	September			October	November	December
1	07:44	07:29	06:51			06:58		07:19 (MO03)	06:11	05:40	05:40	06:06	06:38			07:10	06:46	07:23
	16:52	17:27	18:03			19:39	25	07:44 (MO03)	20:13	20:44	20:55	20:35	19:50			18:57	17:09	16:43
2	07:44	07:28	06:50			06:57		07:20 (MO03)	06:09	05:40	05:41	06:07	06:39			07:11	06:48	07:24
	16:52	17:28	18:04			19:40	24	07:44 (MO03)	20:14	20:45	20:55	20:34	19:48			18:56	17:07	16:42
3	07:44	07:27	06:48			06:55		07:21 (MO03)	06:08	05:39	05:41	06:08	06:40			07:12	06:49	07:25
	16:53	17:30	18:05			19:41	21	07:42 (MO03)	20:15	20:46	20:55	20:33	19:47			18:54	17:06	16:42
4	07:44	07:26	06:46			06:53		07:21 (MO03)	06:07	05:39	05:42	06:09	06:41			07:14	06:50	07:26
	16:54	17:31	18:07			19:42	19	07:40 (MO03)	20:16	20:46	20:55	20:31	19:45			18:52	17:05	16:42
5	07:44	07:25	06:45			06:52		07:23 (MO03)	06:05	05:39	05:43	06:10	06:42			07:15	06:51	07:27
	16:55	17:32	18:08			19:44	15	07:38 (MO03)	20:17	20:47	20:54	20:30	19:43			18:51	17:04	16:42
6	07:44	07:24	06:43			06:50		07:26 (MO03)	06:04	05:38	05:43	06:11	06:44		07:22 (MO03)	07:16	06:53	07:28
	16:56	17:34	18:09			19:45	9	07:35 (MO03)	20:18	20:48	20:54	20:29	19:41	9	07:31 (MO03)	18:49	17:03	16:42
7	07:44	07:22	06:42			06:48			06:03	05:38	05:44	06:12	06:45		07:19 (MO03)	07:17	06:54	07:29
	16:57	17:35	18:10			19:46			20:20	20:48	20:54	20:28	19:40	15	07:34 (MO03)	18:47	17:01	16:41
8	07:44	07:21	06:40			06:47			06:02	05:38	05:45	06:13	06:46		07:17 (MO03)	07:18	06:55	07:30
	16:58	17:36	18:11			19:47			20:21	20:49	20:53	20:26	19:38	18	07:35 (MO03)	18:45	17:00	16:41
9	07:43	07:20	06:38			06:45			06:00	05:37	05:45	06:14	06:47		07:15 (MO03)	07:19	06:56	07:31
	16:59	17:38	18:13			19:48			20:22	20:50	20:53	20:25	19:36	21	07:36 (MO03)	18:44	16:59	16:41
10	07:43	07:19	06:37			06:43			05:59	05:37	05:46	06:15	06:48		07:13 (MO03)	07:20	06:58	07:32
	17:00	17:39	18:14			19:49			20:23	20:50	20:53	20:24	19:35	24	07:37 (MO03)	18:42	16:58	16:41
11	07:43	07:18	06:35			06:41			05:58	05:37	05:47	06:16	06:49		07:12 (MO03)	07:21	06:59	07:33
	17:01	17:40	18:15			19:50			20:24	20:51	20:52	20:22	19:33	25	07:37 (MO03)	18:40	16:57	16:41
12	07:43	07:16	06:33			06:40			05:57	05:37	05:47	06:17	06:50		07:11 (MO03)	07:23	07:00	07:34
	17:02	17:41	18:16			19:52			20:25	20:51	20:52	20:21	19:31	26	07:37 (MO03)	18:39	16:56	16:42
13	07:42	07:15	06:31			06:38			05:56	05:37	05:48	06:18	06:51		07:12 (MO03)	07:24	07:01	07:34
	17:03	17:43	18:17			19:53			20:26	20:52	20:51	20:20	19:29	25	07:37 (MO03)	18:37	16:55	16:42
14	07:42	07:14	06:30			06:37			05:55	05:37	05:49	06:19	06:52		07:13 (MO03)	07:25	07:03	07:35
	17:05	17:44	18:18			19:54			20:27	20:52	20:51	20:18	19:27	24	07:37 (MO03)	18:35	16:54	16:42
15	07:42	07:12	06:28			06:35			05:54	05:37	05:50	06:20	06:53		07:14 (MO03)	07:26	07:04	07:36
	17:06	17:45	18:20			19:55			20:28	20:53	20:50	20:17	19:26	23	07:37 (MO03)	18:34	16:53	16:42
16	07:41	07:11	06:26			06:33			05:53	05:37	05:51	06:21	06:54		07:15 (MO03)	07:27	07:05	07:37
	17:07	17:47	18:21			19:56			20:29	20:53	20:49	20:15	19:24	21	07:36 (MO03)	18:32	16:52	16:42
17	07:41	07:09	06:25			06:32			05:52	05:37	05:51	06:22	06:55		07:16 (MO03)	07:28	07:06	07:37
	17:08	17:48	18:22			19:57			20:30	20:53	20:49	20:14	19:22	19	07:35 (MO03)	18:31	16:51	16:43
18	07:40	07:08	06:23			06:30			05:51	05:37	05:52	06:23	06:56		07:17 (MO03)	07:29	07:08	07:38
	17:09	17:49	18:23			19:58			20:31	20:54	20:48	20:12	19:20	17	07:34 (MO03)	18:29	16:50	16:43
19	07:40	07:07	06:21			06:29			05:50	05:37	05:53	06:24	06:57		07:18 (MO03)	07:31	07:09	07:39
	17:11	17:50	18:24			19:59			20:32	20:54	20:47	20:11	19:19	15	07:33 (MO03)	18:27	16:50	16:43
20	07:39	07:05	06:19			06:27			05:49	05:37	05:54	06:25	06:58		07:19 (MO03)	07:32	07:10	07:39
	17:12	17:52	18:25			20:01			20:33	20:54	20:47	20:09	19:17	13	07:32 (MO03)	18:26	16:49	16:44
21	07:38	07:04	06:18		06:37 (MO03)	06:25			05:48	05:37	05:55	06:27	06:59		07:20 (MO03)	07:33	07:11	07:40
	17:13	17:53	18:27	5	06:42 (MO03)	20:02			20:34	20:55	20:46	20:08	19:15	10	07:30 (MO03)	18:24	16:48	16:44
22	07:38	07:02	06:16		06:35 (MO03)	06:24			05:47	05:37	05:56	06:28	07:00		07:21 (MO03)	07:34	07:13	07:40
	17:14	17:54	18:28	9	06:44 (MO03)	20:03			20:35	20:55	20:45	20:06	19:13	6	07:27 (MO03)	18:23	16:47	16:45
23	07:37	07:01	06:14		06:33 (MO03)	06:22			05:46	05:37	05:57	06:29	07:02		07:22 (MO03)	07:35	07:14	07:41
	17:15	17:55	18:29	12	06:45 (MO03)	20:04			20:36	20:55	20:44	20:05	19:12	2	07:24 (MO03)	18:21	16:47	16:45
24	07:36	06:59	06:12		06:31 (MO03)	06:21			05:45	05:38	05:58	06:30	07:03			07:37	07:15	07:41
	17:17	17:57	18:30	15	06:46 (MO03)	20:05			20:37	20:55	20:43	20:03	19:10			18:20	16:46	16:46
25	07:35	06:58	06:11		06:30 (MO03)	06:19			05:45	05:38	05:59	06:31	07:04			06:38	07:16	07:42
	17:18	17:58	18:31	17	06:47 (MO03)	20:06			20:38	20:55	20:42	20:02	19:08			17:18	16:46	16:46
26	07:35	06:56	06:09		06:28 (MO03)	06:18			05:44	05:38	06:00	06:32	07:05			06:39	07:17	07:42
	17:19	17:59	18:32	19	06:47 (MO03)	20:07			20:39	20:55	20:41	20:00	19:06			17:17	16:45	16:47
27	07:34	06:54	06:07		06:26 (MO03)	06:16			05:43	05:39	06:01	06:33	07:06			06:40	07:18	07:42
	17:21	18:00	18:33	21	06:47 (MO03)	20:08			20:40	20:55	20:40	19:58	19:04			17:16	16:44	16:47
28	07:33	06:53	06:05		06:24 (MO03)	06:15			05:43	05:39	06:02	06:34	07:07			06:42	07:20	07:43
	17:22	18:02	18:35	22	06:46 (MO03)	20:10			20:41	20:55	20:39	19:57	19:03			17:14	16:44	16:48
29	07:32		07:04		07:23 (MO03)	06:14			05:42	05:40	06:03	06:35	07:08			06:43	07:21	07:43
	17:23		19:36	24	07:47 (MO03)	20:11			20:42	20:55	20:38	19:55	19:01			17:13	16:44	16:49
30	07:31		07:02		07:21 (MO03)	06:12			05:41	05:40	06:04	06:36	07:09			06:44	07:22	07:43
	17:24		19:37	25	07:46 (MO03)	20:12			20:42	20:55	20:37	19:53	18:59			17:11	16:43	16:50
31	07:30		07:00		07:19 (MO03)				05:41		06:05	06:37				06:45		07:43
	17:26		19:38	26	07:45 (MO03)				20:43		20:36	19:52				17:10		16:50
Potential sun hours	293	295	369			400			452	457	463	431	376			344	295	283
Total, worst case				195			113							313				
Sun reduction				0.46			0.49							0.62				
Oper. time red.				1.00			1.00							1.00				
Wind dir. red.				1.00			1.00							1.00				
Total reduction				0.46			0.49							0.62				
Total, real				89			56							196				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 143 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1041)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June	July	August	September			October	November	December
1	07:44	07:29	06:51			06:58		07:17 (MO03)	06:11	05:40	05:40	06:06	06:38			07:10	06:46	07:23
	16:52	17:27	18:03			19:39	25	07:42 (MO03)	20:13	20:44	20:55	20:35	19:50			18:57	17:09	16:43
2	07:44	07:28	06:50			06:57		07:16 (MO03)	06:09	05:40	05:41	06:07	06:39			07:11	06:48	07:24
	16:52	17:28	18:04			19:40	26	07:42 (MO03)	20:14	20:45	20:55	20:34	19:48			18:56	17:07	16:42
3	07:44	07:27	06:48			06:55		07:16 (MO03)	06:08	05:39	05:41	06:08	06:40			07:12	06:49	07:25
	16:53	17:30	18:05			19:41	24	07:40 (MO03)	20:15	20:46	20:55	20:33	19:47			18:54	17:06	16:42
4	07:44	07:26	06:46			06:53		07:17 (MO03)	06:07	05:39	05:42	06:09	06:41			07:14	06:50	07:26
	16:54	17:31	18:07			19:42	22	07:39 (MO03)	20:16	20:46	20:55	20:31	19:45			18:52	17:05	16:42
5	07:44	07:25	06:45			06:52		07:17 (MO03)	06:05	05:39	05:43	06:10	06:42		07:18 (MO03)	07:15	06:51	07:27
	16:55	17:32	18:08			19:44	20	07:37 (MO03)	20:17	20:47	20:54	20:30	19:43	12	07:30 (MO03)	18:51	17:04	16:42
6	07:44	07:24	06:43			06:50		07:19 (MO03)	06:04	05:38	05:43	06:11	06:44		07:15 (MO03)	07:16	06:53	07:28
	16:56	17:34	18:09			19:45	17	07:36 (MO03)	20:18	20:48	20:54	20:29	19:41	17	07:32 (MO03)	18:49	17:03	16:42
7	07:44	07:22	06:42			06:48		07:21 (MO03)	06:03	05:38	05:44	06:12	06:45		07:13 (MO03)	07:17	06:54	07:29
	16:57	17:35	18:10			19:46	12	07:33 (MO03)	20:20	20:48	20:54	20:28	19:40	20	07:33 (MO03)	18:47	17:01	16:41
8	07:44	07:21	06:40			06:47			06:02	05:38	05:45	06:13	06:46		07:12 (MO03)	07:18	06:55	07:30
	16:58	17:36	18:11			19:47			20:21	20:49	20:53	20:26	19:38	22	07:34 (MO03)	18:45	17:00	16:41
9	07:43	07:20	06:38			06:45			06:00	05:37	05:45	06:14	06:47		07:11 (MO03)	07:19	06:56	07:31
	16:59	17:38	18:13			19:48			20:22	20:50	20:53	20:25	19:36	23	07:34 (MO03)	18:44	16:59	16:41
10	07:43	07:19	06:37			06:43			05:59	05:37	05:46	06:15	06:48		07:10 (MO03)	07:20	06:58	07:32
	17:00	17:39	18:14			19:49			20:23	20:50	20:53	20:24	19:35	25	07:35 (MO03)	18:42	16:58	16:41
11	07:43	07:18	06:35			06:41			05:58	05:37	05:47	06:16	06:49		07:10 (MO03)	07:21	06:59	07:33
	17:01	17:40	18:15			19:50			20:24	20:51	20:52	20:22	19:33	25	07:35 (MO03)	18:40	16:57	16:41
12	07:43	07:16	06:33			06:40			05:57	05:37	05:47	06:17	06:50		07:11 (MO03)	07:23	07:00	07:34
	17:02	17:41	18:16			19:52			20:25	20:51	20:52	20:21	19:31	24	07:35 (MO03)	18:39	16:56	16:42
13	07:42	07:15	06:31			06:38			05:56	05:37	05:48	06:18	06:51		07:12 (MO03)	07:24	07:01	07:34
	17:03	17:43	18:17			19:53			20:26	20:52	20:51	20:20	19:29	22	07:34 (MO03)	18:37	16:55	16:42
14	07:42	07:14	06:30			06:37			05:55	05:37	05:49	06:19	06:52		07:13 (MO03)	07:25	07:03	07:35
	17:05	17:44	18:18			19:54			20:27	20:52	20:51	20:18	19:27	21	07:34 (MO03)	18:35	16:54	16:42
15	07:42	07:12	06:28			06:35			05:54	05:37	05:50	06:20	06:53		07:14 (MO03)	07:26	07:04	07:36
	17:06	17:45	18:20			19:55			20:28	20:53	20:50	20:17	19:26	19	07:33 (MO03)	18:34	16:53	16:42
16	07:41	07:11	06:26			06:33			05:53	05:37	05:51	06:21	06:54		07:15 (MO03)	07:27	07:05	07:37
	17:07	17:47	18:21			19:56			20:29	20:53	20:49	20:15	19:24	17	07:32 (MO03)	18:32	16:52	16:42
17	07:41	07:09	06:25			06:32			05:52	05:37	05:51	06:22	06:55		07:16 (MO03)	07:28	07:06	07:37
	17:08	17:48	18:22			19:57			20:30	20:53	20:49	20:14	19:22	15	07:31 (MO03)	18:31	16:51	16:43
18	07:40	07:08	06:23			06:30			05:51	05:37	05:52	06:23	06:56		07:17 (MO03)	07:29	07:08	07:38
	17:09	17:49	18:23			19:58			20:31	20:54	20:48	20:12	19:20	13	07:30 (MO03)	18:29	16:50	16:43
19	07:40	07:07	06:21			06:29			05:50	05:37	05:53	06:24	06:57		07:18 (MO03)	07:31	07:09	07:39
	17:11	17:50	18:24			19:59			20:32	20:54	20:47	20:11	19:19	10	07:28 (MO03)	18:27	16:50	16:43
20	07:39	07:05	06:19			06:27			05:49	05:37	05:54	06:25	06:58		07:19 (MO03)	07:32	07:10	07:39
	17:12	17:52	18:25			20:01			20:33	20:54	20:47	20:09	19:17	7	07:26 (MO03)	18:26	16:49	16:44
21	07:38	07:04	06:18			06:25			05:48	05:37	05:55	06:27	06:59		07:20 (MO03)	07:33	07:11	07:40
	17:13	17:53	18:27			20:02			20:34	20:55	20:46	20:08	19:15	2	07:22 (MO03)	18:24	16:48	16:44
22	07:38	07:02	06:16			06:24			05:47	05:37	05:56	06:28	07:00			07:34	07:13	07:40
	17:14	17:54	18:28			20:03			20:35	20:55	20:45	20:06	19:13			18:23	16:47	16:45
23	07:37	07:01	06:14		06:33 (MO03)	06:22			05:46	05:37	05:57	06:29	07:02			07:35	07:14	07:41
	17:15	17:56	18:29	6	06:39 (MO03)	20:04			20:36	20:55	20:44	20:05	19:12			18:21	16:47	16:45
24	07:36	06:59	06:12		06:31 (MO03)	06:21			05:45	05:38	05:58	06:30	07:03			07:37	07:15	07:41
	17:17	17:57	18:30	9	06:40 (MO03)	20:05			20:37	20:55	20:43	20:03	19:10			18:20	16:46	16:46
25	07:35	06:58	06:11		06:30 (MO03)	06:19			05:45	05:38	05:59	06:31	07:04			06:38	07:16	07:42
	17:18	17:58	18:31	12	06:42 (MO03)	20:06			20:38	20:55	20:42	20:02	19:08			17:18	16:46	16:46
26	07:35	06:56	06:09		06:28 (MO03)	06:18			05:44	05:38	06:00	06:32	07:05			06:39	07:17	07:42
	17:19	17:59	18:32	15	06:43 (MO03)	20:07			20:39	20:55	20:41	20:00	19:06			17:17	16:45	16:47
27	07:34	06:55	06:07		06:26 (MO03)	06:16			05:43	05:39	06:01	06:33	07:06			06:40	07:18	07:42
	17:21	18:00	18:33	17	06:43 (MO03)	20:08			20:40	20:55	20:40	19:58	19:04			17:16	16:44	16:47
28	07:33	06:53	06:05		06:24 (MO03)	06:15			05:43	05:39	06:02	06:34	07:07			06:42	07:20	07:43
	17:22	18:02	18:35	19	06:43 (MO03)	20:10			20:41	20:55	20:39	19:57	19:03			17:14	16:44	16:48
29	07:32		07:04		07:23 (MO03)	06:14			05:42	05:40	06:03	06:35	07:08			06:43	07:21	07:43
	17:23		19:36	21	07:44 (MO03)	20:11			20:42	20:55	20:38	19:55	19:01			17:13	16:44	16:49
30	07:31		07:02		07:21 (MO03)	06:12			05:41	05:40	06:04	06:36	07:09			06:44	07:22	07:43
	17:24		19:37	22	07:43 (MO03)	20:12			20:42	20:55	20:37	19:53	18:59			17:11	16:43	16:50
31	07:30		07:00		07:19 (MO03)				05:41		06:05	06:37				06:45		07:43
	17:26		19:38	23	07:42 (MO03)				20:43		20:36	19:52				17:10		16:50
Potential sun hours	293	295	369			400			452	457	463	431	376			344	295	283
Total, worst case				144			146							294				
Sun reduction				0.46			0.49							0.62				
Oper. time red.				1.00			1.00							1.00				
Wind dir. red.				1.00			1.00							1.00				
Total reduction				0.46			0.49							0.62				
Total, real				66			72							184				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 144 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1042)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:07 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:06	06:38	07:10	06:46			07:23		07:47 (MO03)
	16:51	9	08:16 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09			16:43	18	08:05 (MO03)
2	07:44		08:07 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48			07:24		07:48 (MO03)
	16:52	10	08:17 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07			16:42	17	08:05 (MO03)
3	07:44		08:07 (MO03)	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49			07:25		07:49 (MO03)
	16:53	11	08:18 (MO03)	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	16	08:05 (MO03)
4	07:44		08:07 (MO03)	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50			07:26		07:51 (MO03)
	16:54	11	08:18 (MO03)	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	15	08:06 (MO03)
5	07:44		08:07 (MO03)	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51			07:27		07:52 (MO03)
	16:55	12	08:19 (MO03)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04			16:42	14	08:06 (MO03)
6	07:44		08:07 (MO03)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		07:53 (MO03)
	16:56	13	08:20 (MO03)	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02			16:42	13	08:06 (MO03)
7	07:44		08:06 (MO03)	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		07:54 (MO03)
	16:57	14	08:20 (MO03)	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01			16:41	12	08:06 (MO03)
8	07:44		08:06 (MO03)	07:21	06:40	06:46	06:02	05:38	05:44	06:13	06:46	07:18	06:55			07:30		07:55 (MO03)
	16:58	15	08:21 (MO03)	17:36	18:11	19:47	20:21	20:49	20:54	20:26	19:38	18:45	17:00			16:41	11	08:06 (MO03)
9	07:43		08:06 (MO03)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56			07:31		07:55 (MO03)
	16:59	16	08:22 (MO03)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:41	11	08:06 (MO03)
10	07:43		08:06 (MO03)	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		07:56 (MO03)
	17:00	17	08:23 (MO03)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58			16:41	10	08:06 (MO03)
11	07:43		08:05 (MO03)	07:18	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59			07:33		07:57 (MO03)
	17:01	18	08:23 (MO03)	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57			16:41	9	08:06 (MO03)
12	07:43		08:05 (MO03)	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00		07:43 (MO03)	07:34		07:58 (MO03)
	17:02	18	08:23 (MO03)	17:41	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	6	07:49 (MO03)	16:41	9	08:07 (MO03)
13	07:42		08:04 (MO03)	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02		07:40 (MO03)	07:34		07:59 (MO03)
	17:03	19	08:23 (MO03)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	13	07:53 (MO03)	16:42	8	08:07 (MO03)
14	07:42		08:04 (MO03)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03		07:38 (MO03)	07:35		08:00 (MO03)
	17:05	20	08:24 (MO03)	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16	07:54 (MO03)	16:42	7	08:07 (MO03)
15	07:42		08:03 (MO03)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04		07:37 (MO03)	07:36		08:00 (MO03)
	17:06	21	08:24 (MO03)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	19	07:56 (MO03)	16:42	7	08:07 (MO03)
16	07:41		08:03 (MO03)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05		07:36 (MO03)	07:37		08:01 (MO03)
	17:07	22	08:25 (MO03)	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	22	07:58 (MO03)	16:42	6	08:07 (MO03)
17	07:41		08:02 (MO03)	07:09	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06		07:35 (MO03)	07:37		08:02 (MO03)
	17:08	23	08:25 (MO03)	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	23	07:58 (MO03)	16:42	6	08:08 (MO03)
18	07:40		08:02 (MO03)	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08		07:35 (MO03)	07:38		08:02 (MO03)
	17:09	24	08:26 (MO03)	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	24	07:59 (MO03)	16:43	6	08:08 (MO03)
19	07:40		08:01 (MO03)	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09		07:35 (MO03)	07:39		08:03 (MO03)
	17:10	25	08:26 (MO03)	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	25	08:00 (MO03)	16:43	5	08:08 (MO03)
20	07:39		08:00 (MO03)	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10		07:34 (MO03)	07:39		08:03 (MO03)
	17:12	25	08:25 (MO03)	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	27	08:01 (MO03)	16:44	5	08:08 (MO03)
21	07:38		08:00 (MO03)	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11		07:35 (MO03)	07:40		08:04 (MO03)
	17:13	26	08:26 (MO03)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	26	08:01 (MO03)	16:44	5	08:09 (MO03)
22	07:38		07:59 (MO03)	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13		07:36 (MO03)	07:40		08:04 (MO03)
	17:14	27	08:26 (MO03)	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	25	08:01 (MO03)	16:44	5	08:09 (MO03)
23	07:37		08:00 (MO03)	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:02	07:35	07:14		07:38 (MO03)	07:41		08:05 (MO03)
	17:15	25	08:25 (MO03)	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	25	08:03 (MO03)	16:45	5	08:10 (MO03)
24	07:36		08:01 (MO03)	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15		07:39 (MO03)	07:41		08:05 (MO03)
	17:17	24	08:25 (MO03)	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	24	08:03 (MO03)	16:46	5	08:10 (MO03)
25	07:35		08:01 (MO03)	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		07:40 (MO03)	07:42		08:06 (MO03)
	17:18	23	08:24 (MO03)	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:46	23	08:03 (MO03)	16:46	6	08:12 (MO03)
26	07:35		08:03 (MO03)	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17		07:41 (MO03)	07:42		08:06 (MO03)
	17:19	22	08:25 (MO03)	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	22	08:03 (MO03)	16:47	6	08:12 (MO03)
27	07:34		08:05 (MO03)	06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18		07:43 (MO03)	07:42		08:06 (MO03)
	17:21	19	08:24 (MO03)	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:16	16:44	21	08:04 (MO03)	16:47	6	08:12 (MO03)
28	07:33		08:06 (MO03)	06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		07:44 (MO03)	07:43		08:06 (MO03)
	17:22	16	08:22 (MO03)	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	20	08:04 (MO03)	16:48	7	08:13 (MO03)
29	07:32		08:08 (MO03)		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21		07:45 (MO03)	07:43		08:07 (MO03)
	17:23	13	08:21 (MO03)		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	19	08:04 (MO03)	16:49	7	08:14 (MO03)
30	07:31		08:12 (MO03)		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22		07:46 (MO03)	07:43		08:07 (MO03)
	17:24	5	08:17 (MO03)		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	19	08:05 (MO03)	16:50	8	08:15 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45				07:43		08:07 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10				16:50	8	08:15 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		543												399			273	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		228												182			118	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 145 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1043)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
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	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
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	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 146 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1044)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 147 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1045)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 148 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1046)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 149 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1047)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		15:27 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46			07:23		15:21 (MO03)
	16:51	31	15:58 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09			16:43	15	15:36 (MO03)
2	07:44		15:28 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48			07:24		15:20 (MO03)
	16:52	30	15:58 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07			16:42	18	15:38 (MO03)
3	07:44		15:29 (MO03)	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49			07:25		15:19 (MO03)
	16:53	29	15:58 (MO03)	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06			16:42	20	15:39 (MO03)
4	07:44		15:30 (MO03)	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50			07:26		15:18 (MO03)
	16:54	28	15:58 (MO03)	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05			16:42	23	15:41 (MO03)
5	07:44		15:31 (MO03)	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51			07:27		15:18 (MO03)
	16:55	27	15:58 (MO03)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04			16:42	24	15:42 (MO03)
6	07:44		15:32 (MO03)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53			07:28		15:17 (MO03)
	16:56	26	15:58 (MO03)	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02			16:41	26	15:43 (MO03)
7	07:44		15:33 (MO03)	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54			07:29		15:17 (MO03)
	16:57	24	15:57 (MO03)	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01			16:41	27	15:44 (MO03)
8	07:44		15:34 (MO03)	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55			07:30		15:17 (MO03)
	16:58	23	15:57 (MO03)	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00			16:41	28	15:45 (MO03)
9	07:43		15:36 (MO03)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56			07:31		15:17 (MO03)
	16:59	20	15:56 (MO03)	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59			16:41	29	15:46 (MO03)
10	07:43		15:38 (MO03)	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		15:17 (MO03)
	17:00	18	15:56 (MO03)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58			16:41	30	15:47 (MO03)
11	07:43		15:39 (MO03)	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59			07:33		15:17 (MO03)
	17:01	15	15:54 (MO03)	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57			16:41	31	15:48 (MO03)
12	07:43		15:42 (MO03)	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00			07:33		15:17 (MO03)
	17:02	11	15:53 (MO03)	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:41	32	15:49 (MO03)
13	07:42		15:46 (MO03)	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01			07:34		15:18 (MO03)
	17:03	2	15:48 (MO03)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:41	32	15:50 (MO03)
14	07:42			07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03			07:35		15:17 (MO03)
	17:04			17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54			16:42	33	15:50 (MO03)
15	07:41			07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04			07:36		15:18 (MO03)
	17:06			17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	33	15:51 (MO03)
16	07:41			07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05			07:37		15:18 (MO03)
	17:07			17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52			16:42	33	15:51 (MO03)
17	07:41			07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06			07:37		15:19 (MO03)
	17:08			17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51			16:42	33	15:52 (MO03)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08			07:38		15:19 (MO03)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50			16:43	33	15:52 (MO03)
19	07:39			07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09			07:39		15:19 (MO03)
	17:10			17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49			16:43	34	15:53 (MO03)
20	07:39			07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10			07:39		15:19 (MO03)
	17:12			17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49			16:43	34	15:53 (MO03)
21	07:38			07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11			07:40		15:20 (MO03)
	17:13			17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48			16:44	34	15:54 (MO03)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12			07:40		15:20 (MO03)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47			16:44	34	15:54 (MO03)
23	07:37			07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14			07:41		15:21 (MO03)
	17:15			17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47			16:45	34	15:55 (MO03)
24	07:36			06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15			07:41		15:21 (MO03)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46			16:45	34	15:55 (MO03)
25	07:35			06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16			07:42		15:23 (MO03)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45			16:46	33	15:56 (MO03)
26	07:34			06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17			07:42		15:23 (MO03)
	17:19			17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45			16:47	33	15:56 (MO03)
27	07:34			06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18			07:42		15:23 (MO03)
	17:20			18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44			16:47	33	15:56 (MO03)
28	07:33			06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20			07:43		15:24 (MO03)
	17:22			18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44			16:48	32	15:56 (MO03)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21			07:43		15:25 (MO03)
	17:23				19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43			16:49	33	15:58 (MO03)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22		15:23 (MO03)	07:43		15:26 (MO03)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	11	15:34 (MO03)	16:50	32	15:58 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45				07:43		15:26 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10				16:50	32	15:58 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		284												11			932	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		119												5			403	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 150 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1048)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November	December		
1	07:44		15:30 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23		
	16:51	21	15:51 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43		
2	07:44		15:32 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24		
	16:52	19	15:51 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42		
3	07:44		15:33 (MO03)	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25		
	16:53	18	15:51 (MO03)	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42		
4	07:44		15:34 (MO03)	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26		
	16:54	16	15:50 (MO03)	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42		
5	07:44		15:36 (MO03)	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27		15:26 (MO03)
	16:55	14	15:50 (MO03)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42	4	15:30 (MO03)
6	07:44		15:38 (MO03)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28		15:24 (MO03)
	16:56	11	15:49 (MO03)	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41	9	15:33 (MO03)
7	07:44		15:41 (MO03)	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29		15:22 (MO03)
	16:57	4	15:45 (MO03)	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41	14	15:36 (MO03)
8	07:44			07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:46	07:18	06:55	07:30		15:21 (MO03)
	16:58			17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41	16	15:37 (MO03)
9	07:43			07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31		15:21 (MO03)
	16:59			17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41	18	15:39 (MO03)
10	07:43			07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		15:21 (MO03)
	17:00			17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41	19	15:40 (MO03)
11	07:43			07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33		15:21 (MO03)
	17:01			17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41	20	15:41 (MO03)
12	07:43			07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33		15:21 (MO03)
	17:02			17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41	21	15:42 (MO03)
13	07:42			07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34		15:21 (MO03)
	17:03			17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41	22	15:43 (MO03)
14	07:42			07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35		15:20 (MO03)
	17:04			17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42	24	15:44 (MO03)
15	07:41			07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36		15:20 (MO03)
	17:06			17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42	25	15:45 (MO03)
16	07:41			07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37		15:21 (MO03)
	17:07			17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42	25	15:46 (MO03)
17	07:41			07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37		15:21 (MO03)
	17:08			17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42	26	15:47 (MO03)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38		15:21 (MO03)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43	26	15:47 (MO03)
19	07:39			07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39		15:22 (MO03)
	17:10			17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43	26	15:48 (MO03)
20	07:39			07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39		15:22 (MO03)
	17:12			17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43	26	15:48 (MO03)
21	07:38			07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40		15:22 (MO03)
	17:13			17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44	27	15:49 (MO03)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40		15:22 (MO03)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44	27	15:49 (MO03)
23	07:37			07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41		15:23 (MO03)
	17:15			17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45	27	15:50 (MO03)
24	07:36			06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41		15:24 (MO03)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45	26	15:50 (MO03)
25	07:35			06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42		15:25 (MO03)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46	26	15:51 (MO03)
26	07:34			06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42		15:25 (MO03)
	17:19			17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47	26	15:51 (MO03)
27	07:34			06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42		15:26 (MO03)
	17:20			18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47	25	15:51 (MO03)
28	07:33			06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43		15:26 (MO03)
	17:22			18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48	25	15:51 (MO03)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43		15:28 (MO03)
	17:23				19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49	24	15:52 (MO03)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43		15:28 (MO03)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50	24	15:52 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45		07:43		15:29 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10		16:50	22	15:51 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295	283		
Total, worst case		103													600	
Sun reduction		0.42													0.43	
Oper. time red.		1.00													1.00	
Wind dir. red.		1.00													1.00	
Total reduction		0.42													0.43	
Total, real		43													259	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 151 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1049)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 152 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1050)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June	
1	07:44		07:29		06:51		06:58			06:11			18:54 (MO04)	05:40
	16:51		17:27		18:03		19:39			20:13	51		19:45 (MO04)	20:44
2	07:44		07:28		06:50		06:57			06:09			18:55 (MO04)	05:40
	16:52		17:28		18:04		19:40			20:14	50		19:45 (MO04)	20:45
3	07:44		07:27		06:48		06:55			06:08			18:55 (MO04)	05:39
	16:53		17:30		18:05		19:41			20:15	50		19:45 (MO04)	20:45
4	07:44		07:26		06:46		06:53			06:07			18:54 (MO04)	05:39
	16:54		17:31		18:06		19:42			20:16	50		19:44 (MO04)	20:46
5	07:44		07:25		06:45		06:51			06:05			18:54 (MO04)	05:38
	16:55		17:32		18:08		19:43			20:17	50		19:44 (MO04)	20:47
6	07:44		07:23		06:43		06:50			06:04			18:55 (MO04)	05:38
	16:56		17:33		18:09		19:45			20:18	49		19:44 (MO04)	20:47
7	07:44		07:22		06:41		06:48			06:03			18:55 (MO04)	05:38
	16:57		17:35		18:10		19:46			20:19	49		19:44 (MO04)	20:48
8	07:43		07:21		06:40		06:46			06:01			18:55 (MO04)	05:37
	16:58		17:36		18:11		19:47			20:20	49		19:44 (MO04)	20:49
9	07:43		07:20		06:38		06:45			06:00			18:56 (MO04)	05:37
	16:59		17:37		18:12		19:48			20:22	48		19:44 (MO04)	20:49
10	07:43		07:19		06:36		06:43			05:59			18:55 (MO04)	05:37
	17:00		17:39		18:14		19:49			20:23	48		19:43 (MO04)	20:50
11	07:43		07:17		06:35		06:41			05:58			18:56 (MO04)	05:37
	17:01		17:40		18:15		19:50			20:24	46		19:42 (MO04)	20:51
12	07:42		07:16		06:33		06:40			05:57			18:56 (MO04)	05:37
	17:02		17:41		18:16		19:51			20:25	46		19:42 (MO04)	20:51
13	07:42		07:15		06:31		06:38			05:56			18:57 (MO04)	05:37
	17:03		17:43		18:17		19:52			20:26	44		19:41 (MO04)	20:52
14	07:42		07:13		06:30		06:36		19:20 (MO04)	05:55			18:57 (MO04)	05:36
	17:04		17:44		18:18		19:54	6	19:26 (MO04)	20:27	44		19:41 (MO04)	20:52
15	07:41		07:12		06:28		06:35		19:14 (MO04)	05:54			18:58 (MO04)	05:36
	17:06		17:45		18:19		19:55	18	19:32 (MO04)	20:28	42		19:40 (MO04)	20:52
16	07:41		07:11		06:26		06:33		19:10 (MO04)	05:52			18:59 (MO04)	05:36
	17:07		17:46		18:21		19:56	23	19:33 (MO04)	20:29	40		19:39 (MO04)	20:53
17	07:40		07:09		06:24		06:32		19:09 (MO04)	05:51			19:00 (MO04)	05:36
	17:08		17:48		18:22		19:57	26	19:35 (MO04)	20:30	39		19:39 (MO04)	20:53
18	07:40		07:08		06:23		06:30		19:06 (MO04)	05:51			19:00 (MO04)	05:36
	17:09		17:49		18:23		19:58	29	19:35 (MO04)	20:31	38		19:38 (MO04)	20:54
19	07:39		07:06		06:21		06:28		19:05 (MO04)	05:50			19:02 (MO04)	05:37
	17:10		17:50		18:24		19:59	32	19:37 (MO04)	20:32	36		19:38 (MO04)	20:54
20	07:39		07:05		06:19		06:27		19:03 (MO04)	05:49			19:03 (MO04)	05:37
	17:12		17:52		18:25		20:00	35	19:38 (MO04)	20:33	34		19:37 (MO04)	20:54
21	07:38		07:03		06:17		06:25		19:01 (MO04)	05:48			19:04 (MO04)	05:37
	17:13		17:53		18:26		20:01	37	19:38 (MO04)	20:34	32		19:36 (MO04)	20:54
22	07:37		07:02		06:16		06:24		19:00 (MO04)	05:47			19:05 (MO04)	05:37
	17:14		17:54		18:28		20:03	40	19:40 (MO04)	20:35	29		19:34 (MO04)	20:55
23	07:37		07:00		06:14		06:22		18:59 (MO04)	05:46			19:06 (MO04)	05:37
	17:15		17:55		18:29		20:04	41	19:40 (MO04)	20:36	27		19:33 (MO04)	20:55
24	07:36		06:59		06:12		06:21		18:58 (MO04)	05:45			19:08 (MO04)	05:38
	17:17		17:57		18:30		20:05	44	19:42 (MO04)	20:37	25		19:33 (MO04)	20:55
25	07:35		06:57		06:10		06:19		18:58 (MO04)	05:45			19:09 (MO04)	05:38
	17:18		17:58		18:31		20:06	45	19:43 (MO04)	20:38	22		19:31 (MO04)	20:55
26	07:34		06:56		06:09		06:18		18:57 (MO04)	05:44			19:10 (MO04)	05:38
	17:19		17:59		18:32		20:07	47	19:44 (MO04)	20:39	19		19:29 (MO04)	20:55
27	07:34		06:54		06:07		06:16		18:56 (MO04)	05:43			19:13 (MO04)	05:39
	17:20		18:00		18:33		20:08	49	19:45 (MO04)	20:40	15		19:28 (MO04)	20:55
28	07:33		06:53		06:05		06:15		18:55 (MO04)	05:42			19:15 (MO04)	05:39
	17:22		18:02		18:34		20:09	50	19:45 (MO04)	20:40	10		19:25 (MO04)	20:55
29	07:32				07:03		06:13		18:55 (MO04)	05:42				05:39
	17:23				19:36		20:10	50	19:45 (MO04)	20:41				20:55
30	07:31				07:02		06:12		18:55 (MO04)	05:41				05:40
	17:24				19:37		20:12	51	19:46 (MO04)	20:42				20:55
31	07:30				07:00					05:41				
	17:26				19:38					20:43				
Potential sun hours	293		295		369		400			452			457	
Total, worst case								623			1082			
Sun reduction								0.49			0.57			
Oper. time red.								1.00			1.00			
Wind dir. red.								1.00			1.00			
Total reduction								0.49			0.57			
Total, real								308			616			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 152 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1050)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:05		19:07 (MO04)	06:38	07:10	06:46	07:23
	20:55			20:35	46	19:53 (MO04)	19:50	18:57	17:09	16:43
2	05:41			06:06		19:06 (MO04)	06:39	07:11	06:48	07:24
	20:55			20:34	47	19:53 (MO04)	19:48	18:56	17:07	16:42
3	05:41			06:07		19:06 (MO04)	06:40	07:12	06:49	07:25
	20:55			20:33	47	19:53 (MO04)	19:46	18:54	17:06	16:42
4	05:42			06:08		19:05 (MO04)	06:41	07:13	06:50	07:26
	20:54			20:31	49	19:54 (MO04)	19:45	18:52	17:05	16:42
5	05:42			06:09		19:05 (MO04)	06:42	07:14	06:51	07:27
	20:54			20:30	49	19:54 (MO04)	19:43	18:50	17:04	16:42
6	05:43			06:11		19:04 (MO04)	06:43	07:16	06:53	07:28
	20:54			20:29	50	19:54 (MO04)	19:41	18:49	17:02	16:41
7	05:44			06:12		19:04 (MO04)	06:44	07:17	06:54	07:29
	20:54			20:28	50	19:54 (MO04)	19:40	18:47	17:01	16:41
8	05:44			06:13		19:04 (MO04)	06:45	07:18	06:55	07:30
	20:53			20:26	50	19:54 (MO04)	19:38	18:45	17:00	16:41
9	05:45			06:14		19:04 (MO04)	06:47	07:19	06:56	07:31
	20:53			20:25	50	19:54 (MO04)	19:36	18:44	16:59	16:41
10	05:46			06:15		19:03 (MO04)	06:48	07:20	06:58	07:32
	20:52			20:24	51	19:54 (MO04)	19:34	18:42	16:58	16:41
11	05:46			06:16		19:03 (MO04)	06:49	07:21	06:59	07:33
	20:52			20:22	51	19:54 (MO04)	19:33	18:40	16:57	16:41
12	05:47			06:17		19:03 (MO04)	06:50	07:22	07:00	07:33
	20:52			20:21	51	19:54 (MO04)	19:31	18:39	16:56	16:41
13	05:48			06:18		19:03 (MO04)	06:51	07:24	07:01	07:34
	20:51			20:20	50	19:53 (MO04)	19:29	18:37	16:55	16:41
14	05:49			06:19		19:03 (MO04)	06:52	07:25	07:03	07:35
	20:50			20:18	50	19:53 (MO04)	19:27	18:35	16:54	16:42
15	05:50		19:27 (MO04)	06:20		19:03 (MO04)	06:53	07:26	07:04	07:36
	20:50	5	19:32 (MO04)	20:17	49	19:52 (MO04)	19:26	18:34	16:53	16:42
16	05:50		19:24 (MO04)	06:21		19:03 (MO04)	06:54	07:27	07:05	07:36
	20:49	12	19:36 (MO04)	20:15	49	19:52 (MO04)	19:24	18:32	16:52	16:42
17	05:51		19:21 (MO04)	06:22		19:03 (MO04)	06:55	07:28	07:06	07:37
	20:49	17	19:38 (MO04)	20:14	47	19:50 (MO04)	19:22	18:30	16:51	16:42
18	05:52		19:19 (MO04)	06:23		19:04 (MO04)	06:56	07:29	07:08	07:38
	20:48	21	19:40 (MO04)	20:12	45	19:49 (MO04)	19:20	18:29	16:50	16:43
19	05:53		19:18 (MO04)	06:24		19:04 (MO04)	06:57	07:30	07:09	07:38
	20:47	23	19:41 (MO04)	20:11	43	19:47 (MO04)	19:18	18:27	16:49	16:43
20	05:54		19:17 (MO04)	06:25		19:04 (MO04)	06:58	07:32	07:10	07:39
	20:46	26	19:43 (MO04)	20:09	42	19:46 (MO04)	19:17	18:26	16:49	16:43
21	05:55		19:16 (MO04)	06:26		19:05 (MO04)	06:59	07:33	07:11	07:40
	20:46	28	19:44 (MO04)	20:08	39	19:44 (MO04)	19:15	18:24	16:48	16:44
22	05:56		19:15 (MO04)	06:27		19:06 (MO04)	07:00	07:34	07:12	07:40
	20:45	30	19:45 (MO04)	20:06	37	19:43 (MO04)	19:13	18:23	16:47	16:44
23	05:57		19:14 (MO04)	06:29		19:07 (MO04)	07:01	07:35	07:14	07:41
	20:44	33	19:47 (MO04)	20:05	34	19:41 (MO04)	19:11	18:21	16:47	16:45
24	05:58		19:12 (MO04)	06:30		19:08 (MO04)	07:02	07:36	07:15	07:41
	20:43	35	19:47 (MO04)	20:03	32	19:40 (MO04)	19:10	18:20	16:46	16:45
25	05:58		19:11 (MO04)	06:31		19:09 (MO04)	07:04	06:38	07:16	07:42
	20:42	37	19:48 (MO04)	20:01	29	19:38 (MO04)	19:08	17:18	16:45	16:46
26	05:59		19:10 (MO04)	06:32		19:11 (MO04)	07:05	06:39	07:17	07:42
	20:41	39	19:49 (MO04)	20:00	26	19:37 (MO04)	19:06	17:17	16:45	16:47
27	06:00		19:10 (MO04)	06:33		19:13 (MO04)	07:06	06:40	07:18	07:42
	20:40	39	19:49 (MO04)	19:58	22	19:35 (MO04)	19:04	17:15	16:44	16:47
28	06:01		19:09 (MO04)	06:34		19:16 (MO04)	07:07	06:41	07:19	07:43
	20:39	41	19:50 (MO04)	19:56	17	19:33 (MO04)	19:03	17:14	16:44	16:48
29	06:02		19:08 (MO04)	06:35		19:22 (MO04)	07:08	06:43	07:21	07:43
	20:38	43	19:51 (MO04)	19:55	4	19:26 (MO04)	19:01	17:13	16:43	16:49
30	06:03		19:08 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	44	19:52 (MO04)	19:53			18:59	17:11	16:43	16:49
31	06:04		19:07 (MO04)	06:37				06:45		07:43
	20:36	45	19:52 (MO04)	19:51				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		518			1206					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		365			845					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 153 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1051)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March			April	May	June
1	07:44	07:29			06:51		16:46 (MO04)	06:58	06:11	05:40
	16:51	17:27			18:03	53	17:39 (MO04)	19:39	20:13	20:44
2	07:44	07:28			06:50		16:45 (MO04)	06:57	06:09	05:40
	16:52	17:28			18:04	54	17:39 (MO04)	19:40	20:14	20:45
3	07:44	07:27			06:48		16:44 (MO04)	06:55	06:08	05:39
	16:53	17:30			18:05	55	17:39 (MO04)	19:41	20:15	20:45
4	07:44	07:26			06:46		16:44 (MO04)	06:53	06:07	05:39
	16:54	17:31			18:06	56	17:40 (MO04)	19:42	20:16	20:46
5	07:44	07:25			06:45		16:43 (MO04)	06:51	06:05	05:38
	16:55	17:32			18:08	57	17:40 (MO04)	19:43	20:17	20:47
6	07:44	07:23			06:43		16:42 (MO04)	06:50	06:04	05:38
	16:56	17:33			18:09	58	17:40 (MO04)	19:45	20:18	20:47
7	07:44	07:22			06:41		16:42 (MO04)	06:48	06:03	05:38
	16:57	17:35			18:10	59	17:41 (MO04)	19:46	20:19	20:48
8	07:43	07:21			06:40		16:41 (MO04)	06:46	06:01	05:37
	16:58	17:36			18:11	60	17:41 (MO04)	19:47	20:20	20:49
9	07:43	07:20			06:38		16:41 (MO04)	06:45	06:00	05:37
	16:59	17:37			18:12	59	17:40 (MO04)	19:48	20:22	20:49
10	07:43	07:19			06:36		16:41 (MO04)	06:43	05:59	05:37
	17:00	17:39			18:14	60	17:41 (MO04)	19:49	20:23	20:50
11	07:43	07:17			06:35		16:41 (MO04)	06:41	05:58	05:37
	17:01	17:40			18:15	59	17:40 (MO04)	19:50	20:24	20:51
12	07:42	07:16			06:33		16:41 (MO04)	06:40	05:57	05:37
	17:02	17:41			18:16	58	17:39 (MO04)	19:51	20:25	20:51
13	07:42	07:15			06:31		16:40 (MO04)	06:38	05:56	05:37
	17:03	17:43			18:17	59	17:39 (MO04)	19:52	20:26	20:52
14	07:42	07:13			06:30		16:41 (MO04)	06:36	05:55	05:36
	17:04	17:44			18:18	58	17:39 (MO04)	19:54	20:27	20:52
15	07:41	07:12			06:28		16:41 (MO04)	06:35	05:54	05:36
	17:06	17:45			18:19	57	17:38 (MO04)	19:55	20:28	20:52
16	07:41	07:11			06:26		16:41 (MO04)	06:33	05:52	05:36
	17:07	17:46			18:21	56	17:37 (MO04)	19:56	20:29	20:53
17	07:40	07:09			06:24		16:41 (MO04)	06:32	05:51	05:36
	17:08	17:48			18:22	55	17:36 (MO04)	19:57	20:30	20:53
18	07:40	07:08			06:23		16:43 (MO04)	06:30	05:51	05:36
	17:09	17:49			18:23	52	17:35 (MO04)	19:58	20:31	20:54
19	07:39	07:06		17:05 (MO04)	06:21		16:43 (MO04)	06:28	05:50	05:37
	17:10	17:50	17	17:22 (MO04)	18:24	51	17:34 (MO04)	19:59	20:32	20:54
20	07:39	07:05		17:01 (MO04)	06:19		16:44 (MO04)	06:27	05:49	05:37
	17:12	17:52	25	17:26 (MO04)	18:25	49	17:33 (MO04)	20:00	20:33	20:54
21	07:38	07:04		16:58 (MO04)	06:17		16:44 (MO04)	06:25	05:48	05:37
	17:13	17:53	30	17:28 (MO04)	18:26	47	17:31 (MO04)	20:01	20:34	20:54
22	07:37	07:02		16:56 (MO04)	06:16		16:46 (MO04)	06:24	05:47	05:37
	17:14	17:54	35	17:31 (MO04)	18:28	44	17:30 (MO04)	20:03	20:35	20:55
23	07:37	07:01		16:54 (MO04)	06:14		16:47 (MO04)	06:22	05:46	05:37
	17:15	17:55	38	17:32 (MO04)	18:29	41	17:28 (MO04)	20:04	20:36	20:55
24	07:36	06:59		16:53 (MO04)	06:12		16:48 (MO04)	06:21	05:45	05:38
	17:17	17:57	41	17:34 (MO04)	18:30	38	17:26 (MO04)	20:05	20:37	20:55
25	07:35	06:57		16:51 (MO04)	06:10		16:50 (MO04)	06:19	05:45	05:38
	17:18	17:58	44	17:35 (MO04)	18:31	34	17:24 (MO04)	20:06	20:38	20:55
26	07:34	06:56		16:49 (MO04)	06:09		16:53 (MO04)	06:18	05:44	05:38
	17:19	17:59	47	17:36 (MO04)	18:32	29	17:22 (MO04)	20:07	20:39	20:55
27	07:34	06:54		16:48 (MO04)	06:07		16:55 (MO04)	06:16	05:43	05:39
	17:20	18:00	49	17:37 (MO04)	18:33	23	17:18 (MO04)	20:08	20:40	20:55
28	07:33	06:53		16:47 (MO04)	06:05		16:59 (MO04)	06:15	05:42	05:39
	17:22	18:02	51	17:38 (MO04)	18:34	14	17:13 (MO04)	20:09	20:40	20:55
29	07:32				07:03			06:13	05:42	05:39
	17:23				19:36			20:10	20:41	20:55
30	07:31				07:02			06:12	05:41	05:40
	17:24				19:37			20:12	20:42	20:55
31	07:30				07:00				05:41	
	17:26				19:38				20:43	
Potential sun hours	293	295			369			400	452	457
Total, worst case			377			1395				
Sun reduction			0.46			0.46				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.46			0.46				
Total, real			174			640				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 153 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1051)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September			October			November	December
1	05:40	06:05	06:38			07:10		17:20 (MO04)	06:46	07:23
	20:55	20:35	19:50			18:57	59	18:19 (MO04)	17:09	16:43
2	05:41	06:06	06:39			07:11		17:20 (MO04)	06:48	07:24
	20:55	20:34	19:48			18:56	59	18:19 (MO04)	17:07	16:42
3	05:41	06:07	06:40			07:12		17:19 (MO04)	06:49	07:25
	20:55	20:33	19:46			18:54	59	18:18 (MO04)	17:06	16:42
4	05:42	06:08	06:41			07:13		17:19 (MO04)	06:50	07:26
	20:55	20:31	19:45			18:52	59	18:18 (MO04)	17:05	16:42
5	05:42	06:09	06:42			07:14		17:18 (MO04)	06:51	07:27
	20:54	20:30	19:43			18:50	59	18:17 (MO04)	17:04	16:42
6	05:43	06:11	06:43			07:16		17:18 (MO04)	06:53	07:28
	20:54	20:29	19:41			18:49	59	18:17 (MO04)	17:02	16:41
7	05:44	06:12	06:44			07:17		17:17 (MO04)	06:54	07:29
	20:54	20:28	19:40			18:47	59	18:16 (MO04)	17:01	16:41
8	05:44	06:13	06:45			07:18		17:17 (MO04)	06:55	07:30
	20:53	20:26	19:38			18:45	58	18:15 (MO04)	17:00	16:41
9	05:45	06:14	06:47			07:19		17:18 (MO04)	06:56	07:31
	20:53	20:25	19:36			18:44	57	18:15 (MO04)	16:59	16:41
10	05:46	06:15	06:48			07:20		17:18 (MO04)	06:58	07:32
	20:53	20:24	19:34			18:42	57	18:15 (MO04)	16:58	16:41
11	05:46	06:16	06:49			07:21		17:18 (MO04)	06:59	07:33
	20:52	20:22	19:33			18:40	56	18:14 (MO04)	16:57	16:41
12	05:47	06:17	06:50			07:22		17:19 (MO04)	07:00	07:33
	20:52	20:21	19:31			18:39	53	18:12 (MO04)	16:56	16:41
13	05:48	06:18	06:51			07:24		17:19 (MO04)	07:01	07:34
	20:51	20:20	19:29			18:37	52	18:11 (MO04)	16:55	16:41
14	05:49	06:19	06:52			07:25		17:20 (MO04)	07:03	07:35
	20:50	20:18	19:27			18:35	51	18:11 (MO04)	16:54	16:42
15	05:50	06:20	06:53		17:50 (MO04)	07:26		17:21 (MO04)	07:04	07:36
	20:50	20:17	19:26	13	18:03 (MO04)	18:34	48	18:09 (MO04)	16:53	16:42
16	05:50	06:21	06:54		17:45 (MO04)	07:27		17:22 (MO04)	07:05	07:36
	20:49	20:15	19:24	22	18:07 (MO04)	18:32	46	18:08 (MO04)	16:52	16:42
17	05:51	06:22	06:55		17:41 (MO04)	07:28		17:23 (MO04)	07:06	07:37
	20:49	20:14	19:22	28	18:09 (MO04)	18:30	43	18:06 (MO04)	16:51	16:42
18	05:52	06:23	06:56		17:39 (MO04)	07:29		17:24 (MO04)	07:08	07:38
	20:48	20:12	19:20	32	18:11 (MO04)	18:29	40	18:04 (MO04)	16:50	16:43
19	05:53	06:24	06:57		17:36 (MO04)	07:31		17:26 (MO04)	07:09	07:38
	20:47	20:11	19:18	37	18:13 (MO04)	18:27	37	18:03 (MO04)	16:49	16:43
20	05:54	06:25	06:58		17:34 (MO04)	07:32		17:27 (MO04)	07:10	07:39
	20:46	20:09	19:17	40	18:14 (MO04)	18:26	34	18:01 (MO04)	16:49	16:43
21	05:55	06:26	06:59		17:32 (MO04)	07:33		17:29 (MO04)	07:11	07:40
	20:46	20:08	19:15	43	18:15 (MO04)	18:24	29	17:58 (MO04)	16:48	16:44
22	05:56	06:27	07:00		17:30 (MO04)	07:34		17:32 (MO04)	07:12	07:40
	20:45	20:06	19:13	46	18:16 (MO04)	18:23	23	17:55 (MO04)	16:47	16:44
23	05:57	06:29	07:01		17:28 (MO04)	07:35		17:37 (MO04)	07:14	07:41
	20:44	20:05	19:11	49	18:17 (MO04)	18:21	14	17:51 (MO04)	16:47	16:45
24	05:58	06:30	07:02		17:27 (MO04)	07:36			07:15	07:41
	20:43	20:03	19:10	50	18:17 (MO04)	18:20			16:46	16:45
25	05:58	06:31	07:04		17:26 (MO04)	06:38			07:16	07:42
	20:42	20:01	19:08	52	18:18 (MO04)	17:18			16:45	16:46
26	05:59	06:32	07:05		17:24 (MO04)	06:39			07:17	07:42
	20:41	20:00	19:06	54	18:18 (MO04)	17:17			16:45	16:47
27	06:00	06:33	07:06		17:23 (MO04)	06:40			07:18	07:42
	20:40	19:58	19:04	55	18:18 (MO04)	17:15			16:44	16:47
28	06:01	06:34	07:07		17:22 (MO04)	06:41			07:19	07:43
	20:39	19:56	19:03	56	18:18 (MO04)	17:14			16:44	16:48
29	06:02	06:35	07:08		17:21 (MO04)	06:43			07:21	07:43
	20:38	19:55	19:01	57	18:18 (MO04)	17:13			16:43	16:49
30	06:03	06:36	07:09		17:20 (MO04)	06:44			07:22	07:43
	20:37	19:53	18:59	58	18:18 (MO04)	17:11			16:43	16:49
31	06:04	06:37				06:45				07:43
	20:36	19:52				17:10				16:50
Potential sun hours	463	431	376			344			295	283
Total, worst case				692			1111			
Sun reduction				0.62			0.55			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.62			0.55			
Total, real				432			609			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 154 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1052)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June		
1	07:44		07:29		06:51		06:58			06:11		19:27 (MO04)	05:40		19:08 (MO04)
	16:51		17:27		18:03		19:39			20:13	18	19:45 (MO04)	20:44	58	20:06 (MO04)
2	07:44		07:28		06:50		06:57			06:09		19:24 (MO04)	05:40		19:08 (MO04)
	16:52		17:28		18:04		19:40			20:14	25	19:49 (MO04)	20:45	59	20:07 (MO04)
3	07:44		07:27		06:48		06:55			06:08		19:22 (MO04)	05:39		19:08 (MO04)
	16:53		17:30		18:05		19:41			20:15	29	19:51 (MO04)	20:45	58	20:06 (MO04)
4	07:44		07:26		06:46		06:53			06:07		19:19 (MO04)	05:39		19:09 (MO04)
	16:54		17:31		18:06		19:42			20:16	33	19:52 (MO04)	20:46	58	20:07 (MO04)
5	07:44		07:25		06:45		06:51			06:05		19:17 (MO04)	05:38		19:09 (MO04)
	16:55		17:32		18:08		19:43			20:17	36	19:53 (MO04)	20:47	58	20:07 (MO04)
6	07:44		07:23		06:43		06:50			06:04		19:16 (MO04)	05:38		19:09 (MO04)
	16:56		17:33		18:09		19:45			20:18	38	19:54 (MO04)	20:47	58	20:07 (MO04)
7	07:44		07:22		06:41		06:48			06:03		19:15 (MO04)	05:38		19:09 (MO04)
	16:57		17:35		18:10		19:46			20:19	41	19:56 (MO04)	20:48	58	20:07 (MO04)
8	07:43		07:21		06:40		06:46			06:01		19:14 (MO04)	05:37		19:10 (MO04)
	16:58		17:36		18:11		19:47			20:20	43	19:57 (MO04)	20:49	57	20:07 (MO04)
9	07:43		07:20		06:38		06:45			06:00		19:13 (MO04)	05:37		19:10 (MO04)
	16:59		17:37		18:12		19:48			20:22	45	19:58 (MO04)	20:49	58	20:08 (MO04)
10	07:43		07:19		06:36		06:43			05:59		19:11 (MO04)	05:37		19:11 (MO04)
	17:00		17:39		18:14		19:49			20:23	47	19:58 (MO04)	20:50	57	20:08 (MO04)
11	07:43		07:17		06:35		06:41			05:58		19:11 (MO04)	05:37		19:10 (MO04)
	17:01		17:40		18:15		19:50			20:24	48	19:59 (MO04)	20:51	57	20:07 (MO04)
12	07:42		07:16		06:33		06:40			05:57		19:10 (MO04)	05:37		19:10 (MO04)
	17:02		17:41		18:16		19:51			20:25	50	20:00 (MO04)	20:51	57	20:07 (MO04)
13	07:42		07:15		06:31		06:38			05:56		19:09 (MO04)	05:37		19:11 (MO04)
	17:03		17:43		18:17		19:52			20:26	52	20:01 (MO04)	20:52	57	20:08 (MO04)
14	07:42		07:13		06:30		06:36			05:55		19:09 (MO04)	05:36		19:11 (MO04)
	17:04		17:44		18:18		19:54			20:27	53	20:02 (MO04)	20:52	57	20:08 (MO04)
15	07:41		07:12		06:28		06:35			05:54		19:08 (MO04)	05:36		19:11 (MO04)
	17:06		17:45		18:19		19:55			20:28	54	20:02 (MO04)	20:52	57	20:08 (MO04)
16	07:41		07:11		06:26		06:33			05:52		19:08 (MO04)	05:36		19:12 (MO04)
	17:07		17:46		18:21		19:56			20:29	55	20:03 (MO04)	20:53	56	20:08 (MO04)
17	07:40		07:09		06:24		06:32			05:51		19:08 (MO04)	05:36		19:12 (MO04)
	17:08		17:48		18:22		19:57			20:30	55	20:03 (MO04)	20:53	56	20:08 (MO04)
18	07:40		07:08		06:23		06:30			05:51		19:07 (MO04)	05:36		19:12 (MO04)
	17:09		17:49		18:23		19:58			20:31	56	20:03 (MO04)	20:54	56	20:08 (MO04)
19	07:39		07:06		06:21		06:28			05:50		19:08 (MO04)	05:37		19:13 (MO04)
	17:10		17:50		18:24		19:59			20:32	56	20:04 (MO04)	20:54	56	20:09 (MO04)
20	07:39		07:05		06:19		06:27			05:49		19:08 (MO04)	05:37		19:13 (MO04)
	17:12		17:52		18:25		20:00			20:33	56	20:04 (MO04)	20:54	56	20:09 (MO04)
21	07:38		07:04		06:17		06:25			05:48		19:07 (MO04)	05:37		19:13 (MO04)
	17:13		17:53		18:26		20:01			20:34	58	20:05 (MO04)	20:54	56	20:09 (MO04)
22	07:37		07:02		06:16		06:24			05:47		19:07 (MO04)	05:37		19:13 (MO04)
	17:14		17:54		18:28		20:03			20:35	58	20:05 (MO04)	20:55	56	20:09 (MO04)
23	07:37		07:01		06:14		06:22			05:46		19:07 (MO04)	05:37		19:13 (MO04)
	17:15		17:55		18:29		20:04			20:36	57	20:04 (MO04)	20:55	56	20:09 (MO04)
24	07:36		06:59		06:12		06:21			05:45		19:07 (MO04)	05:38		19:14 (MO04)
	17:17		17:57		18:30		20:05			20:37	58	20:05 (MO04)	20:55	56	20:10 (MO04)
25	07:35		06:57		06:10		06:19			05:45		19:07 (MO04)	05:38		19:14 (MO04)
	17:18		17:58		18:31		20:06			20:38	58	20:05 (MO04)	20:55	56	20:10 (MO04)
26	07:34		06:56		06:09		06:18			05:44		19:07 (MO04)	05:38		19:14 (MO04)
	17:19		17:59		18:32		20:07			20:39	58	20:05 (MO04)	20:55	56	20:10 (MO04)
27	07:34		06:54		06:07		06:16			05:43		19:07 (MO04)	05:39		19:14 (MO04)
	17:20		18:00		18:33		20:08			20:40	59	20:06 (MO04)	20:55	57	20:11 (MO04)
28	07:33		06:53		06:05		06:15			05:42		19:07 (MO04)	05:39		19:14 (MO04)
	17:22		18:02		18:34		20:09			20:40	59	20:06 (MO04)	20:55	57	20:11 (MO04)
29	07:32				07:03		06:13			05:42		19:08 (MO04)	05:39		19:15 (MO04)
	17:23				19:36		20:10			20:41	58	20:06 (MO04)	20:55	57	20:12 (MO04)
30	07:31				07:02		06:12		19:33 (MO04)	05:41		19:07 (MO04)	05:40		19:15 (MO04)
	17:24				19:37		20:12	8	19:41 (MO04)	20:42	59	20:06 (MO04)	20:55	56	20:11 (MO04)
31	07:30				07:00					05:41		19:08 (MO04)			
	17:26				19:38					20:43	59	20:07 (MO04)			
Potential sun hours	293		295		369		400			452			457		
Total, worst case								8			1531			1707	
Sun reduction								0.49			0.57			0.61	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								1.00			1.00			1.00	
Total reduction								0.49			0.57			0.61	
Total, real								4			871			1042	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 154 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1052)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September	October	November	December
1	05:40	19:15 (MO04)	06:05	19:21 (MO04)	06:38	07:10	06:46	07:23
	20:55	57	20:12 (MO04)	20:35	49	20:10 (MO04)	19:50	18:57	17:09	16:43
2	05:41	19:15 (MO04)	06:06	19:22 (MO04)	06:39	07:11	06:48	07:24
	20:55	57	20:12 (MO04)	20:34	47	20:09 (MO04)	19:48	18:56	17:07	16:42
3	05:41	19:15 (MO04)	06:07	19:22 (MO04)	06:40	07:12	06:49	07:25
	20:55	58	20:13 (MO04)	20:33	46	20:08 (MO04)	19:46	18:54	17:06	16:42
4	05:42	19:15 (MO04)	06:08	19:23 (MO04)	06:41	07:13	06:50	07:26
	20:54	57	20:12 (MO04)	20:31	44	20:07 (MO04)	19:45	18:52	17:05	16:42
5	05:42	19:15 (MO04)	06:09	19:24 (MO04)	06:42	07:14	06:51	07:27
	20:54	58	20:13 (MO04)	20:30	42	20:06 (MO04)	19:43	18:50	17:04	16:42
6	05:43	19:15 (MO04)	06:11	19:25 (MO04)	06:43	07:16	06:53	07:28
	20:54	58	20:13 (MO04)	20:29	40	20:05 (MO04)	19:41	18:49	17:02	16:41
7	05:44	19:15 (MO04)	06:12	19:26 (MO04)	06:44	07:17	06:54	07:29
	20:54	58	20:13 (MO04)	20:28	38	20:04 (MO04)	19:40	18:47	17:01	16:41
8	05:44	19:16 (MO04)	06:13	19:28 (MO04)	06:45	07:18	06:55	07:30
	20:53	58	20:14 (MO04)	20:26	34	20:02 (MO04)	19:38	18:45	17:00	16:41
9	05:45	19:15 (MO04)	06:14	19:29 (MO04)	06:47	07:19	06:56	07:31
	20:53	58	20:13 (MO04)	20:25	32	20:01 (MO04)	19:36	18:44	16:59	16:41
10	05:46	19:16 (MO04)	06:15	19:31 (MO04)	06:48	07:20	06:58	07:32
	20:52	58	20:14 (MO04)	20:24	28	19:59 (MO04)	19:34	18:42	16:58	16:41
11	05:46	19:16 (MO04)	06:16	19:33 (MO04)	06:49	07:21	06:59	07:33
	20:52	58	20:14 (MO04)	20:22	24	19:57 (MO04)	19:33	18:40	16:57	16:41
12	05:47	19:15 (MO04)	06:17	19:37 (MO04)	06:50	07:22	07:00	07:33
	20:52	59	20:14 (MO04)	20:21	16	19:53 (MO04)	19:31	18:39	16:56	16:41
13	05:48	19:16 (MO04)	06:18		06:51	07:24	07:01	07:34
	20:51	58	20:14 (MO04)	20:20			19:29	18:37	16:55	16:41
14	05:49	19:16 (MO04)	06:19		06:52	07:25	07:03	07:35
	20:50	59	20:15 (MO04)	20:18			19:27	18:35	16:54	16:42
15	05:50	19:16 (MO04)	06:20		06:53	07:26	07:04	07:36
	20:50	59	20:15 (MO04)	20:17			19:26	18:34	16:53	16:42
16	05:50	19:17 (MO04)	06:21		06:54	07:27	07:05	07:36
	20:49	58	20:15 (MO04)	20:15			19:24	18:32	16:52	16:42
17	05:51	19:16 (MO04)	06:22		06:55	07:28	07:06	07:37
	20:49	58	20:14 (MO04)	20:14			19:22	18:30	16:51	16:42
18	05:52	19:16 (MO04)	06:23		06:56	07:29	07:08	07:38
	20:48	59	20:15 (MO04)	20:12			19:20	18:29	16:50	16:43
19	05:53	19:17 (MO04)	06:24		06:57	07:30	07:09	07:38
	20:47	58	20:15 (MO04)	20:11			19:18	18:27	16:49	16:43
20	05:54	19:17 (MO04)	06:25		06:58	07:32	07:10	07:39
	20:46	58	20:15 (MO04)	20:09			19:17	18:26	16:49	16:43
21	05:55	19:17 (MO04)	06:26		06:59	07:33	07:11	07:40
	20:46	58	20:15 (MO04)	20:08			19:15	18:24	16:48	16:44
22	05:56	19:18 (MO04)	06:27		07:00	07:34	07:12	07:40
	20:45	57	20:15 (MO04)	20:06			19:13	18:23	16:47	16:44
23	05:57	19:18 (MO04)	06:29		07:01	07:35	07:14	07:41
	20:44	57	20:15 (MO04)	20:05			19:11	18:21	16:47	16:45
24	05:58	19:18 (MO04)	06:30		07:02	07:36	07:15	07:41
	20:43	57	20:15 (MO04)	20:03			19:10	18:20	16:46	16:45
25	05:58	19:18 (MO04)	06:31		07:04	06:38	07:16	07:42
	20:42	56	20:14 (MO04)	20:01			19:08	17:18	16:45	16:46
26	05:59	19:18 (MO04)	06:32		07:05	06:39	07:17	07:42
	20:41	56	20:14 (MO04)	20:00			19:06	17:17	16:45	16:47
27	06:00	19:18 (MO04)	06:33		07:06	06:40	07:18	07:42
	20:40	55	20:13 (MO04)	19:58			19:04	17:15	16:44	16:47
28	06:01	19:19 (MO04)	06:34		07:07	06:41	07:19	07:43
	20:39	54	20:13 (MO04)	19:56			19:03	17:14	16:44	16:48
29	06:02	19:19 (MO04)	06:35		07:08	06:43	07:21	07:43
	20:38	54	20:13 (MO04)	19:55			19:01	17:13	16:43	16:49
30	06:03	19:20 (MO04)	06:36		07:09	06:44	07:22	07:43
	20:37	52	20:12 (MO04)	19:53			18:59	17:11	16:43	16:49
31	06:04	19:20 (MO04)	06:37			06:45		07:43
	20:36	51	20:11 (MO04)	19:51				17:10		16:50
Potential sun hours	463		431		376	344	295	283
Total, worst case		1768		440				
Sun reduction		0.71		0.70				
Oper. time red.		1.00		1.00				
Wind dir. red.		1.00		1.00				
Total reduction		0.71		0.70				
Total, real		1247		308				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 155 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1053)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June		
1	07:44		07:29		06:51		06:58			06:11		19:09 (MO04)	05:40		19:05 (MO04)
	16:51		17:27		18:03		19:39			20:13	40	19:49 (MO04)	20:44	52	19:57 (MO04)
2	07:44		07:28		06:50		06:57			06:09		19:09 (MO04)	05:40		19:06 (MO04)
	16:52		17:28		18:04		19:40			20:14	41	19:50 (MO04)	20:45	52	19:58 (MO04)
3	07:44		07:27		06:48		06:55			06:08		19:08 (MO04)	05:39		19:06 (MO04)
	16:53		17:30		18:05		19:41			20:15	44	19:52 (MO04)	20:45	51	19:57 (MO04)
4	07:44		07:26		06:46		06:53			06:07		19:06 (MO04)	05:39		19:06 (MO04)
	16:54		17:31		18:06		19:42			20:16	46	19:52 (MO04)	20:46	51	19:57 (MO04)
5	07:44		07:25		06:45		06:51			06:05		19:05 (MO04)	05:38		19:07 (MO04)
	16:55		17:32		18:08		19:43			20:17	48	19:53 (MO04)	20:47	50	19:57 (MO04)
6	07:44		07:23		06:43		06:50			06:04		19:05 (MO04)	05:38		19:07 (MO04)
	16:56		17:33		18:09		19:45			20:18	49	19:54 (MO04)	20:47	50	19:57 (MO04)
7	07:44		07:22		06:41		06:48			06:03		19:04 (MO04)	05:38		19:08 (MO04)
	16:57		17:35		18:10		19:46			20:19	52	19:56 (MO04)	20:48	49	19:57 (MO04)
8	07:43		07:21		06:40		06:46			06:01		19:04 (MO04)	05:37		19:08 (MO04)
	16:58		17:36		18:11		19:47			20:20	52	19:56 (MO04)	20:49	49	19:57 (MO04)
9	07:43		07:20		06:38		06:45			06:00		19:04 (MO04)	05:37		19:09 (MO04)
	16:59		17:37		18:12		19:48			20:22	53	19:57 (MO04)	20:49	48	19:57 (MO04)
10	07:43		07:19		06:36		06:43			05:59		19:02 (MO04)	05:37		19:09 (MO04)
	17:00		17:39		18:14		19:49			20:23	54	19:56 (MO04)	20:50	48	19:57 (MO04)
11	07:43		07:17		06:35		06:41			05:58		19:02 (MO04)	05:37		19:09 (MO04)
	17:01		17:40		18:15		19:50			20:24	55	19:57 (MO04)	20:51	48	19:57 (MO04)
12	07:42		07:16		06:33		06:40			05:57		19:02 (MO04)	05:37		19:09 (MO04)
	17:02		17:41		18:16		19:51			20:25	55	19:57 (MO04)	20:51	48	19:57 (MO04)
13	07:42		07:15		06:31		06:38			05:56		19:02 (MO04)	05:37		19:10 (MO04)
	17:03		17:43		18:17		19:52			20:26	55	19:57 (MO04)	20:52	47	19:57 (MO04)
14	07:42		07:13		06:30		06:36			05:55		19:02 (MO04)	05:36		19:10 (MO04)
	17:04		17:44		18:18		19:54			20:27	55	19:57 (MO04)	20:52	47	19:57 (MO04)
15	07:41		07:12		06:28		06:35			05:54		19:01 (MO04)	05:36		19:11 (MO04)
	17:06		17:45		18:19		19:55			20:28	56	19:57 (MO04)	20:52	46	19:57 (MO04)
16	07:41		07:11		06:26		06:33			05:52		19:01 (MO04)	05:36		19:11 (MO04)
	17:07		17:46		18:21		19:56			20:29	56	19:57 (MO04)	20:53	46	19:57 (MO04)
17	07:40		07:09		06:24		06:32			05:51		19:01 (MO04)	05:36		19:11 (MO04)
	17:08		17:48		18:22		19:57			20:30	56	19:57 (MO04)	20:53	46	19:57 (MO04)
18	07:40		07:08		06:23		06:30			05:51		19:01 (MO04)	05:36		19:11 (MO04)
	17:09		17:49		18:23		19:58			20:31	56	19:57 (MO04)	20:54	46	19:57 (MO04)
19	07:39		07:06		06:21		06:28			05:50		19:02 (MO04)	05:37		19:12 (MO04)
	17:10		17:50		18:24		19:59			20:32	56	19:58 (MO04)	20:54	46	19:58 (MO04)
20	07:39		07:05		06:19		06:27			05:49		19:02 (MO04)	05:37		19:13 (MO04)
	17:12		17:52		18:25		20:00			20:33	56	19:58 (MO04)	20:54	45	19:58 (MO04)
21	07:38		07:03		06:17		06:25			05:48		19:02 (MO04)	05:37		19:13 (MO04)
	17:13		17:53		18:26		20:01			20:34	56	19:58 (MO04)	20:54	45	19:58 (MO04)
22	07:37		07:02		06:16		06:24			05:47		19:02 (MO04)	05:37		19:13 (MO04)
	17:14		17:54		18:28		20:03			20:35	56	19:58 (MO04)	20:55	45	19:58 (MO04)
23	07:37		07:01		06:14		06:22			05:46		19:02 (MO04)	05:37		19:13 (MO04)
	17:15		17:55		18:29		20:04			20:36	56	19:58 (MO04)	20:55	45	19:58 (MO04)
24	07:36		06:59		06:12		06:21			05:45		19:03 (MO04)	05:38		19:13 (MO04)
	17:17		17:57		18:30		20:05			20:37	55	19:58 (MO04)	20:55	46	19:59 (MO04)
25	07:35		06:57		06:10		06:19		19:24 (MO04)	05:45		19:03 (MO04)	05:38		19:13 (MO04)
	17:18		17:58		18:31		20:06	16	19:40 (MO04)	20:38	55	19:58 (MO04)	20:55	46	19:59 (MO04)
26	07:34		06:56		06:09		06:18		19:19 (MO04)	05:44		19:03 (MO04)	05:38		19:13 (MO04)
	17:19		17:59		18:32		20:07	24	19:43 (MO04)	20:39	54	19:57 (MO04)	20:55	46	19:59 (MO04)
27	07:34		06:54		06:07		06:16		19:17 (MO04)	05:43		19:04 (MO04)	05:39		19:14 (MO04)
	17:20		18:00		18:33		20:08	28	19:45 (MO04)	20:40	54	19:58 (MO04)	20:55	46	20:00 (MO04)
28	07:33		06:53		06:05		06:15		19:14 (MO04)	05:42		19:04 (MO04)	05:39		19:13 (MO04)
	17:22		18:02		18:34		20:09	32	19:46 (MO04)	20:40	54	19:58 (MO04)	20:55	47	20:00 (MO04)
29	07:32				07:03		06:13		19:13 (MO04)	05:42		19:04 (MO04)	05:39		19:14 (MO04)
	17:23				19:36		20:10	34	19:47 (MO04)	20:41	54	19:58 (MO04)	20:55	47	20:01 (MO04)
30	07:31				07:02		06:12		19:12 (MO04)	05:41		19:04 (MO04)	05:40		19:14 (MO04)
	17:24				19:37		20:12	37	19:49 (MO04)	20:42	53	19:57 (MO04)	20:55	47	20:01 (MO04)
31	07:30				07:00					05:41		19:05 (MO04)			
	17:26				19:38					20:43	53	19:58 (MO04)			
Potential sun hours	293		295		369		400			452			457		
Total, worst case								171			1635			1425	
Sun reduction								0.49			0.57			0.61	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								1.00			1.00			1.00	
Total reduction								0.49			0.57			0.61	
Total, real								85			931			870	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 155 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1053)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September	October	November	December
1	05:40		19:14 (MO04)	06:05	19:13 (MO04)	06:38	07:10	06:46	07:23
	20:55	48	20:02 (MO04)	20:35	54	20:07 (MO04)	19:50	18:57	17:09	16:43
2	05:41		19:14 (MO04)	06:06	19:13 (MO04)	06:39	07:11	06:48	07:24
	20:55	48	20:02 (MO04)	20:34	54	20:07 (MO04)	19:48	18:56	17:07	16:42
3	05:41		19:14 (MO04)	06:07	19:13 (MO04)	06:40	07:12	06:49	07:25
	20:55	48	20:02 (MO04)	20:33	54	20:07 (MO04)	19:46	18:54	17:06	16:42
4	05:42		19:13 (MO04)	06:08	19:13 (MO04)	06:41	07:13	06:50	07:26
	20:54	49	20:02 (MO04)	20:31	53	20:06 (MO04)	19:45	18:52	17:05	16:42
5	05:42		19:14 (MO04)	06:09	19:14 (MO04)	06:42	07:14	06:51	07:27
	20:54	49	20:03 (MO04)	20:30	52	20:06 (MO04)	19:43	18:50	17:04	16:42
6	05:43		19:13 (MO04)	06:11	19:14 (MO04)	06:43	07:16	06:53	07:28
	20:54	50	20:03 (MO04)	20:29	51	20:05 (MO04)	19:41	18:49	17:02	16:41
7	05:44		19:14 (MO04)	06:12	19:15 (MO04)	06:44	07:17	06:54	07:29
	20:54	50	20:04 (MO04)	20:28	49	20:04 (MO04)	19:40	18:47	17:01	16:41
8	05:44		19:14 (MO04)	06:13	19:15 (MO04)	06:45	07:18	06:55	07:30
	20:53	50	20:04 (MO04)	20:26	47	20:02 (MO04)	19:38	18:45	17:00	16:41
9	05:45		19:13 (MO04)	06:14	19:16 (MO04)	06:47	07:19	06:56	07:31
	20:53	51	20:04 (MO04)	20:25	45	20:01 (MO04)	19:36	18:44	16:59	16:41
10	05:46		19:13 (MO04)	06:15	19:17 (MO04)	06:48	07:20	06:58	07:32
	20:52	52	20:05 (MO04)	20:24	43	20:00 (MO04)	19:34	18:42	16:58	16:41
11	05:46		19:13 (MO04)	06:16	19:18 (MO04)	06:49	07:21	06:59	07:33
	20:52	52	20:05 (MO04)	20:22	41	19:59 (MO04)	19:33	18:40	16:57	16:41
12	05:47		19:13 (MO04)	06:17	19:18 (MO04)	06:50	07:22	07:00	07:33
	20:52	52	20:05 (MO04)	20:21	39	19:57 (MO04)	19:31	18:39	16:56	16:41
13	05:48		19:13 (MO04)	06:18	19:20 (MO04)	06:51	07:24	07:01	07:34
	20:51	53	20:06 (MO04)	20:20	36	19:56 (MO04)	19:29	18:37	16:55	16:41
14	05:49		19:13 (MO04)	06:19	19:21 (MO04)	06:52	07:25	07:03	07:35
	20:50	53	20:06 (MO04)	20:18	34	19:55 (MO04)	19:27	18:35	16:54	16:42
15	05:50		19:13 (MO04)	06:20	19:22 (MO04)	06:53	07:26	07:04	07:36
	20:50	54	20:07 (MO04)	20:17	31	19:53 (MO04)	19:26	18:34	16:53	16:42
16	05:50		19:13 (MO04)	06:21	19:24 (MO04)	06:54	07:27	07:05	07:36
	20:49	54	20:07 (MO04)	20:15	28	19:52 (MO04)	19:24	18:32	16:52	16:42
17	05:51		19:12 (MO04)	06:22	19:27 (MO04)	06:55	07:28	07:06	07:37
	20:49	55	20:07 (MO04)	20:14	22	19:49 (MO04)	19:22	18:30	16:51	16:42
18	05:52		19:12 (MO04)	06:23	19:30 (MO04)	06:56	07:29	07:08	07:38
	20:48	55	20:07 (MO04)	20:12	15	19:45 (MO04)	19:20	18:29	16:50	16:43
19	05:53		19:12 (MO04)	06:24		06:57	07:30	07:09	07:38
	20:47	56	20:08 (MO04)	20:11		19:18	18:27	16:49	16:43
20	05:54		19:12 (MO04)	06:25		06:58	07:32	07:10	07:39
	20:46	56	20:08 (MO04)	20:09		19:17	18:26	16:49	16:43
21	05:55		19:12 (MO04)	06:26		06:59	07:33	07:11	07:40
	20:46	56	20:08 (MO04)	20:08		19:15	18:24	16:48	16:44
22	05:56		19:12 (MO04)	06:27		07:00	07:34	07:12	07:40
	20:45	56	20:08 (MO04)	20:06		19:13	18:23	16:47	16:44
23	05:57		19:12 (MO04)	06:29		07:01	07:35	07:14	07:41
	20:44	57	20:09 (MO04)	20:05		19:11	18:21	16:47	16:45
24	05:58		19:13 (MO04)	06:30		07:02	07:36	07:15	07:41
	20:43	56	20:09 (MO04)	20:03		19:10	18:20	16:46	16:45
25	05:58		19:12 (MO04)	06:31		07:04	06:38	07:16	07:42
	20:42	56	20:08 (MO04)	20:01		19:08	17:18	16:45	16:46
26	05:59		19:12 (MO04)	06:32		07:05	06:39	07:17	07:42
	20:41	56	20:08 (MO04)	20:00		19:06	17:17	16:45	16:47
27	06:00		19:12 (MO04)	06:33		07:06	06:40	07:18	07:42
	20:40	56	20:08 (MO04)	19:58		19:04	17:15	16:44	16:47
28	06:01		19:12 (MO04)	06:34		07:07	06:41	07:19	07:43
	20:39	56	20:08 (MO04)	19:56		19:03	17:14	16:44	16:48
29	06:02		19:12 (MO04)	06:35		07:08	06:43	07:21	07:43
	20:38	56	20:08 (MO04)	19:55		19:01	17:13	16:43	16:49
30	06:03		19:12 (MO04)	06:36		07:09	06:44	07:22	07:43
	20:37	56	20:08 (MO04)	19:53		18:59	17:11	16:43	16:49
31	06:04		19:12 (MO04)	06:37			06:45		07:43
	20:36	56	20:08 (MO04)	19:51			17:10		16:50
Potential sun hours	463			431		376	344	295	283
Total, worst case		1652			748				
Sun reduction		0.71			0.70				
Oper. time red.		1.00			1.00				
Wind dir. red.		1.00			1.00				
Total reduction		0.71			0.70				
Total, real		1165			524				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 156 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1054)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June			July			August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11			05:40		19:31 (MO04)	05:40		19:37 (MO04)	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13			20:44	47	20:18 (MO04)	20:55	49	20:26 (MO04)	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09			05:40		19:32 (MO04)	05:41		19:36 (MO04)	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14			20:45	47	20:19 (MO04)	20:55	50	20:26 (MO04)	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08			05:39		19:31 (MO04)	05:41		19:37 (MO04)	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15			20:45	48	20:19 (MO04)	20:55	49	20:26 (MO04)	20:33	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07			05:39		19:31 (MO04)	05:42		19:37 (MO04)	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16			20:46	49	20:20 (MO04)	20:54	49	20:26 (MO04)	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05			05:38		19:32 (MO04)	05:42		19:38 (MO04)	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17			20:47	48	20:20 (MO04)	20:54	49	20:27 (MO04)	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04			05:38		19:31 (MO04)	05:43		19:37 (MO04)	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18			20:47	49	20:20 (MO04)	20:54	49	20:26 (MO04)	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03			05:38		19:31 (MO04)	05:44		19:38 (MO04)	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19			20:48	49	20:20 (MO04)	20:54	48	20:26 (MO04)	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01			05:37		19:32 (MO04)	05:44		19:39 (MO04)	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20			20:49	49	20:21 (MO04)	20:53	48	20:27 (MO04)	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00			05:37		19:32 (MO04)	05:45		19:38 (MO04)	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22			20:49	49	20:21 (MO04)	20:53	48	20:26 (MO04)	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59			05:37		19:32 (MO04)	05:46		19:39 (MO04)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23			20:50	50	20:22 (MO04)	20:52	48	20:27 (MO04)	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58			05:37		19:32 (MO04)	05:46		19:39 (MO04)	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24			20:51	49	20:21 (MO04)	20:52	48	20:27 (MO04)	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57		19:52 (MO04)	05:37		19:32 (MO04)	05:47		19:39 (MO04)	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	3	19:55 (MO04)	20:51	49	20:21 (MO04)	20:52	46	20:25 (MO04)	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56		19:46 (MO04)	05:37		19:32 (MO04)	05:48		19:40 (MO04)	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	15	20:01 (MO04)	20:52	50	20:22 (MO04)	20:51	45	20:25 (MO04)	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55		19:43 (MO04)	05:36		19:32 (MO04)	05:49		19:40 (MO04)	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	19	20:02 (MO04)	20:52	50	20:22 (MO04)	20:50	45	20:25 (MO04)	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54		19:41 (MO04)	05:36		19:33 (MO04)	05:50		19:41 (MO04)	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	22	20:03 (MO04)	20:52	49	20:22 (MO04)	20:50	44	20:25 (MO04)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52		19:40 (MO04)	05:36		19:33 (MO04)	05:50		19:41 (MO04)	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	24	20:04 (MO04)	20:53	49	20:22 (MO04)	20:49	43	20:24 (MO04)	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51		19:38 (MO04)	05:36		19:33 (MO04)	05:51		19:41 (MO04)	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	27	20:05 (MO04)	20:53	50	20:23 (MO04)	20:49	42	20:23 (MO04)	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51		19:37 (MO04)	05:36		19:33 (MO04)	05:52		19:42 (MO04)	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	29	20:06 (MO04)	20:54	50	20:23 (MO04)	20:48	40	20:22 (MO04)	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50		19:37 (MO04)	05:37		19:34 (MO04)	05:53		19:43 (MO04)	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	31	20:08 (MO04)	20:54	50	20:24 (MO04)	20:47	39	20:22 (MO04)	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49		19:36 (MO04)	05:37		19:34 (MO04)	05:54		19:43 (MO04)	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	32	20:08 (MO04)	20:54	50	20:24 (MO04)	20:46	38	20:21 (MO04)	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48		19:35 (MO04)	05:37		19:34 (MO04)	05:55		19:44 (MO04)	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	34	20:09 (MO04)	20:54	50	20:24 (MO04)	20:46	37	20:21 (MO04)	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47		19:34 (MO04)	05:37		19:34 (MO04)	05:56		19:45 (MO04)	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	36	20:10 (MO04)	20:55	50	20:24 (MO04)	20:45	35	20:20 (MO04)	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46		19:33 (MO04)	05:37		19:34 (MO04)	05:57		19:46 (MO04)	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	37	20:10 (MO04)	20:55	50	20:24 (MO04)	20:44	33	20:19 (MO04)	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45		19:33 (MO04)	05:38		19:35 (MO04)	05:58		19:46 (MO04)	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	39	20:12 (MO04)	20:55	50	20:25 (MO04)	20:43	32	20:18 (MO04)	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45		19:33 (MO04)	05:38		19:35 (MO04)	05:58		19:47 (MO04)	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	40	20:13 (MO04)	20:55	50	20:25 (MO04)	20:42	30	20:17 (MO04)	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44		19:32 (MO04)	05:38		19:35 (MO04)	05:59		19:48 (MO04)	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	41	20:13 (MO04)	20:55	49	20:24 (MO04)	20:41	28	20:16 (MO04)	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43		19:32 (MO04)	05:39		19:36 (MO04)	06:00		19:49 (MO04)	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	43	20:15 (MO04)	20:55	49	20:25 (MO04)	20:40	26	20:15 (MO04)	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42		19:32 (MO04)	05:39		19:35 (MO04)	06:01		19:51 (MO04)	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	43	20:15 (MO04)	20:55	50	20:25 (MO04)	20:39	23	20:14 (MO04)	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42		19:32 (MO04)	05:39		19:36 (MO04)	06:02		19:53 (MO04)	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	44	20:16 (MO04)	20:55	50	20:26 (MO04)	20:38	20	20:13 (MO04)	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41		19:31 (MO04)	05:40		19:36 (MO04)	06:03		19:55 (MO04)	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	46	20:17 (MO04)	20:55	50	20:26 (MO04)	20:37	17	20:12 (MO04)	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		19:32 (MO04)				06:04		19:58 (MO04)	06:37		06:45		07:43
	17:26		19:38		20:43	46	20:18 (MO04)				20:36	12	20:10 (MO04)	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452			457			463			431	376	344	295	283
Total, worst case						651			1479			1210						
Sun reduction						0.57			0.61			0.71						
Oper. time red.						1.00			1.00			1.00						
Wind dir. red.						1.00			1.00			1.00						
Total reduction						0.57			0.61			0.71						
Total, real						371			903			853						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 157 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1055)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March			April	May	June
1	07:44	07:29			06:51		16:54 (MO04)	06:58	06:11	05:40
	16:51	17:27			18:03	47	17:41 (MO04)	19:39	20:13	20:44
2	07:44	07:28			06:50		16:53 (MO04)	06:57	06:09	05:40
	16:52	17:28			18:04	49	17:42 (MO04)	19:40	20:14	20:45
3	07:44	07:27			06:48		16:51 (MO04)	06:55	06:08	05:39
	16:53	17:30			18:05	51	17:42 (MO04)	19:41	20:15	20:45
4	07:44	07:26			06:46		16:51 (MO04)	06:53	06:07	05:39
	16:54	17:31			18:06	52	17:43 (MO04)	19:42	20:16	20:46
5	07:44	07:25			06:45		16:50 (MO04)	06:51	06:05	05:38
	16:55	17:32			18:08	53	17:43 (MO04)	19:43	20:17	20:47
6	07:44	07:23			06:43		16:49 (MO04)	06:50	06:04	05:38
	16:56	17:33			18:09	55	17:44 (MO04)	19:45	20:18	20:47
7	07:44	07:22			06:41		16:48 (MO04)	06:48	06:03	05:38
	16:57	17:35			18:10	57	17:45 (MO04)	19:46	20:19	20:48
8	07:43	07:21			06:40		16:48 (MO04)	06:46	06:01	05:37
	16:58	17:36			18:11	56	17:44 (MO04)	19:47	20:20	20:49
9	07:43	07:20			06:38		16:47 (MO04)	06:45	06:00	05:37
	16:59	17:37			18:12	57	17:44 (MO04)	19:48	20:22	20:49
10	07:43	07:19			06:36		16:47 (MO04)	06:43	05:59	05:37
	17:00	17:39			18:14	58	17:45 (MO04)	19:49	20:23	20:50
11	07:43	07:17			06:35		16:46 (MO04)	06:41	05:58	05:37
	17:01	17:40			18:15	59	17:45 (MO04)	19:50	20:24	20:51
12	07:42	07:16			06:33		16:46 (MO04)	06:40	05:57	05:37
	17:02	17:41			18:16	58	17:44 (MO04)	19:51	20:25	20:51
13	07:42	07:15			06:31		16:45 (MO04)	06:38	05:56	05:37
	17:03	17:43			18:17	59	17:44 (MO04)	19:52	20:26	20:52
14	07:42	07:13			06:30		16:46 (MO04)	06:36	05:55	05:36
	17:04	17:44			18:18	58	17:44 (MO04)	19:54	20:27	20:52
15	07:41	07:12			06:28		16:46 (MO04)	06:35	05:54	05:36
	17:06	17:45			18:19	57	17:43 (MO04)	19:55	20:28	20:52
16	07:41	07:11			06:26		16:45 (MO04)	06:33	05:52	05:36
	17:07	17:46			18:21	58	17:43 (MO04)	19:56	20:29	20:53
17	07:40	07:09			06:24		16:45 (MO04)	06:32	05:51	05:36
	17:08	17:48			18:22	57	17:42 (MO04)	19:57	20:30	20:53
18	07:40	07:08			06:23		16:46 (MO04)	06:30	05:51	05:36
	17:09	17:49			18:23	56	17:42 (MO04)	19:58	20:31	20:54
19	07:39	07:06			06:21		16:46 (MO04)	06:28	05:50	05:37
	17:10	17:50			18:24	55	17:41 (MO04)	19:59	20:32	20:54
20	07:39	07:05			06:19		16:47 (MO04)	06:27	05:49	05:37
	17:12	17:52			18:25	52	17:39 (MO04)	20:00	20:33	20:54
21	07:38	07:04			06:17		16:47 (MO04)	06:25	05:48	05:37
	17:13	17:53			18:26	51	17:38 (MO04)	20:01	20:34	20:54
22	07:37	07:02		17:11 (MO04)	06:16		16:48 (MO04)	06:24	05:47	05:37
	17:14	17:54	15	17:26 (MO04)	18:28	50	17:38 (MO04)	20:03	20:35	20:55
23	07:37	07:01		17:06 (MO04)	06:14		16:49 (MO04)	06:22	05:46	05:37
	17:15	17:55	24	17:30 (MO04)	18:29	47	17:36 (MO04)	20:04	20:36	20:55
24	07:36	06:59		17:04 (MO04)	06:12		16:50 (MO04)	06:21	05:45	05:38
	17:17	17:57	29	17:33 (MO04)	18:30	45	17:35 (MO04)	20:05	20:37	20:55
25	07:35	06:57		17:01 (MO04)	06:10		16:50 (MO04)	06:19	05:45	05:38
	17:18	17:58	34	17:35 (MO04)	18:31	43	17:33 (MO04)	20:06	20:38	20:55
26	07:34	06:56		16:59 (MO04)	06:09		16:52 (MO04)	06:18	05:44	05:38
	17:19	17:59	37	17:36 (MO04)	18:32	40	17:32 (MO04)	20:07	20:39	20:55
27	07:34	06:54		16:57 (MO04)	06:07		16:54 (MO04)	06:16	05:43	05:39
	17:20	18:00	41	17:38 (MO04)	18:33	35	17:29 (MO04)	20:08	20:40	20:55
28	07:33	06:53		16:55 (MO04)	06:05		16:55 (MO04)	06:15	05:42	05:39
	17:22	18:02	44	17:39 (MO04)	18:34	32	17:27 (MO04)	20:09	20:40	20:55
29	07:32				07:03		17:57 (MO04)	06:13	05:42	05:39
	17:23				19:36	27	18:24 (MO04)	20:10	20:41	20:55
30	07:31				07:02		18:01 (MO04)	06:12	05:41	05:40
	17:24				19:37	20	18:21 (MO04)	20:12	20:42	20:55
31	07:30				07:00		18:08 (MO04)		05:41	
	17:26				19:38	5	18:13 (MO04)		20:43	
Potential sun hours	293	295			369			400	452	457
Total, worst case			224			1499				
Sun reduction			0.46			0.46				
Oper. time red.			1.00			1.00				
Wind dir. red.			1.00			1.00				
Total reduction			0.46			0.46				
Total, real			104			687				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 157 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1055)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September			October			November	December
1	05:40	06:05	06:38			07:10		17:25 (MO04)	06:46	07:23
	20:55	20:35	19:50			18:57	59	18:24 (MO04)	17:09	16:43
2	05:41	06:06	06:39			07:11		17:25 (MO04)	06:48	07:24
	20:55	20:34	19:48			18:56	58	18:23 (MO04)	17:07	16:42
3	05:41	06:07	06:40			07:12		17:25 (MO04)	06:49	07:25
	20:55	20:33	19:46			18:54	58	18:23 (MO04)	17:06	16:42
4	05:42	06:08	06:41			07:13		17:24 (MO04)	06:50	07:26
	20:55	20:31	19:45			18:52	58	18:22 (MO04)	17:05	16:42
5	05:42	06:09	06:42			07:14		17:24 (MO04)	06:51	07:27
	20:54	20:30	19:43			18:50	57	18:21 (MO04)	17:04	16:42
6	05:43	06:11	06:43			07:16		17:24 (MO04)	06:53	07:28
	20:54	20:29	19:41			18:49	57	18:21 (MO04)	17:02	16:41
7	05:44	06:12	06:44			07:17		17:24 (MO04)	06:54	07:29
	20:54	20:28	19:40			18:47	56	18:20 (MO04)	17:01	16:41
8	05:44	06:13	06:45			07:18		17:24 (MO04)	06:55	07:30
	20:53	20:26	19:38			18:45	55	18:19 (MO04)	17:00	16:41
9	05:45	06:14	06:47			07:19		17:25 (MO04)	06:56	07:31
	20:53	20:25	19:36			18:44	53	18:18 (MO04)	16:59	16:41
10	05:46	06:15	06:48			07:20		17:26 (MO04)	06:58	07:32
	20:53	20:24	19:34			18:42	51	18:17 (MO04)	16:58	16:41
11	05:46	06:16	06:49			07:21		17:26 (MO04)	06:59	07:33
	20:52	20:22	19:33			18:40	50	18:16 (MO04)	16:57	16:41
12	05:47	06:17	06:50			07:22		17:27 (MO04)	07:00	07:33
	20:52	20:21	19:31			18:39	47	18:14 (MO04)	16:56	16:41
13	05:48	06:18	06:51		17:53 (MO04)	07:24		17:27 (MO04)	07:01	07:34
	20:51	20:20	19:29	18	18:11 (MO04)	18:37	46	18:13 (MO04)	16:55	16:41
14	05:49	06:19	06:52		17:49 (MO04)	07:25		17:29 (MO04)	07:03	07:35
	20:50	20:18	19:27	25	18:14 (MO04)	18:35	43	18:12 (MO04)	16:54	16:42
15	05:50	06:20	06:53		17:46 (MO04)	07:26		17:30 (MO04)	07:04	07:36
	20:50	20:17	19:26	30	18:16 (MO04)	18:34	40	18:10 (MO04)	16:53	16:42
16	05:50	06:21	06:54		17:43 (MO04)	07:27		17:32 (MO04)	07:05	07:36
	20:49	20:15	19:24	35	18:18 (MO04)	18:32	36	18:08 (MO04)	16:52	16:42
17	05:51	06:22	06:55		17:41 (MO04)	07:28		17:33 (MO04)	07:06	07:37
	20:49	20:14	19:22	38	18:19 (MO04)	18:30	32	18:05 (MO04)	16:51	16:42
18	05:52	06:23	06:56		17:39 (MO04)	07:29		17:35 (MO04)	07:08	07:38
	20:48	20:12	19:20	42	18:21 (MO04)	18:29	28	18:03 (MO04)	16:50	16:43
19	05:53	06:24	06:57		17:37 (MO04)	07:31		17:39 (MO04)	07:09	07:38
	20:47	20:11	19:18	45	18:22 (MO04)	18:27	21	18:00 (MO04)	16:49	16:43
20	05:54	06:25	06:58		17:36 (MO04)	07:32		17:44 (MO04)	07:10	07:39
	20:46	20:09	19:17	46	18:22 (MO04)	18:26	10	17:54 (MO04)	16:49	16:43
21	05:55	06:26	06:59		17:34 (MO04)	07:33			07:11	07:40
	20:46	20:08	19:15	49	18:23 (MO04)	18:24			16:48	16:44
22	05:56	06:27	07:00		17:33 (MO04)	07:34			07:12	07:40
	20:45	20:06	19:13	50	18:23 (MO04)	18:23			16:47	16:44
23	05:57	06:29	07:01		17:31 (MO04)	07:35			07:14	07:41
	20:44	20:05	19:11	53	18:24 (MO04)	18:21			16:47	16:45
24	05:58	06:30	07:02		17:30 (MO04)	07:36			07:15	07:41
	20:43	20:03	19:10	54	18:24 (MO04)	18:20			16:46	16:45
25	05:58	06:31	07:04		17:29 (MO04)	06:38			07:16	07:42
	20:42	20:01	19:08	55	18:24 (MO04)	17:18			16:45	16:46
26	05:59	06:32	07:05		17:28 (MO04)	06:39			07:17	07:42
	20:41	20:00	19:06	56	18:24 (MO04)	17:17			16:45	16:47
27	06:00	06:33	07:06		17:27 (MO04)	06:40			07:18	07:42
	20:40	19:58	19:04	57	18:24 (MO04)	17:15			16:44	16:47
28	06:01	06:34	07:07		17:26 (MO04)	06:41			07:19	07:43
	20:39	19:56	19:03	58	18:24 (MO04)	17:14			16:44	16:48
29	06:02	06:35	07:08		17:26 (MO04)	06:43			07:21	07:43
	20:38	19:55	19:01	58	18:24 (MO04)	17:13			16:43	16:49
30	06:03	06:36	07:09		17:25 (MO04)	06:44			07:22	07:43
	20:37	19:53	18:59	58	18:23 (MO04)	17:11			16:43	16:49
31	06:04	06:37				06:45				07:43
	20:36	19:51				17:10				16:50
Potential sun hours	463	431	376			344			295	283
Total, worst case				827			915			
Sun reduction				0.62			0.55			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.62			0.55			
Total, real				517			502			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 158 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1056)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23		
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43		
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24		
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42		
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25		
	16:53	17:29	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42		
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26		
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42		
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27		
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42		
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28		
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41		
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29		
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41		
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30		
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41		
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31		
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41		
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41		
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33		
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41		
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33		
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41		
13	07:42	07:15	06:31	06:38	05:56	05:36	05:48	06:18	06:51	07:24	07:01	07:34		15:29 (MO04)
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41	4	15:33 (MO04)
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35		15:27 (MO04)
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42	7	15:34 (MO04)
15	07:41	07:12	06:28	06:35	05:53	05:36	05:50	06:20	06:53	07:26	07:04	07:36		15:27 (MO04)
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42	9	15:36 (MO04)
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:37		15:27 (MO04)
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42	11	15:38 (MO04)
17	07:40	07:09	06:24	06:31	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37		15:27 (MO04)
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42	12	15:39 (MO04)
18	07:40	07:08	06:23	06:30	05:50	05:36	05:52	06:23	06:56	07:29	07:08	07:38		15:26 (MO04)
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43	13	15:39 (MO04)
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:39		15:27 (MO04)
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43	13	15:40 (MO04)
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39		15:27 (MO04)
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43	13	15:40 (MO04)
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40		15:27 (MO04)
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44	15	15:42 (MO04)
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40		15:27 (MO04)
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44	15	15:42 (MO04)
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:28	07:01	07:35	07:14	07:41		15:29 (MO04)
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45	13	15:42 (MO04)
24	07:36	06:59	06:12	06:21	05:45	05:38	05:57	06:30	07:02	07:36	07:15	07:41		15:29 (MO04)
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45	13	15:42 (MO04)
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42		15:29 (MO04)
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46	13	15:42 (MO04)
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42		15:31 (MO04)
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47	12	15:43 (MO04)
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42		15:31 (MO04)
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47	12	15:43 (MO04)
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43		15:32 (MO04)
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48	10	15:42 (MO04)
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43		15:33 (MO04)
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49	9	15:42 (MO04)
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43		15:36 (MO04)
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49	6	15:42 (MO04)
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43		
	17:26		19:38		20:43		20:36	19:51		17:10		16:50		
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283		
Total, worst case													200	
Sun reduction													0.43	
Oper. time red.													1.00	
Wind dir. red.													1.00	
Total reduction													0.43	
Total, real													86	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 159 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1057)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March		April			May	June
1	07:44	07:29			06:51		17:07 (MO04)	06:58		17:59 (MO04)	06:11	05:40
	16:51	17:27			18:03	33	17:40 (MO04)	19:39	33	18:32 (MO04)	20:13	20:44
2	07:44	07:28			06:50		17:04 (MO04)	06:57		18:01 (MO04)	06:09	05:40
	16:52	17:28			18:04	38	17:42 (MO04)	19:40	29	18:30 (MO04)	20:14	20:45
3	07:44	07:27			06:48		17:02 (MO04)	06:55		18:04 (MO04)	06:08	05:39
	16:53	17:30			18:05	41	17:43 (MO04)	19:41	23	18:27 (MO04)	20:15	20:45
4	07:44	07:26			06:46		17:01 (MO04)	06:53		18:08 (MO04)	06:07	05:39
	16:54	17:31			18:06	44	17:45 (MO04)	19:42	14	18:22 (MO04)	20:16	20:46
5	07:44	07:25			06:45		16:59 (MO04)	06:51			06:05	05:38
	16:55	17:32			18:08	47	17:46 (MO04)	19:43			20:17	20:47
6	07:44	07:23			06:43		16:57 (MO04)	06:50			06:04	05:38
	16:56	17:33			18:09	49	17:46 (MO04)	19:45			20:18	20:47
7	07:44	07:22			06:41		16:57 (MO04)	06:48			06:03	05:38
	16:57	17:35			18:10	51	17:48 (MO04)	19:46			20:19	20:48
8	07:43	07:21			06:40		16:56 (MO04)	06:46			06:01	05:37
	16:58	17:36			18:11	52	17:48 (MO04)	19:47			20:20	20:49
9	07:43	07:20			06:38		16:54 (MO04)	06:45			06:00	05:37
	16:59	17:37			18:12	54	17:48 (MO04)	19:48			20:22	20:49
10	07:43	07:19			06:36		16:54 (MO04)	06:43			05:59	05:37
	17:00	17:39			18:14	56	17:50 (MO04)	19:49			20:23	20:50
11	07:43	07:17			06:35		16:53 (MO04)	06:41			05:58	05:37
	17:01	17:40			18:15	57	17:50 (MO04)	19:50			20:24	20:51
12	07:42	07:16			06:33		16:52 (MO04)	06:40			05:57	05:37
	17:02	17:41			18:16	58	17:50 (MO04)	19:51			20:25	20:51
13	07:42	07:15			06:31		16:51 (MO04)	06:38			05:56	05:37
	17:03	17:43			18:17	58	17:49 (MO04)	19:52			20:26	20:52
14	07:42	07:13			06:30		16:51 (MO04)	06:36			05:55	05:36
	17:04	17:44			18:18	59	17:50 (MO04)	19:54			20:27	20:52
15	07:41	07:12			06:28		16:51 (MO04)	06:35			05:54	05:36
	17:06	17:45			18:19	59	17:50 (MO04)	19:55			20:28	20:52
16	07:41	07:11			06:26		16:50 (MO04)	06:33			05:52	05:36
	17:07	17:46			18:21	59	17:49 (MO04)	19:56			20:29	20:53
17	07:40	07:09			06:24		16:50 (MO04)	06:32			05:51	05:36
	17:08	17:48			18:22	59	17:49 (MO04)	19:57			20:30	20:53
18	07:40	07:08			06:23		16:50 (MO04)	06:30			05:51	05:36
	17:09	17:49			18:23	59	17:49 (MO04)	19:58			20:31	20:54
19	07:39	07:06			06:21		16:50 (MO04)	06:28			05:50	05:37
	17:10	17:50			18:24	59	17:49 (MO04)	19:59			20:32	20:54
20	07:39	07:05			06:19		16:50 (MO04)	06:27			05:49	05:37
	17:12	17:52			18:25	58	17:48 (MO04)	20:00			20:33	20:54
21	07:38	07:04			06:17		16:50 (MO04)	06:25			05:48	05:37
	17:13	17:53			18:26	57	17:47 (MO04)	20:01			20:34	20:54
22	07:37	07:02			06:16		16:51 (MO04)	06:24			05:47	05:37
	17:14	17:54			18:28	56	17:47 (MO04)	20:03			20:35	20:55
23	07:37	07:01			06:14		16:51 (MO04)	06:22			05:46	05:37
	17:15	17:55			18:29	55	17:46 (MO04)	20:04			20:36	20:55
24	07:36	06:59			06:12		16:51 (MO04)	06:21			05:45	05:38
	17:17	17:57			18:30	54	17:45 (MO04)	20:05			20:37	20:55
25	07:35	06:57			06:10		16:51 (MO04)	06:19			05:45	05:38
	17:18	17:58			18:31	52	17:43 (MO04)	20:06			20:38	20:55
26	07:34	06:56		17:18 (MO04)	06:09		16:52 (MO04)	06:18			05:44	05:38
	17:19	17:59	11	17:29 (MO04)	18:32	51	17:43 (MO04)	20:07			20:39	20:55
27	07:34	06:54		17:13 (MO04)	06:07		16:53 (MO04)	06:16			05:43	05:39
	17:20	18:00	22	17:35 (MO04)	18:33	49	17:42 (MO04)	20:08			20:40	20:55
28	07:33	06:53		17:09 (MO04)	06:05		16:53 (MO04)	06:15			05:42	05:39
	17:22	18:02	28	17:37 (MO04)	18:34	47	17:40 (MO04)	20:09			20:40	20:55
29	07:32				07:03		17:54 (MO04)	06:13			05:42	05:39
	17:23				19:36	44	18:38 (MO04)	20:10			20:41	20:55
30	07:31				07:02		17:56 (MO04)	06:12			05:41	05:40
	17:24				19:37	41	18:37 (MO04)	20:12			20:42	20:55
31	07:30				07:00		17:57 (MO04)				05:41	
	17:26				19:38	38	18:35 (MO04)				20:43	
Potential sun hours	293	295			369			400			452	457
Total, worst case			61			1594			99			
Sun reduction			0.46			0.46			0.49			
Oper. time red.			1.00			1.00			1.00			
Wind dir. red.			1.00			1.00			1.00			
Total reduction			0.46			0.46			0.49			
Total, real			28			731			49			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 159 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1057)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September			October			November	December
1	05:40		06:05		06:38			07:10		17:32 (MO04)	06:46	07:23
	20:55		20:35		19:50			18:57	57	18:29 (MO04)	17:09	16:43
2	05:41		06:06		06:39			07:11		17:31 (MO04)	06:48	07:24
	20:55		20:34		19:48			18:56	57	18:28 (MO04)	17:07	16:42
3	05:41		06:07		06:40			07:12		17:31 (MO04)	06:49	07:25
	20:55		20:33		19:46			18:54	57	18:28 (MO04)	17:06	16:42
4	05:42		06:08		06:41			07:13		17:32 (MO04)	06:50	07:26
	20:55		20:31		19:45			18:52	54	18:26 (MO04)	17:05	16:42
5	05:42		06:09		06:42			07:14		17:32 (MO04)	06:51	07:27
	20:54		20:30		19:43			18:50	53	18:25 (MO04)	17:04	16:42
6	05:43		06:11		06:43			07:16		17:32 (MO04)	06:53	07:28
	20:54		20:29		19:41			18:49	52	18:24 (MO04)	17:02	16:41
7	05:44		06:12		06:44			07:17		17:33 (MO04)	06:54	07:29
	20:54		20:28		19:40			18:47	50	18:23 (MO04)	17:01	16:41
8	05:44		06:13		06:45		18:02 (MO04)	07:18		17:33 (MO04)	06:55	07:30
	20:53		20:26		19:38	14	18:16 (MO04)	18:45	48	18:21 (MO04)	17:00	16:41
9	05:45		06:14		06:47		17:57 (MO04)	07:19		17:35 (MO04)	06:56	07:31
	20:53		20:25		19:36	23	18:20 (MO04)	18:44	45	18:20 (MO04)	16:59	16:41
10	05:46		06:15		06:48		17:55 (MO04)	07:20		17:36 (MO04)	06:58	07:32
	20:53		20:24		19:34	29	18:24 (MO04)	18:42	43	18:19 (MO04)	16:58	16:41
11	05:46		06:16		06:49		17:52 (MO04)	07:21		17:37 (MO04)	06:59	07:33
	20:52		20:22		19:33	33	18:25 (MO04)	18:40	40	18:17 (MO04)	16:57	16:41
12	05:47		06:17		06:50		17:50 (MO04)	07:22		17:39 (MO04)	07:00	07:33
	20:52		20:21		19:31	37	18:27 (MO04)	18:39	35	18:14 (MO04)	16:56	16:41
13	05:48		06:18		06:51		17:48 (MO04)	07:24		17:40 (MO04)	07:01	07:34
	20:51		20:20		19:29	40	18:28 (MO04)	18:37	32	18:12 (MO04)	16:55	16:41
14	05:49		06:19		06:52		17:46 (MO04)	07:25		17:44 (MO04)	07:03	07:35
	20:50		20:18		19:27	43	18:29 (MO04)	18:35	26	18:10 (MO04)	16:54	16:42
15	05:50		06:20		06:53		17:44 (MO04)	07:26		17:47 (MO04)	07:04	07:36
	20:50		20:17		19:26	46	18:30 (MO04)	18:34	19	18:06 (MO04)	16:53	16:42
16	05:50		06:21		06:54		17:42 (MO04)	07:27		17:55 (MO04)	07:05	07:36
	20:49		20:15		19:24	49	18:31 (MO04)	18:32	1	17:56 (MO04)	16:52	16:42
17	05:51		06:22		06:55		17:41 (MO04)	07:28			07:06	07:37
	20:49		20:14		19:22	50	18:31 (MO04)	18:30			16:51	16:42
18	05:52		06:23		06:56		17:40 (MO04)	07:29			07:08	07:38
	20:48		20:12		19:20	52	18:32 (MO04)	18:29			16:50	16:43
19	05:53		06:24		06:57		17:38 (MO04)	07:30			07:09	07:38
	20:47		20:11		19:18	54	18:32 (MO04)	18:27			16:49	16:43
20	05:54		06:25		06:58		17:37 (MO04)	07:32			07:10	07:39
	20:46		20:09		19:17	55	18:32 (MO04)	18:26			16:49	16:43
21	05:55		06:26		06:59		17:36 (MO04)	07:33			07:11	07:40
	20:46		20:08		19:15	56	18:32 (MO04)	18:24			16:48	16:44
22	05:56		06:27		07:00		17:35 (MO04)	07:34			07:12	07:40
	20:45		20:06		19:13	57	18:32 (MO04)	18:23			16:47	16:44
23	05:57		06:29		07:01		17:34 (MO04)	07:35			07:14	07:41
	20:44		20:05		19:11	58	18:32 (MO04)	18:21			16:47	16:45
24	05:58		06:30		07:02		17:34 (MO04)	07:36			07:15	07:41
	20:43		20:03		19:10	58	18:32 (MO04)	18:20			16:46	16:45
25	05:58		06:31		07:04		17:33 (MO04)	06:38			07:16	07:42
	20:42		20:01		19:08	59	18:32 (MO04)	17:18			16:45	16:46
26	05:59		06:32		07:05		17:32 (MO04)	06:39			07:17	07:42
	20:41		20:00		19:06	59	18:31 (MO04)	17:17			16:45	16:47
27	06:00		06:33		07:06		17:32 (MO04)	06:40			07:18	07:42
	20:40		19:58		19:04	59	18:31 (MO04)	17:15			16:44	16:47
28	06:01		06:34		07:07		17:31 (MO04)	06:41			07:19	07:43
	20:39		19:56		19:03	59	18:30 (MO04)	17:14			16:44	16:48
29	06:02		06:35		07:08		17:31 (MO04)	06:43			07:21	07:43
	20:38		19:55		19:01	59	18:30 (MO04)	17:13			16:43	16:49
30	06:03		06:36		07:09		17:31 (MO04)	06:44			07:22	07:43
	20:37		19:53		18:59	58	18:29 (MO04)	17:11			16:43	16:49
31	06:04		06:37					06:45				07:43
	20:36		19:51					17:10				16:50
Potential sun hours	463		431		376			344			295	283
Total, worst case						1107			669			
Sun reduction						0.62			0.55			
Oper. time red.						1.00			1.00			
Wind dir. red.						1.00			1.00			
Total reduction						0.62			0.55			
Total, real						691			367			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 160 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1058)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June			July			August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11			05:40		06:06 (MO06)	05:41		06:14 (MO06)	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13			20:44	23	06:29 (MO06)	20:55	18	06:32 (MO06)	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10			05:40		06:05 (MO06)	05:41		06:13 (MO06)	06:07	06:40	07:12	06:48	07:24
	16:53	17:29	18:04	19:40	20:14			20:45	24	06:29 (MO06)	20:55	19	06:32 (MO06)	20:34	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08			05:40		06:06 (MO06)	05:42		06:14 (MO06)	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15			20:46	23	06:29 (MO06)	20:55	19	06:33 (MO06)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:54	06:07			05:39		06:06 (MO06)	05:42		06:14 (MO06)	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16			20:46	22	06:28 (MO06)	20:55	20	06:34 (MO06)	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06			05:39		06:07 (MO06)	05:43		06:13 (MO06)	06:10	06:43	07:15	06:52	07:27
	16:55	17:33	18:08	19:44	20:18			20:47	21	06:28 (MO06)	20:55	21	06:34 (MO06)	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04			05:38		06:07 (MO06)	05:43		06:14 (MO06)	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19			20:48	22	06:29 (MO06)	20:54	21	06:35 (MO06)	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03			05:38		06:08 (MO06)	05:44		06:13 (MO06)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20			20:49	21	06:29 (MO06)	20:54	21	06:34 (MO06)	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02			05:38		06:08 (MO06)	05:45		06:13 (MO06)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21			20:49	20	06:28 (MO06)	20:54	22	06:35 (MO06)	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01			05:38		06:08 (MO06)	05:45		06:13 (MO06)	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22			20:50	20	06:28 (MO06)	20:53	23	06:36 (MO06)	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59			05:37		06:09 (MO06)	05:46		06:13 (MO06)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23			20:50	19	06:28 (MO06)	20:53	23	06:36 (MO06)	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58			05:37		06:10 (MO06)	05:47		06:13 (MO06)	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24			20:51	18	06:28 (MO06)	20:52	23	06:36 (MO06)	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57			05:37		06:10 (MO06)	05:48		06:13 (MO06)	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25			20:51	18	06:28 (MO06)	20:52	24	06:37 (MO06)	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56		06:17 (MO06)	05:37		06:11 (MO06)	05:48		06:13 (MO06)	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:18	19:53	20:26	4	06:21 (MO06)	20:52	17	06:28 (MO06)	20:51	25	06:38 (MO06)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55		06:16 (MO06)	05:37		06:11 (MO06)	05:49		06:13 (MO06)	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	7	06:23 (MO06)	20:52	17	06:28 (MO06)	20:51	24	06:37 (MO06)	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54		06:15 (MO06)	05:37		06:12 (MO06)	05:50		06:13 (MO06)	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28	9	06:24 (MO06)	20:53	16	06:28 (MO06)	20:50	25	06:38 (MO06)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53		06:14 (MO06)	05:37		06:12 (MO06)	05:51		06:14 (MO06)	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	11	06:25 (MO06)	20:53	16	06:28 (MO06)	20:50	24	06:38 (MO06)	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52		06:13 (MO06)	05:37		06:12 (MO06)	05:52		06:15 (MO06)	06:23	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	13	06:26 (MO06)	20:54	16	06:28 (MO06)	20:49	23	06:38 (MO06)	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO06)	05:37		06:13 (MO06)	05:52		06:16 (MO06)	06:24	06:56	07:30	07:08	07:38
	17:10	17:49	18:23	19:58	20:31	14	06:26 (MO06)	20:54	15	06:28 (MO06)	20:48	23	06:39 (MO06)	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50		06:11 (MO06)	05:37		06:13 (MO06)	05:53		06:16 (MO06)	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	16	06:27 (MO06)	20:54	15	06:28 (MO06)	20:48	22	06:38 (MO06)	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49		06:10 (MO06)	05:37		06:13 (MO06)	05:54		06:17 (MO06)	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	17	06:27 (MO06)	20:55	15	06:28 (MO06)	20:47	21	06:38 (MO06)	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48		06:09 (MO06)	05:37		06:13 (MO06)	05:55		06:18 (MO06)	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	18	06:27 (MO06)	20:55	15	06:28 (MO06)	20:46	20	06:38 (MO06)	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47		06:09 (MO06)	05:37		06:14 (MO06)	05:56		06:19 (MO06)	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	19	06:28 (MO06)	20:55	15	06:29 (MO06)	20:45	19	06:38 (MO06)	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:23	05:46		06:08 (MO06)	05:38		06:14 (MO06)	05:57		06:20 (MO06)	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20	06:28 (MO06)	20:55	15	06:29 (MO06)	20:44	18	06:38 (MO06)	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46		06:07 (MO06)	05:38		06:14 (MO06)	05:58		06:21 (MO06)	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	21	06:28 (MO06)	20:55	15	06:29 (MO06)	20:43	17	06:38 (MO06)	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:20	05:45		06:06 (MO06)	05:38		06:14 (MO06)	05:59		06:22 (MO06)	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	22	06:28 (MO06)	20:55	15	06:29 (MO06)	20:42	15	06:37 (MO06)	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44		06:06 (MO06)	05:39		06:14 (MO06)	06:00		06:23 (MO06)	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	23	06:29 (MO06)	20:56	16	06:30 (MO06)	20:42	14	06:37 (MO06)	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43		06:05 (MO06)	05:39		06:14 (MO06)	06:01		06:24 (MO06)	06:33	07:06	06:41	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	24	06:29 (MO06)	20:56	16	06:30 (MO06)	20:41	12	06:36 (MO06)	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43		06:05 (MO06)	05:39		06:14 (MO06)	06:02		06:25 (MO06)	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	24	06:29 (MO06)	20:56	17	06:31 (MO06)	20:40	10	06:35 (MO06)	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42		06:04 (MO06)	05:40		06:14 (MO06)	06:03		06:26 (MO06)	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	25	06:29 (MO06)	20:56	17	06:31 (MO06)	20:38	8	06:34 (MO06)	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42		06:05 (MO06)	05:40		06:14 (MO06)	06:04		06:27 (MO06)	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	24	06:29 (MO06)	20:55	17	06:31 (MO06)	20:37	6	06:33 (MO06)	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05 (MO06)				06:05		06:27 (MO06)	06:37		06:45		07:44
	17:26		19:38		20:43	24	06:29 (MO06)				20:36	2	06:29 (MO06)	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452			457			463			431	376	344	295	283
Total, worst case						335			536			582						
Sun reduction						0.57			0.61			0.71						
Oper. time red.						1.00			1.00			1.00						
Wind dir. red.						1.00			1.00			1.00						
Total reduction						0.57			0.61			0.71						
Total, real						191			327			410						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 161 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1059)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June			July			August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11			05:41		06:03 (MO06)	05:41		06:09 (MO06)	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13			20:44	24	06:27 (MO06)	20:55	22	06:31 (MO06)	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10			05:40		06:02 (MO06)	05:41		06:08 (MO06)	06:07	06:40	07:12	06:48	07:24
	16:53	17:29	18:04	19:40	20:14			20:45	24	06:26 (MO06)	20:55	23	06:31 (MO06)	20:34	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08			05:40		06:02 (MO06)	05:42		06:09 (MO06)	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15			20:46	24	06:26 (MO06)	20:55	22	06:31 (MO06)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:54	06:07			05:39		06:02 (MO06)	05:42		06:09 (MO06)	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16			20:46	24	06:26 (MO06)	20:55	23	06:32 (MO06)	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06			05:39		06:02 (MO06)	05:43		06:09 (MO06)	06:10	06:43	07:15	06:52	07:27
	16:55	17:33	18:08	19:44	20:18			20:47	24	06:26 (MO06)	20:55	23	06:32 (MO06)	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04			05:38		06:03 (MO06)	05:43		06:09 (MO06)	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19			20:48	24	06:27 (MO06)	20:54	24	06:33 (MO06)	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03			05:38		06:03 (MO06)	05:44		06:09 (MO06)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20			20:49	24	06:27 (MO06)	20:54	23	06:32 (MO06)	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02			05:38		06:03 (MO06)	05:45		06:09 (MO06)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21			20:49	23	06:26 (MO06)	20:54	24	06:33 (MO06)	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01			05:38		06:04 (MO06)	05:45		06:09 (MO06)	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22			20:50	22	06:26 (MO06)	20:53	25	06:34 (MO06)	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59			05:37		06:04 (MO06)	05:46		06:09 (MO06)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23			20:50	23	06:27 (MO06)	20:53	24	06:33 (MO06)	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58			05:37		06:05 (MO06)	05:47		06:10 (MO06)	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24			20:51	22	06:27 (MO06)	20:52	24	06:34 (MO06)	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57			05:37		06:05 (MO06)	05:48		06:11 (MO06)	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25			20:51	22	06:27 (MO06)	20:52	23	06:34 (MO06)	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56			05:37		06:05 (MO06)	05:48		06:12 (MO06)	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:18	19:53	20:26			20:52	22	06:27 (MO06)	20:51	23	06:35 (MO06)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55			05:37		06:06 (MO06)	05:49		06:12 (MO06)	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27			20:52	21	06:27 (MO06)	20:51	22	06:34 (MO06)	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54			05:37		06:06 (MO06)	05:50		06:13 (MO06)	06:20	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55	20:28			20:53	21	06:27 (MO06)	20:50	21	06:34 (MO06)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53		06:14 (MO06)	05:37		06:06 (MO06)	05:51		06:14 (MO06)	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	3	06:17 (MO06)	20:53	21	06:27 (MO06)	20:50	21	06:35 (MO06)	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52		06:13 (MO06)	05:37		06:07 (MO06)	05:52		06:15 (MO06)	06:23	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	6	06:19 (MO06)	20:54	20	06:27 (MO06)	20:49	20	06:35 (MO06)	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO06)	05:37		06:07 (MO06)	05:52		06:16 (MO06)	06:24	06:56	07:30	07:08	07:38
	17:10	17:49	18:23	19:58	20:31	8	06:20 (MO06)	20:54	20	06:27 (MO06)	20:48	19	06:35 (MO06)	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50		06:11 (MO06)	05:37		06:07 (MO06)	05:53		06:16 (MO06)	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	10	06:21 (MO06)	20:54	20	06:27 (MO06)	20:48	18	06:34 (MO06)	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49		06:10 (MO06)	05:37		06:07 (MO06)	05:54		06:17 (MO06)	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	12	06:22 (MO06)	20:55	20	06:27 (MO06)	20:47	17	06:34 (MO06)	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48		06:09 (MO06)	05:37		06:07 (MO06)	05:55		06:18 (MO06)	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	13	06:22 (MO06)	20:55	20	06:27 (MO06)	20:46	16	06:34 (MO06)	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47		06:09 (MO06)	05:37		06:08 (MO06)	05:56		06:19 (MO06)	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	15	06:24 (MO06)	20:55	20	06:28 (MO06)	20:45	14	06:33 (MO06)	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:23	05:46		06:08 (MO06)	05:38		06:08 (MO06)	05:57		06:20 (MO06)	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	16	06:24 (MO06)	20:55	20	06:28 (MO06)	20:44	13	06:33 (MO06)	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46		06:07 (MO06)	05:38		06:08 (MO06)	05:58		06:21 (MO06)	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	17	06:24 (MO06)	20:55	20	06:28 (MO06)	20:43	11	06:32 (MO06)	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:20	05:45		06:06 (MO06)	05:38		06:08 (MO06)	05:59		06:22 (MO06)	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	18	06:24 (MO06)	20:55	20	06:28 (MO06)	20:42	9	06:31 (MO06)	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44		06:06 (MO06)	05:39		06:09 (MO06)	06:00		06:23 (MO06)	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	19	06:25 (MO06)	20:56	20	06:29 (MO06)	20:42	7	06:30 (MO06)	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43		06:05 (MO06)	05:39		06:08 (MO06)	06:01		06:24 (MO06)	06:33	07:06	06:41	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20	06:25 (MO06)	20:56	21	06:29 (MO06)	20:41	5	06:29 (MO06)	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43		06:05 (MO06)	05:39		06:09 (MO06)	06:02		06:25 (MO06)	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	21	06:26 (MO06)	20:56	21	06:30 (MO06)	20:40	2	06:27 (MO06)	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42		06:04 (MO06)	05:40		06:09 (MO06)	06:03			06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	22	06:26 (MO06)	20:56	21	06:30 (MO06)	20:38			19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42		06:04 (MO06)	05:40		06:08 (MO06)	06:04			06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	22	06:26 (MO06)	20:55	22	06:30 (MO06)	20:37			19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:03 (MO06)				06:05			06:37		06:45		07:44
	17:26		19:38		20:43	23	06:26 (MO06)				20:36			19:52		17:10		16:51
Potential sun hours	293	295	369	400	452			457			463			431	376	344	295	283
Total, worst case						245			650			518						
Sun reduction						0.57			0.61			0.71						
Oper. time red.						1.00			1.00			1.00						
Wind dir. red.						1.00			1.00			1.00						
Total reduction						0.57			0.61			0.71						
Total, real						139			397			365						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 162 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1060)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44			07:29		08:01 (MO06)	06:52	06:59	06:11	05:40
	16:52			17:27	16	08:17 (MO06)	18:03	19:39	20:13	20:44
2	07:44			07:28		08:03 (MO06)	06:50	06:57	06:10	05:40
	16:53			17:29	12	08:15 (MO06)	18:04	19:40	20:14	20:45
3	07:44			07:27		08:06 (MO06)	06:48	06:55	06:08	05:39
	16:53			17:30	6	08:12 (MO06)	18:06	19:42	20:15	20:46
4	07:44			07:26			06:47	06:53	06:07	05:39
	16:54			17:31			18:07	19:43	20:16	20:46
5	07:44			07:25			06:45	06:52	06:06	05:39
	16:55			17:32			18:08	19:44	20:18	20:47
6	07:44			07:24			06:43	06:50	06:04	05:38
	16:56			17:34			18:09	19:45	20:19	20:48
7	07:44			07:23			06:42	06:48	06:03	05:38
	16:57			17:35			18:10	19:46	20:20	20:49
8	07:44		08:06 (MO06)	07:21			06:40	06:47	06:02	05:38
	16:58	1	08:07 (MO06)	17:36			18:12	19:47	20:21	20:49
9	07:44		08:06 (MO06)	07:20			06:38	06:45	06:01	05:37
	16:59	3	08:09 (MO06)	17:38			18:13	19:48	20:22	20:50
10	07:43		08:06 (MO06)	07:19			06:37	06:43	05:59	05:37
	17:00	5	08:11 (MO06)	17:39			18:14	19:49	20:23	20:50
11	07:43		08:06 (MO06)	07:18			06:35	06:42	05:58	05:37
	17:01	6	08:12 (MO06)	17:40			18:15	19:51	20:24	20:51
12	07:43		08:05 (MO06)	07:16			06:33	06:40	05:57	05:37
	17:03	8	08:13 (MO06)	17:42			18:16	19:52	20:25	20:51
13	07:43		08:05 (MO06)	07:15			06:32	06:38	05:56	05:37
	17:04	9	08:14 (MO06)	17:43			18:18	19:53	20:26	20:52
14	07:42		08:04 (MO06)	07:14			06:30	06:37	05:55	05:37
	17:05	10	08:14 (MO06)	17:44			18:19	19:54	20:27	20:52
15	07:42		08:04 (MO06)	07:12			06:28	06:35	05:54	05:37
	17:06	12	08:16 (MO06)	17:46			18:20	19:55	20:28	20:53
16	07:41		08:03 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	13	08:16 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:03 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	14	08:17 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:02 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	16	08:18 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:01 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	17	08:18 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:01 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	18	08:19 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:39		08:00 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	19	08:19 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		07:59 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	20	08:19 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		07:58 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	21	08:19 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		07:58 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	22	08:20 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		07:57 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	23	08:20 (MO06)	17:58			18:31	20:06	20:38	20:56
26	07:35		07:56 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	24	08:20 (MO06)	17:59			18:32	20:08	20:39	20:56
27	07:34		07:55 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	25	08:20 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		07:56 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	24	08:20 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		07:57 (MO06)				07:04	06:14	05:42	05:40
	17:23	22	08:19 (MO06)				19:36	20:11	20:42	20:56
30	07:31		07:58 (MO06)				07:02	06:12	05:42	05:40
	17:25	20	08:18 (MO06)				19:37	20:12	20:43	20:56
31	07:30		07:59 (MO06)				07:00		05:41	
	17:26	19	08:18 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		371			34					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		156			16					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 162 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1060)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November			December		
1	05:41	06:06	06:38	07:10	06:47			07:23		07:48 (MO06)
	20:55	20:35	19:50	18:58	17:09			16:43	6	07:54 (MO06)
2	05:41	06:07	06:39	07:12	06:48			07:24		07:49 (MO06)
	20:55	20:34	19:49	18:56	17:08			16:43	5	07:54 (MO06)
3	05:42	06:08	06:41	07:13	06:49			07:25		07:50 (MO06)
	20:55	20:33	19:47	18:54	17:06			16:42	3	07:53 (MO06)
4	05:42	06:09	06:42	07:14	06:50			07:26		07:51 (MO06)
	20:55	20:32	19:45	18:52	17:05			16:42	2	07:53 (MO06)
5	05:43	06:10	06:43	07:15	06:52			07:27		
	20:55	20:31	19:43	18:51	17:04			16:42		
6	05:43	06:11	06:44	07:16	06:53			07:28		
	20:54	20:29	19:42	18:49	17:03			16:42		
7	05:44	06:12	06:45	07:17	06:54			07:29		
	20:54	20:28	19:40	18:47	17:02			16:42		
8	05:45	06:13	06:46	07:18	06:55		07:36 (MO06)	07:30		
	20:54	20:27	19:38	18:46	17:00	6	07:42 (MO06)	16:42		
9	05:45	06:14	06:47	07:19	06:57		07:33 (MO06)	07:31		
	20:53	20:25	19:36	18:44	16:59	13	07:46 (MO06)	16:42		
10	05:46	06:15	06:48	07:20	06:58		07:31 (MO06)	07:32		
	20:53	20:24	19:35	18:42	16:58	17	07:48 (MO06)	16:42		
11	05:47	06:16	06:49	07:22	06:59		07:30 (MO06)	07:33		
	20:52	20:23	19:33	18:41	16:57	19	07:49 (MO06)	16:42		
12	05:48	06:17	06:50	07:23	07:00		07:30 (MO06)	07:34		
	20:52	20:21	19:31	18:39	16:56	20	07:50 (MO06)	16:42		
13	05:48	06:18	06:51	07:24	07:02		07:29 (MO06)	07:35		
	20:51	20:20	19:29	18:37	16:55	22	07:51 (MO06)	16:42		
14	05:49	06:19	06:52	07:25	07:03		07:28 (MO06)	07:35		
	20:51	20:18	19:28	18:36	16:54	24	07:52 (MO06)	16:42		
15	05:50	06:20	06:53	07:26	07:04		07:28 (MO06)	07:36		
	20:50	20:17	19:26	18:34	16:53	25	07:53 (MO06)	16:42		
16	05:51	06:21	06:54	07:27	07:05		07:29 (MO06)	07:37		
	20:50	20:16	19:24	18:32	16:52	24	07:53 (MO06)	16:42		
17	05:52	06:22	06:55	07:29	07:07		07:30 (MO06)	07:38		
	20:49	20:14	19:22	18:31	16:51	23	07:53 (MO06)	16:43		
18	05:52	06:24	06:56	07:30	07:08		07:32 (MO06)	07:38		
	20:48	20:13	19:21	18:29	16:51	22	07:54 (MO06)	16:43		
19	05:53	06:25	06:57	07:31	07:09		07:33 (MO06)	07:39		
	20:48	20:11	19:19	18:28	16:50	21	07:54 (MO06)	16:43		
20	05:54	06:26	06:59	07:32	07:10		07:34 (MO06)	07:40		
	20:47	20:10	19:17	18:26	16:49	20	07:54 (MO06)	16:44		
21	05:55	06:27	07:00	07:33	07:12		07:35 (MO06)	07:40		
	20:46	20:08	19:15	18:25	16:48	19	07:54 (MO06)	16:44		
22	05:56	06:28	07:01	07:34	07:13		07:37 (MO06)	07:41		
	20:45	20:06	19:13	18:23	16:48	18	07:55 (MO06)	16:45		
23	05:57	06:29	07:02	07:36	07:14		07:38 (MO06)	07:41		
	20:44	20:05	19:12	18:22	16:47	17	07:55 (MO06)	16:45		
24	05:58	06:30	07:03	07:37	07:15		07:39 (MO06)	07:42		
	20:43	20:03	19:10	18:20	16:46	16	07:55 (MO06)	16:46		
25	05:59	06:31	07:04	06:38	07:16		07:40 (MO06)	07:42		
	20:42	20:02	19:08	17:19	16:46	14	07:54 (MO06)	16:46		
26	06:00	06:32	07:05	06:39	07:18		07:42 (MO06)	07:42		
	20:42	20:00	19:06	17:17	16:45	13	07:55 (MO06)	16:47		
27	06:01	06:33	07:06	06:41	07:19		07:43 (MO06)	07:43		
	20:41	19:58	19:05	17:16	16:45	12	07:55 (MO06)	16:48		
28	06:02	06:34	07:07	06:42	07:20		07:44 (MO06)	07:43		
	20:40	19:57	19:03	17:14	16:44	10	07:54 (MO06)	16:48		
29	06:03	06:35	07:08	06:43	07:21		07:45 (MO06)	07:43		
	20:39	19:55	19:01	17:13	16:44	9	07:54 (MO06)	16:49		
30	06:04	06:36	07:09	06:44	07:22		07:46 (MO06)	07:44		
	20:37	19:54	18:59	17:12	16:43	8	07:54 (MO06)	16:50		
31	06:05	06:37		06:45				07:44		
	20:36	19:52		17:10				16:51		
Potential sun hours	463	431	376	344	295			283		
Total, worst case						392			16	
Sun reduction						0.46			0.43	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.46			0.43	
Total, real						179			7	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 163 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1061)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:07 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47			07:23		07:56 (MO06)
	16:52	25	08:32 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09			16:43	20	08:16 (MO06)
2	07:44		08:07 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48			07:24		07:56 (MO06)
	16:53	25	08:32 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08			16:43	21	08:17 (MO06)
3	07:44		08:07 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49			07:25		07:56 (MO06)
	16:53	26	08:33 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	22	08:18 (MO06)
4	07:44		08:08 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50			07:26		07:55 (MO06)
	16:54	25	08:33 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	23	08:18 (MO06)
5	07:44		08:09 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52			07:27		07:55 (MO06)
	16:55	24	08:33 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51	17:04			16:42	24	08:19 (MO06)
6	07:44		08:09 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		07:56 (MO06)
	16:56	25	08:34 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03			16:42	24	08:20 (MO06)
7	07:44		08:10 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		07:56 (MO06)
	16:57	24	08:34 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02			16:42	24	08:20 (MO06)
8	07:44		08:10 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55			07:30		07:56 (MO06)
	16:58	23	08:33 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00			16:42	25	08:21 (MO06)
9	07:44		08:11 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57			07:31		07:56 (MO06)
	16:59	23	08:34 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:42	26	08:22 (MO06)
10	07:43		08:13 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		07:57 (MO06)
	17:00	21	08:34 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58			16:42	25	08:22 (MO06)
11	07:43		08:13 (MO06)	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59			07:33		07:57 (MO06)
	17:01	20	08:33 (MO06)	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57			16:42	25	08:22 (MO06)
12	07:43		08:14 (MO06)	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00			07:34		07:58 (MO06)
	17:03	19	08:33 (MO06)	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:42	25	08:23 (MO06)
13	07:43		08:16 (MO06)	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:35		07:59 (MO06)
	17:04	17	08:33 (MO06)	17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	25	08:24 (MO06)
14	07:42		08:17 (MO06)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:00 (MO06)
	17:05	15	08:32 (MO06)	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54			16:42	24	08:24 (MO06)
15	07:42		08:19 (MO06)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:01 (MO06)
	17:06	12	08:31 (MO06)	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	24	08:25 (MO06)
16	07:41		08:21 (MO06)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05			07:37		08:01 (MO06)
	17:07	8	08:29 (MO06)	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52			16:42	24	08:25 (MO06)
17	07:41			07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07			07:38		08:02 (MO06)
	17:08			17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51			16:43	24	08:26 (MO06)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08			07:38		08:03 (MO06)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51			16:43	24	08:27 (MO06)
19	07:40			07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09			07:39		08:03 (MO06)
	17:11			17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50			16:43	24	08:27 (MO06)
20	07:39			07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10			07:40		08:04 (MO06)
	17:12			17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49			16:44	23	08:27 (MO06)
21	07:39			07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12			07:40		08:04 (MO06)
	17:13			17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48			16:44	23	08:27 (MO06)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13			07:41		08:05 (MO06)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48			16:45	23	08:28 (MO06)
23	07:37			07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14			07:41		08:05 (MO06)
	17:16			17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47			16:45	23	08:28 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15			07:42		08:05 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46			16:46	23	08:28 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16			07:42		08:06 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46			16:46	24	08:30 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		08:00 (MO06)	07:42		08:06 (MO06)
	17:19			17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	8	08:08 (MO06)	16:47	24	08:30 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19		07:58 (MO06)	07:43		08:06 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	12	08:10 (MO06)	16:48	24	08:30 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		07:57 (MO06)	07:43		08:07 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	15	08:12 (MO06)	16:48	24	08:31 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21		07:56 (MO06)	07:43		08:07 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	17	08:13 (MO06)	16:49	24	08:31 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		07:56 (MO06)	07:44		08:07 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	18	08:14 (MO06)	16:50	25	08:32 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45				07:44		08:07 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10				16:51	25	08:32 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		332												70			738	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		140												32			319	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 164 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1062)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March	April	May	June	July	August	September	October		November		December
1	07:44	07:29		06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10		06:47	07:09 (MO06)	07:23
	16:52	17:27		18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58		17:09	1 07:10 (MO06)	16:43
2	07:44	07:28		06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12		06:48		07:24
	16:53	17:29		18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56		17:08		16:43
3	07:44	07:27		06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13		06:49		07:25
	16:53	17:30		18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54		17:06		16:42
4	07:44	07:26		06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14		06:50		07:26
	16:54	17:31		18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52		17:05		16:42
5	07:44	07:25		06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15		06:52		07:27
	16:55	17:32		18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51		17:04		16:42
6	07:44	07:24		06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16		06:53		07:28
	16:56	17:34		18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49		17:03		16:42
7	07:44	07:23		06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17		06:54		07:29
	16:57	17:35		18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47		17:02		16:42
8	07:44	07:21		06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18		06:55		07:30
	16:58	17:36		18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46		17:00		16:42
9	07:44	07:20		06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19		06:57		07:31
	16:59	17:38		18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44		16:59		16:42
10	07:43	07:19	07:39 (MO06)	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20		06:58		07:32
	17:00	17:39	2 07:41 (MO06)	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42		16:58		16:42
11	07:43	07:18	07:38 (MO06)	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22		06:59		07:33
	17:01	17:40	6 07:44 (MO06)	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41		16:57		16:42
12	07:43	07:16	07:36 (MO06)	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23		07:00		07:34
	17:03	17:42	9 07:45 (MO06)	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39		16:56		16:42
13	07:43	07:15	07:35 (MO06)	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24		07:02		07:35
	17:04	17:43	12 07:47 (MO06)	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37		16:55		16:42
14	07:42	07:14	07:34 (MO06)	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	08:03 (MO06)	07:03		07:35
	17:05	17:44	14 07:48 (MO06)	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	9 08:12 (MO06)	16:54		16:42
15	07:42	07:12	07:32 (MO06)	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	08:00 (MO06)	07:04		07:36
	17:06	17:46	16 07:48 (MO06)	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	14 08:14 (MO06)	16:53		16:42
16	07:41	07:11	07:31 (MO06)	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:57 (MO06)	07:05		07:37
	17:07	17:47	18 07:49 (MO06)	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	19 08:16 (MO06)	16:52		16:42
17	07:41	07:10	07:29 (MO06)	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:56 (MO06)	07:07		07:38
	17:08	17:48	20 07:49 (MO06)	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	22 08:18 (MO06)	16:51		16:43
18	07:40	07:08	07:28 (MO06)	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:55 (MO06)	07:08		07:38
	17:09	17:49	21 07:49 (MO06)	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	23 08:18 (MO06)	16:51		16:43
19	07:40	07:07	07:27 (MO06)	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:54 (MO06)	07:09		07:39
	17:11	17:51	23 07:50 (MO06)	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	25 08:19 (MO06)	16:50		16:43
20	07:39	07:05	07:25 (MO06)	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:53 (MO06)	07:10		07:39
	17:12	17:52	24 07:49 (MO06)	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	26 08:19 (MO06)	16:49		16:44
21	07:39	07:04	07:24 (MO06)	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:55 (MO06)	07:12		07:40
	17:13	17:53	25 07:49 (MO06)	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	25 08:20 (MO06)	16:48		16:44
22	07:38	07:02	07:23 (MO06)	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:56 (MO06)	07:13		07:41
	17:14	17:54	25 07:48 (MO06)	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	24 08:20 (MO06)	16:48		16:45
23	07:37	07:01	07:23 (MO06)	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:57 (MO06)	07:14		07:41
	17:16	17:56	24 07:47 (MO06)	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	22 08:19 (MO06)	16:47		16:45
24	07:36	06:59	07:24 (MO06)	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:58 (MO06)	07:15		07:42
	17:17	17:57	23 07:47 (MO06)	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	21 08:19 (MO06)	16:46		16:46
25	07:36	06:58	07:24 (MO06)	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:00 (MO06)	07:16		07:42
	17:18	17:58	21 07:45 (MO06)	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	19 07:19 (MO06)	16:46		16:46
26	07:35	06:56	07:26 (MO06)	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:01 (MO06)	07:18		07:42
	17:19	17:59	18 07:44 (MO06)	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	17 07:18 (MO06)	16:45		16:47
27	07:34	06:55	07:28 (MO06)	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:02 (MO06)	07:19		07:43
	17:21	18:01	13 07:41 (MO06)	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16 07:18 (MO06)	16:45		16:48
28	07:33	06:53	07:33 (MO06)	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:04 (MO06)	07:20		07:43
	17:22	18:02	4 07:37 (MO06)	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	13 07:17 (MO06)	16:44		16:48
29	07:32			07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:05 (MO06)	07:21		07:43
	17:23			19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	11 07:16 (MO06)	16:44		16:49
30	07:31			07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:06 (MO06)	07:22		07:44
	17:25			19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	8 07:14 (MO06)	16:43		16:50
31	07:30			07:00		05:41		06:05	06:37		06:45	07:07 (MO06)			07:44
	17:26			19:38		20:43		20:36	19:52		17:10	5 07:12 (MO06)			16:51
Potential sun hours	293	295		369	400	452	457	463	431	376	344		295		283
Total, worst case			318									319		1	
Sun reduction			0.46									0.55		0.46	
Oper. time red.			1.00									1.00		1.00	
Wind dir. red.			1.00									1.00		1.00	
Total reduction			0.46									0.55		0.46	
Total, real			147									175		0	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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00390585281383
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 165 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1063)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November	December		
1	07:44		08:19 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23		
	16:52	21	08:40 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43		
2	07:44		08:19 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24		
	16:53	21	08:40 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43		
3	07:44		08:20 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25		08:13 (MO06)
	16:53	20	08:40 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42	8	08:21 (MO06)
4	07:44		08:21 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26		08:11 (MO06)
	16:54	19	08:40 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42	12	08:23 (MO06)
5	07:44		08:22 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27		08:10 (MO06)
	16:55	18	08:40 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42	15	08:25 (MO06)
6	07:44		08:24 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28		08:10 (MO06)
	16:56	16	08:40 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42	16	08:26 (MO06)
7	07:44		08:25 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29		08:10 (MO06)
	16:57	15	08:40 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	16:42	17	08:27 (MO06)
8	07:44		08:26 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30		08:09 (MO06)
	16:58	12	08:38 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42	19	08:28 (MO06)
9	07:44		08:28 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31		08:09 (MO06)
	16:59	9	08:37 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42	20	08:29 (MO06)
10	07:43		08:33 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		08:10 (MO06)
	17:00	1	08:34 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42	20	08:30 (MO06)
11	07:43			07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33		08:09 (MO06)
	17:01			17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42	21	08:30 (MO06)
12	07:43			07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34		08:09 (MO06)
	17:02			17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42	22	08:31 (MO06)
13	07:43			07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35		08:09 (MO06)
	17:04			17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42	23	08:32 (MO06)
14	07:42			07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35		08:10 (MO06)
	17:05			17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42	23	08:33 (MO06)
15	07:42			07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36		08:10 (MO06)
	17:06			17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42	24	08:34 (MO06)
16	07:41			07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37		08:10 (MO06)
	17:07			17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42	24	08:34 (MO06)
17	07:41			07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38		08:11 (MO06)
	17:08			17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43	24	08:35 (MO06)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38		08:11 (MO06)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43	25	08:36 (MO06)
19	07:40			07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39		08:11 (MO06)
	17:11			17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43	25	08:36 (MO06)
20	07:39			07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39		08:12 (MO06)
	17:12			17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44	24	08:36 (MO06)
21	07:38			07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40		08:12 (MO06)
	17:13			17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44	24	08:36 (MO06)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41		08:13 (MO06)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45	24	08:37 (MO06)
23	07:37			07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41		08:13 (MO06)
	17:16			17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45	24	08:37 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42		08:13 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46	25	08:38 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42		08:14 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46	25	08:39 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42		08:14 (MO06)
	17:19			17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47	25	08:39 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43		08:15 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48	24	08:39 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43		08:16 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48	24	08:40 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43		08:17 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49	23	08:40 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44		08:17 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50	23	08:40 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45		07:44		08:18 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10		16:51	22	08:40 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295	283		
Total, worst case		152													625	
Sun reduction		0.42													0.43	
Oper. time red.		1.00													1.00	
Wind dir. red.		1.00													1.00	
Total reduction		0.42													0.43	
Total, real		64													270	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 166 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1064)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:18 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47			07:23		08:07 (MO06)
	16:52	34	08:52 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09			16:43	28	08:35 (MO06)
2	07:44		08:18 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48			07:24		08:08 (MO06)
	16:53	34	08:52 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08			16:43	29	08:37 (MO06)
3	07:44		08:19 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49			07:25		08:07 (MO06)
	16:53	33	08:52 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	30	08:37 (MO06)
4	07:44		08:20 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50			07:26		08:07 (MO06)
	16:54	33	08:53 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	31	08:38 (MO06)
5	07:44		08:21 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52			07:27		08:07 (MO06)
	16:55	32	08:53 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04			16:42	32	08:39 (MO06)
6	07:44		08:21 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		08:07 (MO06)
	16:56	32	08:53 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03			16:42	32	08:39 (MO06)
7	07:44		08:22 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		08:08 (MO06)
	16:57	32	08:54 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02			16:42	32	08:40 (MO06)
8	07:44		08:22 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55			07:30		08:08 (MO06)
	16:58	31	08:53 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00			16:42	33	08:41 (MO06)
9	07:44		08:23 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57			07:31		08:08 (MO06)
	16:59	30	08:53 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:42	34	08:42 (MO06)
10	07:43		08:24 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		08:09 (MO06)
	17:00	30	08:54 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58			16:42	33	08:42 (MO06)
11	07:43		08:25 (MO06)	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59			07:33		08:08 (MO06)
	17:01	28	08:53 (MO06)	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57			16:42	34	08:42 (MO06)
12	07:43		08:26 (MO06)	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00			07:34		08:08 (MO06)
	17:02	27	08:53 (MO06)	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:42	35	08:43 (MO06)
13	07:43		08:27 (MO06)	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:35		08:09 (MO06)
	17:04	26	08:53 (MO06)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	34	08:43 (MO06)
14	07:42		08:28 (MO06)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:10 (MO06)
	17:05	24	08:52 (MO06)	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54			16:42	34	08:44 (MO06)
15	07:42		08:30 (MO06)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:10 (MO06)
	17:06	22	08:52 (MO06)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	35	08:45 (MO06)
16	07:41		08:31 (MO06)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05			07:37		08:10 (MO06)
	17:07	20	08:51 (MO06)	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52			16:42	35	08:45 (MO06)
17	07:41		08:33 (MO06)	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07			07:38		08:11 (MO06)
	17:08	17	08:50 (MO06)	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51			16:43	35	08:46 (MO06)
18	07:40		08:35 (MO06)	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08			07:38		08:11 (MO06)
	17:09	14	08:49 (MO06)	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51			16:43	35	08:46 (MO06)
19	07:40		08:37 (MO06)	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09			07:39		08:11 (MO06)
	17:11	9	08:46 (MO06)	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50			16:43	35	08:46 (MO06)
20	07:39			07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10			07:39		08:12 (MO06)
	17:12			17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49			16:44	35	08:47 (MO06)
21	07:38			07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12			07:40		08:12 (MO06)
	17:13			17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48			16:44	35	08:47 (MO06)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13			07:41		08:13 (MO06)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48			16:45	35	08:48 (MO06)
23	07:37			07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14		08:14 (MO06)	07:41		08:13 (MO06)
	17:16			17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	9	08:23 (MO06)	16:45	35	08:48 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15		08:12 (MO06)	07:42		08:13 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	14	08:26 (MO06)	16:46	35	08:48 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		08:10 (MO06)	07:42		08:14 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	17	08:27 (MO06)	16:46	35	08:49 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		08:10 (MO06)	07:42		08:15 (MO06)
	17:19			17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	20	08:30 (MO06)	16:47	35	08:50 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19		08:09 (MO06)	07:43		08:15 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	22	08:31 (MO06)	16:48	35	08:50 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		08:08 (MO06)	07:43		08:16 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	24	08:32 (MO06)	16:48	35	08:51 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21		08:08 (MO06)	07:43		08:16 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	25	08:33 (MO06)	16:49	35	08:51 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		08:07 (MO06)	07:44		08:17 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	27	08:34 (MO06)	16:50	34	08:51 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45				07:44		08:17 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10				16:51	35	08:52 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		508												158			1045	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		214												72			452	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 167 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1065)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 168 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1066)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 169 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1067)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
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	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 170 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1068)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 171 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1069)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 172 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1070)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
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	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
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	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	07:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 173 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1071)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
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19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
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22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	07:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 174 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1072)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 175 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1073)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 176 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1074)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
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15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
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23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 177 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1075)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 178 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1076)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
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Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
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Total reduction												
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Table layout: For each day in each month the following matrix apply

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 179 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1077)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 180 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1078)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March			April	May	June	July	August	September	October			November	December
1	07:44	07:29			06:51		07:11 (MO05)	06:59	06:11	05:40	05:41	06:06	06:38	07:10			06:47	07:23
	16:52	17:27			18:03	17	07:28 (MO05)	19:39	20:13	20:44	20:55	20:35	19:50	18:58			17:09	16:43
2	07:44	07:28			06:50		07:09 (MO05)	06:57	06:09	05:40	05:41	06:07	06:39	07:11			06:48	07:24
	16:53	17:29			18:04	18	07:27 (MO05)	19:40	20:14	20:45	20:55	20:34	19:48	18:56			17:08	16:43
3	07:44	07:27			06:48		07:08 (MO05)	06:55	06:08	05:39	05:42	06:08	06:40	07:13			06:49	07:25
	16:53	17:30			18:06	18	07:26 (MO05)	19:41	20:15	20:46	20:55	20:33	19:47	18:54			17:06	16:42
4	07:44	07:26			06:47		07:09 (MO05)	06:53	06:07	05:39	05:42	06:09	06:42	07:14			06:50	07:26
	16:54	17:31			18:07	15	07:24 (MO05)	19:43	20:16	20:46	20:55	20:32	19:45	18:52			17:05	16:42
5	07:44	07:25			06:45		07:10 (MO05)	06:52	06:06	05:39	05:43	06:10	06:43	07:15			06:52	07:27
	16:55	17:32			18:08	12	07:22 (MO05)	19:44	20:17	20:47	20:55	20:30	19:43	18:51			17:04	16:42
6	07:44	07:24			06:43		07:14 (MO05)	06:50	06:04	05:38	05:43	06:11	06:44	07:16			06:53	07:28
	16:56	17:34			18:09	5	07:19 (MO05)	19:45	20:19	20:48	20:54	20:29	19:42	18:49			17:03	16:42
7	07:44	07:23			06:42			06:48	06:03	05:38	05:44	06:12	06:45	07:17			06:54	07:29
	16:57	17:35			18:10			19:46	20:20	20:48	20:54	20:28	19:40	18:47			17:01	16:42
8	07:44	07:21			06:40			06:47	06:02	05:38	05:45	06:13	06:46	07:18		07:47 (MO05)	06:55	07:30
	16:58	17:36			18:12			19:47	20:21	20:49	20:54	20:27	19:38	18:46	9	07:56 (MO05)	17:00	16:42
9	07:44	07:20			06:38			06:45	06:01	05:37	05:45	06:14	06:47	07:19		07:44 (MO05)	06:57	07:31
	16:59	17:38			18:13			19:48	20:22	20:50	20:53	20:25	19:36	18:44	14	07:58 (MO05)	16:59	16:42
10	07:43	07:19			06:37			06:43	05:59	05:37	05:46	06:15	06:48	07:20		07:43 (MO05)	06:58	07:32
	17:00	17:39			18:14			19:49	20:23	20:50	20:53	20:24	19:35	18:42	16	07:59 (MO05)	16:58	16:42
11	07:43	07:18			06:35			06:42	05:58	05:37	05:47	06:16	06:49	07:22		07:42 (MO05)	06:59	07:33
	17:01	17:40			18:15			19:51	20:24	20:51	20:52	20:23	19:33	18:40	18	08:00 (MO05)	16:57	16:42
12	07:43	07:16			06:33			06:40	05:57	05:37	05:48	06:17	06:50	07:23		07:43 (MO05)	07:00	07:34
	17:03	17:42			18:16			19:52	20:25	20:51	20:52	20:21	19:31	18:39	17	08:00 (MO05)	16:56	16:42
13	07:42	07:15			06:32			06:38	05:56	05:37	05:48	06:18	06:51	07:24		07:45 (MO05)	07:02	07:34
	17:04	17:43			18:17			19:53	20:26	20:52	20:51	20:20	19:29	18:37	16	08:01 (MO05)	16:55	16:42
14	07:42	07:14			06:30			06:37	05:55	05:37	05:49	06:19	06:52	07:25		07:46 (MO05)	07:03	07:35
	17:05	17:44			18:19			19:54	20:27	20:52	20:51	20:18	19:28	18:36	15	08:01 (MO05)	16:54	16:42
15	07:42	07:12			06:28			06:35	05:54	05:37	05:50	06:20	06:53	07:26		07:47 (MO05)	07:04	07:36
	17:06	17:45			18:20			19:55	20:28	20:53	20:50	20:17	19:26	18:34	13	08:00 (MO05)	16:53	16:42
16	07:41	07:11			06:26			06:33	05:53	05:37	05:51	06:21	06:54	07:27		07:48 (MO05)	07:05	07:37
	17:07	17:47			18:21			19:56	20:29	20:53	20:50	20:15	19:24	18:32	12	08:00 (MO05)	16:52	16:42
17	07:41	07:10			06:25			06:32	05:52	05:37	05:52	06:22	06:55	07:28		07:49 (MO05)	07:07	07:37
	17:08	17:48			18:22			19:57	20:30	20:54	20:49	20:14	19:22	18:31	10	07:59 (MO05)	16:51	16:43
18	07:40	07:08			06:23			06:30	05:51	05:37	05:52	06:23	06:56	07:30		07:51 (MO05)	07:08	07:38
	17:09	17:49			18:23			19:58	20:31	20:54	20:48	20:13	19:21	18:29	8	07:59 (MO05)	16:51	16:43
19	07:40	07:07			06:21			06:29	05:50	05:37	05:53	06:25	06:57	07:31		07:52 (MO05)	07:09	07:39
	17:11	17:51			18:24			20:00	20:32	20:54	20:47	20:11	19:19	18:28	5	07:57 (MO05)	16:50	16:43
20	07:39	07:05			06:19			06:27	05:49	05:37	05:54	06:26	06:58	07:32		07:53 (MO05)	07:10	07:39
	17:12	17:52			18:26			20:01	20:33	20:54	20:47	20:09	19:17	18:26	2	07:55 (MO05)	16:49	16:44
21	07:38	07:04			06:18			06:26	05:48	05:37	05:55	06:27	07:00	07:33			07:11	07:40
	17:13	17:53			18:27			20:02	20:34	20:55	20:46	20:08	19:15	18:25			16:48	16:44
22	07:38	07:02		07:22 (MO05)	06:16			06:24	05:47	05:37	05:56	06:28	07:01	07:34			07:13	07:40
	17:14	17:54	3	07:25 (MO05)	18:28			20:03	20:35	20:55	20:45	20:06	19:13	18:23			16:48	16:45
23	07:37	07:01		07:20 (MO05)	06:14			06:22	05:46	05:38	05:57	06:29	07:02	07:36			07:14	07:41
	17:16	17:56	6	07:26 (MO05)	18:29			20:04	20:36	20:55	20:44	20:05	19:12	18:21			16:47	16:45
24	07:36	06:59		07:19 (MO05)	06:12			06:21	05:46	05:38	05:58	06:30	07:03	07:37			07:15	07:41
	17:17	17:57	9	07:28 (MO05)	18:30			20:05	20:37	20:55	20:43	20:03	19:10	18:20			16:46	16:46
25	07:35	06:58		07:17 (MO05)	06:11			06:19	05:45	05:38	05:59	06:31	07:04	06:38			07:16	07:42
	17:18	17:58	11	07:28 (MO05)	18:31			20:06	20:38	20:55	20:42	20:02	19:08	17:19			16:46	16:46
26	07:35	06:56		07:16 (MO05)	06:09			06:18	05:44	05:38	06:00	06:32	07:05	06:39			07:17	07:42
	17:19	17:59	12	07:28 (MO05)	18:32			20:07	20:39	20:55	20:41	20:00	19:06	17:17			16:45	16:47
27	07:34	06:55		07:14 (MO05)	06:07			06:17	05:43	05:39	06:01	06:33	07:06	06:40			07:19	07:43
	17:21	18:01	14	07:28 (MO05)	18:34			20:09	20:40	20:55	20:40	19:58	19:05	17:16			16:45	16:48
28	07:33	06:53		07:12 (MO05)	06:06			06:15	05:43	05:39	06:02	06:34	07:07	06:42			07:20	07:43
	17:22	18:02	15	07:27 (MO05)	18:35			20:10	20:41	20:55	20:39	19:57	19:03	17:14			16:44	16:48
29	07:32				07:04			06:14	05:42	05:40	06:03	06:35	07:08	06:43			07:21	07:43
	17:23				19:36			20:11	20:42	20:55	20:38	19:55	19:01	17:13			16:44	16:49
30	07:31				07:02			06:12	05:42	05:40	06:04	06:36	07:09	06:44			07:22	07:43
	17:25				19:37			20:12	20:42	20:55	20:37	19:53	18:59	17:12			16:43	16:50
31	07:30				07:00				05:41		06:05	06:37		06:45				07:44
	17:26				19:38				20:43		20:36	19:52		17:10				16:51
Potential sun hours	293	295			369			400	452	457	463	431	376	344			295	283
Total, worst case			70			85									155			
Sun reduction			0.46			0.46									0.55			
Oper. time red.			1.00			1.00									1.00			
Wind dir. red.			1.00			1.00									1.00			
Total reduction			0.46			0.46									0.55			
Total, real			32			39									85			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 181 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1079)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
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	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 182 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1080)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
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	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
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22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
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	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 183 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1081)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 184 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1082)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 185 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1083)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
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10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 186 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1084)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March			April	May	June	July	August	September	October			November	December
1	07:44	07:29			06:51		07:11 (MO05)	06:59	06:11	05:40	05:41	06:06	06:38	07:10			06:47	07:23
	16:52	17:27			18:03	13	07:24 (MO05)	19:39	20:13	20:44	20:55	20:35	19:50	18:58			17:09	16:43
2	07:44	07:28			06:50		07:09 (MO05)	06:57	06:09	05:40	05:41	06:07	06:39	07:11			06:48	07:24
	16:53	17:28			18:04	15	07:24 (MO05)	19:40	20:14	20:45	20:55	20:34	19:48	18:56			17:08	16:43
3	07:44	07:27			06:48		07:08 (MO05)	06:55	06:08	05:39	05:42	06:08	06:40	07:13			06:49	07:25
	16:53	17:30			18:06	16	07:24 (MO05)	19:41	20:15	20:46	20:55	20:33	19:47	18:54			17:06	16:42
4	07:44	07:26			06:47		07:06 (MO05)	06:53	06:07	05:39	05:42	06:09	06:42	07:14		07:43 (MO05)	06:50	07:26
	16:54	17:31			18:07	18	07:24 (MO05)	19:43	20:16	20:46	20:55	20:32	19:45	18:52	11	07:54 (MO05)	17:05	16:42
5	07:44	07:25			06:45		07:04 (MO05)	06:52	06:06	05:39	05:43	06:10	06:43	07:15		07:41 (MO05)	06:52	07:27
	16:55	17:32			18:08	19	07:23 (MO05)	19:44	20:17	20:47	20:55	20:30	19:43	18:51	15	07:56 (MO05)	17:04	16:42
6	07:44	07:24			06:43		07:03 (MO05)	06:50	06:04	05:38	05:43	06:11	06:44	07:16		07:39 (MO05)	06:53	07:28
	16:56	17:34			18:09	20	07:23 (MO05)	19:45	20:19	20:48	20:54	20:29	19:42	18:49	18	07:57 (MO05)	17:03	16:42
7	07:44	07:23			06:42		07:03 (MO05)	06:48	06:03	05:38	05:44	06:12	06:45	07:17		07:38 (MO05)	06:54	07:29
	16:57	17:35			18:10	18	07:21 (MO05)	19:46	20:20	20:48	20:54	20:28	19:40	18:47	20	07:58 (MO05)	17:01	16:42
8	07:44	07:21			06:40		07:03 (MO05)	06:47	06:02	05:38	05:45	06:13	06:46	07:18		07:39 (MO05)	06:55	07:30
	16:58	17:36			18:12	17	07:20 (MO05)	19:47	20:21	20:49	20:54	20:27	19:38	18:46	19	07:58 (MO05)	17:00	16:42
9	07:44	07:20			06:38		07:04 (MO05)	06:45	06:01	05:37	05:45	06:14	06:47	07:19		07:40 (MO05)	06:57	07:31
	16:59	17:38			18:13	13	07:17 (MO05)	19:48	20:22	20:50	20:53	20:25	19:36	18:44	18	07:58 (MO05)	16:59	16:42
10	07:43	07:19			06:37		07:08 (MO05)	06:43	05:59	05:37	05:46	06:15	06:48	07:20		07:41 (MO05)	06:58	07:32
	17:00	17:39			18:14	7	07:15 (MO05)	19:49	20:23	20:50	20:53	20:24	19:35	18:42	17	07:58 (MO05)	16:58	16:42
11	07:43	07:18			06:35			06:42	05:58	05:37	05:47	06:16	06:49	07:22		07:42 (MO05)	06:59	07:33
	17:01	17:40			18:15			19:50	20:24	20:51	20:52	20:23	19:33	18:40	16	07:58 (MO05)	16:57	16:42
12	07:43	07:16			06:33			06:40	05:57	05:37	05:48	06:17	06:50	07:23		07:43 (MO05)	07:00	07:34
	17:02	17:42			18:16			19:52	20:25	20:51	20:52	20:21	19:31	18:39	14	07:57 (MO05)	16:56	16:42
13	07:42	07:15			06:32			06:38	05:56	05:37	05:48	06:18	06:51	07:24		07:45 (MO05)	07:02	07:34
	17:04	17:43			18:17			19:53	20:26	20:52	20:51	20:20	19:29	18:37	12	07:57 (MO05)	16:55	16:42
14	07:42	07:14			06:30			06:37	05:55	05:37	05:49	06:19	06:52	07:25		07:46 (MO05)	07:03	07:35
	17:05	17:44			18:19			19:54	20:27	20:52	20:51	20:18	19:28	18:36	10	07:56 (MO05)	16:54	16:42
15	07:42	07:12			06:28			06:35	05:54	05:37	05:50	06:20	06:53	07:26		07:47 (MO05)	07:04	07:36
	17:06	17:45			18:20			19:55	20:28	20:53	20:50	20:17	19:26	18:34	7	07:54 (MO05)	16:53	16:42
16	07:41	07:11			06:26			06:33	05:53	05:37	05:51	06:21	06:54	07:27		07:48 (MO05)	07:05	07:37
	17:07	17:47			18:21			19:56	20:29	20:53	20:50	20:15	19:24	18:32	5	07:53 (MO05)	16:52	16:42
17	07:41	07:10			06:25			06:32	05:52	05:37	05:52	06:22	06:55	07:28		07:49 (MO05)	07:07	07:37
	17:08	17:48			18:22			19:57	20:30	20:54	20:49	20:14	19:22	18:31	1	07:50 (MO05)	16:51	16:43
18	07:40	07:08			06:23			06:30	05:51	05:37	05:52	06:23	06:56	07:30			07:08	07:38
	17:09	17:49			18:23			19:58	20:31	20:54	20:48	20:13	19:21	18:29			16:51	16:43
19	07:40	07:07			06:21			06:29	05:50	05:37	05:53	06:25	06:57	07:31			07:09	07:39
	17:11	17:51			18:24			20:00	20:32	20:54	20:47	20:11	19:19	18:28			16:50	16:43
20	07:39	07:05			06:19			06:27	05:49	05:37	05:54	06:26	06:58	07:32			07:10	07:39
	17:12	17:52			18:26			20:01	20:33	20:54	20:47	20:09	19:17	18:26			16:49	16:44
21	07:38	07:04			06:18			06:26	05:48	05:37	05:55	06:27	07:00	07:33			07:11	07:40
	17:13	17:53			18:27			20:02	20:34	20:55	20:46	20:08	19:15	18:25			16:48	16:44
22	07:38	07:02			06:16			06:24	05:47	05:37	05:56	06:28	07:01	07:34			07:13	07:40
	17:14	17:54			18:28			20:03	20:35	20:55	20:45	20:06	19:13	18:23			16:48	16:45
23	07:37	07:01			06:14			06:22	05:46	05:38	05:57	06:29	07:02	07:36			07:14	07:41
	17:16	17:56			18:29			20:04	20:36	20:55	20:44	20:05	19:12	18:21			16:47	16:45
24	07:36	06:59			06:12			06:21	05:46	05:38	05:58	06:30	07:03	07:37			07:15	07:41
	17:17	17:57			18:30			20:05	20:37	20:55	20:43	20:03	19:10	18:20			16:46	16:46
25	07:35	06:58		07:17 (MO05)	06:11			06:19	05:45	05:38	05:59	06:31	07:04	06:38			07:16	07:42
	17:18	17:58	2	07:19 (MO05)	18:31			20:06	20:38	20:55	20:42	20:02	19:08	17:19			16:46	16:46
26	07:35	06:56		07:16 (MO05)	06:09			06:18	05:44	05:38	06:00	06:32	07:05	06:39			07:17	07:42
	17:19	17:59	6	07:22 (MO05)	18:32			20:07	20:39	20:55	20:41	20:00	19:06	17:17			16:45	16:47
27	07:34	06:55		07:14 (MO05)	06:07			06:17	05:43	05:39	06:01	06:33	07:06	06:40			07:19	07:43
	17:21	18:01	9	07:23 (MO05)	18:34			20:09	20:40	20:55	20:40	19:58	19:05	17:16			16:45	16:48
28	07:33	06:53		07:12 (MO05)	06:06			06:15	05:43	05:39	06:02	06:34	07:07	06:42			07:20	07:43
	17:22	18:02	11	07:23 (MO05)	18:35			20:10	20:41	20:55	20:39	19:57	19:03	17:14			16:44	16:48
29	07:32				07:04			06:14	05:42	05:40	06:03	06:35	07:08	06:43			07:21	07:43
	17:23				19:36			20:11	20:42	20:55	20:38	19:55	19:01	17:13			16:44	16:49
30	07:31				07:02			06:12	05:42	05:40	06:04	06:36	07:09	06:44			07:22	07:43
	17:25				19:37			20:12	20:42	20:55	20:37	19:53	18:59	17:12			16:43	16:50
31	07:30				07:00				05:41		06:05	06:37		06:45				07:44
	17:26				19:38				20:43		20:36	19:52		17:10				16:51
Potential sun hours	293	295			369			400	452	457	463	431	376	344			295	283
Total, worst case			28			156									183			
Sun reduction			0.46			0.46									0.55			
Oper. time red.			1.00			1.00									1.00			
Wind dir. red.			1.00			1.00									1.00			
Total reduction			0.46			0.46									0.55			
Total, real			13			72									100			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 187 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1085)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March	April	May	June
1	07:44		08:08 (MO05)	07:29		08:01 (MO05)	06:51	06:59	06:11	05:40
	16:52	28	08:36 (MO05)	17:27	64	09:05 (MO05)	18:03	19:39	20:13	20:44
2	07:44		08:08 (MO05)	07:28		08:01 (MO05)	06:50	06:57	06:09	05:40
	16:52	29	08:37 (MO05)	17:28	64	09:05 (MO05)	18:04	19:40	20:14	20:45
3	07:44		08:08 (MO05)	07:27		08:00 (MO05)	06:48	06:55	06:08	05:39
	16:53	31	08:39 (MO05)	17:30	64	09:04 (MO05)	18:05	19:41	20:15	20:46
4	07:44		08:08 (MO05)	07:26		08:00 (MO05)	06:47	06:53	06:07	05:39
	16:54	32	08:40 (MO05)	17:31	65	09:05 (MO05)	18:07	19:43	20:16	20:46
5	07:44		08:07 (MO05)	07:25		08:00 (MO05)	06:45	06:52	06:05	05:39
	16:55	34	08:41 (MO05)	17:32	65	09:05 (MO05)	18:08	19:44	20:17	20:47
6	07:44		08:07 (MO05)	07:24		08:01 (MO05)	06:43	06:50	06:04	05:38
	16:56	36	08:43 (MO05)	17:34	64	09:05 (MO05)	18:09	19:45	20:18	20:48
7	07:44		08:06 (MO05)	07:22		08:01 (MO05)	06:42	06:48	06:03	05:38
	16:57	37	08:43 (MO05)	17:35	64	09:05 (MO05)	18:10	19:46	20:20	20:48
8	07:44		08:06 (MO05)	07:21		08:02 (MO05)	06:40	06:47	06:02	05:38
	16:58	38	08:44 (MO05)	17:36	63	09:05 (MO05)	18:11	19:47	20:21	20:49
9	07:43		08:06 (MO05)	07:20		08:01 (MO05)	06:38	06:45	06:00	05:37
	16:59	40	08:46 (MO05)	17:38	64	09:05 (MO05)	18:13	19:48	20:22	20:50
10	07:43		08:06 (MO05)	07:19		08:02 (MO05)	06:37	06:43	05:59	05:37
	17:00	41	08:47 (MO05)	17:39	63	09:05 (MO05)	18:14	19:49	20:23	20:50
11	07:43		08:05 (MO05)	07:18		08:03 (MO05)	06:35	06:42	05:58	05:37
	17:01	43	08:48 (MO05)	17:40	61	09:04 (MO05)	18:15	19:50	20:24	20:51
12	07:43		08:05 (MO05)	07:16		08:02 (MO05)	06:33	06:40	05:57	05:37
	17:02	44	08:49 (MO05)	17:42	61	09:03 (MO05)	18:16	19:52	20:25	20:51
13	07:42		08:04 (MO05)	07:15		08:03 (MO05)	06:31	06:38	05:56	05:37
	17:04	46	08:50 (MO05)	17:43	60	09:03 (MO05)	18:17	19:53	20:26	20:52
14	07:42		08:04 (MO05)	07:14		08:04 (MO05)	06:30	06:37	05:55	05:37
	17:05	47	08:51 (MO05)	17:44	59	09:03 (MO05)	18:19	19:54	20:27	20:52
15	07:42		08:04 (MO05)	07:12		08:04 (MO05)	06:28	06:35	05:54	05:37
	17:06	49	08:53 (MO05)	17:45	58	09:02 (MO05)	18:20	19:55	20:28	20:53
16	07:41		08:03 (MO05)	07:11		08:05 (MO05)	06:26	06:33	05:53	05:37
	17:07	50	08:53 (MO05)	17:47	56	09:01 (MO05)	18:21	19:56	20:29	20:53
17	07:41		08:02 (MO05)	07:10		08:05 (MO05)	06:25	06:32	05:52	05:37
	17:08	52	08:54 (MO05)	17:48	55	09:00 (MO05)	18:22	19:57	20:30	20:53
18	07:40		08:03 (MO05)	07:08		08:07 (MO05)	06:23	06:30	05:51	05:37
	17:09	53	08:56 (MO05)	17:49	52	08:59 (MO05)	18:23	19:58	20:31	20:54
19	07:40		08:02 (MO05)	07:07		08:07 (MO05)	06:21	06:29	05:50	05:37
	17:11	54	08:56 (MO05)	17:51	50	08:57 (MO05)	18:24	19:59	20:32	20:54
20	07:39		08:02 (MO05)	07:05		08:09 (MO05)	06:19	06:27	05:49	05:37
	17:12	55	08:57 (MO05)	17:52	47	08:56 (MO05)	18:25	20:01	20:33	20:54
21	07:38		08:02 (MO05)	07:04		08:10 (MO05)	06:18	06:25	05:48	05:37
	17:13	56	08:58 (MO05)	17:53	44	08:54 (MO05)	18:27	20:02	20:34	20:55
22	07:38		08:01 (MO05)	07:02		08:11 (MO05)	06:16	06:24	05:47	05:37
	17:14	58	08:59 (MO05)	17:54	42	08:53 (MO05)	18:28	20:03	20:35	20:55
23	07:37		08:01 (MO05)	07:01		08:13 (MO05)	06:14	06:22	05:46	05:38
	17:16	58	08:59 (MO05)	17:56	37	08:50 (MO05)	18:29	20:04	20:36	20:55
24	07:36		08:01 (MO05)	06:59		08:15 (MO05)	06:12	06:21	05:46	05:38
	17:17	59	09:00 (MO05)	17:57	33	08:48 (MO05)	18:30	20:05	20:37	20:55
25	07:35		08:01 (MO05)	06:58		08:17 (MO05)	06:11	06:19	05:45	05:38
	17:18	61	09:02 (MO05)	17:58	28	08:45 (MO05)	18:31	20:06	20:38	20:55
26	07:35		08:01 (MO05)	06:56		08:21 (MO05)	06:09	06:18	05:44	05:38
	17:19	61	09:02 (MO05)	17:59	21	08:42 (MO05)	18:32	20:07	20:39	20:55
27	07:34		08:01 (MO05)	06:55		08:26 (MO05)	06:07	06:16	05:43	05:39
	17:21	62	09:03 (MO05)	18:01	10	08:36 (MO05)	18:33	20:08	20:40	20:55
28	07:33		08:01 (MO05)	06:53			06:05	06:15	05:43	05:39
	17:22	62	09:03 (MO05)	18:02			18:35	20:10	20:41	20:55
29	07:32		08:01 (MO05)				07:04	06:14	05:42	05:40
	17:23	63	09:04 (MO05)				19:36	20:11	20:42	20:55
30	07:31		08:01 (MO05)				07:02	06:12	05:41	05:40
	17:25	63	09:04 (MO05)				19:37	20:12	20:42	20:55
31	07:30		08:01 (MO05)				07:00		05:41	
	17:26	63	09:04 (MO05)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		1505			1414					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		633			653					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 187 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1085)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October			November			December		
1	05:41		06:06		06:38		07:10			06:47		07:32 (MO05)	07:23		07:47 (MO05)
	20:55		20:35		19:50		18:58			17:09	62	08:34 (MO05)	16:43	43	08:30 (MO05)
2	05:41		06:07		06:39		07:11			06:48		07:31 (MO05)	07:24		07:48 (MO05)
	20:55		20:34		19:48		18:56			17:08	63	08:34 (MO05)	16:43	41	08:29 (MO05)
3	05:42		06:08		06:40		07:12			06:49		07:30 (MO05)	07:25		07:49 (MO05)
	20:55		20:33		19:47		18:54			17:06	64	08:34 (MO05)	16:42	40	08:29 (MO05)
4	05:42		06:09		06:41		07:14			06:50		07:31 (MO05)	07:26		07:51 (MO05)
	20:55		20:32		19:45		18:52			17:05	64	08:35 (MO05)	16:42	38	08:29 (MO05)
5	05:43		06:10		06:43		07:15			06:52		07:31 (MO05)	07:27		07:52 (MO05)
	20:54		20:30		19:43		18:51			17:04	64	08:35 (MO05)	16:42	37	08:29 (MO05)
6	05:43		06:11		06:44		07:16			06:53		07:30 (MO05)	07:28		07:53 (MO05)
	20:54		20:29		19:42		18:49			17:03	65	08:35 (MO05)	16:42	36	08:29 (MO05)
7	05:44		06:12		06:45		07:17			06:54		07:31 (MO05)	07:29		07:54 (MO05)
	20:54		20:28		19:40		18:47			17:01	65	08:36 (MO05)	16:42	34	08:28 (MO05)
8	05:45		06:13		06:46		07:18			06:55		07:31 (MO05)	07:30		07:55 (MO05)
	20:54		20:27		19:38		18:45			17:00	64	08:35 (MO05)	16:41	33	08:28 (MO05)
9	05:45		06:14		06:47		07:19			06:57		07:31 (MO05)	07:31		07:56 (MO05)
	20:53		20:25		19:36		18:44			16:59	64	08:35 (MO05)	16:41	31	08:27 (MO05)
10	05:46		06:15		06:48		07:20			06:58		07:32 (MO05)	07:32		07:57 (MO05)
	20:53		20:24		19:35		18:42			16:58	64	08:36 (MO05)	16:41	29	08:26 (MO05)
11	05:47		06:16		06:49		07:21			06:59		07:31 (MO05)	07:33		07:58 (MO05)
	20:52		20:23		19:33		18:40			16:57	64	08:35 (MO05)	16:42	28	08:26 (MO05)
12	05:47		06:17		06:50		07:23			07:00		07:31 (MO05)	07:34		08:00 (MO05)
	20:52		20:21		19:31		18:39			16:56	64	08:35 (MO05)	16:42	26	08:26 (MO05)
13	05:48		06:18		06:51		07:24			07:02		07:33 (MO05)	07:34		08:01 (MO05)
	20:51		20:20		19:29		18:37			16:55	62	08:35 (MO05)	16:42	25	08:26 (MO05)
14	05:49		06:19		06:52		07:25			07:03		07:33 (MO05)	07:35		08:02 (MO05)
	20:51		20:18		19:28		18:36			16:54	62	08:35 (MO05)	16:42	24	08:26 (MO05)
15	05:50		06:20		06:53		07:26		08:56 (MO05)	07:04		07:33 (MO05)	07:36		08:03 (MO05)
	20:50		20:17		19:26		18:34	15	09:11 (MO05)	16:53	62	08:35 (MO05)	16:42	22	08:25 (MO05)
16	05:51		06:21		06:54		07:27		08:51 (MO05)	07:05		07:34 (MO05)	07:37		08:04 (MO05)
	20:49		20:15		19:24		18:32	24	09:15 (MO05)	16:52	61	08:35 (MO05)	16:42	21	08:25 (MO05)
17	05:51		06:22		06:55		07:28		08:48 (MO05)	07:07		07:34 (MO05)	07:37		08:05 (MO05)
	20:49		20:14		19:22		18:31	30	09:18 (MO05)	16:51	61	08:35 (MO05)	16:43	20	08:25 (MO05)
18	05:52		06:23		06:56		07:30		08:46 (MO05)	07:08		07:35 (MO05)	07:38		08:06 (MO05)
	20:48		20:12		19:20		18:29	35	09:21 (MO05)	16:50	59	08:34 (MO05)	16:43	19	08:25 (MO05)
19	05:53		06:24		06:57		07:31		08:44 (MO05)	07:09		07:36 (MO05)	07:39		08:07 (MO05)
	20:47		20:11		19:19		18:28	39	09:23 (MO05)	16:50	58	08:34 (MO05)	16:43	18	08:25 (MO05)
20	05:54		06:26		06:58		07:32		08:42 (MO05)	07:10		07:37 (MO05)	07:39		08:07 (MO05)
	20:47		20:09		19:17		18:26	42	09:24 (MO05)	16:49	57	08:34 (MO05)	16:44	18	08:25 (MO05)
21	05:55		06:27		06:59		07:33		08:40 (MO05)	07:11		07:37 (MO05)	07:40		08:08 (MO05)
	20:46		20:08		19:15		18:24	45	09:25 (MO05)	16:48	56	08:33 (MO05)	16:44	18	08:26 (MO05)
22	05:56		06:28		07:01		07:34		08:39 (MO05)	07:13		07:39 (MO05)	07:40		08:08 (MO05)
	20:45		20:06		19:13		18:23	48	09:27 (MO05)	16:47	55	08:34 (MO05)	16:45	18	08:26 (MO05)
23	05:57		06:29		07:02		07:35		08:37 (MO05)	07:14		07:39 (MO05)	07:41		08:09 (MO05)
	20:44		20:05		19:12		18:21	51	09:28 (MO05)	16:47	54	08:33 (MO05)	16:45	18	08:27 (MO05)
24	05:58		06:30		07:03		07:37		08:36 (MO05)	07:15		07:40 (MO05)	07:41		08:09 (MO05)
	20:43		20:03		19:10		18:20	53	09:29 (MO05)	16:46	53	08:33 (MO05)	16:46	18	08:27 (MO05)
25	05:59		06:31		07:04		06:38		07:35 (MO05)	07:16		07:40 (MO05)	07:42		08:10 (MO05)
	20:42		20:02		19:08		17:18	54	08:29 (MO05)	16:46	52	08:32 (MO05)	16:46	19	08:29 (MO05)
26	06:00		06:32		07:05		06:39		07:35 (MO05)	07:17		07:41 (MO05)	07:42		08:10 (MO05)
	20:41		20:00		19:06		17:17	56	08:31 (MO05)	16:45	51	08:32 (MO05)	16:47	19	08:29 (MO05)
27	06:01		06:33		07:06		06:40		07:34 (MO05)	07:18		07:43 (MO05)	07:43		08:09 (MO05)
	20:40		19:58		19:05		17:16	57	08:31 (MO05)	16:45	49	08:32 (MO05)	16:48	21	08:30 (MO05)
28	06:02		06:34		07:07		06:42		07:33 (MO05)	07:20		07:44 (MO05)	07:43		08:09 (MO05)
	20:39		19:57		19:03		17:14	59	08:32 (MO05)	16:44	47	08:31 (MO05)	16:48	22	08:31 (MO05)
29	06:03		06:35		07:08		06:43		07:33 (MO05)	07:21		07:45 (MO05)	07:43		08:10 (MO05)
	20:38		19:55		19:01		17:13	60	08:33 (MO05)	16:44	46	08:31 (MO05)	16:49	23	08:33 (MO05)
30	06:04		06:36		07:09		06:44		07:32 (MO05)	07:22		07:46 (MO05)	07:43		08:09 (MO05)
	20:37		19:53		18:59		17:11	61	08:33 (MO05)	16:43	44	08:30 (MO05)	16:50	25	08:34 (MO05)
31	06:05		06:37				06:45		07:31 (MO05)				07:44		08:09 (MO05)
	20:36		19:52				17:10	62	08:33 (MO05)				16:51	26	08:35 (MO05)
Potential sun hours	463		431		376		344			295			283		
Total, worst case								791			1756			810	
Sun reduction								0.55			0.46			0.43	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								1.00			1.00			1.00	
Total reduction								0.55			0.46			0.43	
Total, real								434			801			350	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 188 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1086)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June
1	07:44	07:29	06:51			06:58		18:44 (MO05)	06:11	05:40
	16:52	17:27	18:03			19:39	16	19:00 (MO05)	20:13	20:44
2	07:44	07:28	06:50			06:57		18:48 (MO05)	06:09	05:40
	16:52	17:28	18:04			19:40	9	18:57 (MO05)	20:14	20:45
3	07:44	07:27	06:48			06:55			06:08	05:39
	16:53	17:30	18:05			19:41			20:15	20:45
4	07:44	07:26	06:46			06:53			06:07	05:39
	16:54	17:31	18:07			19:42			20:16	20:46
5	07:44	07:25	06:45			06:52			06:05	05:39
	16:55	17:32	18:08			19:44			20:17	20:47
6	07:44	07:24	06:43			06:50			06:04	05:38
	16:56	17:34	18:09			19:45			20:18	20:48
7	07:44	07:22	06:42			06:48			06:03	05:38
	16:57	17:35	18:10			19:46			20:20	20:48
8	07:44	07:21	06:40			06:46			06:02	05:38
	16:58	17:36	18:11			19:47			20:21	20:49
9	07:43	07:20	06:38			06:45			06:00	05:37
	16:59	17:38	18:13			19:48			20:22	20:50
10	07:43	07:19	06:36			06:43			05:59	05:37
	17:00	17:39	18:14			19:49			20:23	20:50
11	07:43	07:17	06:35			06:41			05:58	05:37
	17:01	17:40	18:15			19:50			20:24	20:51
12	07:43	07:16	06:33			06:40			05:57	05:37
	17:02	17:41	18:16			19:51			20:25	20:51
13	07:42	07:15	06:31		17:50 (MO05)	06:38			05:56	05:37
	17:03	17:43	18:17	5	17:55 (MO05)	19:53			20:26	20:52
14	07:42	07:14	06:30		17:48 (MO05)	06:37			05:55	05:37
	17:05	17:44	18:18	9	17:57 (MO05)	19:54			20:27	20:52
15	07:41	07:12	06:28		17:46 (MO05)	06:35			05:54	05:37
	17:06	17:45	18:20	12	17:58 (MO05)	19:55			20:28	20:53
16	07:41	07:11	06:26		17:44 (MO05)	06:33			05:53	05:37
	17:07	17:47	18:21	15	17:59 (MO05)	19:56			20:29	20:53
17	07:41	07:09	06:25		17:43 (MO05)	06:32			05:52	05:37
	17:08	17:48	18:22	18	18:01 (MO05)	19:57			20:30	20:53
18	07:40	07:08	06:23		17:42 (MO05)	06:30			05:51	05:37
	17:09	17:49	18:23	20	18:02 (MO05)	19:58			20:31	20:54
19	07:39	07:07	06:21		17:40 (MO05)	06:28			05:50	05:37
	17:11	17:50	18:24	23	18:03 (MO05)	19:59			20:32	20:54
20	07:39	07:05	06:19		17:39 (MO05)	06:27			05:49	05:37
	17:12	17:52	18:25	25	18:04 (MO05)	20:00			20:33	20:54
21	07:38	07:04	06:18		17:39 (MO05)	06:25			05:48	05:37
	17:13	17:53	18:27	27	18:06 (MO05)	20:02			20:34	20:55
22	07:38	07:02	06:16		17:39 (MO05)	06:24			05:47	05:37
	17:14	17:54	18:28	28	18:07 (MO05)	20:03			20:35	20:55
23	07:37	07:01	06:14		17:38 (MO05)	06:22			05:46	05:37
	17:15	17:55	18:29	29	18:07 (MO05)	20:04			20:36	20:55
24	07:36	06:59	06:12		17:38 (MO05)	06:21			05:45	05:38
	17:17	17:57	18:30	30	18:08 (MO05)	20:05			20:37	20:55
25	07:35	06:58	06:11		17:38 (MO05)	06:19			05:45	05:38
	17:18	17:58	18:31	32	18:10 (MO05)	20:06			20:38	20:55
26	07:35	06:56	06:09		17:38 (MO05)	06:18			05:44	05:38
	17:19	17:59	18:32	32	18:10 (MO05)	20:07			20:39	20:55
27	07:34	06:54	06:07		17:38 (MO05)	06:16			05:43	05:39
	17:21	18:00	18:33	31	18:09 (MO05)	20:08			20:40	20:55
28	07:33	06:53	06:05		17:39 (MO05)	06:15			05:43	05:39
	17:22	18:02	18:35	29	18:08 (MO05)	20:09			20:41	20:55
29	07:32		07:04		18:40 (MO05)	06:14			05:42	05:40
	17:23		19:36	27	19:07 (MO05)	20:11			20:41	20:55
30	07:31		07:02		18:41 (MO05)	06:12			05:41	05:40
	17:24		19:37	24	19:05 (MO05)	20:12			20:42	20:55
31	07:30		07:00		18:42 (MO05)				05:41	
	17:26		19:38	21	19:03 (MO05)				20:43	
Potential sun hours	293	295	369			400			452	457
Total, worst case				437			25			
Sun reduction				0.46			0.49			
Oper. time red.				1.00			1.00			
Wind dir. red.				1.00			1.00			
Total reduction				0.46			0.49			
Total, real				200			12			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 188 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1086)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September		October		November	December
1	05:40	06:06	06:38		07:10	18:33 (MO05)	06:46	07:23
	20:55	20:35	19:50		18:57	2 18:35 (MO05)	17:09	16:43
2	05:41	06:07	06:39		07:11		06:48	07:24
	20:55	20:34	19:48		18:56		17:07	16:42
3	05:41	06:08	06:40		07:12		06:49	07:25
	20:55	20:33	19:47		18:54		17:06	16:42
4	05:42	06:09	06:41		07:14		06:50	07:26
	20:55	20:31	19:45		18:52		17:05	16:42
5	05:43	06:10	06:42		07:15		06:51	07:27
	20:54	20:30	19:43		18:51		17:04	16:42
6	05:43	06:11	06:44		07:16		06:53	07:28
	20:54	20:29	19:41		18:49		17:03	16:42
7	05:44	06:12	06:45		07:17		06:54	07:29
	20:54	20:28	19:40		18:47		17:01	16:42
8	05:45	06:13	06:46		07:18		06:55	07:30
	20:53	20:26	19:38		18:45		17:00	16:41
9	05:45	06:14	06:47		07:19		06:56	07:31
	20:53	20:25	19:36		18:44		16:59	16:41
10	05:46	06:15	06:48		18:41 (MO05)	07:20	06:58	07:32
	20:53	20:24	19:34	9	18:50 (MO05)	18:42	16:58	16:41
11	05:47	06:16	06:49		18:37 (MO05)	07:21	06:59	07:33
	20:52	20:22	19:33	16	18:53 (MO05)	18:40	16:57	16:41
12	05:47	06:17	06:50		18:34 (MO05)	07:23	07:00	07:34
	20:52	20:21	19:31	21	18:55 (MO05)	18:39	16:56	16:42
13	05:48	06:18	06:51		18:32 (MO05)	07:24	07:01	07:34
	20:51	20:20	19:29	24	18:56 (MO05)	18:37	16:55	16:42
14	05:49	06:19	06:52		18:31 (MO05)	07:25	07:03	07:35
	20:51	20:18	19:27	26	18:57 (MO05)	18:35	16:54	16:42
15	05:50	06:20	06:53		18:29 (MO05)	07:26	07:04	07:36
	20:50	20:17	19:26	29	18:58 (MO05)	18:34	16:53	16:42
16	05:51	06:21	06:54		18:28 (MO05)	07:27	07:05	07:37
	20:49	20:15	19:24	30	18:58 (MO05)	18:32	16:52	16:42
17	05:51	06:22	06:55		18:27 (MO05)	07:28	07:06	07:37
	20:49	20:14	19:22	31	18:58 (MO05)	18:31	16:51	16:43
18	05:52	06:23	06:56		18:26 (MO05)	07:29	07:08	07:38
	20:48	20:12	19:20	32	18:58 (MO05)	18:29	16:50	16:43
19	05:53	06:24	06:57		18:25 (MO05)	07:31	07:09	07:39
	20:47	20:11	19:19	31	18:56 (MO05)	18:27	16:50	16:43
20	05:54	06:25	06:58		18:25 (MO05)	07:32	07:10	07:39
	20:46	20:09	19:17	29	18:54 (MO05)	18:26	16:49	16:44
21	05:55	06:27	06:59		18:24 (MO05)	07:33	07:11	07:40
	20:46	20:08	19:15	28	18:52 (MO05)	18:24	16:48	16:44
22	05:56	06:28	07:00		18:24 (MO05)	07:34	07:13	07:40
	20:45	20:06	19:13	26	18:50 (MO05)	18:23	16:47	16:45
23	05:57	06:29	07:02		18:24 (MO05)	07:35	07:14	07:41
	20:44	20:05	19:11	25	18:49 (MO05)	18:21	16:47	16:45
24	05:58	06:30	07:03		18:24 (MO05)	07:37	07:15	07:41
	20:43	20:03	19:10	23	18:47 (MO05)	18:20	16:46	16:46
25	05:59	06:31	07:04		18:24 (MO05)	06:38	07:16	07:42
	20:42	20:01	19:08	21	18:45 (MO05)	17:18	16:46	16:46
26	06:00	06:32	07:05		18:24 (MO05)	06:39	07:17	07:42
	20:41	20:00	19:06	19	18:43 (MO05)	17:17	16:45	16:47
27	06:01	06:33	07:06		18:25 (MO05)	06:40	07:18	07:42
	20:40	19:58	19:04	16	18:41 (MO05)	17:16	16:44	16:47
28	06:02	06:34	07:07		18:26 (MO05)	06:41	07:20	07:43
	20:39	19:57	19:03	13	18:39 (MO05)	17:14	16:44	16:48
29	06:03	06:35	07:08		18:28 (MO05)	06:43	07:21	07:43
	20:38	19:55	19:01	10	18:38 (MO05)	17:13	16:44	16:49
30	06:04	06:36	07:09		18:30 (MO05)	06:44	07:22	07:43
	20:37	19:53	18:59	7	18:37 (MO05)	17:11	16:43	16:50
31	06:05	06:37				06:45		07:43
	20:36	19:52				17:10		16:50
Potential sun hours	463	431	376			344	295	283
Total, worst case				466		2		
Sun reduction				0.62		0.55		
Oper. time red.				1.00		1.00		
Wind dir. red.				1.00		1.00		
Total reduction				0.62		0.55		
Total, real				291		1		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 189 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1087)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June
1	07:44	07:29	06:51	06:58		06:11	19:19 (MO05)	05:40
	16:52	17:27	18:03	19:39		20:13	30 19:49 (MO05)	20:44
2	07:44	07:28	06:50	06:57		06:09	19:20 (MO05)	05:40
	16:52	17:28	18:04	19:40		20:14	30 19:50 (MO05)	20:45
3	07:44	07:27	06:48	06:55		06:08	19:20 (MO05)	05:39
	16:53	17:30	18:05	19:41		20:15	32 19:52 (MO05)	20:45
4	07:44	07:26	06:46	06:53		06:07	19:21 (MO05)	05:39
	16:54	17:31	18:07	19:42		20:16	32 19:53 (MO05)	20:46
5	07:44	07:25	06:45	06:52		06:05	19:20 (MO05)	05:39
	16:55	17:32	18:08	19:44		20:17	31 19:51 (MO05)	20:47
6	07:44	07:24	06:43	06:50		06:04	19:21 (MO05)	05:38
	16:56	17:34	18:09	19:45		20:18	30 19:51 (MO05)	20:48
7	07:44	07:22	06:42	06:48		06:03	19:21 (MO05)	05:38
	16:57	17:35	18:10	19:46		20:19	30 19:51 (MO05)	20:48
8	07:44	07:21	06:40	06:46		06:02	19:22 (MO05)	05:38
	16:58	17:36	18:11	19:47		20:21	28 19:50 (MO05)	20:49
9	07:43	07:20	06:38	06:45		06:00	19:23 (MO05)	05:37
	16:59	17:38	18:13	19:48		20:22	26 19:49 (MO05)	20:50
10	07:43	07:19	06:36	06:43		05:59	19:24 (MO05)	05:37
	17:00	17:39	18:14	19:49		20:23	24 19:48 (MO05)	20:50
11	07:43	07:17	06:35	06:41		05:58	19:24 (MO05)	05:37
	17:01	17:40	18:15	19:50		20:24	22 19:46 (MO05)	20:51
12	07:43	07:16	06:33	06:40		05:57	19:26 (MO05)	05:37
	17:02	17:41	18:16	19:51		20:25	19 19:45 (MO05)	20:51
13	07:42	07:15	06:31	06:38		05:56	19:27 (MO05)	05:37
	17:03	17:43	18:17	19:53		20:26	17 19:44 (MO05)	20:52
14	07:42	07:14	06:30	06:37		05:55	19:30 (MO05)	05:37
	17:05	17:44	18:18	19:54		20:27	11 19:41 (MO05)	20:52
15	07:41	07:12	06:28	06:35		05:54	19:34 (MO05)	05:37
	17:06	17:45	18:20	19:55		20:28	3 19:37 (MO05)	20:53
16	07:41	07:11	06:26	06:33		05:53		05:37
	17:07	17:47	18:21	19:56		20:29		20:53
17	07:41	07:09	06:25	06:32		05:52		05:37
	17:08	17:48	18:22	19:57		20:30		20:53
18	07:40	07:08	06:23	06:30		05:51		05:37
	17:09	17:49	18:23	19:58		20:31		20:54
19	07:39	07:07	06:21	06:29		19:32 (MO05)	05:50	05:37
	17:11	17:50	18:24	19:59	5	19:37 (MO05)	20:32	20:54
20	07:39	07:05	06:19	06:27		19:29 (MO05)	05:49	05:37
	17:12	17:52	18:25	20:00	9	19:38 (MO05)	20:33	20:54
21	07:38	07:04	06:18	06:25		19:28 (MO05)	05:48	05:37
	17:13	17:53	18:27	20:02	11	19:39 (MO05)	20:34	20:55
22	07:38	07:02	06:16	06:24		19:26 (MO05)	05:47	05:37
	17:14	17:54	18:28	20:03	14	19:40 (MO05)	20:35	20:55
23	07:37	07:01	06:14	06:22		19:25 (MO05)	05:46	05:37
	17:15	17:55	18:29	20:04	16	19:41 (MO05)	20:36	20:55
24	07:36	06:59	06:12	06:21		19:23 (MO05)	05:45	05:38
	17:17	17:57	18:30	20:05	19	19:42 (MO05)	20:37	20:55
25	07:35	06:58	06:11	06:19		19:23 (MO05)	05:45	05:38
	17:18	17:58	18:31	20:06	20	19:43 (MO05)	20:38	20:55
26	07:35	06:56	06:09	06:18		19:21 (MO05)	05:44	05:38
	17:19	17:59	18:32	20:07	23	19:44 (MO05)	20:39	20:55
27	07:34	06:54	06:07	06:16		19:21 (MO05)	05:43	05:39
	17:21	18:00	18:33	20:08	24	19:45 (MO05)	20:40	20:55
28	07:33	06:53	06:05	06:15		19:21 (MO05)	05:43	05:39
	17:22	18:02	18:35	20:09	26	19:47 (MO05)	20:41	20:55
29	07:32		07:04	06:14		19:20 (MO05)	05:42	05:40
	17:23		19:36	20:11	27	19:47 (MO05)	20:41	20:55
30	07:31		07:02	06:12		19:20 (MO05)	05:41	05:40
	17:24		19:37	20:12	29	19:49 (MO05)	20:42	20:55
31	07:30		07:00				05:41	
	17:26		19:38				20:43	
Potential sun hours	293	295	369	400			452	457
Total, worst case				223			365	
Sun reduction				0.49			0.57	
Oper. time red.				1.00			1.00	
Wind dir. red.				1.00			1.00	
Total reduction				0.49			0.57	
Total, real				110			208	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 189 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1087)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:06		19:36 (MO05)	06:38	07:10	06:46	07:23
	20:55			20:35	20	19:56 (MO05)	19:50	18:57	17:09	16:43
2	05:41			06:07		19:35 (MO05)	06:39	07:11	06:48	07:24
	20:55			20:34	22	19:57 (MO05)	19:48	18:56	17:07	16:43
3	05:42			06:08		19:33 (MO05)	06:40	07:12	06:49	07:25
	20:55			20:33	25	19:58 (MO05)	19:47	18:54	17:06	16:42
4	05:42			06:09		19:32 (MO05)	06:41	07:14	06:50	07:26
	20:55			20:31	27	19:59 (MO05)	19:45	18:52	17:05	16:42
5	05:43			06:10		19:32 (MO05)	06:42	07:15	06:51	07:27
	20:54			20:30	28	20:00 (MO05)	19:43	18:51	17:04	16:42
6	05:43			06:11		19:31 (MO05)	06:44	07:16	06:53	07:28
	20:54			20:29	29	20:00 (MO05)	19:41	18:49	17:03	16:42
7	05:44			06:12		19:30 (MO05)	06:45	07:17	06:54	07:29
	20:54			20:28	31	20:01 (MO05)	19:40	18:47	17:01	16:42
8	05:45			06:13		19:30 (MO05)	06:46	07:18	06:55	07:30
	20:53			20:26	31	20:01 (MO05)	19:38	18:45	17:00	16:41
9	05:45			06:14		19:29 (MO05)	06:47	07:19	06:56	07:31
	20:53			20:25	32	20:01 (MO05)	19:36	18:44	16:59	16:41
10	05:46			06:15		19:29 (MO05)	06:48	07:20	06:58	07:32
	20:53			20:24	31	20:00 (MO05)	19:34	18:42	16:58	16:41
11	05:47			06:16		19:28 (MO05)	06:49	07:21	06:59	07:33
	20:52			20:22	31	19:59 (MO05)	19:33	18:40	16:57	16:41
12	05:47			06:17		19:28 (MO05)	06:50	07:23	07:00	07:34
	20:52			20:21	29	19:57 (MO05)	19:31	18:39	16:56	16:42
13	05:48			06:18		19:28 (MO05)	06:51	07:24	07:01	07:34
	20:51			20:20	28	19:56 (MO05)	19:29	18:37	16:55	16:42
14	05:49			06:19		19:28 (MO05)	06:52	07:25	07:03	07:35
	20:51			20:18	27	19:55 (MO05)	19:27	18:35	16:54	16:42
15	05:50			06:20		19:28 (MO05)	06:53	07:26	07:04	07:36
	20:50			20:17	25	19:53 (MO05)	19:26	18:34	16:53	16:42
16	05:51			06:21		19:28 (MO05)	06:54	07:27	07:05	07:37
	20:49			20:15	24	19:52 (MO05)	19:24	18:32	16:52	16:42
17	05:51			06:22		19:28 (MO05)	06:55	07:28	07:06	07:37
	20:49			20:14	22	19:50 (MO05)	19:22	18:31	16:51	16:43
18	05:52			06:23		19:29 (MO05)	06:56	07:29	07:08	07:38
	20:48			20:12	20	19:49 (MO05)	19:20	18:29	16:50	16:43
19	05:53			06:24		19:29 (MO05)	06:57	07:31	07:09	07:39
	20:47			20:11	18	19:47 (MO05)	19:19	18:27	16:50	16:43
20	05:54			06:25		19:30 (MO05)	06:58	07:32	07:10	07:39
	20:46			20:09	16	19:46 (MO05)	19:17	18:26	16:49	16:44
21	05:55			06:27		19:31 (MO05)	06:59	07:33	07:11	07:40
	20:46			20:08	13	19:44 (MO05)	19:15	18:24	16:48	16:44
22	05:56			06:28		19:32 (MO05)	07:00	07:34	07:13	07:40
	20:45			20:06	11	19:43 (MO05)	19:13	18:23	16:47	16:45
23	05:57			06:29		19:33 (MO05)	07:02	07:35	07:14	07:41
	20:44			20:05	8	19:41 (MO05)	19:11	18:21	16:47	16:45
24	05:58			06:30		19:36 (MO05)	07:03	07:37	07:15	07:41
	20:43			20:03	4	19:40 (MO05)	19:10	18:20	16:46	16:46
25	05:59			06:31			07:04	06:38	07:16	07:42
	20:42			20:01			19:08	17:18	16:46	16:46
26	06:00			06:32			07:05	06:39	07:17	07:42
	20:41			20:00			19:06	17:17	16:45	16:47
27	06:01			06:33			07:06	06:40	07:18	07:42
	20:40			19:58			19:04	17:16	16:44	16:47
28	06:02			06:34			07:07	06:41	07:20	07:43
	20:39			19:57			19:03	17:14	16:44	16:48
29	06:03		19:42 (MO05)	06:35			07:08	06:43	07:21	07:43
	20:38	8	19:50 (MO05)	19:55			19:01	17:13	16:44	16:49
30	06:04		19:39 (MO05)	06:36			07:09	06:44	07:22	07:43
	20:37	14	19:53 (MO05)	19:53			18:59	17:11	16:43	16:50
31	06:05		19:37 (MO05)	06:37				06:45		07:43
	20:36	18	19:55 (MO05)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		40			552					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		28			387					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 190 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1088)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June	July	August		September	October	November	December
1	07:44	07:29	06:51	06:58		06:11	19:16 (MO05)	05:40	05:40	06:06	19:40 (MO05)	06:38	07:10	06:46	07:23
	16:52	17:27	18:03	19:39		20:13	33 19:49 (MO05)	20:44	20:55	20:35	4 19:44 (MO05)	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57		06:09	19:17 (MO05)	05:40	05:41	06:07	19:36 (MO05)	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40		20:14	31 19:48 (MO05)	20:45	20:55	20:34	12 19:48 (MO05)	19:48	18:56	17:07	16:43
3	07:44	07:27	06:48	06:55		06:08	19:17 (MO05)	05:39	05:42	06:08	19:34 (MO05)	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41		20:15	31 19:48 (MO05)	20:45	20:55	20:33	16 19:50 (MO05)	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53		06:07	19:18 (MO05)	05:39	05:42	06:09	19:32 (MO05)	06:41	07:14	06:50	07:26
	16:54	17:31	18:07	19:42		20:16	30 19:48 (MO05)	20:46	20:55	20:31	20 19:52 (MO05)	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52		06:05	19:18 (MO05)	05:39	05:43	06:10	19:30 (MO05)	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44		20:17	28 19:46 (MO05)	20:47	20:54	20:30	23 19:53 (MO05)	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50		06:04	19:19 (MO05)	05:38	05:43	06:11	19:29 (MO05)	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45		20:18	26 19:45 (MO05)	20:48	20:54	20:29	25 19:54 (MO05)	19:41	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48		06:03	19:20 (MO05)	05:38	05:44	06:12	19:28 (MO05)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46		20:19	24 19:44 (MO05)	20:48	20:54	20:28	27 19:55 (MO05)	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:46		06:02	19:21 (MO05)	05:38	05:45	06:13	19:27 (MO05)	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47		20:21	22 19:43 (MO05)	20:49	20:53	20:26	29 19:56 (MO05)	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45		06:00	19:23 (MO05)	05:37	05:45	06:14	19:26 (MO05)	06:47	07:19	06:56	07:31
	16:59	17:38	18:13	19:48		20:22	19 19:42 (MO05)	20:50	20:53	20:25	30 19:56 (MO05)	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43		05:59	19:25 (MO05)	05:37	05:46	06:15	19:26 (MO05)	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49		20:23	15 19:40 (MO05)	20:50	20:53	20:24	31 19:57 (MO05)	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41		05:58	19:26 (MO05)	05:37	05:47	06:16	19:25 (MO05)	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50		20:24	10 19:36 (MO05)	20:51	20:52	20:22	32 19:57 (MO05)	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40		05:57		05:37	05:47	06:17	19:25 (MO05)	06:50	07:23	07:00	07:34
	17:02	17:41	18:16	19:51		20:25		20:51	20:52	20:21	32 19:57 (MO05)	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38		05:56		05:37	05:48	06:18	19:24 (MO05)	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53		20:26		20:52	20:51	20:20	32 19:56 (MO05)	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37		05:55		05:37	05:49	06:19	19:24 (MO05)	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54		20:27		20:52	20:51	20:18	31 19:55 (MO05)	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35		05:54		05:37	05:50	06:20	19:23 (MO05)	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55		20:28		20:53	20:50	20:17	30 19:53 (MO05)	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	19:29 (MO05)	05:53		05:37	05:51	06:21	19:23 (MO05)	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	4 19:33 (MO05)	20:29		20:53	20:49	20:15	29 19:52 (MO05)	19:24	18:32	16:52	16:42
17	07:41	07:09	06:25	06:32	19:27 (MO05)	05:52		05:37	05:51	06:22	19:23 (MO05)	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	8 19:35 (MO05)	20:30		20:53	20:49	20:14	27 19:50 (MO05)	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	19:24 (MO05)	05:51		05:37	05:52	06:23	19:23 (MO05)	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	11 19:35 (MO05)	20:31		20:54	20:48	20:12	26 19:49 (MO05)	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:29	19:23 (MO05)	05:50		05:37	05:53	06:24	19:23 (MO05)	06:57	07:31	07:09	07:39
	17:11	17:50	18:24	19:59	14 19:37 (MO05)	20:32		20:54	20:47	20:11	24 19:47 (MO05)	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	19:21 (MO05)	05:49		05:37	05:54	06:25	19:23 (MO05)	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	17 19:38 (MO05)	20:33		20:54	20:46	20:09	23 19:46 (MO05)	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	19:20 (MO05)	05:48		05:37	05:55	06:27	19:24 (MO05)	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	19 19:39 (MO05)	20:34		20:55	20:46	20:08	20 19:44 (MO05)	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	19:19 (MO05)	05:47		05:37	05:56	06:28	19:24 (MO05)	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	21 19:40 (MO05)	20:35		20:55	20:45	20:06	19 19:43 (MO05)	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	19:19 (MO05)	05:46		05:37	05:57	06:29	19:25 (MO05)	07:02	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	22 19:41 (MO05)	20:36		20:55	20:44	20:05	16 19:41 (MO05)	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	19:17 (MO05)	05:45		05:38	05:58	06:30	19:26 (MO05)	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	25 19:42 (MO05)	20:37		20:55	20:43	20:03	14 19:40 (MO05)	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	19:17 (MO05)	05:45		05:38	05:59	06:31	19:27 (MO05)	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	26 19:43 (MO05)	20:38		20:55	20:42	20:01	11 19:38 (MO05)	19:08	17:18	16:46	16:46
26	07:35	06:56	06:09	06:18	19:16 (MO05)	05:44		05:38	06:00	06:32	19:29 (MO05)	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	28 19:44 (MO05)	20:39		20:55	20:41	20:00	8 19:37 (MO05)	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	19:16 (MO05)	05:43		05:39	06:01	06:33	19:31 (MO05)	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	29 19:45 (MO05)	20:40		20:55	20:40	19:58	4 19:35 (MO05)	19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	19:17 (MO05)	05:43		05:39	06:02	06:34		07:07	06:41	07:20	07:43
	17:22	18:02	18:35	20:09	30 19:47 (MO05)	20:41		20:55	20:39	19:57		19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	19:16 (MO05)	05:42		05:40	06:03	06:35		07:08	06:43	07:21	07:43
	17:23		19:36	20:11	31 19:47 (MO05)	20:41		20:55	20:38	19:55		19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	19:16 (MO05)	05:41		05:40	06:04	06:36		07:09	06:44	07:22	07:43
	17:24		19:37	20:12	33 19:49 (MO05)	20:42		20:55	20:37	19:53		18:59	17:11	16:43	16:50
31	07:30		07:00			05:41			06:05	06:37			06:45		07:43
	17:26		19:38			20:43			20:36	19:52			17:10		16:50
Potential sun hours	293	295	369	400		452		457	463	431		376	344	295	283
Total, worst case					318		269				595				
Sun reduction					0.49		0.57				0.70				
Oper. time red.					1.00		1.00				1.00				
Wind dir. red.					1.00		1.00				1.00				
Total reduction					0.49		0.57				0.70				
Total, real					157		153				417				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 191 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1089)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June
1	07:44	07:29	06:51	06:58		06:11	19:28 (MO05)	05:40
	16:52	17:27	18:03	19:39		20:13	21 19:49 (MO05)	20:44
2	07:44	07:28	06:50	06:57		06:09	19:28 (MO05)	05:40
	16:52	17:28	18:04	19:40		20:14	22 19:50 (MO05)	20:45
3	07:44	07:27	06:48	06:55		06:08	19:27 (MO05)	05:39
	16:53	17:30	18:05	19:41		20:15	25 19:52 (MO05)	20:45
4	07:44	07:26	06:46	06:53		06:07	19:27 (MO05)	05:39
	16:54	17:31	18:07	19:42		20:16	26 19:53 (MO05)	20:46
5	07:44	07:25	06:45	06:52		06:05	19:26 (MO05)	05:39
	16:55	17:32	18:08	19:44		20:17	27 19:53 (MO05)	20:47
6	07:44	07:24	06:43	06:50		06:04	19:26 (MO05)	05:38
	16:56	17:34	18:09	19:45		20:18	28 19:54 (MO05)	20:48
7	07:44	07:22	06:42	06:48		06:03	19:26 (MO05)	05:38
	16:57	17:35	18:10	19:46		20:19	30 19:56 (MO05)	20:48
8	07:44	07:21	06:40	06:46		06:02	19:27 (MO05)	05:38
	16:58	17:36	18:11	19:47		20:21	30 19:57 (MO05)	20:49
9	07:43	07:20	06:38	06:45		06:00	19:27 (MO05)	05:37
	16:59	17:38	18:13	19:48		20:22	31 19:58 (MO05)	20:49
10	07:43	07:19	06:36	06:43		05:59	19:27 (MO05)	05:37
	17:00	17:39	18:14	19:49		20:23	32 19:59 (MO05)	20:50
11	07:43	07:17	06:35	06:41		05:58	19:27 (MO05)	05:37
	17:01	17:40	18:15	19:50		20:24	31 19:58 (MO05)	20:51
12	07:43	07:16	06:33	06:40		05:57	19:27 (MO05)	05:37
	17:02	17:41	18:16	19:51		20:25	31 19:58 (MO05)	20:51
13	07:42	07:15	06:31	06:38		05:56	19:28 (MO05)	05:37
	17:03	17:43	18:17	19:53		20:26	29 19:57 (MO05)	20:52
14	07:42	07:14	06:30	06:37		05:55	19:28 (MO05)	05:37
	17:05	17:44	18:18	19:54		20:27	29 19:57 (MO05)	20:52
15	07:41	07:12	06:28	06:35		05:54	19:29 (MO05)	05:37
	17:06	17:45	18:20	19:55		20:28	27 19:56 (MO05)	20:53
16	07:41	07:11	06:26	06:33		05:53	19:30 (MO05)	05:37
	17:07	17:47	18:21	19:56		20:29	25 19:55 (MO05)	20:53
17	07:41	07:09	06:25	06:32		05:52	19:31 (MO05)	05:37
	17:08	17:48	18:22	19:57		20:30	24 19:55 (MO05)	20:53
18	07:40	07:08	06:23	06:30		05:51	19:32 (MO05)	05:37
	17:09	17:49	18:23	19:58		20:31	22 19:54 (MO05)	20:54
19	07:39	07:07	06:21	06:29		05:50	19:33 (MO05)	05:37
	17:11	17:50	18:24	19:59		20:32	20 19:53 (MO05)	20:54
20	07:39	07:05	06:19	06:27		05:49	19:34 (MO05)	05:37
	17:12	17:52	18:25	20:00		20:33	17 19:51 (MO05)	20:54
21	07:38	07:04	06:18	06:25		05:48	19:36 (MO05)	05:37
	17:13	17:53	18:27	20:02		20:34	14 19:50 (MO05)	20:55
22	07:38	07:02	06:16	06:24		05:47	19:38 (MO05)	05:37
	17:14	17:54	18:28	20:03		20:35	9 19:47 (MO05)	20:55
23	07:37	07:01	06:14	06:22		05:46		05:37
	17:15	17:55	18:29	20:04		20:36		20:55
24	07:36	06:59	06:12	06:21	19:39 (MO05)	05:45		05:38
	17:17	17:57	18:30	20:05	3 19:42 (MO05)	20:37		20:55
25	07:35	06:58	06:11	06:19	19:36 (MO05)	05:45		05:38
	17:18	17:58	18:31	20:06	7 19:43 (MO05)	20:38		20:55
26	07:35	06:56	06:09	06:18	19:34 (MO05)	05:44		05:38
	17:19	17:59	18:32	20:07	10 19:44 (MO05)	20:39		20:55
27	07:34	06:54	06:07	06:16	19:33 (MO05)	05:43		05:39
	17:21	18:00	18:33	20:08	12 19:45 (MO05)	20:40		20:55
28	07:33	06:53	06:05	06:15	19:32 (MO05)	05:43		05:39
	17:22	18:02	18:35	20:09	15 19:47 (MO05)	20:41		20:55
29	07:32		07:04	06:14	19:30 (MO05)	05:42		05:40
	17:23		19:36	20:11	17 19:47 (MO05)	20:41		20:55
30	07:31		07:02	06:12	19:29 (MO05)	05:41		05:40
	17:24		19:37	20:12	20 19:49 (MO05)	20:42		20:55
31	07:30		07:00			05:41		
	17:26		19:38			20:43		
Potential sun hours	293	295	369	400		452		457
Total, worst case				84		550		
Sun reduction				0.49		0.57		
Oper. time red.				1.00		1.00		
Wind dir. red.				1.00		1.00		
Total reduction				0.49		0.57		
Total, real				42		313		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 191 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1089)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:06		19:38 (MO05)	06:38	07:10	06:46	07:23
	20:55			20:35	30	20:08 (MO05)	19:50	18:57	17:09	16:43
2	05:41			06:07		19:37 (MO05)	06:39	07:11	06:48	07:24
	20:55			20:34	32	20:09 (MO05)	19:48	18:56	17:07	16:43
3	05:42			06:08		19:37 (MO05)	06:40	07:12	06:49	07:25
	20:55			20:33	31	20:08 (MO05)	19:47	18:54	17:06	16:42
4	05:42			06:09		19:36 (MO05)	06:41	07:14	06:50	07:26
	20:55			20:31	31	20:07 (MO05)	19:45	18:52	17:05	16:42
5	05:43			06:10		19:36 (MO05)	06:42	07:15	06:51	07:27
	20:54			20:30	30	20:06 (MO05)	19:43	18:51	17:04	16:42
6	05:43			06:11		19:36 (MO05)	06:44	07:16	06:53	07:28
	20:54			20:29	29	20:05 (MO05)	19:41	18:49	17:03	16:42
7	05:44			06:12		19:36 (MO05)	06:45	07:17	06:54	07:29
	20:54			20:28	28	20:04 (MO05)	19:40	18:47	17:01	16:42
8	05:45			06:13		19:36 (MO05)	06:46	07:18	06:55	07:30
	20:53			20:26	26	20:02 (MO05)	19:38	18:45	17:00	16:41
9	05:45			06:14		19:36 (MO05)	06:47	07:19	06:56	07:31
	20:53			20:25	25	20:01 (MO05)	19:36	18:44	16:59	16:41
10	05:46			06:15		19:36 (MO05)	06:48	07:20	06:58	07:32
	20:53			20:24	24	20:00 (MO05)	19:34	18:42	16:58	16:41
11	05:47			06:16		19:36 (MO05)	06:49	07:21	06:59	07:33
	20:52			20:22	23	19:59 (MO05)	19:33	18:40	16:57	16:41
12	05:47			06:17		19:37 (MO05)	06:50	07:23	07:00	07:34
	20:52			20:21	20	19:57 (MO05)	19:31	18:39	16:56	16:42
13	05:48			06:18		19:37 (MO05)	06:51	07:24	07:01	07:34
	20:51			20:20	19	19:56 (MO05)	19:29	18:37	16:55	16:42
14	05:49			06:19		19:38 (MO05)	06:52	07:25	07:03	07:35
	20:51			20:18	17	19:55 (MO05)	19:27	18:35	16:54	16:42
15	05:50			06:20		19:39 (MO05)	06:53	07:26	07:04	07:36
	20:50			20:17	14	19:53 (MO05)	19:26	18:34	16:53	16:42
16	05:51			06:21		19:40 (MO05)	06:54	07:27	07:05	07:37
	20:49			20:15	12	19:52 (MO05)	19:24	18:32	16:52	16:42
17	05:51			06:22		19:41 (MO05)	06:55	07:28	07:06	07:37
	20:49			20:14	9	19:50 (MO05)	19:22	18:31	16:51	16:43
18	05:52			06:23		19:43 (MO05)	06:56	07:29	07:08	07:38
	20:48			20:12	6	19:49 (MO05)	19:20	18:29	16:50	16:43
19	05:53			06:24		19:46 (MO05)	06:57	07:31	07:09	07:39
	20:47			20:11	1	19:47 (MO05)	19:19	18:27	16:50	16:43
20	05:54			06:25			06:58	07:32	07:10	07:39
	20:46			20:09			19:17	18:26	16:49	16:44
21	05:55		19:50 (MO05)	06:27			06:59	07:33	07:11	07:40
	20:46	6	19:56 (MO05)	20:08			19:15	18:24	16:48	16:44
22	05:56		19:47 (MO05)	06:28			07:00	07:34	07:13	07:40
	20:45	12	19:59 (MO05)	20:06			19:13	18:23	16:47	16:45
23	05:57		19:46 (MO05)	06:29			07:02	07:35	07:14	07:41
	20:44	15	20:01 (MO05)	20:05			19:11	18:21	16:47	16:45
24	05:58		19:44 (MO05)	06:30			07:03	07:37	07:15	07:41
	20:43	19	20:03 (MO05)	20:03			19:10	18:20	16:46	16:46
25	05:59		19:43 (MO05)	06:31			07:04	06:38	07:16	07:42
	20:42	21	20:04 (MO05)	20:01			19:08	17:18	16:46	16:46
26	06:00		19:42 (MO05)	06:32			07:05	06:39	07:17	07:42
	20:41	23	20:05 (MO05)	20:00			19:06	17:17	16:45	16:47
27	06:01		19:41 (MO05)	06:33			07:06	06:40	07:18	07:42
	20:40	24	20:05 (MO05)	19:58			19:04	17:16	16:44	16:47
28	06:02		19:40 (MO05)	06:34			07:07	06:41	07:20	07:43
	20:39	26	20:06 (MO05)	19:57			19:03	17:14	16:44	16:48
29	06:03		19:39 (MO05)	06:35			07:08	06:43	07:21	07:43
	20:38	28	20:07 (MO05)	19:55			19:01	17:13	16:44	16:49
30	06:04		19:39 (MO05)	06:36			07:09	06:44	07:22	07:43
	20:37	28	20:07 (MO05)	19:53			18:59	17:11	16:43	16:50
31	06:05		19:38 (MO05)	06:37				06:45		07:43
	20:36	30	20:08 (MO05)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		232			407					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		164			285					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 192 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1090)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June	July	August	September			October	November	December
1	07:44	07:29	06:51			06:58		18:48 (MO05)	06:11	05:40	05:40	06:06	06:38			07:10	06:46	07:23
	16:52	17:27	18:03			19:39	24	19:12 (MO05)	20:13	20:44	20:55	20:35	19:50			18:57	17:09	16:43
2	07:44	07:28	06:50			06:57		18:50 (MO05)	06:09	05:40	05:41	06:07	06:39			07:11	06:48	07:24
	16:52	17:28	18:04			19:40	21	19:11 (MO05)	20:14	20:45	20:55	20:34	19:48			18:56	17:07	16:42
3	07:44	07:27	06:48			06:55		18:51 (MO05)	06:08	05:39	05:41	06:08	06:40			07:12	06:49	07:25
	16:53	17:30	18:05			19:41	18	19:09 (MO05)	20:15	20:45	20:55	20:33	19:47			18:54	17:06	16:42
4	07:44	07:26	06:46			06:53		18:53 (MO05)	06:07	05:39	05:42	06:09	06:41			07:13	06:50	07:26
	16:54	17:31	18:07			19:42	13	19:06 (MO05)	20:16	20:46	20:55	20:31	19:45			18:52	17:05	16:42
5	07:44	07:25	06:45			06:52			06:05	05:39	05:43	06:10	06:42			07:15	06:51	07:27
	16:55	17:32	18:08			19:44			20:17	20:47	20:54	20:30	19:43			18:50	17:04	16:42
6	07:44	07:24	06:43			06:50			06:04	05:38	05:43	06:11	06:44			07:16	06:53	07:28
	16:56	17:34	18:09			19:45			20:18	20:48	20:54	20:29	19:41			18:49	17:03	16:42
7	07:44	07:22	06:41			06:48			06:03	05:38	05:44	06:12	06:45			07:17	06:54	07:29
	16:57	17:35	18:10			19:46			20:19	20:48	20:54	20:28	19:40			18:47	17:01	16:41
8	07:44	07:21	06:40			06:46			06:02	05:38	05:45	06:13	06:46		18:48 (MO05)	07:18	06:55	07:30
	16:58	17:36	18:11			19:47			20:21	20:49	20:53	20:26	19:38	13	19:01 (MO05)	18:45	17:00	16:41
9	07:43	07:20	06:38			06:45			06:00	05:37	05:45	06:14	06:47		18:46 (MO05)	07:19	06:56	07:31
	16:59	17:38	18:13			19:48			20:22	20:50	20:53	20:25	19:36	17	19:03 (MO05)	18:44	16:59	16:41
10	07:43	07:19	06:36			06:43			05:59	05:37	05:46	06:15	06:48		18:43 (MO05)	07:20	06:58	07:32
	17:00	17:39	18:14			19:49			20:23	20:50	20:53	20:24	19:34	21	19:04 (MO05)	18:42	16:58	16:41
11	07:43	07:17	06:35			06:41			05:58	05:37	05:47	06:16	06:49		18:42 (MO05)	07:21	06:59	07:33
	17:01	17:40	18:15			19:50			20:24	20:51	20:52	20:22	19:33	23	19:05 (MO05)	18:40	16:57	16:41
12	07:43	07:16	06:33			06:40			05:57	05:37	05:47	06:17	06:50		18:40 (MO05)	07:22	07:00	07:34
	17:02	17:41	18:16			19:51			20:25	20:51	20:52	20:21	19:31	26	19:06 (MO05)	18:39	16:56	16:42
13	07:42	07:15	06:31			06:38			05:56	05:37	05:48	06:18	06:51		18:39 (MO05)	07:24	07:01	07:34
	17:03	17:43	18:17			19:53			20:26	20:52	20:51	20:20	19:29	27	19:06 (MO05)	18:37	16:55	16:42
14	07:42	07:14	06:30			06:37			05:55	05:37	05:49	06:19	06:52		18:38 (MO05)	07:25	07:03	07:35
	17:05	17:44	18:18			19:54			20:27	20:52	20:51	20:18	19:27	27	19:05 (MO05)	18:35	16:54	16:42
15	07:41	07:12	06:28			06:35			05:54	05:37	05:50	06:20	06:53		18:37 (MO05)	07:26	07:04	07:36
	17:06	17:45	18:20			19:55			20:28	20:53	20:50	20:17	19:26	26	19:03 (MO05)	18:34	16:53	16:42
16	07:41	07:11	06:26			06:33			05:53	05:37	05:51	06:21	06:54		18:37 (MO05)	07:27	07:05	07:37
	17:07	17:47	18:21			19:56			20:29	20:53	20:49	20:15	19:24	24	19:01 (MO05)	18:32	16:52	16:42
17	07:41	07:09	06:25			06:32			05:52	05:37	05:51	06:22	06:55		18:36 (MO05)	07:28	07:06	07:37
	17:08	17:48	18:22			19:57			20:30	20:53	20:49	20:14	19:22	24	19:00 (MO05)	18:31	16:51	16:43
18	07:40	07:08	06:23		17:58 (MO05)	06:30			05:51	05:37	05:52	06:23	06:56		18:36 (MO05)	07:29	07:08	07:38
	17:09	17:49	18:23	4	18:02 (MO05)	19:58			20:31	20:54	20:48	20:12	19:20	22	18:58 (MO05)	18:29	16:50	16:43
19	07:39	07:07	06:21		17:55 (MO05)	06:28			05:50	05:37	05:53	06:24	06:57		18:36 (MO05)	07:31	07:09	07:39
	17:11	17:50	18:24	8	18:03 (MO05)	19:59			20:32	20:54	20:47	20:11	19:19	20	18:56 (MO05)	18:27	16:50	16:43
20	07:39	07:05	06:19		17:53 (MO05)	06:27			05:49	05:37	05:54	06:25	06:58		18:36 (MO05)	07:32	07:10	07:39
	17:12	17:52	18:25	11	18:04 (MO05)	20:00			20:33	20:54	20:46	20:09	19:17	18	18:54 (MO05)	18:26	16:49	16:44
21	07:38	07:04	06:18		17:52 (MO05)	06:25			05:48	05:37	05:55	06:27	06:59		18:36 (MO05)	07:33	07:11	07:40
	17:13	17:53	18:27	14	18:06 (MO05)	20:02			20:34	20:55	20:46	20:08	19:15	16	18:52 (MO05)	18:24	16:48	16:44
22	07:38	07:02	06:16		17:51 (MO05)	06:24			05:47	05:37	05:56	06:28	07:00		18:36 (MO05)	07:34	07:13	07:40
	17:14	17:54	18:28	16	18:07 (MO05)	20:03			20:35	20:55	20:45	20:06	19:13	14	18:50 (MO05)	18:23	16:47	16:45
23	07:37	07:01	06:14		17:49 (MO05)	06:22			05:46	05:37	05:57	06:29	07:02		18:37 (MO05)	07:35	07:14	07:41
	17:15	17:55	18:29	18	18:07 (MO05)	20:04			20:36	20:55	20:44	20:05	19:11	12	18:49 (MO05)	18:21	16:47	16:45
24	07:36	06:59	06:12		17:48 (MO05)	06:21			05:45	05:38	05:58	06:30	07:03		18:38 (MO05)	07:37	07:15	07:41
	17:17	17:57	18:30	20	18:08 (MO05)	20:05			20:37	20:55	20:43	20:03	19:10	9	18:47 (MO05)	18:20	16:46	16:46
25	07:35	06:58	06:11		17:48 (MO05)	06:19			05:45	05:38	05:59	06:31	07:04		18:39 (MO05)	06:38	07:16	07:42
	17:18	17:58	18:31	22	18:10 (MO05)	20:06			20:38	20:55	20:42	20:01	19:08	6	18:45 (MO05)	17:18	16:46	16:46
26	07:35	06:56	06:09		17:48 (MO05)	06:18			05:44	05:38	06:00	06:32	07:05		18:42 (MO05)	06:39	07:17	07:42
	17:19	17:59	18:32	23	18:11 (MO05)	20:07			20:39	20:55	20:41	20:00	19:06	1	18:43 (MO05)	17:17	16:45	16:47
27	07:34	06:54	06:07		17:47 (MO05)	06:16			05:43	05:39	06:01	06:33	07:06			06:40	07:18	07:42
	17:21	18:00	18:33	25	18:12 (MO05)	20:08			20:40	20:55	20:40	19:58	19:04			17:16	16:44	16:47
28	07:33	06:53	06:05		17:47 (MO05)	06:15			05:43	05:39	06:02	06:34	07:07			06:41	07:20	07:43
	17:22	18:02	18:35	26	18:13 (MO05)	20:09			20:41	20:55	20:39	19:57	19:03			17:14	16:44	16:48
29	07:32		07:04		18:48 (MO05)	06:14			05:42	05:40	06:03	06:35	07:08			06:43	07:21	07:43
	17:23		19:36	27	19:15 (MO05)	20:11			20:41	20:55	20:38	19:55	19:01			17:13	16:44	16:49
30	07:31		07:02		18:48 (MO05)	06:12			05:41	05:40	06:04	06:36	07:09			06:44	07:22	07:43
	17:24		19:37	27	19:15 (MO05)	20:12			20:42	20:55	20:37	19:53	18:59			17:11	16:43	16:50
31	07:30		07:00		18:48 (MO05)				05:41		06:05	06:37				06:45		07:43
	17:26		19:38	26	19:14 (MO05)				20:43		20:36	19:52				17:10		16:50
Potential sun hours	293	295	369			400			452	457	463	431	376			344	295	283
Total, worst case				267			76							346				
Sun reduction				0.46			0.49							0.62				
Oper. time red.				1.00			1.00							1.00				
Wind dir. red.				1.00			1.00							1.00				
Total reduction				0.46			0.49							0.62				
Total, real				122			38							216				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 193 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1091)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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viale XX Settembre 266bis
IT-54033 Carrara
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 194 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1092)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 195 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1093)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May		June		July		August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11		05:40	06:05 (MO04)	05:40	06:15 (MO04)	06:06	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13		20:44 22	06:27 (MO04)	20:55 16	06:31 (MO04)	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09		05:40	06:06 (MO04)	05:41	06:15 (MO04)	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14		20:45 22	06:28 (MO04)	20:55 16	06:31 (MO04)	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08		05:39	06:07 (MO04)	05:41	06:15 (MO04)	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15		20:45 21	06:28 (MO04)	20:55 17	06:32 (MO04)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07		05:39	06:07 (MO04)	05:42	06:14 (MO04)	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16		20:46 20	06:27 (MO04)	20:55 18	06:32 (MO04)	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05		05:38	06:08 (MO04)	05:43	06:15 (MO04)	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17		20:47 19	06:27 (MO04)	20:54 18	06:33 (MO04)	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04		05:38	06:08 (MO04)	05:43	06:15 (MO04)	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18		20:48 19	06:27 (MO04)	20:54 18	06:33 (MO04)	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03		05:38	06:08 (MO04)	05:44	06:14 (MO04)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19		20:48 19	06:27 (MO04)	20:54 19	06:33 (MO04)	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02		05:38	06:09 (MO04)	05:45	06:14 (MO04)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21		20:49 18	06:27 (MO04)	20:53 20	06:34 (MO04)	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00		05:37	06:10 (MO04)	05:45	06:13 (MO04)	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22		20:49 17	06:27 (MO04)	20:53 21	06:34 (MO04)	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59		05:37	06:10 (MO04)	05:46	06:14 (MO04)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23		20:50 17	06:27 (MO04)	20:53 21	06:35 (MO04)	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58		05:37	06:11 (MO04)	05:47	06:14 (MO04)	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24		20:51 16	06:27 (MO04)	20:52 21	06:35 (MO04)	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57		05:37	06:11 (MO04)	05:47	06:14 (MO04)	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25		20:51 15	06:26 (MO04)	20:52 22	06:36 (MO04)	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	06:16 (MO04)	05:37	06:11 (MO04)	05:48	06:13 (MO04)	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26 3	06:19 (MO04)	20:52 14	06:25 (MO04)	20:51 23	06:36 (MO04)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	06:15 (MO04)	05:37	06:12 (MO04)	05:49	06:13 (MO04)	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27 6	06:21 (MO04)	20:52 13	06:25 (MO04)	20:51 23	06:36 (MO04)	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	06:14 (MO04)	05:37	06:12 (MO04)	05:50	06:13 (MO04)	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28 9	06:23 (MO04)	20:53 13	06:25 (MO04)	20:50 24	06:37 (MO04)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	06:13 (MO04)	05:37	06:13 (MO04)	05:51	06:14 (MO04)	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29 11	06:24 (MO04)	20:53 12	06:25 (MO04)	20:49 23	06:37 (MO04)	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	06:13 (MO04)	05:37	06:14 (MO04)	05:51	06:15 (MO04)	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30 12	06:25 (MO04)	20:53 12	06:26 (MO04)	20:49 23	06:38 (MO04)	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	06:12 (MO04)	05:37	06:14 (MO04)	05:52	06:15 (MO04)	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31 14	06:26 (MO04)	20:54 12	06:26 (MO04)	20:48 22	06:37 (MO04)	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	06:11 (MO04)	05:37	06:15 (MO04)	05:53	06:16 (MO04)	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32 15	06:26 (MO04)	20:54 11	06:26 (MO04)	20:47 21	06:37 (MO04)	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	06:10 (MO04)	05:37	06:15 (MO04)	05:54	06:17 (MO04)	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33 17	06:27 (MO04)	20:54 11	06:26 (MO04)	20:46 20	06:37 (MO04)	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	06:09 (MO04)	05:37	06:15 (MO04)	05:55	06:18 (MO04)	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34 18	06:27 (MO04)	20:55 11	06:26 (MO04)	20:46 19	06:37 (MO04)	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	06:08 (MO04)	05:37	06:15 (MO04)	05:56	06:19 (MO04)	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35 19	06:27 (MO04)	20:55 11	06:26 (MO04)	20:45 18	06:37 (MO04)	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	06:08 (MO04)	05:37	06:16 (MO04)	05:57	06:20 (MO04)	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36 20	06:28 (MO04)	20:55 11	06:27 (MO04)	20:44 17	06:37 (MO04)	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	06:07 (MO04)	05:38	06:16 (MO04)	05:58	06:21 (MO04)	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37 21	06:28 (MO04)	20:55 11	06:27 (MO04)	20:43 16	06:37 (MO04)	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	06:06 (MO04)	05:38	06:15 (MO04)	05:59	06:22 (MO04)	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38 22	06:28 (MO04)	20:55 12	06:27 (MO04)	20:42 15	06:37 (MO04)	20:01	19:08	17:18	16:46	16:46
26	07:34	06:56	06:09	06:18	05:44	06:06 (MO04)	05:38	06:16 (MO04)	06:00	06:22 (MO04)	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39 22	06:28 (MO04)	20:55 12	06:28 (MO04)	20:41 13	06:35 (MO04)	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	06:05 (MO04)	05:39	06:16 (MO04)	06:01	06:23 (MO04)	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40 23	06:28 (MO04)	20:55 12	06:28 (MO04)	20:40 12	06:35 (MO04)	19:58	19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	06:04 (MO04)	05:39	06:15 (MO04)	06:02	06:24 (MO04)	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41 24	06:28 (MO04)	20:55 13	06:28 (MO04)	20:39 10	06:34 (MO04)	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	06:05 (MO04)	05:39	06:16 (MO04)	06:02	06:25 (MO04)	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41 23	06:28 (MO04)	20:55 13	06:29 (MO04)	20:38 8	06:33 (MO04)	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	06:05 (MO04)	05:40	06:15 (MO04)	06:03	06:26 (MO04)	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42 23	06:28 (MO04)	20:55 14	06:29 (MO04)	20:37 5	06:31 (MO04)	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41	06:05 (MO04)			06:04	06:27 (MO04)	06:37		06:45		07:43
	17:26		19:38		20:43 23	06:28 (MO04)			20:36 1	06:28 (MO04)	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452		457		463		431	376	344	295	283
Total, worst case						325		443		540					
Sun reduction						0.57		0.61		0.71					
Oper. time red.						1.00		1.00		1.00					
Wind dir. red.						1.00		1.00		1.00					
Total reduction						0.57		0.61		0.71					
Total, real						185		271		381					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 196 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1094)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May		June		July		August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11		05:40	06:02 (MO04)	05:40	06:11 (MO04)	06:06	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13		20:44	24 06:26 (MO04)	20:55	20 06:31 (MO04)	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09		05:40	06:03 (MO04)	05:41	06:11 (MO04)	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14		20:45	23 06:26 (MO04)	20:55	19 06:30 (MO04)	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08		05:39	06:04 (MO04)	05:41	06:11 (MO04)	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15		20:45	23 06:27 (MO04)	20:55	20 06:31 (MO04)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07		05:39	06:04 (MO04)	05:42	06:10 (MO04)	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16		20:46	22 06:26 (MO04)	20:55	21 06:31 (MO04)	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05		05:38	06:04 (MO04)	05:43	06:11 (MO04)	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17		20:47	22 06:26 (MO04)	20:54	21 06:32 (MO04)	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04		05:38	06:05 (MO04)	05:43	06:11 (MO04)	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18		20:48	22 06:27 (MO04)	20:54	22 06:33 (MO04)	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03		05:38	06:05 (MO04)	05:44	06:11 (MO04)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19		20:48	21 06:26 (MO04)	20:54	21 06:32 (MO04)	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02		05:38	06:05 (MO04)	05:45	06:11 (MO04)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21		20:49	21 06:26 (MO04)	20:53	22 06:33 (MO04)	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00		05:37	06:06 (MO04)	05:45	06:10 (MO04)	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22		20:49	20 06:26 (MO04)	20:53	23 06:33 (MO04)	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59		05:37	06:06 (MO04)	05:46	06:10 (MO04)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23		20:50	20 06:26 (MO04)	20:53	23 06:33 (MO04)	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58		05:37	06:07 (MO04)	05:47	06:11 (MO04)	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24		20:51	19 06:26 (MO04)	20:52	23 06:34 (MO04)	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57		05:37	06:06 (MO04)	05:47	06:11 (MO04)	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25		20:51	20 06:26 (MO04)	20:52	24 06:35 (MO04)	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56		05:37	06:07 (MO04)	05:48	06:11 (MO04)	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26		20:52	19 06:26 (MO04)	20:51	23 06:34 (MO04)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55		05:37	06:07 (MO04)	05:49	06:12 (MO04)	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27		20:52	19 06:26 (MO04)	20:51	22 06:34 (MO04)	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	06:14 (MO04)	05:37	06:08 (MO04)	05:50	06:13 (MO04)	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	2 06:16 (MO04)	20:53	18 06:26 (MO04)	20:50	22 06:35 (MO04)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	06:13 (MO04)	05:37	06:08 (MO04)	05:51	06:14 (MO04)	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	5 06:18 (MO04)	20:53	18 06:26 (MO04)	20:49	21 06:35 (MO04)	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	06:13 (MO04)	05:37	06:09 (MO04)	05:51	06:15 (MO04)	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	8 06:21 (MO04)	20:53	18 06:27 (MO04)	20:49	20 06:35 (MO04)	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	06:12 (MO04)	05:37	06:09 (MO04)	05:52	06:15 (MO04)	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	10 06:22 (MO04)	20:54	18 06:27 (MO04)	20:48	20 06:35 (MO04)	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	06:11 (MO04)	05:37	06:10 (MO04)	05:53	06:16 (MO04)	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	12 06:23 (MO04)	20:54	17 06:27 (MO04)	20:47	19 06:35 (MO04)	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	06:10 (MO04)	05:37	06:10 (MO04)	05:54	06:17 (MO04)	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	13 06:23 (MO04)	20:54	17 06:27 (MO04)	20:46	18 06:35 (MO04)	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	06:09 (MO04)	05:37	06:10 (MO04)	05:55	06:18 (MO04)	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	15 06:24 (MO04)	20:55	17 06:27 (MO04)	20:46	16 06:34 (MO04)	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	06:08 (MO04)	05:37	06:10 (MO04)	05:56	06:19 (MO04)	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	16 06:24 (MO04)	20:55	17 06:27 (MO04)	20:45	15 06:34 (MO04)	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	06:08 (MO04)	05:37	06:11 (MO04)	05:57	06:20 (MO04)	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	17 06:25 (MO04)	20:55	17 06:28 (MO04)	20:44	14 06:34 (MO04)	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	06:07 (MO04)	05:38	06:10 (MO04)	05:58	06:21 (MO04)	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	18 06:25 (MO04)	20:55	18 06:28 (MO04)	20:43	12 06:33 (MO04)	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	06:06 (MO04)	05:38	06:10 (MO04)	05:59	06:22 (MO04)	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	19 06:25 (MO04)	20:55	18 06:28 (MO04)	20:42	11 06:33 (MO04)	20:01	19:08	17:18	16:46	16:46
26	07:34	06:56	06:09	06:18	05:44	06:06 (MO04)	05:38	06:11 (MO04)	06:00	06:22 (MO04)	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20 06:26 (MO04)	20:55	18 06:29 (MO04)	20:41	9 06:31 (MO04)	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	06:05 (MO04)	05:39	06:11 (MO04)	06:01	06:23 (MO04)	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	21 06:26 (MO04)	20:55	18 06:29 (MO04)	20:40	7 06:30 (MO04)	19:58	19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	06:04 (MO04)	05:39	06:10 (MO04)	06:02	06:24 (MO04)	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	22 06:26 (MO04)	20:55	19 06:29 (MO04)	20:39	4 06:28 (MO04)	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	06:04 (MO04)	05:39	06:11 (MO04)	06:02		06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	22 06:26 (MO04)	20:55	19 06:30 (MO04)	20:38		19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	06:03 (MO04)	05:40	06:11 (MO04)	06:03		06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	23 06:26 (MO04)	20:55	19 06:30 (MO04)	20:37		19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41	06:03 (MO04)			06:04		06:37		06:45		07:43
	17:26		19:38		20:43	23 06:26 (MO04)			20:36		19:52		17:10		16:50
Potential sun hours	293	295	369	400	452		457		463		431	376	344	295	283
Total, worst case						266		581		512					
Sun reduction						0.57		0.61		0.71					
Oper. time red.						1.00		1.00		1.00					
Wind dir. red.						1.00		1.00		1.00					
Total reduction						0.57		0.61		0.71					
Total, real						151		355		361					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 197 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1095)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:58	06:11			05:40		06:19 (MO04)
	16:51	17:27	18:03	19:39	20:13			20:44	7	06:26 (MO04)
2	07:44	07:28	06:50	06:57	06:09			05:40		
	16:52	17:28	18:04	19:40	20:14			20:45		
3	07:44	07:27	06:48	06:55	06:08			05:39		
	16:53	17:30	18:05	19:41	20:15			20:45		
4	07:44	07:26	06:46	06:53	06:07			05:39		
	16:54	17:31	18:07	19:42	20:16			20:46		
5	07:44	07:25	06:45	06:52	06:05			05:38		
	16:55	17:32	18:08	19:44	20:17			20:47		
6	07:44	07:24	06:43	06:50	06:04			05:38		
	16:56	17:34	18:09	19:45	20:18			20:48		
7	07:44	07:22	06:41	06:48	06:03		06:23 (MO04)	05:38		
	16:57	17:35	18:10	19:46	20:19	3	06:26 (MO04)	20:48		
8	07:44	07:21	06:40	06:46	06:02		06:22 (MO04)	05:38		
	16:58	17:36	18:11	19:47	20:21	6	06:28 (MO04)	20:49		
9	07:43	07:20	06:38	06:45	06:00		06:21 (MO04)	05:37		
	16:59	17:37	18:13	19:48	20:22	9	06:30 (MO04)	20:49		
10	07:43	07:19	06:36	06:43	05:59		06:20 (MO04)	05:37		
	17:00	17:39	18:14	19:49	20:23	11	06:31 (MO04)	20:50		
11	07:43	07:17	06:35	06:41	05:58		06:18 (MO04)	05:37		
	17:01	17:40	18:15	19:50	20:24	13	06:31 (MO04)	20:51		
12	07:43	07:16	06:33	06:40	05:57		06:17 (MO04)	05:37		
	17:02	17:41	18:16	19:51	20:25	15	06:32 (MO04)	20:51		
13	07:42	07:15	06:31	06:38	05:56		06:16 (MO04)	05:37		
	17:03	17:43	18:17	19:53	20:26	16	06:32 (MO04)	20:52		
14	07:42	07:14	06:30	06:36	05:55		06:15 (MO04)	05:37		
	17:05	17:44	18:18	19:54	20:27	17	06:32 (MO04)	20:52		
15	07:41	07:12	06:28	06:35	05:54		06:14 (MO04)	05:37		
	17:06	17:45	18:20	19:55	20:28	19	06:33 (MO04)	20:53		
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37		
	17:07	17:47	18:21	19:56	20:29	20	06:33 (MO04)	20:53		
17	07:41	07:09	06:24	06:32	05:52		06:13 (MO04)	05:37		
	17:08	17:48	18:22	19:57	20:30	21	06:34 (MO04)	20:53		
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO04)	05:37		
	17:09	17:49	18:23	19:58	20:31	22	06:34 (MO04)	20:54		
19	07:39	07:07	06:21	06:28	05:50		06:11 (MO04)	05:37		
	17:10	17:50	18:24	19:59	20:32	22	06:33 (MO04)	20:54		
20	07:39	07:05	06:19	06:27	05:49		06:10 (MO04)	05:37		
	17:12	17:52	18:25	20:00	20:33	23	06:33 (MO04)	20:54		
21	07:38	07:04	06:18	06:25	05:48		06:10 (MO04)	05:37		
	17:13	17:53	18:27	20:02	20:34	23	06:33 (MO04)	20:55		
22	07:38	07:02	06:16	06:24	05:47		06:10 (MO04)	05:37		
	17:14	17:54	18:28	20:03	20:35	22	06:32 (MO04)	20:55		
23	07:37	07:01	06:14	06:22	05:46		06:12 (MO04)	05:37		
	17:15	17:55	18:29	20:04	20:36	21	06:33 (MO04)	20:55		
24	07:36	06:59	06:12	06:21	05:45		06:12 (MO04)	05:38		
	17:17	17:57	18:30	20:05	20:37	20	06:32 (MO04)	20:55		
25	07:35	06:58	06:11	06:19	05:45		06:12 (MO04)	05:38		
	17:18	17:58	18:31	20:06	20:38	19	06:31 (MO04)	20:55		
26	07:34	06:56	06:09	06:18	05:44		06:13 (MO04)	05:38		
	17:19	17:59	18:32	20:07	20:39	19	06:32 (MO04)	20:55		
27	07:34	06:54	06:07	06:16	05:43		06:14 (MO04)	05:39		
	17:21	18:00	18:33	20:08	20:40	17	06:31 (MO04)	20:55		
28	07:33	06:53	06:05	06:15	05:43		06:14 (MO04)	05:39		
	17:22	18:02	18:34	20:09	20:41	16	06:30 (MO04)	20:55		
29	07:32		07:04	06:13	05:42		06:16 (MO04)	05:39		
	17:23		19:36	20:11	20:41	14	06:30 (MO04)	20:55		
30	07:31		07:02	06:12	05:41		06:16 (MO04)	05:40		
	17:24		19:37	20:12	20:42	12	06:28 (MO04)	20:55		
31	07:30		07:00		05:41		06:18 (MO04)			
	17:26		19:38		20:43	10	06:28 (MO04)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						410			7	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						233			4	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 197 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1095)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:06		06:28 (MO04)	06:38	07:10	06:46	07:23
	20:55			20:35	14	06:42 (MO04)	19:50	18:57	17:09	16:43
2	05:41			06:07		06:29 (MO04)	06:39	07:11	06:48	07:24
	20:55			20:34	12	06:41 (MO04)	19:48	18:56	17:07	16:42
3	05:41			06:08		06:30 (MO04)	06:40	07:12	06:49	07:25
	20:55			20:33	10	06:40 (MO04)	19:47	18:54	17:06	16:42
4	05:42			06:09		06:31 (MO04)	06:41	07:13	06:50	07:26
	20:55			20:31	8	06:39 (MO04)	19:45	18:52	17:05	16:42
5	05:43			06:10		06:32 (MO04)	06:42	07:15	06:51	07:27
	20:54			20:30	5	06:37 (MO04)	19:43	18:50	17:04	16:42
6	05:43			06:11		06:33 (MO04)	06:43	07:16	06:53	07:28
	20:54			20:29	2	06:35 (MO04)	19:41	18:49	17:02	16:42
7	05:44			06:12			06:45	07:17	06:54	07:29
	20:54			20:28			19:40	18:47	17:01	16:41
8	05:45			06:13			06:46	07:18	06:55	07:30
	20:53			20:26			19:38	18:45	17:00	16:41
9	05:45			06:14			06:47	07:19	06:56	07:31
	20:53			20:25			19:36	18:44	16:59	16:41
10	05:46			06:15			06:48	07:20	06:58	07:32
	20:53			20:24			19:34	18:42	16:58	16:41
11	05:47		06:29 (MO04)	06:16			06:49	07:21	06:59	07:33
	20:52	4	06:33 (MO04)	20:22			19:33	18:40	16:57	16:41
12	05:47		06:27 (MO04)	06:17			06:50	07:22	07:00	07:33
	20:52	8	06:35 (MO04)	20:21			19:31	18:39	16:56	16:41
13	05:48		06:25 (MO04)	06:18			06:51	07:24	07:01	07:34
	20:51	11	06:36 (MO04)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:24 (MO04)	06:19			06:52	07:25	07:03	07:35
	20:51	13	06:37 (MO04)	20:18			19:27	18:35	16:54	16:42
15	05:50		06:24 (MO04)	06:20			06:53	07:26	07:04	07:36
	20:50	15	06:39 (MO04)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:23 (MO04)	06:21			06:54	07:27	07:05	07:37
	20:49	17	06:40 (MO04)	20:15			19:24	18:32	16:52	16:42
17	05:51		06:23 (MO04)	06:22			06:55	07:28	07:06	07:37
	20:49	18	06:41 (MO04)	20:14			19:22	18:31	16:51	16:42
18	05:52		06:22 (MO04)	06:23			06:56	07:29	07:08	07:38
	20:48	19	06:41 (MO04)	20:12			19:20	18:29	16:50	16:43
19	05:53		06:21 (MO04)	06:24			06:57	07:31	07:09	07:39
	20:47	20	06:41 (MO04)	20:11			19:19	18:27	16:50	16:43
20	05:54		06:21 (MO04)	06:25			06:58	07:32	07:10	07:39
	20:46	21	06:42 (MO04)	20:09			19:17	18:26	16:49	16:44
21	05:55		06:21 (MO04)	06:27			06:59	07:33	07:11	07:40
	20:46	22	06:43 (MO04)	20:08			19:15	18:24	16:48	16:44
22	05:56		06:21 (MO04)	06:28			07:00	07:34	07:12	07:40
	20:45	22	06:43 (MO04)	20:06			19:13	18:23	16:47	16:45
23	05:57		06:21 (MO04)	06:29			07:01	07:35	07:14	07:41
	20:44	23	06:44 (MO04)	20:05			19:11	18:21	16:47	16:45
24	05:58		06:21 (MO04)	06:30			07:03	07:37	07:15	07:41
	20:43	23	06:44 (MO04)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:22 (MO04)	06:31			07:04	06:38	07:16	07:42
	20:42	22	06:44 (MO04)	20:01			19:08	17:18	16:46	16:46
26	06:00		06:22 (MO04)	06:32			07:05	06:39	07:17	07:42
	20:41	21	06:43 (MO04)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:23 (MO04)	06:33			07:06	06:40	07:18	07:42
	20:40	20	06:43 (MO04)	19:58			19:04	17:16	16:44	16:47
28	06:02		06:24 (MO04)	06:34			07:07	06:41	07:20	07:43
	20:39	19	06:43 (MO04)	19:57			19:03	17:14	16:44	16:48
29	06:02		06:25 (MO04)	06:35			07:08	06:43	07:21	07:43
	20:38	18	06:43 (MO04)	19:55			19:01	17:13	16:44	16:49
30	06:03		06:26 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	17	06:43 (MO04)	19:53			18:59	17:11	16:43	16:50
31	06:04		06:27 (MO04)	06:37				06:45		07:43
	20:36	15	06:42 (MO04)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		368			51					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		260			36					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 198 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1096)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June	July			August			September	October	November	December
1	07:44	07:29	06:51	06:58	06:11			05:40	05:40			06:06		06:28 (MO04)	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13			20:44	20:55			20:35	19	06:47 (MO04)	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09			05:40	05:41			06:07		06:29 (MO04)	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14			20:45	20:55			20:34	18	06:47 (MO04)	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08			05:39	05:41			06:08		06:30 (MO04)	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15			20:45	20:55			20:33	16	06:46 (MO04)	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07		06:27 (MO04)	05:39	05:42			06:09		06:31 (MO04)	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	4	06:31 (MO04)	20:46	20:55			20:31	15	06:46 (MO04)	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05		06:25 (MO04)	05:38	05:43			06:10		06:32 (MO04)	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	7	06:32 (MO04)	20:47	20:54			20:30	13	06:45 (MO04)	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04		06:24 (MO04)	05:38	05:43			06:11		06:33 (MO04)	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	10	06:34 (MO04)	20:48	20:54			20:29	11	06:44 (MO04)	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03		06:23 (MO04)	05:38	05:44			06:12		06:34 (MO04)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	12	06:35 (MO04)	20:48	20:54			20:28	9	06:43 (MO04)	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02		06:22 (MO04)	05:38	05:45			06:13		06:35 (MO04)	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	14	06:36 (MO04)	20:49	20:53			20:26	7	06:42 (MO04)	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00		06:21 (MO04)	05:37	05:45			06:14		06:36 (MO04)	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	15	06:36 (MO04)	20:49	20:53			20:25	3	06:39 (MO04)	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59		06:20 (MO04)	05:37	05:46			06:15			06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	17	06:37 (MO04)	20:50	20:53			20:24			19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58		06:18 (MO04)	05:37	05:47			06:16			06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	18	06:36 (MO04)	20:51	20:52			20:22			19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57		06:17 (MO04)	05:37	05:47			06:17			06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20	06:37 (MO04)	20:51	20:52			20:21			19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56		06:16 (MO04)	05:37	05:48			06:18			06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	21	06:37 (MO04)	20:52	20:51			20:20			19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55		06:15 (MO04)	05:37	05:49			06:19			06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	22	06:37 (MO04)	20:52	20:51			20:18			19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54		06:14 (MO04)	05:37	05:50			06:20			06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	22	06:36 (MO04)	20:53	20:50			20:17			19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37	05:51			06:21			06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	23	06:36 (MO04)	20:53	20:49			20:15			19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52		06:14 (MO04)	05:37	05:51		06:33 (MO04)	06:22			06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	23	06:37 (MO04)	20:53	20:49	5	06:38 (MO04)	20:14			19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51		06:15 (MO04)	05:37	05:52		06:30 (MO04)	06:23			06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	21	06:36 (MO04)	20:54	20:48	9	06:39 (MO04)	20:12			19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50		06:15 (MO04)	05:37	05:53		06:29 (MO04)	06:24			06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	21	06:36 (MO04)	20:54	20:47	12	06:41 (MO04)	20:11			19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49		06:15 (MO04)	05:37	05:54		06:28 (MO04)	06:25			06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20	06:35 (MO04)	20:54	20:46	14	06:42 (MO04)	20:09			19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48		06:16 (MO04)	05:37	05:55		06:27 (MO04)	06:27			06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	19	06:35 (MO04)	20:55	20:46	17	06:44 (MO04)	20:08			19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47		06:16 (MO04)	05:37	05:56		06:27 (MO04)	06:28			07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	18	06:34 (MO04)	20:55	20:45	18	06:45 (MO04)	20:06			19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46		06:18 (MO04)	05:37	05:57		06:26 (MO04)	06:29			07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	16	06:34 (MO04)	20:55	20:44	19	06:45 (MO04)	20:05			19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45		06:19 (MO04)	05:38	05:58		06:26 (MO04)	06:30			07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	13	06:32 (MO04)	20:55	20:43	20	06:46 (MO04)	20:03			19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45		06:20 (MO04)	05:38	05:59		06:25 (MO04)	06:31			07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	11	06:31 (MO04)	20:55	20:42	22	06:47 (MO04)	20:01			19:08	17:18	16:46	16:46
26	07:34	06:56	06:09	06:18	05:44		06:22 (MO04)	05:38	06:00		06:24 (MO04)	06:32			07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	8	06:30 (MO04)	20:55	20:41	22	06:46 (MO04)	20:00			19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43			05:39	06:01		06:24 (MO04)	06:33			07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40			20:55	20:40	23	06:47 (MO04)	19:58			19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43			05:39	06:02		06:24 (MO04)	06:34			07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41			20:55	20:39	23	06:47 (MO04)	19:57			19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42			05:39	06:02		06:25 (MO04)	06:35			07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41			20:55	20:38	22	06:47 (MO04)	19:55			19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41			05:40	06:03		06:26 (MO04)	06:36			07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42			20:55	20:37	21	06:47 (MO04)	19:53			18:59	17:11	16:43	16:50
31	07:30		07:00		05:41				06:04		06:27 (MO04)	06:37				06:45		07:43
	17:26		19:38		20:43				20:36	20	06:47 (MO04)	19:52				17:10		16:50
Potential sun hours	293	295	369	400	452			457	463			431			376	344	295	283
Total, worst case						375				267			111					
Sun reduction						0.57				0.71			0.70					
Oper. time red.						1.00				1.00			1.00					
Wind dir. red.						1.00				1.00			1.00					
Total reduction						0.57				0.71			0.70					
Total, real						213				188			78					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 199 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1097)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June			July			August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11			05:40		06:02 (MO04)	05:40		06:09 (MO04)	06:06	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13			20:44	23	06:25 (MO04)	20:55	22	06:31 (MO04)	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09			05:40		06:02 (MO04)	05:41		06:09 (MO04)	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14			20:45	24	06:26 (MO04)	20:55	21	06:30 (MO04)	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08			05:39		06:03 (MO04)	05:41		06:09 (MO04)	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15			20:45	23	06:26 (MO04)	20:55	22	06:31 (MO04)	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07			05:39		06:02 (MO04)	05:42		06:09 (MO04)	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16			20:46	24	06:26 (MO04)	20:55	22	06:31 (MO04)	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05			05:38		06:03 (MO04)	05:43		06:09 (MO04)	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17			20:47	23	06:26 (MO04)	20:54	23	06:32 (MO04)	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04			05:38		06:03 (MO04)	05:43		06:10 (MO04)	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18			20:48	23	06:26 (MO04)	20:54	23	06:33 (MO04)	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03			05:38		06:03 (MO04)	05:44		06:09 (MO04)	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19			20:48	23	06:26 (MO04)	20:54	23	06:32 (MO04)	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02			05:38		06:04 (MO04)	05:45		06:09 (MO04)	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21			20:49	22	06:26 (MO04)	20:53	24	06:33 (MO04)	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00			05:37		06:04 (MO04)	05:45		06:09 (MO04)	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22			20:49	22	06:26 (MO04)	20:53	23	06:32 (MO04)	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59			05:37		06:05 (MO04)	05:46		06:09 (MO04)	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23			20:50	21	06:26 (MO04)	20:53	24	06:33 (MO04)	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58			05:37		06:05 (MO04)	05:47		06:10 (MO04)	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24			20:51	22	06:27 (MO04)	20:52	24	06:34 (MO04)	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57			05:37		06:05 (MO04)	05:47		06:11 (MO04)	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25			20:51	21	06:26 (MO04)	20:52	23	06:34 (MO04)	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56			05:37		06:05 (MO04)	05:48		06:11 (MO04)	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26			20:52	21	06:26 (MO04)	20:51	22	06:33 (MO04)	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55			05:37		06:05 (MO04)	05:49		06:12 (MO04)	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27			20:52	21	06:26 (MO04)	20:51	22	06:34 (MO04)	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54			05:37		06:06 (MO04)	05:50		06:13 (MO04)	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28			20:53	20	06:26 (MO04)	20:50	21	06:34 (MO04)	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37		06:06 (MO04)	05:51		06:14 (MO04)	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	2	06:15 (MO04)	20:53	20	06:26 (MO04)	20:49	20	06:34 (MO04)	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52		06:13 (MO04)	05:37		06:07 (MO04)	05:51		06:15 (MO04)	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	5	06:18 (MO04)	20:53	20	06:27 (MO04)	20:49	19	06:34 (MO04)	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO04)	05:37		06:07 (MO04)	05:52		06:15 (MO04)	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	8	06:20 (MO04)	20:54	20	06:27 (MO04)	20:48	19	06:34 (MO04)	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50		06:11 (MO04)	05:37		06:07 (MO04)	05:53		06:16 (MO04)	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	10	06:21 (MO04)	20:54	20	06:27 (MO04)	20:47	18	06:34 (MO04)	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49		06:10 (MO04)	05:37		06:08 (MO04)	05:54		06:17 (MO04)	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	12	06:22 (MO04)	20:54	19	06:27 (MO04)	20:46	16	06:33 (MO04)	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48		06:09 (MO04)	05:37		06:08 (MO04)	05:55		06:18 (MO04)	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	13	06:22 (MO04)	20:55	19	06:27 (MO04)	20:46	15	06:33 (MO04)	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47		06:08 (MO04)	05:37		06:08 (MO04)	05:56		06:19 (MO04)	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	15	06:23 (MO04)	20:55	19	06:27 (MO04)	20:45	14	06:33 (MO04)	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46		06:08 (MO04)	05:37		06:08 (MO04)	05:57		06:20 (MO04)	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	16	06:24 (MO04)	20:55	20	06:28 (MO04)	20:44	12	06:32 (MO04)	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45		06:07 (MO04)	05:38		06:08 (MO04)	05:58		06:21 (MO04)	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	17	06:24 (MO04)	20:55	20	06:28 (MO04)	20:43	11	06:32 (MO04)	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45		06:06 (MO04)	05:38		06:08 (MO04)	05:59		06:22 (MO04)	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	18	06:24 (MO04)	20:55	20	06:28 (MO04)	20:42	9	06:31 (MO04)	20:01	19:08	17:18	16:46	16:46
26	07:34	06:56	06:09	06:18	05:44		06:06 (MO04)	05:38		06:09 (MO04)	06:00		06:22 (MO04)	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	19	06:25 (MO04)	20:55	20	06:29 (MO04)	20:41	7	06:29 (MO04)	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43		06:05 (MO04)	05:39		06:09 (MO04)	06:01		06:23 (MO04)	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	20	06:25 (MO04)	20:55	20	06:29 (MO04)	20:40	4	06:27 (MO04)	19:58	19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43		06:04 (MO04)	05:39		06:08 (MO04)	06:02			06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	21	06:25 (MO04)	20:55	21	06:29 (MO04)	20:39			19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42		06:04 (MO04)	05:39		06:09 (MO04)	06:02			06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	21	06:25 (MO04)	20:55	21	06:30 (MO04)	20:38			19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41		06:03 (MO04)	05:40		06:09 (MO04)	06:03			06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	22	06:25 (MO04)	20:55	21	06:30 (MO04)	20:37			19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:03 (MO04)				06:04			06:37		06:45		07:43
	17:26		19:38		20:43	23	06:26 (MO04)				20:36			19:52		17:10		16:50
Potential sun hours	293	295	369	400	452			457			463			431	376	344	295	283
Total, worst case						242			633			503						
Sun reduction						0.57			0.61			0.71						
Oper. time red.						1.00			1.00			1.00						
Wind dir. red.						1.00			1.00			1.00						
Total reduction						0.57			0.61			0.71						
Total, real						138			387			355						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 200 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1098)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:58	06:11			05:40		06:08 (MO04)
	16:51	17:27	18:03	19:39	20:13			20:44	21	06:29 (MO04)
2	07:44	07:28	06:50	06:57	06:09			05:40		06:08 (MO04)
	16:52	17:28	18:04	19:40	20:14			20:45	21	06:29 (MO04)
3	07:44	07:27	06:48	06:55	06:08			05:39		06:09 (MO04)
	16:53	17:30	18:05	19:41	20:15			20:45	20	06:29 (MO04)
4	07:44	07:26	06:46	06:53	06:07			05:39		06:09 (MO04)
	16:54	17:31	18:07	19:42	20:16			20:46	19	06:28 (MO04)
5	07:44	07:25	06:45	06:52	06:05			05:38		06:10 (MO04)
	16:55	17:32	18:08	19:44	20:17			20:47	18	06:28 (MO04)
6	07:44	07:24	06:43	06:50	06:04			05:38		06:11 (MO04)
	16:56	17:34	18:09	19:45	20:18			20:48	17	06:28 (MO04)
7	07:44	07:22	06:41	06:48	06:03			05:38		06:11 (MO04)
	16:57	17:35	18:10	19:46	20:19			20:48	16	06:27 (MO04)
8	07:44	07:21	06:40	06:46	06:02			05:38		06:12 (MO04)
	16:58	17:36	18:11	19:47	20:21			20:49	15	06:27 (MO04)
9	07:43	07:20	06:38	06:45	06:00			05:37		06:13 (MO04)
	16:59	17:37	18:13	19:48	20:22			20:49	14	06:27 (MO04)
10	07:43	07:19	06:36	06:43	05:59			05:37		06:14 (MO04)
	17:00	17:39	18:14	19:49	20:23			20:50	13	06:27 (MO04)
11	07:43	07:17	06:35	06:41	05:58		06:18 (MO04)	05:37		06:14 (MO04)
	17:01	17:40	18:15	19:50	20:24	1	06:19 (MO04)	20:51	13	06:27 (MO04)
12	07:43	07:16	06:33	06:40	05:57		06:17 (MO04)	05:37		06:14 (MO04)
	17:02	17:41	18:16	19:51	20:25	5	06:22 (MO04)	20:51	11	06:25 (MO04)
13	07:42	07:15	06:31	06:38	05:56		06:16 (MO04)	05:37		06:15 (MO04)
	17:03	17:43	18:17	19:53	20:26	8	06:24 (MO04)	20:52	10	06:25 (MO04)
14	07:42	07:14	06:30	06:36	05:55		06:15 (MO04)	05:37		06:16 (MO04)
	17:05	17:44	18:18	19:54	20:27	10	06:25 (MO04)	20:52	9	06:25 (MO04)
15	07:41	07:12	06:28	06:35	05:54		06:14 (MO04)	05:37		06:16 (MO04)
	17:06	17:45	18:20	19:55	20:28	12	06:26 (MO04)	20:53	9	06:25 (MO04)
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37		06:17 (MO04)
	17:07	17:47	18:21	19:56	20:29	14	06:27 (MO04)	20:53	7	06:24 (MO04)
17	07:41	07:09	06:24	06:32	05:52		06:13 (MO04)	05:37		06:19 (MO04)
	17:08	17:48	18:22	19:57	20:30	15	06:28 (MO04)	20:53	6	06:25 (MO04)
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO04)	05:37		06:19 (MO04)
	17:09	17:49	18:23	19:58	20:31	17	06:29 (MO04)	20:54	5	06:24 (MO04)
19	07:39	07:07	06:21	06:28	05:50		06:11 (MO04)	05:37		06:20 (MO04)
	17:10	17:50	18:24	19:59	20:32	18	06:29 (MO04)	20:54	4	06:24 (MO04)
20	07:39	07:05	06:19	06:27	05:49		06:10 (MO04)	05:37		06:20 (MO04)
	17:12	17:52	18:25	20:00	20:33	19	06:29 (MO04)	20:54	4	06:24 (MO04)
21	07:38	07:04	06:18	06:25	05:48		06:09 (MO04)	05:37		06:20 (MO04)
	17:13	17:53	18:27	20:02	20:34	20	06:29 (MO04)	20:55	4	06:24 (MO04)
22	07:38	07:02	06:16	06:24	05:47		06:08 (MO04)	05:37		06:20 (MO04)
	17:14	17:54	18:28	20:03	20:35	21	06:29 (MO04)	20:55	4	06:24 (MO04)
23	07:37	07:01	06:14	06:22	05:46		06:08 (MO04)	05:37		06:21 (MO04)
	17:15	17:55	18:29	20:04	20:36	22	06:30 (MO04)	20:55	4	06:25 (MO04)
24	07:36	06:59	06:12	06:21	05:45		06:07 (MO04)	05:38		06:21 (MO04)
	17:17	17:57	18:30	20:05	20:37	23	06:30 (MO04)	20:55	4	06:25 (MO04)
25	07:35	06:58	06:11	06:19	05:45		06:06 (MO04)	05:38		06:20 (MO04)
	17:18	17:58	18:31	20:06	20:38	23	06:29 (MO04)	20:55	6	06:26 (MO04)
26	07:34	06:56	06:09	06:18	05:44		06:06 (MO04)	05:38		06:20 (MO04)
	17:19	17:59	18:32	20:07	20:39	24	06:30 (MO04)	20:55	7	06:27 (MO04)
27	07:34	06:54	06:07	06:16	05:43		06:06 (MO04)	05:39		06:20 (MO04)
	17:21	18:00	18:33	20:08	20:40	24	06:30 (MO04)	20:55	7	06:27 (MO04)
28	07:33	06:53	06:05	06:15	05:43		06:06 (MO04)	05:39		06:19 (MO04)
	17:22	18:02	18:34	20:09	20:41	23	06:29 (MO04)	20:55	9	06:28 (MO04)
29	07:32		07:04	06:13	05:42		06:07 (MO04)	05:39		06:19 (MO04)
	17:23		19:36	20:11	20:41	23	06:30 (MO04)	20:55	10	06:29 (MO04)
30	07:31		07:02	06:12	05:41		06:07 (MO04)	05:40		06:19 (MO04)
	17:24		19:37	20:12	20:42	22	06:29 (MO04)	20:55	10	06:29 (MO04)
31	07:30		07:00		05:41		06:08 (MO04)			
	17:26		19:38		20:43	21	06:29 (MO04)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						365			317	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						208			194	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 200 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1098)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September	October	November	December
1	05:40		06:19 (MO04)	06:06		06:28 (MO04)	06:38	07:10	06:46	07:23
	20:55	12	06:31 (MO04)	20:35	4	06:32 (MO04)	19:50	18:57	17:09	16:43
2	05:41		06:18 (MO04)	06:07			06:39	07:11	06:48	07:24
	20:55	13	06:31 (MO04)	20:34			19:48	18:56	17:07	16:42
3	05:41		06:18 (MO04)	06:08			06:40	07:12	06:49	07:25
	20:55	14	06:32 (MO04)	20:33			19:47	18:54	17:06	16:42
4	05:42		06:17 (MO04)	06:09			06:41	07:13	06:50	07:26
	20:55	15	06:32 (MO04)	20:31			19:45	18:52	17:05	16:42
5	05:43		06:17 (MO04)	06:10			06:42	07:15	06:51	07:27
	20:54	16	06:33 (MO04)	20:30			19:43	18:50	17:04	16:42
6	05:43		06:18 (MO04)	06:11			06:43	07:16	06:53	07:28
	20:54	16	06:34 (MO04)	20:29			19:41	18:49	17:02	16:42
7	05:44		06:17 (MO04)	06:12			06:45	07:17	06:54	07:29
	20:54	17	06:34 (MO04)	20:28			19:40	18:47	17:01	16:41
8	05:45		06:17 (MO04)	06:13			06:46	07:18	06:55	07:30
	20:53	18	06:35 (MO04)	20:26			19:38	18:45	17:00	16:41
9	05:45		06:16 (MO04)	06:14			06:47	07:19	06:56	07:31
	20:53	19	06:35 (MO04)	20:25			19:36	18:44	16:59	16:41
10	05:46		06:16 (MO04)	06:15			06:48	07:20	06:58	07:32
	20:53	20	06:36 (MO04)	20:24			19:34	18:42	16:58	16:41
11	05:47		06:16 (MO04)	06:16			06:49	07:21	06:59	07:33
	20:52	21	06:37 (MO04)	20:22			19:33	18:40	16:57	16:41
12	05:47		06:16 (MO04)	06:17			06:50	07:22	07:00	07:33
	20:52	21	06:37 (MO04)	20:21			19:31	18:39	16:56	16:41
13	05:48		06:15 (MO04)	06:18			06:51	07:24	07:01	07:34
	20:51	22	06:37 (MO04)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:15 (MO04)	06:19			06:52	07:25	07:03	07:35
	20:51	23	06:38 (MO04)	20:18			19:27	18:35	16:54	16:42
15	05:50		06:15 (MO04)	06:20			06:53	07:26	07:04	07:36
	20:50	23	06:38 (MO04)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:15 (MO04)	06:21			06:54	07:27	07:05	07:37
	20:49	24	06:39 (MO04)	20:15			19:24	18:32	16:52	16:42
17	05:51		06:16 (MO04)	06:22			06:55	07:28	07:06	07:37
	20:49	23	06:39 (MO04)	20:14			19:22	18:31	16:51	16:42
18	05:52		06:15 (MO04)	06:23			06:56	07:29	07:08	07:38
	20:48	24	06:39 (MO04)	20:12			19:20	18:29	16:50	16:43
19	05:53		06:16 (MO04)	06:24			06:57	07:31	07:09	07:39
	20:47	23	06:39 (MO04)	20:11			19:19	18:27	16:50	16:43
20	05:54		06:17 (MO04)	06:25			06:58	07:32	07:10	07:39
	20:46	22	06:39 (MO04)	20:09			19:17	18:26	16:49	16:44
21	05:55		06:18 (MO04)	06:27			06:59	07:33	07:11	07:40
	20:46	21	06:39 (MO04)	20:08			19:15	18:24	16:48	16:44
22	05:56		06:19 (MO04)	06:28			07:00	07:34	07:12	07:40
	20:45	21	06:40 (MO04)	20:06			19:13	18:23	16:47	16:45
23	05:57		06:20 (MO04)	06:29			07:01	07:35	07:14	07:41
	20:44	20	06:40 (MO04)	20:05			19:11	18:21	16:47	16:45
24	05:58		06:21 (MO04)	06:30			07:03	07:37	07:15	07:41
	20:43	18	06:39 (MO04)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:22 (MO04)	06:31			07:04	06:38	07:16	07:42
	20:42	17	06:39 (MO04)	20:01			19:08	17:18	16:46	16:46
26	06:00		06:22 (MO04)	06:32			07:05	06:39	07:17	07:42
	20:41	16	06:38 (MO04)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:23 (MO04)	06:33			07:06	06:40	07:18	07:42
	20:40	15	06:38 (MO04)	19:58			19:04	17:16	16:44	16:47
28	06:02		06:24 (MO04)	06:34			07:07	06:41	07:20	07:43
	20:39	13	06:37 (MO04)	19:57			19:03	17:14	16:44	16:48
29	06:02		06:25 (MO04)	06:35			07:08	06:43	07:21	07:43
	20:38	11	06:36 (MO04)	19:55			19:01	17:13	16:44	16:49
30	06:03		06:26 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	9	06:35 (MO04)	19:53			18:59	17:11	16:43	16:50
31	06:04		06:27 (MO04)	06:37				06:45		07:43
	20:36	7	06:34 (MO04)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		554			4					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		391			3					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 201 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1099)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:43	06:10	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 202 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1100)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:43	06:10	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 203 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1101)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:29	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:52	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:29	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:25	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:31	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:28	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:03	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:02	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 204 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1102)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:29	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:52	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:51	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:29	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:25	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:31	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:50	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:28	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:03	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:33	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:02	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 205 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1103)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:29	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:52	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:51	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:29	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:25	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:31	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:28	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:03	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:33	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:02	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 206 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1104)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:29	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:52	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:29	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:25	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:31	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:28	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:03	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:02	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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00390585281383
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 207 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1105)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
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	17:06	17:45	18:20	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
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	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
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	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
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	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
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	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
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25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 208 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1106)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
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13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
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	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
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22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
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	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
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	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 209 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1107)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
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	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
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12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
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	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 210 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1108)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
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13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:51	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 211 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1109)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
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24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
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	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
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29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 212 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1110)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 213 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1111)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 214 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1112)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
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	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
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7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
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	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
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	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 215 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1113)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:29	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:52	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
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12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
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	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:25	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:50	05:36	05:52	06:23	06:56	07:29	07:07	07:38
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19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
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	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:28	07:01	07:35	07:14	07:41
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24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:03	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
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29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 216 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1114)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 217 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1115)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	07:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 218 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1116)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 219 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1117)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March			April			May	June	July	August	September			October	November	December
1	07:44	07:29	06:51			06:58		18:57 (MO05)	06:11	05:40	05:40	06:06	06:38			07:10	06:46	07:23
	16:52	17:27	18:03			19:39	20	19:17 (MO05)	20:13	20:44	20:55	20:35	19:50			18:57	17:09	16:43
2	07:44	07:28	06:50			06:57		18:57 (MO05)	06:09	05:40	05:41	06:07	06:39		19:02 (MO05)	07:11	06:48	07:24
	16:52	17:28	18:04			19:40	22	19:19 (MO05)	20:14	20:45	20:55	20:34	19:48	10	19:12 (MO05)	18:56	17:07	16:42
3	07:44	07:27	06:48			06:55		18:57 (MO05)	06:08	05:39	05:41	06:08	06:40		18:59 (MO05)	07:12	06:49	07:25
	16:53	17:30	18:05			19:41	23	19:20 (MO05)	20:15	20:45	20:55	20:33	19:47	15	19:14 (MO05)	18:54	17:06	16:42
4	07:44	07:26	06:46			06:53		18:57 (MO05)	06:07	05:39	05:42	06:09	06:41		18:57 (MO05)	07:13	06:50	07:26
	16:54	17:31	18:07			19:42	23	19:20 (MO05)	20:16	20:46	20:55	20:31	19:45	19	19:16 (MO05)	18:52	17:05	16:42
5	07:44	07:25	06:45			06:52		18:57 (MO05)	06:05	05:39	05:43	06:10	06:42		18:55 (MO05)	07:15	06:51	07:27
	16:55	17:32	18:08			19:44	24	19:21 (MO05)	20:17	20:47	20:54	20:30	19:43	22	19:17 (MO05)	18:50	17:04	16:42
6	07:44	07:24	06:43			06:50		18:58 (MO05)	06:04	05:38	05:43	06:11	06:44		18:54 (MO05)	07:16	06:53	07:28
	16:56	17:34	18:09			19:45	23	19:21 (MO05)	20:18	20:48	20:54	20:29	19:41	23	19:17 (MO05)	18:49	17:03	16:42
7	07:44	07:22	06:41			06:48		18:58 (MO05)	06:03	05:38	05:44	06:12	06:45		18:53 (MO05)	07:17	06:54	07:29
	16:57	17:35	18:10			19:46	22	19:20 (MO05)	20:19	20:48	20:54	20:28	19:40	24	19:17 (MO05)	18:47	17:01	16:41
8	07:44	07:21	06:40			06:46		18:59 (MO05)	06:02	05:38	05:45	06:13	06:46		18:52 (MO05)	07:18	06:55	07:30
	16:58	17:36	18:11			19:47	19	19:18 (MO05)	20:21	20:49	20:53	20:26	19:38	24	19:16 (MO05)	18:45	17:00	16:41
9	07:43	07:20	06:38			06:45		19:01 (MO05)	06:00	05:37	05:45	06:14	06:47		18:51 (MO05)	07:19	06:56	07:31
	16:59	17:38	18:13			19:48	15	19:16 (MO05)	20:22	20:49	20:53	20:25	19:36	23	19:14 (MO05)	18:44	16:59	16:41
10	07:43	07:19	06:36			06:43		19:03 (MO05)	05:59	05:37	05:46	06:15	06:48		18:50 (MO05)	07:20	06:58	07:32
	17:00	17:39	18:14			19:49	10	19:13 (MO05)	20:23	20:50	20:53	20:24	19:34	22	19:12 (MO05)	18:42	16:58	16:41
11	07:43	07:17	06:35			06:41			05:58	05:37	05:47	06:16	06:49		18:50 (MO05)	07:21	06:59	07:33
	17:01	17:40	18:15			19:50			20:24	20:51	20:52	20:22	19:33	20	19:10 (MO05)	18:40	16:57	16:41
12	07:43	07:16	06:33			06:40			05:57	05:37	05:47	06:17	06:50		18:50 (MO05)	07:22	07:00	07:34
	17:02	17:41	18:16			19:51			20:25	20:51	20:52	20:21	19:31	19	19:09 (MO05)	18:39	16:56	16:42
13	07:42	07:15	06:31			06:38			05:56	05:37	05:48	06:18	06:51		18:50 (MO05)	07:24	07:01	07:34
	17:03	17:43	18:17			19:53			20:26	20:52	20:51	20:20	19:29	17	19:07 (MO05)	18:37	16:55	16:42
14	07:42	07:14	06:30			06:37			05:55	05:37	05:49	06:19	06:52		18:50 (MO05)	07:25	07:03	07:35
	17:05	17:44	18:18			19:54			20:27	20:52	20:51	20:18	19:27	15	19:05 (MO05)	18:35	16:54	16:42
15	07:41	07:12	06:28			06:35			05:54	05:37	05:50	06:20	06:53		18:50 (MO05)	07:26	07:04	07:36
	17:06	17:45	18:20			19:55			20:28	20:53	20:50	20:17	19:26	13	19:03 (MO05)	18:34	16:53	16:42
16	07:41	07:11	06:26			06:33			05:53	05:37	05:51	06:21	06:54		18:51 (MO05)	07:27	07:05	07:37
	17:07	17:47	18:21			19:56			20:29	20:53	20:49	20:15	19:24	10	19:01 (MO05)	18:32	16:52	16:42
17	07:41	07:09	06:24			06:32			05:52	05:37	05:51	06:22	06:55		18:52 (MO05)	07:28	07:06	07:37
	17:08	17:48	18:22			19:57			20:30	20:53	20:49	20:14	19:22	8	19:00 (MO05)	18:31	16:51	16:43
18	07:40	07:08	06:23			06:30			05:51	05:37	05:52	06:23	06:56		18:53 (MO05)	07:29	07:08	07:38
	17:09	17:49	18:23			19:58			20:31	20:54	20:48	20:12	19:20	5	18:58 (MO05)	18:29	16:50	16:43
19	07:39	07:07	06:21			06:28			05:50	05:37	05:53	06:24	06:57			07:31	07:09	07:39
	17:11	17:50	18:24			19:59			20:32	20:54	20:47	20:11	19:19			18:27	16:50	16:43
20	07:39	07:05	06:19			06:27			05:49	05:37	05:54	06:25	06:58			07:32	07:10	07:39
	17:12	17:52	18:25			20:00			20:33	20:54	20:46	20:09	19:17			18:26	16:49	16:44
21	07:38	07:04	06:18			06:25			05:48	05:37	05:55	06:27	06:59			07:33	07:11	07:40
	17:13	17:53	18:27			20:02			20:34	20:55	20:46	20:08	19:15			18:24	16:48	16:44
22	07:38	07:02	06:16			06:24			05:47	05:37	05:56	06:28	07:00			07:34	07:13	07:40
	17:14	17:54	18:28			20:03			20:35	20:55	20:45	20:06	19:13			18:23	16:47	16:45
23	07:37	07:01	06:14			06:22			05:46	05:37	05:57	06:29	07:02			07:35	07:14	07:41
	17:15	17:55	18:29			20:04			20:36	20:55	20:44	20:05	19:11			18:21	16:47	16:45
24	07:36	06:59	06:12			06:21			05:45	05:38	05:58	06:30	07:03			07:37	07:15	07:41
	17:17	17:57	18:30			20:05			20:37	20:55	20:43	20:03	19:10			18:20	16:46	16:46
25	07:35	06:58	06:11		18:05 (MO05)	06:19			05:45	05:38	05:59	06:31	07:04			06:38	07:16	07:42
	17:18	17:58	18:31	4	18:09 (MO05)	20:06			20:38	20:55	20:42	20:01	19:08			17:18	16:46	16:46
26	07:35	06:56	06:09		18:04 (MO05)	06:18			05:44	05:38	06:00	06:32	07:05			06:39	07:17	07:42
	17:19	17:59	18:32	7	18:11 (MO05)	20:07			20:39	20:55	20:41	20:00	19:06			17:17	16:45	16:47
27	07:34	06:54	06:07		18:02 (MO05)	06:16			05:43	05:39	06:01	06:33	07:06			06:40	07:18	07:42
	17:21	18:00	18:33	10	18:12 (MO05)	20:08			20:40	20:55	20:40	19:58	19:04			17:16	16:44	16:47
28	07:33	06:53	06:05		18:00 (MO05)	06:15			05:43	05:39	06:02	06:34	07:07			06:41	07:20	07:43
	17:22	18:02	18:35	13	18:13 (MO05)	20:09			20:41	20:55	20:39	19:57	19:03			17:14	16:44	16:48
29	07:32		07:04		19:00 (MO05)	06:14			05:42	05:40	06:03	06:35	07:08			06:43	07:21	07:43
	17:23		19:36	15	19:15 (MO05)	20:11			20:41	20:55	20:38	19:55	19:01			17:13	16:44	16:49
30	07:31		07:02		18:59 (MO05)	06:12			05:41	05:40	06:04	06:36	07:09			06:44	07:22	07:43
	17:24		19:37	16	19:15 (MO05)	20:12			20:42	20:55	20:37	19:53	18:59			17:11	16:43	16:50
31	07:30		07:00		18:58 (MO05)				05:41		06:05	06:37				06:45		07:43
	17:26		19:38	18	19:16 (MO05)				20:43		20:36	19:52				17:10		16:50
Potential sun hours	293	295	369			400			452	457	463	431	376			344	295	283
Total, worst case				83			201							289				
Sun reduction				0.46			0.49							0.62				
Oper. time red.				1.00			1.00							1.00				
Wind dir. red.				1.00			1.00							1.00				
Total reduction				0.46			0.49							0.62				
Total, real				38			99							181				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
Enviarea snc stp
viale XX Settembre 266bis
IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 220 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1118)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:06	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:02	05:38	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:46	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 221 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1119)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 222 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1120)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 223 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1121)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
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	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
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	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 224 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1122)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:38	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:10	19:17	18:26	16:49	16:44
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	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 225 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1123)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
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	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 226 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1124)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 227 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1125)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 228 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1126)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 229 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1127)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 230 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1128)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 231 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1129)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 232 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1130)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24
	16:52	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:40
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:39	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 233 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1131)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 234 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1132)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November	December		
1	07:44		08:13 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23		
	16:52	19	08:32 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43		
2	07:44		08:14 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24		
	16:53	18	08:32 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	16:43		
3	07:44		08:14 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25		08:07 (MO06)
	16:53	18	08:32 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42	6	08:13 (MO06)
4	07:44		08:15 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26		08:05 (MO06)
	16:54	17	08:32 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42	10	08:15 (MO06)
5	07:44		08:17 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27		08:04 (MO06)
	16:55	15	08:32 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51	17:04	16:42	13	08:17 (MO06)
6	07:44		08:18 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28		08:04 (MO06)
	16:56	14	08:32 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42	14	08:18 (MO06)
7	07:44		08:19 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29		08:04 (MO06)
	16:57	13	08:32 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	16:42	15	08:19 (MO06)
8	07:44		08:20 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30		08:04 (MO06)
	16:58	10	08:30 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42	16	08:20 (MO06)
9	07:44		08:22 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31		08:04 (MO06)
	16:59	7	08:29 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42	17	08:21 (MO06)
10	07:43			07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		08:04 (MO06)
	17:00			17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42	18	08:22 (MO06)
11	07:43			07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33		08:03 (MO06)
	17:01			17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42	19	08:22 (MO06)
12	07:43			07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34		08:03 (MO06)
	17:03			17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42	20	08:23 (MO06)
13	07:43			07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35		08:04 (MO06)
	17:04			17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42	20	08:24 (MO06)
14	07:42			07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35		08:04 (MO06)
	17:05			17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42	21	08:25 (MO06)
15	07:42			07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36		08:05 (MO06)
	17:06			17:46	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42	21	08:26 (MO06)
16	07:41			07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37		08:04 (MO06)
	17:07			17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42	22	08:26 (MO06)
17	07:41			07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38		08:05 (MO06)
	17:08			17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43	21	08:26 (MO06)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38		08:06 (MO06)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43	21	08:27 (MO06)
19	07:40			07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39		08:05 (MO06)
	17:11			17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43	22	08:27 (MO06)
20	07:39			07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:40		08:06 (MO06)
	17:12			17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44	22	08:28 (MO06)
21	07:39			07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40		08:06 (MO06)
	17:13			17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44	22	08:28 (MO06)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41		08:07 (MO06)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45	22	08:29 (MO06)
23	07:37			07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41		08:07 (MO06)
	17:16			17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45	22	08:29 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42		08:07 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46	22	08:29 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42		08:09 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46	16:46	21	08:30 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42		08:09 (MO06)
	17:19			17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47	21	08:30 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43		08:09 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48	21	08:30 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43		08:10 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48	22	08:32 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43		08:11 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	16:49	21	08:32 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44		08:11 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50	21	08:32 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45		07:44		08:12 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10		16:51	20	08:32 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295	283		
Total, worst case		131													553	
Sun reduction		0.42													0.43	
Oper. time red.		1.00													1.00	
Wind dir. red.		1.00													1.00	
Total reduction		0.42													0.43	
Total, real		55													239	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 235 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1133)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 236 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1134)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 237 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1135)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 238 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1136)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March		April	May	June
1	07:44	07:29		06:52	07:29 (MO06)	06:59	06:11	05:40
	16:52	17:27		18:03	16 07:45 (MO06)	19:39	20:13	20:44
2	07:44	07:28		06:50	07:32 (MO06)	06:57	06:10	05:40
	16:53	17:29		18:04	9 07:41 (MO06)	19:40	20:14	20:45
3	07:44	07:27		06:48		06:55	06:08	05:39
	16:53	17:30		18:06		19:42	20:15	20:46
4	07:44	07:26		06:47		06:53	06:07	05:39
	16:54	17:31		18:07		19:43	20:16	20:46
5	07:44	07:25		06:45		06:52	06:06	05:39
	16:55	17:32		18:08		19:44	20:18	20:47
6	07:44	07:24		06:43		06:50	06:04	05:38
	16:56	17:34		18:09		19:45	20:19	20:48
7	07:44	07:23		06:42		06:48	06:03	05:38
	16:57	17:35		18:10		19:46	20:20	20:49
8	07:44	07:21		06:40		06:47	06:02	05:38
	16:58	17:36		18:12		19:47	20:21	20:49
9	07:44	07:20		06:38		06:45	06:01	05:37
	16:59	17:38		18:13		19:48	20:22	20:50
10	07:43	07:19	07:39 (MO06)	06:37		06:43	05:59	05:37
	17:00	17:39	6 07:45 (MO06)	18:14		19:49	20:23	20:50
11	07:43	07:18	07:38 (MO06)	06:35		06:42	05:58	05:37
	17:01	17:40	9 07:47 (MO06)	18:15		19:51	20:24	20:51
12	07:43	07:16	07:36 (MO06)	06:33		06:40	05:57	05:37
	17:03	17:42	12 07:48 (MO06)	18:16		19:52	20:25	20:51
13	07:43	07:15	07:35 (MO06)	06:32		06:38	05:56	05:37
	17:04	17:43	15 07:50 (MO06)	18:18		19:53	20:26	20:52
14	07:42	07:14	07:34 (MO06)	06:30		06:37	05:55	05:37
	17:05	17:44	18 07:52 (MO06)	18:19		19:54	20:27	20:52
15	07:42	07:12	07:32 (MO06)	06:28		06:35	05:54	05:37
	17:06	17:46	20 07:52 (MO06)	18:20		19:55	20:28	20:53
16	07:41	07:11	07:31 (MO06)	06:26		06:33	05:53	05:37
	17:07	17:47	22 07:53 (MO06)	18:21		19:56	20:29	20:53
17	07:41	07:10	07:29 (MO06)	06:25		06:32	05:52	05:37
	17:08	17:48	24 07:53 (MO06)	18:22		19:57	20:30	20:54
18	07:40	07:08	07:28 (MO06)	06:23		06:30	05:51	05:37
	17:09	17:49	26 07:54 (MO06)	18:23		19:58	20:31	20:54
19	07:40	07:07	07:27 (MO06)	06:21		06:29	05:50	05:37
	17:11	17:51	27 07:54 (MO06)	18:24		20:00	20:32	20:54
20	07:39	07:05	07:25 (MO06)	06:20		06:27	05:49	05:37
	17:12	17:52	29 07:54 (MO06)	18:26		20:01	20:33	20:55
21	07:38	07:04	07:24 (MO06)	06:18		06:26	05:48	05:37
	17:13	17:53	30 07:54 (MO06)	18:27		20:02	20:34	20:55
22	07:38	07:02	07:23 (MO06)	06:16		06:24	05:47	05:37
	17:14	17:54	30 07:53 (MO06)	18:28		20:03	20:35	20:55
23	07:37	07:01	07:23 (MO06)	06:14		06:22	05:46	05:38
	17:16	17:56	30 07:53 (MO06)	18:29		20:04	20:36	20:55
24	07:36	06:59	07:24 (MO06)	06:13		06:21	05:46	05:38
	17:17	17:57	28 07:52 (MO06)	18:30		20:05	20:37	20:55
25	07:36	06:58	07:24 (MO06)	06:11		06:19	05:45	05:38
	17:18	17:58	27 07:51 (MO06)	18:31		20:06	20:38	20:55
26	07:35	06:56	07:25 (MO06)	06:09		06:18	05:44	05:39
	17:19	17:59	26 07:51 (MO06)	18:32		20:07	20:39	20:56
27	07:34	06:55	07:26 (MO06)	06:07		06:17	05:43	05:39
	17:21	18:01	23 07:49 (MO06)	18:34		20:09	20:40	20:56
28	07:33	06:53	07:28 (MO06)	06:06		06:15	05:43	05:39
	17:22	18:02	20 07:48 (MO06)	18:35		20:10	20:41	20:56
29	07:32			07:04		06:14	05:42	05:40
	17:23			19:36		20:11	20:42	20:56
30	07:31			07:02		06:12	05:42	05:40
	17:25			19:37		20:12	20:43	20:56
31	07:30			07:00			05:41	
	17:26			19:38			20:43	
Potential sun hours	293	295		369		400	452	457
Total, worst case			422		25			
Sun reduction			0.46		0.46			
Oper. time red.			1.00		1.00			
Wind dir. red.			1.00		1.00			
Total reduction			0.46		0.46			
Total, real			195		11			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 238 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1136)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October		November		December
1	05:41	06:06	06:38	07:10		06:47	07:09 (MO06)	07:23
	20:55	20:35	19:50	18:58		17:09	5 07:14 (MO06)	16:43
2	05:41	06:07	06:39	07:12		06:48		07:24
	20:55	20:34	19:48	18:56		17:08		16:43
3	05:42	06:08	06:41	07:13		06:49		07:25
	20:55	20:33	19:47	18:54		17:06		16:42
4	05:42	06:09	06:42	07:14		06:50		07:26
	20:55	20:32	19:45	18:52		17:05		16:42
5	05:43	06:10	06:43	07:15		06:52		07:27
	20:55	20:30	19:43	18:51		17:04		16:42
6	05:43	06:11	06:44	07:16		06:53		07:28
	20:54	20:29	19:42	18:49		17:03		16:42
7	05:44	06:12	06:45	07:17		06:54		07:29
	20:54	20:28	19:40	18:47		17:02		16:42
8	05:45	06:13	06:46	07:18		06:55		07:30
	20:54	20:27	19:38	18:46		17:00		16:42
9	05:45	06:14	06:47	07:19		06:57		07:31
	20:53	20:25	19:36	18:44		16:59		16:42
10	05:46	06:15	06:48	07:20		06:58		07:32
	20:53	20:24	19:35	18:42		16:58		16:42
11	05:47	06:16	06:49	07:22		06:59		07:33
	20:52	20:23	19:33	18:41		16:57		16:42
12	05:48	06:17	06:50	07:23		08:04 (MO06)	07:00	07:34
	20:52	20:21	19:31	18:39	13	08:17 (MO06)	16:56	16:42
13	05:48	06:18	06:51	07:24		08:02 (MO06)	07:02	07:35
	20:51	20:20	19:29	18:37	18	08:20 (MO06)	16:55	16:42
14	05:49	06:19	06:52	07:25		07:59 (MO06)	07:03	07:35
	20:51	20:18	19:28	18:36	22	08:21 (MO06)	16:54	16:42
15	05:50	06:20	06:53	07:26		07:58 (MO06)	07:04	07:36
	20:50	20:17	19:26	18:34	24	08:22 (MO06)	16:53	16:42
16	05:51	06:21	06:54	07:27		07:56 (MO06)	07:05	07:37
	20:50	20:16	19:24	18:32	27	08:23 (MO06)	16:52	16:42
17	05:52	06:22	06:55	07:29		07:56 (MO06)	07:07	07:38
	20:49	20:14	19:22	18:31	28	08:24 (MO06)	16:51	16:43
18	05:52	06:24	06:56	07:30		07:55 (MO06)	07:08	07:38
	20:48	20:13	19:21	18:29	29	08:24 (MO06)	16:51	16:43
19	05:53	06:25	06:57	07:31		07:54 (MO06)	07:09	07:39
	20:48	20:11	19:19	18:28	30	08:24 (MO06)	16:50	16:43
20	05:54	06:26	06:59	07:32		07:53 (MO06)	07:10	07:39
	20:47	20:10	19:17	18:26	31	08:24 (MO06)	16:49	16:44
21	05:55	06:27	07:00	07:33		07:55 (MO06)	07:12	07:40
	20:46	20:08	19:15	18:25	30	08:25 (MO06)	16:48	16:44
22	05:56	06:28	07:01	07:34		07:56 (MO06)	07:13	07:41
	20:45	20:06	19:13	18:23	28	08:24 (MO06)	16:48	16:45
23	05:57	06:29	07:02	07:36		07:57 (MO06)	07:14	07:41
	20:44	20:05	19:12	18:22	27	08:24 (MO06)	16:47	16:45
24	05:58	06:30	07:03	07:37		07:58 (MO06)	07:15	07:42
	20:43	20:03	19:10	18:20	25	08:23 (MO06)	16:46	16:46
25	05:59	06:31	07:04	06:38		07:00 (MO06)	07:16	07:42
	20:42	20:02	19:08	17:19	23	07:23 (MO06)	16:46	16:46
26	06:00	06:32	07:05	06:39		07:01 (MO06)	07:18	07:42
	20:42	20:00	19:06	17:17	22	07:23 (MO06)	16:45	16:47
27	06:01	06:33	07:06	06:41		07:02 (MO06)	07:19	07:43
	20:41	19:58	19:05	17:16	19	07:21 (MO06)	16:45	16:48
28	06:02	06:34	07:07	06:42		07:04 (MO06)	07:20	07:43
	20:40	19:57	19:03	17:14	17	07:21 (MO06)	16:44	16:48
29	06:03	06:35	07:08	06:43		07:05 (MO06)	07:21	07:43
	20:38	19:55	19:01	17:13	15	07:20 (MO06)	16:44	16:49
30	06:04	06:36	07:09	06:44		07:06 (MO06)	07:22	07:44
	20:37	19:54	18:59	17:12	12	07:18 (MO06)	16:43	16:50
31	06:05	06:37		06:45		07:07 (MO06)		07:44
	20:36	19:52		17:10	9	07:16 (MO06)		16:51
Potential sun hours	463	431	376	344			295	283
Total, worst case					449		5	
Sun reduction					0.55		0.46	
Oper. time red.					1.00		1.00	
Wind dir. red.					1.00		1.00	
Total reduction					0.55		0.46	
Total, real					246		2	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 239 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1137)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 240 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1138)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 241 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1139)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 242 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1140)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 243 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1141)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May		June	July		August		September	October	November	December
1	07:44	07:29	06:51	06:58	06:11		05:40	05:40		06:06		06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13		20:44	20:55		20:35	19	06:47 (MO04)	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09		05:40	05:41		06:07		06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14		20:45	20:55		20:34	17	06:46 (MO04)	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08		05:39	05:41		06:08		06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15		20:45	20:55		20:33	16	06:46 (MO04)	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07		05:39	05:42		06:09		06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16		20:46	20:55		20:31	14	06:45 (MO04)	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05		06:25 (MO04)	05:38		06:10		06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	5	06:30 (MO04)	20:47	20:54	20:30	12	06:44 (MO04)	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04		06:24 (MO04)	05:38	05:43	06:11		06:43 (MO04)	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	8	06:32 (MO04)	20:48	20:54	20:29	10	06:43 (MO04)	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03		06:23 (MO04)	05:38	05:44	06:12		06:34 (MO04)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	11	06:34 (MO04)	20:48	20:54	20:28	7	06:41 (MO04)	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02		06:22 (MO04)	05:38	05:44	06:13		06:35 (MO04)	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	13	06:35 (MO04)	20:49	20:53	20:26	4	06:39 (MO04)	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00		06:21 (MO04)	05:37	05:45	06:14			06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	15	06:36 (MO04)	20:49	20:53	20:25			19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59		06:20 (MO04)	05:37	05:46	06:15			06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	16	06:36 (MO04)	20:50	20:53	20:24			19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58		06:18 (MO04)	05:37	05:47	06:16			06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	18	06:36 (MO04)	20:51	20:52	20:22			19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57		06:17 (MO04)	05:37	05:47	06:17			06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	19	06:36 (MO04)	20:51	20:52	20:21			19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56		06:16 (MO04)	05:37	05:48	06:18			06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20	06:36 (MO04)	20:52	20:51	20:20			19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55		06:15 (MO04)	05:37	05:49	06:32 (MO04)	06:19		06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	21	06:36 (MO04)	20:52	20:51	4	06:36 (MO04)	20:18		19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54		06:14 (MO04)	05:37	05:50	06:30 (MO04)	06:20		06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	22	06:36 (MO04)	20:53	20:50	9	06:39 (MO04)	20:17		19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37	05:51	06:29 (MO04)	06:21		06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	23	06:36 (MO04)	20:53	20:49	12	06:41 (MO04)	20:15		19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52		06:12 (MO04)	05:37	05:51	06:28 (MO04)	06:22		06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	24	06:36 (MO04)	20:53	20:49	14	06:42 (MO04)	20:14		19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51		06:13 (MO04)	05:37	05:52	06:26 (MO04)	06:23		06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	24	06:37 (MO04)	20:54	20:48	16	06:42 (MO04)	20:12		19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50		06:13 (MO04)	05:37	05:53	06:26 (MO04)	06:24		06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	23	06:36 (MO04)	20:54	20:47	17	06:43 (MO04)	20:11		19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49		06:13 (MO04)	05:37	05:54	06:25 (MO04)	06:25		06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	23	06:36 (MO04)	20:54	20:46	19	06:44 (MO04)	20:09		19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48		06:14 (MO04)	05:37	05:55	06:25 (MO04)	06:27		06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	21	06:35 (MO04)	20:55	20:46	20	06:45 (MO04)	20:08		19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47		06:14 (MO04)	05:37	05:56	06:24 (MO04)	06:28		07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	21	06:35 (MO04)	20:55	20:45	22	06:46 (MO04)	20:06		19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46		06:15 (MO04)	05:37	05:57	06:24 (MO04)	06:29		07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20	06:35 (MO04)	20:55	20:44	22	06:46 (MO04)	20:05		19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45		06:16 (MO04)	05:38	05:58	06:24 (MO04)	06:30		07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	18	06:34 (MO04)	20:55	20:43	23	06:47 (MO04)	20:03		19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45		06:16 (MO04)	05:38	05:59	06:24 (MO04)	06:31		07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	17	06:33 (MO04)	20:55	20:42	23	06:47 (MO04)	20:01		19:08	17:18	16:46	16:46
26	07:34	06:56	06:09	06:18	05:44		06:18 (MO04)	05:38	06:00	06:23 (MO04)	06:32		07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	15	06:33 (MO04)	20:55	20:41	24	06:47 (MO04)	20:00		19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43		06:19 (MO04)	05:39	06:01	06:23 (MO04)	06:33		07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	13	06:32 (MO04)	20:55	20:40	24	06:47 (MO04)	19:58		19:04	17:16	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43		06:20 (MO04)	05:39	06:01	06:24 (MO04)	06:34		07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	10	06:30 (MO04)	20:55	20:39	23	06:47 (MO04)	19:57		19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42		06:22 (MO04)	05:39	06:02	06:25 (MO04)	06:35		07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	7	06:29 (MO04)	20:55	20:38	22	06:47 (MO04)	19:55		19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41			05:40	06:03	06:26 (MO04)	06:36		07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42			20:55	20:37	21	06:47 (MO04)	19:53		18:59	17:11	16:43	16:50
31	07:30		07:00		05:41				06:04	06:27 (MO04)	06:37				06:45		07:43
	17:26		19:38		20:43				20:36	20	06:47 (MO04)	19:52			17:10		16:50
Potential sun hours	293	295	369	400	452		457	463		431		376	344	295	283
Total, worst case						427			335		99				
Sun reduction						0.57			0.71		0.70				
Oper. time red.						1.00			1.00		1.00				
Wind dir. red.						1.00			1.00		1.00				
Total reduction						0.57			0.71		0.70				
Total, real						243			236		69				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 244 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1142)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June
1	07:44	07:29	06:52	06:59		06:11		06:31 (MO06)	05:40
	16:52	17:27	18:03	19:39		20:13	8	06:39 (MO06)	20:44
2	07:44	07:28	06:50	06:57		06:10		06:29 (MO06)	05:40
	16:53	17:29	18:04	19:40		20:14	10	06:39 (MO06)	20:45
3	07:44	07:27	06:48	06:55		06:08		06:28 (MO06)	05:40
	16:53	17:30	18:06	19:42		20:15	13	06:41 (MO06)	20:46
4	07:44	07:26	06:47	06:54		06:07		06:27 (MO06)	05:39
	16:54	17:31	18:07	19:43		20:16	15	06:42 (MO06)	20:46
5	07:44	07:25	06:45	06:52		06:06		06:26 (MO06)	05:39
	16:55	17:32	18:08	19:44		20:18	17	06:43 (MO06)	20:47
6	07:44	07:24	06:43	06:50		06:04		06:24 (MO06)	05:38
	16:56	17:34	18:09	19:45		20:19	18	06:42 (MO06)	20:48
7	07:44	07:23	06:42	06:48		06:03		06:23 (MO06)	05:38
	16:57	17:35	18:10	19:46		20:20	20	06:43 (MO06)	20:49
8	07:44	07:21	06:40	06:47		06:02		06:22 (MO06)	05:38
	16:58	17:36	18:12	19:47		20:21	21	06:43 (MO06)	20:49
9	07:44	07:20	06:38	06:45		06:01		06:21 (MO06)	05:38
	16:59	17:38	18:13	19:48		20:22	23	06:44 (MO06)	20:50
10	07:43	07:19	06:37	06:43		05:59		06:20 (MO06)	05:37
	17:00	17:39	18:14	19:49		20:23	24	06:44 (MO06)	20:50
11	07:43	07:18	06:35	06:42		05:58		06:19 (MO06)	05:37
	17:01	17:40	18:15	19:51		20:24	25	06:44 (MO06)	20:51
12	07:43	07:16	06:33	06:40		05:57		06:18 (MO06)	05:37
	17:03	17:42	18:16	19:52		20:25	26	06:44 (MO06)	20:51
13	07:43	07:15	06:32	06:38		05:56		06:18 (MO06)	05:37
	17:04	17:43	18:18	19:53		20:26	25	06:43 (MO06)	20:52
14	07:42	07:14	06:30	06:37		05:55		06:18 (MO06)	05:37
	17:05	17:44	18:19	19:54		20:27	25	06:43 (MO06)	20:52
15	07:42	07:12	06:28	06:35		05:54		06:19 (MO06)	05:37
	17:06	17:46	18:20	19:55		20:28	24	06:43 (MO06)	20:53
16	07:41	07:11	06:26	06:33		05:53		06:19 (MO06)	05:37
	17:07	17:47	18:21	19:56		20:29	23	06:42 (MO06)	20:53
17	07:41	07:10	06:25	06:32		05:52		06:20 (MO06)	05:37
	17:08	17:48	18:22	19:57		20:30	22	06:42 (MO06)	20:54
18	07:40	07:08	06:23	06:30		05:51		06:20 (MO06)	05:37
	17:10	17:49	18:23	19:58		20:31	21	06:41 (MO06)	20:54
19	07:40	07:07	06:21	06:29		05:50		06:21 (MO06)	05:37
	17:11	17:51	18:24	20:00		20:32	19	06:40 (MO06)	20:54
20	07:39	07:05	06:20	06:27		05:49		06:22 (MO06)	05:37
	17:12	17:52	18:26	20:01		20:33	17	06:39 (MO06)	20:55
21	07:38	07:04	06:18	06:26		05:48		06:22 (MO06)	05:37
	17:13	17:53	18:27	20:02		20:34	16	06:38 (MO06)	20:55
22	07:38	07:02	06:16	06:24		05:47		06:25 (MO06)	05:37
	17:14	17:54	18:28	20:03		20:35	12	06:37 (MO06)	20:55
23	07:37	07:01	06:14	06:23		05:46		06:26 (MO06)	05:38
	17:16	17:56	18:29	20:04		20:36	9	06:35 (MO06)	20:55
24	07:36	06:59	06:13	06:21		05:46		06:29 (MO06)	05:38
	17:17	17:57	18:30	20:05		20:37	3	06:32 (MO06)	20:55
25	07:36	06:58	06:11	06:20		05:45			05:38
	17:18	17:58	18:31	20:06		20:38			20:55
26	07:35	06:56	06:09	06:18		05:44			05:39
	17:19	17:59	18:32	20:07		20:39			20:56
27	07:34	06:55	06:07	06:17		05:43			05:39
	17:21	18:01	18:34	20:09		20:40			20:56
28	07:33	06:53	06:06	06:15		05:43			05:39
	17:22	18:02	18:35	20:10		20:41			20:56
29	07:32		07:04	06:14		05:42			05:40
	17:23		19:36	20:11		20:42			20:56
30	07:31		07:02	06:12	06:32 (MO06)	05:42			05:40
	17:25		19:37	20:12	4 06:36 (MO06)	20:43			20:56
31	07:30		07:00			05:41			
	17:26		19:38			20:43			
Potential sun hours	293	295	369	400		452			457
Total, worst case					4		436		
Sun reduction					0.49		0.57		
Oper. time red.					1.00		1.00		
Wind dir. red.					1.00		1.00		
Total reduction					0.49		0.57		
Total, real					2		248		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 244 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1142)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:41			06:06		06:28 (MO06)	06:38	07:10	06:47	07:23
	20:55			20:35	25	06:53 (MO06)	19:50	18:58	17:09	16:43
2	05:41			06:07		06:29 (MO06)	06:40	07:12	06:48	07:24
	20:55			20:34	24	06:53 (MO06)	19:49	18:56	17:08	16:43
3	05:42			06:08		06:30 (MO06)	06:41	07:13	06:49	07:25
	20:55			20:33	23	06:53 (MO06)	19:47	18:54	17:06	16:42
4	05:42			06:09		06:31 (MO06)	06:42	07:14	06:50	07:26
	20:55			20:32	22	06:53 (MO06)	19:45	18:52	17:05	16:42
5	05:43			06:10		06:32 (MO06)	06:43	07:15	06:52	07:27
	20:55			20:30	21	06:53 (MO06)	19:43	18:51	17:04	16:42
6	05:43			06:11		06:33 (MO06)	06:44	07:16	06:53	07:28
	20:54			20:29	19	06:52 (MO06)	19:42	18:49	17:03	16:42
7	05:44			06:12		06:34 (MO06)	06:45	07:17	06:54	07:29
	20:54			20:28	18	06:52 (MO06)	19:40	18:47	17:02	16:42
8	05:45			06:13		06:35 (MO06)	06:46	07:18	06:55	07:30
	20:54			20:27	16	06:51 (MO06)	19:38	18:46	17:00	16:42
9	05:45			06:14		06:36 (MO06)	06:47	07:19	06:57	07:31
	20:53			20:25	14	06:50 (MO06)	19:36	18:44	16:59	16:42
10	05:46			06:15		06:37 (MO06)	06:48	07:20	06:58	07:32
	20:53			20:24	12	06:49 (MO06)	19:35	18:42	16:58	16:42
11	05:47			06:16		06:38 (MO06)	06:49	07:22	06:59	07:33
	20:52			20:23	10	06:48 (MO06)	19:33	18:41	16:57	16:42
12	05:48			06:17		06:39 (MO06)	06:50	07:23	07:00	07:34
	20:52			20:21	7	06:46 (MO06)	19:31	18:39	16:56	16:42
13	05:48			06:18		06:40 (MO06)	06:51	07:24	07:02	07:35
	20:51			20:20	2	06:42 (MO06)	19:29	18:37	16:55	16:42
14	05:49			06:19			06:52	07:25	07:03	07:35
	20:51			20:18			19:28	18:36	16:54	16:42
15	05:50			06:20			06:53	07:26	07:04	07:36
	20:50			20:17			19:26	18:34	16:53	16:42
16	05:51			06:21			06:54	07:27	07:05	07:37
	20:50			20:16			19:24	18:32	16:52	16:42
17	05:52			06:22			06:55	07:29	07:07	07:38
	20:49			20:14			19:22	18:31	16:51	16:43
18	05:52			06:24			06:56	07:30	07:08	07:38
	20:48			20:13			19:21	18:29	16:51	16:43
19	05:53			06:25			06:57	07:31	07:09	07:39
	20:48			20:11			19:19	18:28	16:50	16:43
20	05:54		06:37 (MO06)	06:26			06:59	07:32	07:10	07:39
	20:47	7	06:44 (MO06)	20:10			19:17	18:26	16:49	16:44
21	05:55		06:35 (MO06)	06:27			07:00	07:33	07:12	07:40
	20:46	11	06:46 (MO06)	20:08			19:15	18:25	16:48	16:44
22	05:56		06:33 (MO06)	06:28			07:01	07:34	07:13	07:41
	20:45	15	06:48 (MO06)	20:06			19:13	18:23	16:48	16:45
23	05:57		06:33 (MO06)	06:29			07:02	07:36	07:14	07:41
	20:44	16	06:49 (MO06)	20:05			19:12	18:22	16:47	16:45
24	05:58		06:32 (MO06)	06:30			07:03	07:37	07:15	07:42
	20:43	18	06:50 (MO06)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:31 (MO06)	06:31			07:04	06:38	07:16	07:42
	20:42	20	06:51 (MO06)	20:02			19:08	17:19	16:46	16:46
26	06:00		06:30 (MO06)	06:32			07:05	06:39	07:18	07:42
	20:42	22	06:52 (MO06)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:30 (MO06)	06:33			07:06	06:41	07:19	07:43
	20:41	22	06:52 (MO06)	19:58			19:05	17:16	16:45	16:48
28	06:02		06:29 (MO06)	06:34			07:07	06:42	07:20	07:43
	20:40	24	06:53 (MO06)	19:57			19:03	17:14	16:44	16:48
29	06:03		06:29 (MO06)	06:35			07:08	06:43	07:21	07:43
	20:38	25	06:54 (MO06)	19:55			19:01	17:13	16:44	16:49
30	06:04		06:29 (MO06)	06:36			07:09	06:44	07:22	07:43
	20:37	25	06:54 (MO06)	19:54			18:59	17:12	16:43	16:50
31	06:05		06:28 (MO06)	06:37				06:45		07:44
	20:36	25	06:53 (MO06)	19:52				17:10		16:51
Potential sun hours	463			431			376	344	295	283
Total, worst case		230			213					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		162			149					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 245 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1143)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:06	06:38	07:10	06:46	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:38	18:13	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:29	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:11	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:16	16:45	16:48
28	07:33	06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:35	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 246 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1144)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:58	06:11			05:40		19:43 (MO05)
	16:52	17:27	18:03	19:39	20:13			20:44	24	20:07 (MO05)
2	07:44	07:28	06:50	06:57	06:09			05:40		19:44 (MO05)
	16:52	17:28	18:04	19:40	20:14			20:45	23	20:07 (MO05)
3	07:44	07:27	06:48	06:55	06:08		19:50 (MO05)	05:39		19:46 (MO05)
	16:53	17:30	18:05	19:41	20:15	2	19:52 (MO05)	20:45	21	20:07 (MO05)
4	07:44	07:26	06:46	06:53	06:07		19:48 (MO05)	05:39		19:46 (MO05)
	16:54	17:31	18:07	19:42	20:16	5	19:53 (MO05)	20:46	20	20:06 (MO05)
5	07:44	07:25	06:45	06:52	06:05		19:45 (MO05)	05:39		19:47 (MO05)
	16:55	17:32	18:08	19:44	20:17	8	19:53 (MO05)	20:47	19	20:06 (MO05)
6	07:44	07:24	06:43	06:50	06:04		19:43 (MO05)	05:38		19:48 (MO05)
	16:56	17:34	18:09	19:45	20:18	11	19:54 (MO05)	20:48	18	20:06 (MO05)
7	07:44	07:22	06:42	06:48	06:03		19:42 (MO05)	05:38		19:48 (MO05)
	16:57	17:35	18:10	19:46	20:19	14	19:56 (MO05)	20:48	17	20:05 (MO05)
8	07:44	07:21	06:40	06:47	06:02		19:41 (MO05)	05:38		19:49 (MO05)
	16:58	17:36	18:11	19:47	20:21	16	19:57 (MO05)	20:49	15	20:04 (MO05)
9	07:43	07:20	06:38	06:45	06:00		19:41 (MO05)	05:37		19:50 (MO05)
	16:59	17:38	18:13	19:48	20:22	17	19:58 (MO05)	20:49	14	20:04 (MO05)
10	07:43	07:19	06:36	06:43	05:59		19:40 (MO05)	05:37		19:51 (MO05)
	17:00	17:39	18:14	19:49	20:23	19	19:59 (MO05)	20:50	12	20:03 (MO05)
11	07:43	07:17	06:35	06:41	05:58		19:40 (MO05)	05:37		19:53 (MO05)
	17:01	17:40	18:15	19:50	20:24	20	20:00 (MO05)	20:51	10	20:03 (MO05)
12	07:43	07:16	06:33	06:40	05:57		19:38 (MO05)	05:37		19:54 (MO05)
	17:02	17:41	18:16	19:51	20:25	22	20:00 (MO05)	20:51	8	20:02 (MO05)
13	07:42	07:15	06:31	06:38	05:56		19:38 (MO05)	05:37		19:54 (MO05)
	17:03	17:43	18:17	19:53	20:26	23	20:01 (MO05)	20:52	6	20:00 (MO05)
14	07:42	07:14	06:30	06:37	05:55		19:38 (MO05)	05:37		19:56 (MO05)
	17:05	17:44	18:18	19:54	20:27	24	20:02 (MO05)	20:52	3	19:59 (MO05)
15	07:41	07:12	06:28	06:35	05:54		19:37 (MO05)	05:37		
	17:06	17:45	18:20	19:55	20:28	26	20:03 (MO05)	20:53		
16	07:41	07:11	06:26	06:33	05:53		19:37 (MO05)	05:37		
	17:07	17:47	18:21	19:56	20:29	27	20:04 (MO05)	20:53		
17	07:41	07:09	06:25	06:32	05:52		19:38 (MO05)	05:37		
	17:08	17:48	18:22	19:57	20:30	28	20:06 (MO05)	20:53		
18	07:40	07:08	06:23	06:30	05:51		19:38 (MO05)	05:37		
	17:09	17:49	18:23	19:58	20:31	29	20:07 (MO05)	20:54		
19	07:39	07:07	06:21	06:29	05:50		19:38 (MO05)	05:37		
	17:11	17:50	18:24	19:59	20:32	30	20:08 (MO05)	20:54		
20	07:39	07:05	06:19	06:27	05:49		19:38 (MO05)	05:37		
	17:12	17:52	18:25	20:00	20:33	30	20:08 (MO05)	20:54		
21	07:38	07:04	06:18	06:25	05:48		19:38 (MO05)	05:37		
	17:13	17:53	18:27	20:02	20:34	31	20:09 (MO05)	20:55		
22	07:38	07:02	06:16	06:24	05:47		19:38 (MO05)	05:37		
	17:14	17:54	18:28	20:03	20:35	32	20:10 (MO05)	20:55		
23	07:37	07:01	06:14	06:22	05:46		19:39 (MO05)	05:37		
	17:15	17:55	18:29	20:04	20:36	32	20:11 (MO05)	20:55		
24	07:36	06:59	06:12	06:21	05:45		19:39 (MO05)	05:38		
	17:17	17:57	18:30	20:05	20:37	31	20:10 (MO05)	20:55		
25	07:35	06:58	06:11	06:19	05:45		19:39 (MO05)	05:38		
	17:18	17:58	18:31	20:06	20:38	31	20:10 (MO05)	20:55		
26	07:35	06:56	06:09	06:18	05:44		19:40 (MO05)	05:38		
	17:19	17:59	18:32	20:07	20:39	30	20:10 (MO05)	20:55		
27	07:34	06:54	06:07	06:16	05:43		19:41 (MO05)	05:39		
	17:21	18:00	18:33	20:08	20:40	28	20:09 (MO05)	20:55		
28	07:33	06:53	06:05	06:15	05:43		19:41 (MO05)	05:39		
	17:22	18:02	18:35	20:09	20:41	28	20:09 (MO05)	20:55		
29	07:32		07:04	06:14	05:42		19:42 (MO05)	05:40		19:59 (MO05)
	17:23		19:36	20:11	20:41	27	20:09 (MO05)	20:55	5	20:04 (MO05)
30	07:31		07:02	06:12	05:41		19:42 (MO05)	05:40		19:57 (MO05)
	17:24		19:37	20:12	20:42	26	20:08 (MO05)	20:55	8	20:05 (MO05)
31	07:30		07:00		05:41		19:43 (MO05)			
	17:26		19:38		20:43	25	20:08 (MO05)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						672			223	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						382			136	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 246 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1144)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September	October	November	December
1	05:40		19:57 (MO05)	06:06		19:49 (MO05)	06:38	07:10	06:46	07:23
	20:55	10	20:07 (MO05)	20:35	21	20:10 (MO05)	19:50	18:57	17:09	16:43
2	05:41		19:56 (MO05)	06:07		19:49 (MO05)	06:39	07:11	06:48	07:24
	20:55	11	20:07 (MO05)	20:34	20	20:09 (MO05)	19:48	18:56	17:07	16:43
3	05:42		19:56 (MO05)	06:08		19:50 (MO05)	06:40	07:12	06:49	07:25
	20:55	13	20:09 (MO05)	20:33	18	20:08 (MO05)	19:47	18:54	17:06	16:42
4	05:42		19:55 (MO05)	06:09		19:51 (MO05)	06:41	07:14	06:50	07:26
	20:55	14	20:09 (MO05)	20:31	16	20:07 (MO05)	19:45	18:52	17:05	16:42
5	05:43		19:55 (MO05)	06:10		19:51 (MO05)	06:42	07:15	06:51	07:27
	20:54	15	20:10 (MO05)	20:30	15	20:06 (MO05)	19:43	18:51	17:04	16:42
6	05:43		19:54 (MO05)	06:11		19:52 (MO05)	06:44	07:16	06:53	07:28
	20:54	18	20:12 (MO05)	20:29	13	20:05 (MO05)	19:41	18:49	17:03	16:42
7	05:44		19:53 (MO05)	06:12		19:53 (MO05)	06:45	07:17	06:54	07:29
	20:54	19	20:12 (MO05)	20:28	11	20:04 (MO05)	19:40	18:47	17:01	16:42
8	05:45		19:53 (MO05)	06:13		19:55 (MO05)	06:46	07:18	06:55	07:30
	20:53	20	20:13 (MO05)	20:26	7	20:02 (MO05)	19:38	18:45	17:00	16:41
9	05:45		19:53 (MO05)	06:14		19:57 (MO05)	06:47	07:19	06:56	07:31
	20:53	21	20:14 (MO05)	20:25	4	20:01 (MO05)	19:36	18:44	16:59	16:41
10	05:46		19:52 (MO05)	06:15			06:48	07:20	06:58	07:32
	20:53	22	20:14 (MO05)	20:24			19:34	18:42	16:58	16:41
11	05:47		19:52 (MO05)	06:16			06:49	07:21	06:59	07:33
	20:52	23	20:15 (MO05)	20:22			19:33	18:40	16:57	16:41
12	05:47		19:52 (MO05)	06:17			06:50	07:23	07:00	07:34
	20:52	24	20:16 (MO05)	20:21			19:31	18:39	16:56	16:42
13	05:48		19:50 (MO05)	06:18			06:51	07:24	07:01	07:34
	20:51	26	20:16 (MO05)	20:20			19:29	18:37	16:55	16:42
14	05:49		19:50 (MO05)	06:19			06:52	07:25	07:03	07:35
	20:51	27	20:17 (MO05)	20:18			19:27	18:35	16:54	16:42
15	05:50		19:50 (MO05)	06:20			06:53	07:26	07:04	07:36
	20:50	28	20:18 (MO05)	20:17			19:26	18:34	16:53	16:42
16	05:51		19:50 (MO05)	06:21			06:54	07:27	07:05	07:37
	20:49	28	20:18 (MO05)	20:15			19:24	18:32	16:52	16:42
17	05:51		19:50 (MO05)	06:22			06:55	07:28	07:06	07:37
	20:49	29	20:19 (MO05)	20:14			19:22	18:31	16:51	16:43
18	05:52		19:49 (MO05)	06:23			06:56	07:29	07:08	07:38
	20:48	30	20:19 (MO05)	20:12			19:20	18:29	16:50	16:43
19	05:53		19:49 (MO05)	06:24			06:57	07:31	07:09	07:39
	20:47	30	20:19 (MO05)	20:11			19:19	18:27	16:50	16:43
20	05:54		19:49 (MO05)	06:25			06:58	07:32	07:10	07:39
	20:46	31	20:20 (MO05)	20:09			19:17	18:26	16:49	16:44
21	05:55		19:49 (MO05)	06:27			06:59	07:33	07:11	07:40
	20:46	31	20:20 (MO05)	20:08			19:15	18:24	16:48	16:44
22	05:56		19:49 (MO05)	06:28			07:00	07:34	07:13	07:40
	20:45	31	20:20 (MO05)	20:06			19:13	18:23	16:47	16:45
23	05:57		19:49 (MO05)	06:29			07:02	07:35	07:14	07:41
	20:44	30	20:19 (MO05)	20:05			19:11	18:21	16:47	16:45
24	05:58		19:49 (MO05)	06:30			07:03	07:37	07:15	07:41
	20:43	30	20:19 (MO05)	20:03			19:10	18:20	16:46	16:46
25	05:59		19:49 (MO05)	06:31			07:04	06:38	07:16	07:42
	20:42	29	20:18 (MO05)	20:01			19:08	17:18	16:46	16:46
26	06:00		19:49 (MO05)	06:32			07:05	06:39	07:17	07:42
	20:41	28	20:17 (MO05)	20:00			19:06	17:17	16:45	16:47
27	06:01		19:48 (MO05)	06:33			07:06	06:40	07:18	07:42
	20:40	27	20:15 (MO05)	19:58			19:04	17:16	16:44	16:47
28	06:02		19:48 (MO05)	06:34			07:07	06:41	07:20	07:43
	20:39	26	20:14 (MO05)	19:57			19:03	17:14	16:44	16:48
29	06:03		19:48 (MO05)	06:35			07:08	06:43	07:21	07:43
	20:38	25	20:13 (MO05)	19:55			19:01	17:13	16:44	16:49
30	06:04		19:48 (MO05)	06:36			07:09	06:44	07:22	07:43
	20:37	24	20:12 (MO05)	19:53			18:59	17:11	16:43	16:50
31	06:05		19:49 (MO05)	06:37				06:45		07:43
	20:36	22	20:11 (MO05)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		742			125					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		523			88					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 247 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1145)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:42
9	07:43	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:35	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:01	18:33	20:08	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 248 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1146)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:42
9	07:43	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:35	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:01	18:33	20:08	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 249 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1147)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:02	05:38	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 250 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1148)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:02	05:38	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
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	17:13	17:53	18:26	20:02	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
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24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 251 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1149)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:42
9	07:43	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:35	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:01	18:33	20:08	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 252 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1150)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:42
9	07:43	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:34
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:35	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:43
	17:21	18:01	18:33	20:08	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:05	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 253 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1151)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:02	05:38	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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00390585281383
Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 254 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1152)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March			April		May	June
1	07:44		15:47 (MO02)	07:29		15:58 (MO02)	06:51		17:11 (MO01)	06:58		06:11	05:40
	16:51	38	16:25 (MO02)	17:27	43	16:41 (MO02)	18:03	14	17:25 (MO01)	19:39		20:13	20:44
2	07:44		15:47 (MO02)	07:28		15:59 (MO02)	06:50		17:15 (MO01)	06:57		06:09	05:40
	16:52	39	16:26 (MO02)	17:28	42	16:41 (MO02)	18:04	5	17:20 (MO01)	19:40		20:14	20:45
3	07:44		15:48 (MO02)	07:27		16:00 (MO02)	06:48			06:55		06:08	05:39
	16:53	38	16:26 (MO02)	17:30	39	16:39 (MO02)	18:05			19:41		20:15	20:45
4	07:44		15:48 (MO02)	07:26		16:01 (MO02)	06:46			06:53		06:07	05:39
	16:54	40	16:28 (MO02)	17:31	38	16:39 (MO02)	18:06			19:42		20:16	20:46
5	07:44		15:48 (MO02)	07:25		16:02 (MO02)	06:45			06:51		06:05	05:38
	16:55	41	16:29 (MO02)	17:32	36	16:38 (MO02)	18:08			19:44		20:17	20:47
6	07:44		15:49 (MO02)	07:24		16:04 (MO02)	06:43			06:50		06:04	05:38
	16:56	41	16:30 (MO02)	17:33	33	16:37 (MO02)	18:09			19:45		20:18	20:48
7	07:44		15:48 (MO02)	07:22		16:06 (MO02)	06:41			06:48		06:03	05:38
	16:57	42	16:30 (MO02)	17:35	30	16:36 (MO02)	18:10			19:46		20:19	20:48
8	07:44		15:48 (MO02)	07:21		16:07 (MO02)	06:40			06:46		06:01	05:37
	16:58	43	16:31 (MO02)	17:36	26	16:33 (MO02)	18:11			19:47		20:21	20:49
9	07:43		15:49 (MO02)	07:20		16:10 (MO02)	06:38			06:45		06:00	05:37
	16:59	44	16:33 (MO02)	17:37	21	16:31 (MO02)	18:12			19:48		20:22	20:50
10	07:43		15:49 (MO02)	07:19		16:14 (MO02)	06:36			06:43		05:59	05:37
	17:00	45	16:34 (MO02)	17:39	16	17:15 (MO01)	18:14			19:49		20:23	20:50
11	07:43		15:49 (MO02)	07:17		17:11 (MO01)	06:35			06:41		05:58	05:37
	17:01	46	16:35 (MO02)	17:40	6	17:17 (MO01)	18:15			19:50		20:24	20:51
12	07:43		15:49 (MO02)	07:16		17:09 (MO01)	06:33			06:40		05:57	05:37
	17:02	47	16:36 (MO02)	17:41	9	17:18 (MO01)	18:16			19:51		20:25	20:51
13	07:42		15:49 (MO02)	07:15		17:08 (MO01)	06:31			06:38		05:56	05:36
	17:03	48	16:37 (MO02)	17:43	12	17:20 (MO01)	18:17			19:53		20:26	20:52
14	07:42		15:50 (MO02)	07:14		17:06 (MO01)	06:30			06:36		05:55	05:36
	17:04	48	16:38 (MO02)	17:44	14	17:20 (MO01)	18:18			19:54		20:27	20:52
15	07:42		15:49 (MO02)	07:12		17:06 (MO01)	06:28			06:35		05:54	05:36
	17:06	50	16:39 (MO02)	17:45	16	17:22 (MO01)	18:20			19:55		20:28	20:53
16	07:41		15:50 (MO02)	07:11		17:05 (MO01)	06:26			06:33		05:52	05:36
	17:07	50	16:40 (MO02)	17:46	19	17:24 (MO01)	18:21			19:56		20:29	20:53
17	07:41		15:50 (MO02)	07:09		17:04 (MO01)	06:24			06:32		05:51	05:36
	17:08	50	16:40 (MO02)	17:48	21	17:25 (MO01)	18:22			19:57		20:30	20:53
18	07:40		15:51 (MO02)	07:08		17:04 (MO01)	06:23			06:30		05:50	05:36
	17:09	50	16:41 (MO02)	17:49	23	17:27 (MO01)	18:23			19:58		20:31	20:54
19	07:39		15:51 (MO02)	07:07		17:04 (MO01)	06:21			06:28		05:50	05:37
	17:10	50	16:41 (MO02)	17:50	23	17:27 (MO01)	18:24			19:59		20:32	20:54
20	07:39		15:51 (MO02)	07:05		17:04 (MO01)	06:19			06:27		05:49	05:37
	17:12	50	16:41 (MO02)	17:52	25	17:29 (MO01)	18:25			20:00		20:33	20:54
21	07:38		15:52 (MO02)	07:04		17:04 (MO01)	06:17			06:25		05:48	05:37
	17:13	50	16:42 (MO02)	17:53	26	17:30 (MO01)	18:26			20:02		20:34	20:55
22	07:38		15:52 (MO02)	07:02		17:04 (MO01)	06:16			06:24		05:47	05:37
	17:14	50	16:42 (MO02)	17:54	28	17:32 (MO01)	18:28			20:03		20:35	20:55
23	07:37		15:52 (MO02)	07:01		17:04 (MO01)	06:14			06:22		05:46	05:37
	17:15	50	16:42 (MO02)	17:55	29	17:33 (MO01)	18:29			20:04		20:36	20:55
24	07:36		15:52 (MO02)	06:59		17:05 (MO01)	06:12			06:21		05:45	05:38
	17:17	50	16:42 (MO02)	17:57	28	17:33 (MO01)	18:30			20:05		20:37	20:55
25	07:35		15:53 (MO02)	06:58		17:05 (MO01)	06:11			06:19		05:45	05:38
	17:18	49	16:42 (MO02)	17:58	27	17:32 (MO01)	18:31			20:06		20:38	20:55
26	07:35		15:54 (MO02)	06:56		17:06 (MO01)	06:09			06:18		05:44	05:38
	17:19	49	16:43 (MO02)	17:59	24	17:30 (MO01)	18:32			20:07		20:39	20:55
27	07:34		15:55 (MO02)	06:54		17:07 (MO01)	06:07			06:16		05:43	05:39
	17:20	48	16:43 (MO02)	18:00	22	17:29 (MO01)	18:33			20:08		20:40	20:55
28	07:33		15:55 (MO02)	06:53		17:09 (MO01)	06:05			06:15		05:42	05:39
	17:22	48	16:43 (MO02)	18:02	18	17:27 (MO01)	18:34			20:09		20:41	20:55
29	07:32		15:56 (MO02)				07:04			06:13		05:42	05:39
	17:23	46	16:42 (MO02)				19:36			20:11		20:41	20:55
30	07:31		15:57 (MO02)				07:02			06:12		05:41	05:40
	17:24	45	16:42 (MO02)				19:37			20:12		20:42	20:55
31	07:30		15:57 (MO02)				07:00					05:41	
	17:26	45	16:42 (MO02)				19:38					20:43	
Potential sun hours	293			295			369			400		452	457
Total, worst case		1430			694			19					
Sun reduction		0.42			0.46			0.46					
Oper. time red.		1.00			1.00			1.00					
Wind dir. red.		1.00			1.00			1.00					
Total reduction		0.42			0.46			0.46					
Total, real		601			321			9					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 254 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1152)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October			November			December		
1	05:40		06:05		06:38		07:10			06:46		15:43 (MO02)	07:23		15:31 (MO02)
	20:55		20:35		19:50		18:57			17:09	17	16:45 (MO01)	16:43	46	16:17 (MO02)
2	05:41		06:06		06:39		07:11			06:48		15:39 (MO02)	07:24		15:31 (MO02)
	20:55		20:34		19:48		18:56			17:07	22	16:01 (MO02)	16:42	45	16:16 (MO02)
3	05:41		06:07		06:40		07:12			06:49		15:37 (MO02)	07:25		15:32 (MO02)
	20:55		20:33		19:47		18:54			17:06	26	16:03 (MO02)	16:42	44	16:16 (MO02)
4	05:42		06:08		06:41		07:13			06:50		15:36 (MO02)	07:26		15:32 (MO02)
	20:55		20:31		19:45		18:52			17:05	30	16:06 (MO02)	16:42	43	16:15 (MO02)
5	05:42		06:09		06:42		07:15			06:51		15:34 (MO02)	07:27		15:34 (MO02)
	20:54		20:30		19:43		18:50			17:04	33	16:07 (MO02)	16:42	42	16:16 (MO02)
6	05:43		06:11		06:43		07:16			06:53		15:32 (MO02)	07:28		15:35 (MO02)
	20:54		20:29		19:41		18:49			17:02	36	16:08 (MO02)	16:41	41	16:16 (MO02)
7	05:44		06:12		06:44		07:17			06:54		15:32 (MO02)	07:29		15:35 (MO02)
	20:54		20:28		19:40		18:47			17:01	38	16:10 (MO02)	16:41	41	16:16 (MO02)
8	05:44		06:13		06:46		07:18			06:55		15:30 (MO02)	07:30		15:35 (MO02)
	20:53		20:26		19:38		18:45			17:00	40	16:10 (MO02)	16:41	40	16:15 (MO02)
9	05:45		06:14		06:47		07:19			06:56		15:29 (MO02)	07:31		15:36 (MO02)
	20:53		20:25		19:36		18:44			16:59	42	16:11 (MO02)	16:41	39	16:15 (MO02)
10	05:46		06:15		06:48		07:20			06:58		15:29 (MO02)	07:32		15:36 (MO02)
	20:53		20:24		19:34		18:42			16:58	43	16:12 (MO02)	16:41	39	16:15 (MO02)
11	05:46		06:16		06:49		07:21			06:59		15:28 (MO02)	07:33		15:37 (MO02)
	20:52		20:22		19:33		18:40			16:57	45	16:13 (MO02)	16:41	38	16:15 (MO02)
12	05:47		06:17		06:50		07:22		17:46 (MO01)	07:00		15:27 (MO02)	07:34		15:38 (MO02)
	20:52		20:21		19:31		18:39	10	17:56 (MO01)	16:56	46	16:13 (MO02)	16:41	37	16:15 (MO02)
13	05:48		06:18		06:51		07:24		17:43 (MO01)	07:01		15:28 (MO02)	07:34		15:39 (MO02)
	20:51		20:20		19:29		18:37	16	17:59 (MO01)	16:55	46	16:14 (MO02)	16:41	36	16:15 (MO02)
14	05:49		06:19		06:52		07:25		17:41 (MO01)	07:03		15:27 (MO02)	07:35		15:40 (MO02)
	20:51		20:18		19:27		18:35	20	18:01 (MO01)	16:54	48	16:15 (MO02)	16:42	36	16:16 (MO02)
15	05:50		06:20		06:53		07:26		17:39 (MO01)	07:04		15:27 (MO02)	07:36		15:40 (MO02)
	20:50		20:17		19:26		18:34	23	18:02 (MO01)	16:53	48	16:15 (MO02)	16:42	35	16:15 (MO02)
16	05:50		06:21		06:54		07:27		17:38 (MO01)	07:05		15:27 (MO02)	07:37		15:41 (MO02)
	20:49		20:15		19:24		18:32	25	18:03 (MO01)	16:52	49	16:16 (MO02)	16:42	35	16:16 (MO02)
17	05:51		06:22		06:55		07:28		17:36 (MO01)	07:06		15:27 (MO02)	07:37		15:41 (MO02)
	20:49		20:14		19:22		18:30	27	18:03 (MO01)	16:51	49	16:16 (MO02)	16:42	35	16:16 (MO02)
18	05:52		06:23		06:56		07:29		17:36 (MO01)	07:08		15:26 (MO02)	07:38		15:41 (MO02)
	20:48		20:12		19:20		18:29	29	18:05 (MO01)	16:50	50	16:16 (MO02)	16:43	35	16:16 (MO02)
19	05:53		06:24		06:57		07:31		17:35 (MO01)	07:09		15:27 (MO02)	07:39		15:42 (MO02)
	20:47		20:11		19:19		18:27	29	18:04 (MO01)	16:49	50	16:17 (MO02)	16:43	35	16:17 (MO02)
20	05:54		06:25		06:58		07:32		17:35 (MO01)	07:10		15:27 (MO02)	07:39		15:42 (MO02)
	20:47		20:09		19:17		18:26	27	18:02 (MO01)	16:49	50	16:17 (MO02)	16:43	34	16:16 (MO02)
21	05:55		06:26		06:59		07:33		17:34 (MO01)	07:11		15:27 (MO02)	07:40		15:43 (MO02)
	20:46		20:08		19:15		18:24	26	18:00 (MO01)	16:48	50	16:17 (MO02)	16:44	34	16:17 (MO02)
22	05:56		06:27		07:00		07:34		17:35 (MO01)	07:13		15:27 (MO02)	07:40		15:43 (MO02)
	20:45		20:06		19:13		18:23	24	17:59 (MO01)	16:47	50	16:17 (MO02)	16:44	34	16:17 (MO02)
23	05:57		06:29		07:01		07:35		17:34 (MO01)	07:14		15:28 (MO02)	07:41		15:44 (MO02)
	20:44		20:05		19:11		18:21	24	17:58 (MO01)	16:47	50	16:18 (MO02)	16:45	34	16:18 (MO02)
24	05:57		06:30		07:03		07:37		17:34 (MO01)	07:15		15:28 (MO02)	07:41		15:44 (MO02)
	20:43		20:03		19:10		18:20	22	17:56 (MO01)	16:46	50	16:18 (MO02)	16:45	34	16:18 (MO02)
25	05:58		06:31		07:04		06:38		16:34 (MO01)	07:16		15:28 (MO02)	07:42		15:45 (MO02)
	20:42		20:01		19:08		17:18	20	16:54 (MO01)	16:45	50	16:18 (MO02)	16:46	35	16:20 (MO02)
26	05:59		06:32		07:05		06:39		16:35 (MO01)	07:17		15:28 (MO02)	07:42		15:45 (MO02)
	20:41		20:00		19:06		17:17	18	16:53 (MO01)	16:45	50	16:18 (MO02)	16:47	35	16:20 (MO02)
27	06:00		06:33		07:06		06:40		16:36 (MO01)	07:18		15:30 (MO02)	07:42		15:46 (MO02)
	20:40		19:58		19:04		17:15	15	16:51 (MO01)	16:44	49	16:19 (MO02)	16:47	34	16:20 (MO02)
28	06:01		06:34		07:07		06:41		16:36 (MO01)	07:20		15:30 (MO02)	07:43		15:46 (MO02)
	20:39		19:57		19:03		17:14	14	16:50 (MO01)	16:44	48	16:18 (MO02)	16:48	35	16:21 (MO02)
29	06:02		06:35		07:08		06:43		16:38 (MO01)	07:21		15:30 (MO02)	07:43		15:47 (MO02)
	20:38		19:55		19:01		17:13	11	16:49 (MO01)	16:43	48	16:18 (MO02)	16:49	35	16:22 (MO02)
30	06:03		06:36		07:09		06:44		16:39 (MO01)	07:22		15:31 (MO02)	07:43		15:47 (MO02)
	20:37		19:53		18:59		17:11	8	16:47 (MO01)	16:43	46	16:17 (MO02)	16:49	36	16:23 (MO02)
31	06:04		06:37				06:45		16:40 (MO01)				07:43		15:47 (MO02)
	20:36		19:52				17:10	6	16:46 (MO01)				16:50	37	16:24 (MO02)
Potential sun hours	463		431		376		344			295			283		
Total, worst case								394			1299			1159	
Sun reduction								0.55			0.46			0.43	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								1.00			1.00			1.00	
Total reduction								0.55			0.46			0.43	
Total, real								216			593			501	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 255 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1153)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March		April	May	June	July	August	September		October		November	December
1	07:44	07:29	06:51		06:58	06:11	05:40	05:40	06:05	06:38		07:10		18:20 (MO02)	06:46	07:23
	16:51	17:27	18:03		19:39	20:13	20:44	20:55	20:35	19:50		18:57	15	18:35 (MO02)	17:09	16:43
2	07:44	07:28	06:50		06:57	06:09	05:40	05:41	06:06	06:39		07:11		18:20 (MO02)	06:48	07:24
	16:52	17:28	18:04		19:40	20:14	20:45	20:55	20:34	19:48		18:56	13	18:33 (MO02)	17:07	16:42
3	07:44	07:27	06:48		06:55	06:08	05:39	05:41	06:07	06:40		07:12		18:20 (MO02)	06:49	07:25
	16:53	17:29	18:05		19:41	20:15	20:45	20:55	20:33	19:46		18:54	11	18:31 (MO02)	17:06	16:42
4	07:44	07:26	06:46		06:53	06:06	05:39	05:42	06:08	06:41		07:13		18:21 (MO02)	06:50	07:26
	16:54	17:31	18:06		19:42	20:16	20:46	20:55	20:31	19:45		18:52	8	18:29 (MO02)	17:05	16:42
5	07:44	07:25	06:45		06:51	06:05	05:38	05:42	06:09	06:42		07:14		18:21 (MO02)	06:51	07:27
	16:55	17:32	18:08		19:43	20:17	20:47	20:54	20:30	19:43		18:50	6	18:27 (MO02)	17:04	16:42
6	07:44	07:23	06:43		06:50	06:04	05:38	05:43	06:10	06:43		07:16		18:22 (MO02)	06:53	07:28
	16:56	17:33	18:09		19:45	20:18	20:48	20:54	20:29	19:41		18:49	3	18:25 (MO02)	17:02	16:41
7	07:44	07:22	06:41		17:48 (MO02)	06:48	06:03	05:38	05:44	06:12	06:44		07:17			06:54	07:29
	16:57	17:35	18:10	1	17:49 (MO02)	19:46	20:19	20:48	20:54	20:28	19:40		18:47			17:01	16:41
8	07:44	07:21	06:40		17:45 (MO02)	06:46	06:01	05:37	05:44	06:13	06:45		07:18			06:55	07:30
	16:58	17:36	18:11	5	17:50 (MO02)	19:47	20:21	20:49	20:53	20:26	19:38		18:45			17:00	16:41
9	07:43	07:20	06:38		17:43 (MO02)	06:45	06:00	05:37	05:45	06:14	06:47		07:19			06:56	07:31
	16:59	17:37	18:12	8	17:51 (MO02)	19:48	20:22	20:49	20:53	20:25	19:36		18:44			16:59	16:41
10	07:43	07:19	06:36		17:43 (MO02)	06:43	05:59	05:37	05:46	06:15	06:48		07:20			06:58	07:32
	17:00	17:39	18:14	10	17:53 (MO02)	19:49	20:23	20:50	20:53	20:24	19:34		18:42			16:58	16:41
11	07:43	07:17	06:35		17:42 (MO02)	06:41	05:58	05:37	05:46	06:16	06:49		07:21			06:59	07:33
	17:01	17:40	18:15	11	17:53 (MO02)	19:50	20:24	20:51	20:52	20:22	19:33		18:40			16:57	16:41
12	07:43	07:16	06:33		17:41 (MO02)	06:40	05:57	05:37	05:47	06:17	06:50		07:22			07:00	07:33
	17:02	17:41	18:16	13	17:54 (MO02)	19:51	20:25	20:51	20:52	20:21	19:31		18:39			16:56	16:41
13	07:42	07:15	06:31		17:40 (MO02)	06:38	05:56	05:36	05:48	06:18	06:51		07:24			07:01	07:34
	17:03	17:43	18:17	15	17:55 (MO02)	19:53	20:26	20:52	20:51	20:20	19:29		18:37			16:55	16:41
14	07:42	07:13	06:30		17:41 (MO02)	06:36	05:55	05:36	05:49	06:19	06:52		07:25			07:03	07:35
	17:04	17:44	18:18	16	17:57 (MO02)	19:54	20:27	20:52	20:51	20:18	19:27		18:35			16:54	16:42
15	07:41	07:12	06:28		17:40 (MO02)	06:35	05:53	05:36	05:50	06:20	06:53		07:26			07:04	07:36
	17:06	17:45	18:19	18	17:58 (MO02)	19:55	20:28	20:53	20:50	20:17	19:26		18:34			16:53	16:42
16	07:41	07:11	06:26		17:40 (MO02)	06:33	05:52	05:36	05:50	06:21	06:54		07:27			07:05	07:37
	17:07	17:46	18:21	19	17:59 (MO02)	19:56	20:29	20:53	20:49	20:15	19:24		18:32			16:52	16:42
17	07:41	07:09	06:24		17:41 (MO02)	06:31	05:51	05:36	05:51	06:22	06:55		07:28			07:06	07:37
	17:08	17:48	18:22	19	18:00 (MO02)	19:57	20:30	20:53	20:49	20:14	19:22		18:30			16:51	16:42
18	07:40	07:08	06:23		17:42 (MO02)	06:30	05:50	05:36	05:52	06:23	06:56		07:29			07:08	07:38
	17:09	17:49	18:23	18	18:00 (MO02)	19:58	20:31	20:54	20:48	20:12	19:20		18:29			16:50	16:43
19	07:39	07:06	06:21		17:43 (MO02)	06:28	05:50	05:36	05:53	06:24	06:57		07:31			07:09	07:39
	17:10	17:50	18:24	15	17:58 (MO02)	19:59	20:32	20:54	20:47	20:11	19:18		18:27			16:49	16:43
20	07:39	07:05	06:19		17:45 (MO02)	06:27	05:49	05:37	05:54	06:25	06:58		07:32			07:10	07:39
	17:12	17:52	18:25	10	17:55 (MO02)	20:00	20:33	20:54	20:46	20:09	19:17		18:26			16:49	16:43
21	07:38	07:04	06:17			06:25	05:48	05:37	05:55	06:26	06:59		07:33			07:11	07:40
	17:13	17:53	18:26			20:02	20:34	20:55	20:46	20:08	19:15		18:24			16:48	16:44
22	07:37	07:02	06:16			06:24	05:47	05:37	05:56	06:27	07:00		07:34			07:12	07:40
	17:14	17:54	18:28			20:03	20:35	20:55	20:45	20:06	19:13		18:23			16:47	16:44
23	07:37	07:01	06:14			06:22	05:46	05:37	05:57	06:28	07:01	18:31 (MO02)	07:35			07:14	07:41
	17:15	17:55	18:29			20:04	20:36	20:55	20:44	20:05	19:11	7 18:38 (MO02)	18:21			16:47	16:45
24	07:36	06:59	06:12			06:21	05:45	05:37	05:57	06:30	07:02	18:27 (MO02)	07:37			07:15	07:41
	17:17	17:57	18:30			20:05	20:37	20:55	20:43	20:03	19:10	14 18:41 (MO02)	18:20			16:46	16:45
25	07:35	06:57	06:10			06:19	05:44	05:38	05:58	06:31	07:04	18:25 (MO02)	06:38			07:16	07:42
	17:18	17:58	18:31			20:06	20:38	20:55	20:42	20:01	19:08	17 18:42 (MO02)	17:18			16:45	16:46
26	07:34	06:56	06:09			06:18	05:44	05:38	05:59	06:32	07:05	18:24 (MO02)	06:39			07:17	07:42
	17:19	17:59	18:32			20:07	20:39	20:55	20:41	20:00	19:06	19 18:43 (MO02)	17:17			16:45	16:47
27	07:34	06:54	06:07			06:16	05:43	05:38	06:00	06:33	07:06	18:22 (MO02)	06:40			07:18	07:42
	17:20	18:00	18:33			20:08	20:40	20:55	20:40	19:58	19:04	19 18:41 (MO02)	17:15			16:44	16:47
28	07:33	06:53	06:05			06:15	05:42	05:39	06:01	06:34	07:07	18:21 (MO02)	06:41			07:20	07:43
	17:22	18:02	18:34			20:09	20:41	20:55	20:39	19:57	19:03	18 18:39 (MO02)	17:14			16:44	16:48
29	07:32		07:03			06:13	05:42	05:39	06:02	06:35	07:08	18:20 (MO02)	06:43			07:21	07:43
	17:23		19:36			20:11	20:41	20:55	20:38	19:55	19:01	17 18:37 (MO02)	17:13			16:43	16:49
30	07:31		07:02			06:12	05:41	05:40	06:03	06:36	07:09	18:21 (MO02)	06:44			07:22	07:43
	17:24		19:37			20:12	20:42	20:55	20:37	19:53	18:59	15 18:36 (MO02)	17:11			16:43	16:49
31	07:30		07:00				05:41		06:04	06:37			06:45				07:43
	17:26		19:38				20:43		20:36	19:52			17:10				16:50
Potential sun hours	293	295	369		400	452	457	463	431	376		344			295	283
Total, worst case				178							126		56			
Sun reduction				0.46							0.62		0.55			
Oper. time red.				1.00							1.00		1.00			
Wind dir. red.				1.00							1.00		1.00			
Total reduction				0.46							0.62		0.55			
Total, real				82							79		31			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 256 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1154)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
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	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
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	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 257 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1155)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:38	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
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	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
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22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 258 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1156)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 259 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1157)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 260 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1158)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 261 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1159)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:02	05:38	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:18	07:42
	17:21	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 262 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1160)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 263 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1161)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 264 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1162)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June
1	07:44	07:29	06:52	06:59		06:11	06:31 (MO06)	05:40
	16:52	17:27	18:03	19:39		20:13	15 06:46 (MO06)	20:44
2	07:44	07:28	06:50	06:57		06:10	06:29 (MO06)	05:40
	16:53	17:29	18:04	19:40		20:14	17 06:46 (MO06)	20:45
3	07:44	07:27	06:48	06:55		06:08	06:28 (MO06)	05:40
	16:53	17:30	18:06	19:42		20:15	19 06:47 (MO06)	20:46
4	07:44	07:26	06:47	06:54		06:07	06:27 (MO06)	05:39
	16:54	17:31	18:07	19:43		20:16	20 06:47 (MO06)	20:46
5	07:44	07:25	06:45	06:52		06:06	06:26 (MO06)	05:39
	16:55	17:32	18:08	19:44		20:18	22 06:48 (MO06)	20:47
6	07:44	07:24	06:43	06:50		06:04	06:24 (MO06)	05:38
	16:56	17:34	18:09	19:45		20:19	23 06:47 (MO06)	20:48
7	07:44	07:23	06:42	06:48		06:03	06:23 (MO06)	05:38
	16:57	17:35	18:10	19:46		20:20	24 06:47 (MO06)	20:49
8	07:44	07:21	06:40	06:47		06:02	06:22 (MO06)	05:38
	16:58	17:36	18:12	19:47		20:21	25 06:47 (MO06)	20:49
9	07:44	07:20	06:38	06:45		06:01	06:21 (MO06)	05:38
	16:59	17:38	18:13	19:48		20:22	26 06:47 (MO06)	20:50
10	07:43	07:19	06:37	06:43		05:59	06:21 (MO06)	05:37
	17:00	17:39	18:14	19:49		20:23	26 06:47 (MO06)	20:50
11	07:43	07:18	06:35	06:42		05:58	06:22 (MO06)	05:37
	17:01	17:40	18:15	19:51		20:24	25 06:47 (MO06)	20:51
12	07:43	07:16	06:33	06:40		05:57	06:22 (MO06)	05:37
	17:03	17:42	18:16	19:52		20:25	24 06:46 (MO06)	20:51
13	07:43	07:15	06:32	06:38		05:56	06:23 (MO06)	05:37
	17:04	17:43	18:18	19:53		20:26	23 06:46 (MO06)	20:52
14	07:42	07:14	06:30	06:37		05:55	06:23 (MO06)	05:37
	17:05	17:44	18:19	19:54		20:27	22 06:45 (MO06)	20:52
15	07:42	07:12	06:28	06:35		05:54	06:24 (MO06)	05:37
	17:06	17:46	18:20	19:55		20:28	21 06:45 (MO06)	20:53
16	07:41	07:11	06:26	06:33		05:53	06:25 (MO06)	05:37
	17:07	17:47	18:21	19:56		20:29	19 06:44 (MO06)	20:53
17	07:41	07:10	06:25	06:32		05:52	06:26 (MO06)	05:37
	17:08	17:48	18:22	19:57		20:30	17 06:43 (MO06)	20:54
18	07:40	07:08	06:23	06:30		05:51	06:27 (MO06)	05:37
	17:10	17:49	18:23	19:58		20:31	14 06:41 (MO06)	20:54
19	07:40	07:07	06:21	06:29		05:50	06:28 (MO06)	05:37
	17:11	17:51	18:24	20:00		20:32	11 06:39 (MO06)	20:54
20	07:39	07:05	06:20	06:27		05:49	06:31 (MO06)	05:37
	17:12	17:52	18:26	20:01		20:33	6 06:37 (MO06)	20:55
21	07:38	07:04	06:18	06:26		05:48		05:37
	17:13	17:53	18:27	20:02		20:34		20:55
22	07:38	07:02	06:16	06:24		05:47		05:37
	17:14	17:54	18:28	20:03		20:35		20:55
23	07:37	07:01	06:14	06:23		05:46		05:38
	17:16	17:56	18:29	20:04		20:36		20:55
24	07:36	06:59	06:13	06:21		05:46		05:38
	17:17	17:57	18:30	20:05		20:37		20:55
25	07:36	06:58	06:11	06:20		05:45		05:38
	17:18	17:58	18:31	20:06		20:38		20:55
26	07:35	06:56	06:09	06:18		05:44		05:39
	17:19	17:59	18:32	20:07		20:39		20:56
27	07:34	06:55	06:07	06:17	06:36 (MO06)	05:43		05:39
	17:21	18:01	18:34	20:09	3 06:39 (MO06)	20:40		20:56
28	07:33	06:53	06:06	06:15	06:35 (MO06)	05:43		05:39
	17:22	18:02	18:35	20:10	7 06:42 (MO06)	20:41		20:56
29	07:32		07:04	06:14	06:33 (MO06)	05:42		05:40
	17:23		19:36	20:11	10 06:43 (MO06)	20:42		20:56
30	07:31		07:02	06:12	06:32 (MO06)	05:42		05:40
	17:25		19:37	20:12	13 06:45 (MO06)	20:43		20:56
31	07:30		07:00			05:41		
	17:26		19:38			20:43		
Potential sun hours	293	295	369	400		452		457
Total, worst case				33		399		
Sun reduction				0.49		0.57		
Oper. time red.				1.00		1.00		
Wind dir. red.				1.00		1.00		
Total reduction				0.49		0.57		
Total, real				16		227		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 264 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1162)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:41			06:06		06:32 (MO06)	06:38	07:10	06:47	07:23
	20:55			20:35	24	06:56 (MO06)	19:50	18:58	17:09	16:43
2	05:41			06:07		06:31 (MO06)	06:40	07:12	06:48	07:24
	20:55			20:34	26	06:57 (MO06)	19:49	18:56	17:08	16:43
3	05:42			06:08		06:31 (MO06)	06:41	07:13	06:49	07:25
	20:55			20:33	26	06:57 (MO06)	19:47	18:54	17:06	16:42
4	05:42			06:09		06:31 (MO06)	06:42	07:14	06:50	07:26
	20:55			20:32	26	06:57 (MO06)	19:45	18:52	17:05	16:42
5	05:43			06:10		06:32 (MO06)	06:43	07:15	06:52	07:27
	20:55			20:30	25	06:57 (MO06)	19:43	18:51	17:04	16:42
6	05:43			06:11		06:33 (MO06)	06:44	07:16	06:53	07:28
	20:54			20:29	24	06:57 (MO06)	19:42	18:49	17:03	16:42
7	05:44			06:12		06:34 (MO06)	06:45	07:17	06:54	07:29
	20:54			20:28	23	06:57 (MO06)	19:40	18:47	17:02	16:42
8	05:45			06:13		06:35 (MO06)	06:46	07:18	06:55	07:30
	20:54			20:27	21	06:56 (MO06)	19:38	18:46	17:00	16:42
9	05:45			06:14		06:36 (MO06)	06:47	07:19	06:57	07:31
	20:53			20:25	20	06:56 (MO06)	19:36	18:44	16:59	16:42
10	05:46			06:15		06:37 (MO06)	06:48	07:20	06:58	07:32
	20:53			20:24	18	06:55 (MO06)	19:35	18:42	16:58	16:42
11	05:47			06:16		06:38 (MO06)	06:49	07:22	06:59	07:33
	20:52			20:23	16	06:54 (MO06)	19:33	18:41	16:57	16:42
12	05:48			06:17		06:39 (MO06)	06:50	07:23	07:00	07:34
	20:52			20:21	14	06:53 (MO06)	19:31	18:39	16:56	16:42
13	05:48			06:18		06:40 (MO06)	06:51	07:24	07:02	07:35
	20:51			20:20	12	06:52 (MO06)	19:29	18:37	16:55	16:42
14	05:49			06:19		06:41 (MO06)	06:52	07:25	07:03	07:35
	20:51			20:18	9	06:50 (MO06)	19:28	18:36	16:54	16:42
15	05:50			06:20		06:42 (MO06)	06:53	07:26	07:04	07:36
	20:50			20:17	6	06:48 (MO06)	19:26	18:34	16:53	16:42
16	05:51			06:21		06:43 (MO06)	06:54	07:27	07:05	07:37
	20:50			20:16	1	06:44 (MO06)	19:24	18:32	16:52	16:42
17	05:52			06:22			06:55	07:29	07:07	07:38
	20:49			20:14			19:22	18:31	16:51	16:43
18	05:52			06:24			06:56	07:30	07:08	07:38
	20:48			20:13			19:21	18:29	16:51	16:43
19	05:53			06:25			06:57	07:31	07:09	07:39
	20:48			20:11			19:19	18:28	16:50	16:43
20	05:54			06:26			06:59	07:32	07:10	07:39
	20:47			20:10			19:17	18:26	16:49	16:44
21	05:55			06:27			07:00	07:33	07:12	07:40
	20:46			20:08			19:15	18:25	16:48	16:44
22	05:56			06:28			07:01	07:34	07:13	07:41
	20:45			20:06			19:13	18:23	16:48	16:45
23	05:57			06:29			07:02	07:36	07:14	07:41
	20:44			20:05			19:12	18:22	16:47	16:45
24	05:58		06:40 (MO06)	06:30			07:03	07:37	07:15	07:42
	20:43	9	06:49 (MO06)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:38 (MO06)	06:31			07:04	06:38	07:16	07:42
	20:42	13	06:51 (MO06)	20:02			19:08	17:19	16:46	16:46
26	06:00		06:37 (MO06)	06:32			07:05	06:39	07:18	07:42
	20:42	15	06:52 (MO06)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:36 (MO06)	06:33			07:06	06:41	07:19	07:43
	20:41	18	06:54 (MO06)	19:58			19:05	17:16	16:45	16:48
28	06:02		06:35 (MO06)	06:34			07:07	06:42	07:20	07:43
	20:40	20	06:55 (MO06)	19:57			19:03	17:14	16:44	16:48
29	06:03		06:34 (MO06)	06:35			07:08	06:43	07:21	07:43
	20:38	21	06:55 (MO06)	19:55			19:01	17:13	16:44	16:49
30	06:04		06:34 (MO06)	06:36			07:09	06:44	07:22	07:43
	20:37	22	06:56 (MO06)	19:54			18:59	17:12	16:43	16:50
31	06:05		06:32 (MO06)	06:37				06:45		07:44
	20:36	24	06:56 (MO06)	19:52				17:10		16:51
Potential sun hours	463			431			376	344	295	283
Total, worst case		142			291					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		100			204					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 265 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1163)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March	April	May	June	July	August	September	October		November	December
1	07:44	07:29		06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10		06:47	07:23
	16:52	17:27		18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58		17:09	16:43
2	07:44	07:28		06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12		06:48	07:24
	16:53	17:29		18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56		17:08	16:43
3	07:44	07:27		06:48	06:55	06:08	05:40	05:42	06:08	06:41	07:13		06:49	07:25
	16:53	17:30		18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54		17:06	16:42
4	07:44	07:26		06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14		06:50	07:26
	16:54	17:31		18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52		17:05	16:42
5	07:44	07:25		06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15		06:52	07:27
	16:55	17:32		18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51		17:04	16:42
6	07:44	07:24		06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16		06:53	07:28
	16:56	17:34		18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49		17:03	16:42
7	07:44	07:23		06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17		06:54	07:29
	16:57	17:35		18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47		17:02	16:42
8	07:44	07:21		06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18		06:55	07:30
	16:58	17:36		18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46		17:00	16:42
9	07:44	07:20		06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19		06:57	07:31
	16:59	17:38		18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44		16:59	16:42
10	07:43	07:19		06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20		06:58	07:32
	17:00	17:39		18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42		16:58	16:42
11	07:43	07:18	07:38 (MO06)	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22		06:59	07:33
	17:01	17:40	4 07:42 (MO06)	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41		16:57	16:42
12	07:43	07:16	07:36 (MO06)	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23		07:00	07:34
	17:03	17:42	7 07:43 (MO06)	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39		16:56	16:42
13	07:43	07:15	07:35 (MO06)	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	08:04 (MO06)	07:02	07:35
	17:04	17:43	10 07:45 (MO06)	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	6 08:10 (MO06)	16:55	16:42
14	07:42	07:14	07:34 (MO06)	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	08:00 (MO06)	07:03	07:35
	17:05	17:44	13 07:47 (MO06)	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	14 08:14 (MO06)	16:54	16:42
15	07:42	07:12	07:32 (MO06)	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:57 (MO06)	07:04	07:36
	17:06	17:46	15 07:47 (MO06)	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	18 08:15 (MO06)	16:53	16:42
16	07:41	07:11	07:31 (MO06)	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:55 (MO06)	07:05	07:37
	17:07	17:47	17 07:48 (MO06)	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	21 08:16 (MO06)	16:52	16:42
17	07:41	07:10	07:29 (MO06)	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:55 (MO06)	07:07	07:38
	17:08	17:48	19 07:48 (MO06)	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	23 08:18 (MO06)	16:51	16:43
18	07:40	07:08	07:28 (MO06)	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:54 (MO06)	07:08	07:38
	17:09	17:49	21 07:49 (MO06)	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	25 08:19 (MO06)	16:51	16:43
19	07:40	07:07	07:27 (MO06)	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:53 (MO06)	07:09	07:39
	17:11	17:51	22 07:49 (MO06)	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	26 08:19 (MO06)	16:50	16:43
20	07:39	07:05	07:25 (MO06)	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:53 (MO06)	07:10	07:39
	17:12	17:52	24 07:49 (MO06)	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	26 08:19 (MO06)	16:49	16:44
21	07:39	07:04	07:24 (MO06)	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:55 (MO06)	07:12	07:40
	17:13	17:53	25 07:49 (MO06)	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	25 08:20 (MO06)	16:48	16:44
22	07:38	07:02	07:22 (MO06)	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:56 (MO06)	07:13	07:41
	17:14	17:54	26 07:48 (MO06)	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	23 08:19 (MO06)	16:48	16:45
23	07:37	07:01	07:21 (MO06)	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:57 (MO06)	07:14	07:41
	17:16	17:56	26 07:47 (MO06)	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	22 08:19 (MO06)	16:47	16:45
24	07:36	06:59	07:22 (MO06)	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:58 (MO06)	07:15	07:42
	17:17	17:57	25 07:47 (MO06)	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	20 08:18 (MO06)	16:46	16:46
25	07:36	06:58	07:23 (MO06)	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:00 (MO06)	07:16	07:42
	17:18	17:58	22 07:45 (MO06)	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	18 07:18 (MO06)	16:46	16:46
26	07:35	06:56	07:24 (MO06)	06:09	06:18	05:44	05:39	06:00	06:32	07:05	06:39	07:01 (MO06)	07:18	07:42
	17:19	17:59	20 07:44 (MO06)	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	17 07:18 (MO06)	16:45	16:47
27	07:34	06:55	07:26 (MO06)	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:02 (MO06)	07:19	07:43
	17:21	18:01	16 07:42 (MO06)	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	14 07:16 (MO06)	16:45	16:48
28	07:33	06:53	07:28 (MO06)	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:04 (MO06)	07:20	07:43
	17:22	18:02	12 07:40 (MO06)	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	12 07:16 (MO06)	16:44	16:48
29	07:32			07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:05 (MO06)	07:21	07:43
	17:23			19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	10 07:15 (MO06)	16:44	16:49
30	07:31			07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:06 (MO06)	07:22	07:44
	17:25			19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	7 07:13 (MO06)	16:43	16:50
31	07:30			07:00		05:41		06:05	06:37		06:45	07:07 (MO06)		07:44
	17:26			19:38		20:43		20:36	19:52		17:10	3 07:10 (MO06)		16:51
Potential sun hours	293	295		369	400	452	457	463	431	376	344		295	283
Total, worst case			324									330		
Sun reduction			0.46									0.55		
Oper. time red.			1.00									1.00		
Wind dir. red.			1.00									1.00		
Total reduction			0.46									0.55		
Total, real			150									181		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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00390585281383
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 266 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1164)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24
	16:52	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:31	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:40
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:39	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 267 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1165)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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IT-54033 Carrara
00390585281383
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 268 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1166)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
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	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
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	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 269 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1167)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
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	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
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	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
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	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
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24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
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25	07:35	06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 270 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1168)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:47	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:14	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
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	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:42
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:43
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
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	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:18	16:45	16:46
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	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:19	07:43
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
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	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	401	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 271 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1169)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
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	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
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	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
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11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
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	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
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20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
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	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 272 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1170)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 273 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1171)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:00	07:34	07:13	07:40
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23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 274 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1172)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:44	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:34
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
14	07:42	07:14	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:41	07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 275 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1173)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		15:36 (MO03)	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46			07:23		15:27 (MO03)
	16:51	33	16:09 (MO03)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09			16:43	23	15:50 (MO03)
2	07:44		15:37 (MO03)	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48			07:24		15:27 (MO03)
	16:52	32	16:09 (MO03)	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07			16:42	24	15:51 (MO03)
3	07:44		15:37 (MO03)	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49			07:25		15:26 (MO03)
	16:53	32	16:09 (MO03)	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06			16:42	26	15:52 (MO03)
4	07:44		15:38 (MO03)	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50			07:26		15:26 (MO03)
	16:54	31	16:09 (MO03)	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05			16:42	27	15:53 (MO03)
5	07:44		15:39 (MO03)	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:15	06:51			07:27		15:26 (MO03)
	16:55	30	16:09 (MO03)	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04			16:42	28	15:54 (MO03)
6	07:44		15:40 (MO03)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53			07:28		15:25 (MO03)
	16:56	30	16:10 (MO03)	17:33	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02			16:41	30	15:55 (MO03)
7	07:44		15:40 (MO03)	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54			07:29		15:25 (MO03)
	16:57	29	16:09 (MO03)	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01			16:41	30	15:55 (MO03)
8	07:44		15:42 (MO03)	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:46	07:18	06:55			07:30		15:25 (MO03)
	16:58	27	16:09 (MO03)	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00			16:41	31	15:56 (MO03)
9	07:43		15:43 (MO03)	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56			07:31		15:26 (MO03)
	16:59	26	16:09 (MO03)	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59			16:41	31	15:57 (MO03)
10	07:43		15:45 (MO03)	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		15:26 (MO03)
	17:00	24	16:09 (MO03)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58			16:41	32	15:58 (MO03)
11	07:43		15:45 (MO03)	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59			07:33		15:26 (MO03)
	17:01	23	16:08 (MO03)	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57			16:41	33	15:59 (MO03)
12	07:43		15:47 (MO03)	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00			07:33		15:26 (MO03)
	17:02	20	16:07 (MO03)	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:41	34	16:00 (MO03)
13	07:42		15:48 (MO03)	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01			07:34		15:27 (MO03)
	17:03	18	16:06 (MO03)	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:41	33	16:00 (MO03)
14	07:42		15:51 (MO03)	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03			07:35		15:26 (MO03)
	17:04	14	16:05 (MO03)	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54			16:42	34	16:00 (MO03)
15	07:41		15:53 (MO03)	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04			07:36		15:27 (MO03)
	17:06	10	16:03 (MO03)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	34	16:01 (MO03)
16	07:41			07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05			07:37		15:28 (MO03)
	17:07			17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52			16:42	34	16:02 (MO03)
17	07:41			07:09	06:24	06:32	05:52	05:36	05:51	06:22	06:55	07:28	07:06			07:37		15:28 (MO03)
	17:08			17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51			16:42	35	16:03 (MO03)
18	07:40			07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08			07:38		15:28 (MO03)
	17:09			17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50			16:43	35	16:03 (MO03)
19	07:39			07:07	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:31	07:09			07:39		15:29 (MO03)
	17:10			17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:49			16:43	35	16:04 (MO03)
20	07:39			07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10			07:39		15:29 (MO03)
	17:12			17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49			16:43	35	16:04 (MO03)
21	07:38			07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11			07:40		15:30 (MO03)
	17:13			17:53	18:26	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48			16:44	35	16:05 (MO03)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12			07:40		15:30 (MO03)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47			16:44	35	16:05 (MO03)
23	07:37			07:01	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14			07:41		15:31 (MO03)
	17:15			17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47			16:45	35	16:06 (MO03)
24	07:36			06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15			07:41		15:31 (MO03)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46			16:45	35	16:06 (MO03)
25	07:35			06:58	06:11	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16			07:42		15:32 (MO03)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45			16:46	35	16:07 (MO03)
26	07:34			06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17			07:42		15:32 (MO03)
	17:19			17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45			16:47	35	16:07 (MO03)
27	07:34			06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18		15:33 (MO03)	07:42		15:32 (MO03)
	17:20			18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	10	15:43 (MO03)	16:47	35	16:07 (MO03)
28	07:33			06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:20		15:31 (MO03)	07:43		15:33 (MO03)
	17:22			18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	14	15:45 (MO03)	16:48	34	16:07 (MO03)
29	07:32				07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21		15:29 (MO03)	07:43		15:34 (MO03)
	17:23				19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	18	15:47 (MO03)	16:49	34	16:08 (MO03)
30	07:31				07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22		15:28 (MO03)	07:43		15:35 (MO03)
	17:24				19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	20	15:48 (MO03)	16:50	33	16:08 (MO03)
31	07:30				07:00		05:41		06:04	06:37		06:45				07:43		15:35 (MO03)
	17:26				19:38		20:43		20:36	19:52		17:10				16:50	34	16:09 (MO03)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		379												62			1004	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		159												28			434	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 276 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1174)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:29	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:36	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:53	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:31	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:50	05:36	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:39
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:28	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:57	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 277 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1175)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23		
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43		
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24		
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42		
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25		
	16:53	17:29	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42		
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26		
	16:54	17:31	18:06	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42		
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27		
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42		
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28		
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41		
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29		
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41		
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30		
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41		
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31		
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41		
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32		
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41		
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33		
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41		
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33		
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41		
13	07:42	07:15	06:31	06:38	05:56	05:36	05:48	06:18	06:51	07:24	07:01	07:34		
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:41		
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35		
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42		
15	07:41	07:12	06:28	06:35	05:53	05:36	05:50	06:20	06:53	07:26	07:04	07:36		
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42		
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:37		
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42		
17	07:40	07:09	06:24	06:31	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37		
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42		
18	07:40	07:08	06:23	06:30	05:50	05:36	05:52	06:23	06:56	07:29	07:08	07:38		
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43		
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:39		
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43		
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39		15:30 (MO04)
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43	1	15:31 (MO04)
21	07:38	07:04	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40		15:30 (MO04)
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44	3	15:33 (MO04)
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40		15:30 (MO04)
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44	3	15:33 (MO04)
23	07:37	07:01	06:14	06:22	05:46	05:37	05:57	06:28	07:01	07:35	07:14	07:41		15:31 (MO04)
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45	3	15:34 (MO04)
24	07:36	06:59	06:12	06:21	05:45	05:38	05:57	06:30	07:02	07:36	07:15	07:41		
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45		
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42		
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46		
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42		
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47		
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42		
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47		
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43		
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48		
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43		
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49		
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43		
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49		
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43		
	17:26		19:38		20:43		20:36	19:51		17:10		16:50		
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283		
Total, worst case													10	
Sun reduction													0.43	
Oper. time red.													1.00	
Wind dir. red.													1.00	
Total reduction													0.43	
Total, real													4	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 278 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1176)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June	
1	07:44		07:29		06:51		06:58			06:11			18:55 (MO04)	05:40
	16:51		17:27		18:03		19:39			20:13	49		19:44 (MO04)	20:44
2	07:44		07:28		06:50		06:57			06:09			18:55 (MO04)	05:40
	16:52		17:28		18:04		19:40			20:14	49		19:44 (MO04)	20:45
3	07:44		07:27		06:48		06:55			06:08			18:56 (MO04)	05:39
	16:53		17:30		18:05		19:41			20:15	49		19:45 (MO04)	20:45
4	07:44		07:26		06:46		06:53			06:07			18:55 (MO04)	05:39
	16:54		17:31		18:06		19:42			20:16	49		19:44 (MO04)	20:46
5	07:44		07:25		06:45		06:51			06:05			18:55 (MO04)	05:38
	16:55		17:32		18:08		19:43			20:17	48		19:43 (MO04)	20:47
6	07:44		07:23		06:43		06:50			06:04			18:56 (MO04)	05:38
	16:56		17:33		18:09		19:45			20:18	47		19:43 (MO04)	20:47
7	07:44		07:22		06:41		06:48			06:03			18:56 (MO04)	05:38
	16:57		17:35		18:10		19:46			20:19	47		19:43 (MO04)	20:48
8	07:43		07:21		06:40		06:46			06:01			18:57 (MO04)	05:37
	16:58		17:36		18:11		19:47			20:20	46		19:43 (MO04)	20:49
9	07:43		07:20		06:38		06:45			06:00			18:57 (MO04)	05:37
	16:59		17:37		18:12		19:48			20:22	46		19:43 (MO04)	20:49
10	07:43		07:19		06:36		06:43			05:59			18:57 (MO04)	05:37
	17:00		17:39		18:14		19:49			20:23	44		19:41 (MO04)	20:50
11	07:43		07:17		06:35		06:41			05:58			18:58 (MO04)	05:37
	17:01		17:40		18:15		19:50			20:24	43		19:41 (MO04)	20:51
12	07:42		07:16		06:33		06:40			05:57			18:58 (MO04)	05:37
	17:02		17:41		18:16		19:51			20:25	42		19:40 (MO04)	20:51
13	07:42		07:15		06:31		06:38			05:56			18:59 (MO04)	05:37
	17:03		17:43		18:17		19:52			20:26	41		19:40 (MO04)	20:52
14	07:42		07:13		06:30		06:36		19:16 (MO04)	05:55			19:00 (MO04)	05:36
	17:04		17:44		18:18		19:54	14	19:30 (MO04)	20:27	39		19:39 (MO04)	20:52
15	07:41		07:12		06:28		06:35		19:13 (MO04)	05:54			19:00 (MO04)	05:36
	17:06		17:45		18:19		19:55	20	19:33 (MO04)	20:28	38		19:38 (MO04)	20:52
16	07:41		07:11		06:26		06:33		19:10 (MO04)	05:52			19:01 (MO04)	05:36
	17:07		17:46		18:21		19:56	23	19:33 (MO04)	20:29	36		19:37 (MO04)	20:53
17	07:40		07:09		06:24		06:32		19:08 (MO04)	05:51			19:02 (MO04)	05:36
	17:08		17:48		18:22		19:57	27	19:35 (MO04)	20:30	34		19:36 (MO04)	20:53
18	07:40		07:08		06:23		06:30		19:06 (MO04)	05:51			19:03 (MO04)	05:36
	17:09		17:49		18:23		19:58	29	19:35 (MO04)	20:31	32		19:35 (MO04)	20:54
19	07:39		07:06		06:21		06:28		19:04 (MO04)	05:50			19:05 (MO04)	05:37
	17:10		17:50		18:24		19:59	33	19:37 (MO04)	20:32	30		19:35 (MO04)	20:54
20	07:39		07:05		06:19		06:27		19:03 (MO04)	05:49			19:06 (MO04)	05:37
	17:12		17:52		18:25		20:00	35	19:38 (MO04)	20:33	28		19:34 (MO04)	20:54
21	07:38		07:03		06:17		06:25		19:01 (MO04)	05:48			19:07 (MO04)	05:37
	17:13		17:53		18:26		20:01	37	19:38 (MO04)	20:34	25		19:32 (MO04)	20:54
22	07:37		07:02		06:16		06:24		19:00 (MO04)	05:47			19:09 (MO04)	05:37
	17:14		17:54		18:28		20:03	40	19:40 (MO04)	20:35	22		19:31 (MO04)	20:55
23	07:37		07:00		06:14		06:22		18:59 (MO04)	05:46			19:10 (MO04)	05:37
	17:15		17:55		18:29		20:04	41	19:40 (MO04)	20:36	19		19:29 (MO04)	20:55
24	07:36		06:59		06:12		06:21		18:58 (MO04)	05:45			19:13 (MO04)	05:38
	17:17		17:57		18:30		20:05	44	19:42 (MO04)	20:37	14		19:27 (MO04)	20:55
25	07:35		06:57		06:10		06:19		18:58 (MO04)	05:45			19:16 (MO04)	05:38
	17:18		17:58		18:31		20:06	45	19:43 (MO04)	20:38	8		19:24 (MO04)	20:55
26	07:34		06:56		06:09		06:18		18:57 (MO04)	05:44				05:38
	17:19		17:59		18:32		20:07	47	19:44 (MO04)	20:39				20:55
27	07:34		06:54		06:07		06:16		18:57 (MO04)	05:43				05:39
	17:20		18:00		18:33		20:08	48	19:45 (MO04)	20:40				20:55
28	07:33		06:53		06:05		06:15		18:56 (MO04)	05:42				05:39
	17:22		18:02		18:34		20:09	48	19:44 (MO04)	20:40				20:55
29	07:32				07:03		06:13		18:56 (MO04)	05:42				05:39
	17:23				19:36		20:10	49	19:45 (MO04)	20:41				20:55
30	07:31				07:02		06:12		18:56 (MO04)	05:41				05:40
	17:24				19:37		20:12	49	19:45 (MO04)	20:42				20:55
31	07:30				07:00					05:41				
	17:26				19:38					20:43				
Potential sun hours	293		295		369		400			452			457	
Total, worst case								629			925			
Sun reduction								0.49			0.57			
Oper. time red.								1.00			1.00			
Wind dir. red.								1.00			1.00			
Total reduction								0.49			0.57			
Total, real								311			526			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 278 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1176)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:05		19:09 (MO04)	06:38	07:10	06:46	07:23
	20:55			20:35	42	19:51 (MO04)	19:50	18:57	17:09	16:43
2	05:41			06:06		19:08 (MO04)	06:39	07:11	06:48	07:24
	20:55			20:34	44	19:52 (MO04)	19:48	18:56	17:07	16:42
3	05:41			06:07		19:07 (MO04)	06:40	07:12	06:49	07:25
	20:55			20:33	45	19:52 (MO04)	19:46	18:54	17:06	16:42
4	05:42			06:08		19:07 (MO04)	06:41	07:13	06:50	07:26
	20:54			20:31	45	19:52 (MO04)	19:45	18:52	17:05	16:42
5	05:42			06:09		19:06 (MO04)	06:42	07:14	06:51	07:27
	20:54			20:30	47	19:53 (MO04)	19:43	18:50	17:04	16:42
6	05:43			06:11		19:06 (MO04)	06:43	07:16	06:53	07:28
	20:54			20:29	47	19:53 (MO04)	19:41	18:49	17:02	16:41
7	05:44			06:12		19:05 (MO04)	06:44	07:17	06:54	07:29
	20:54			20:28	48	19:53 (MO04)	19:40	18:47	17:01	16:41
8	05:44			06:13		19:05 (MO04)	06:45	07:18	06:55	07:30
	20:53			20:26	48	19:53 (MO04)	19:38	18:45	17:00	16:41
9	05:45			06:14		19:05 (MO04)	06:47	07:19	06:56	07:31
	20:53			20:25	48	19:53 (MO04)	19:36	18:44	16:59	16:41
10	05:46			06:15		19:04 (MO04)	06:48	07:20	06:58	07:32
	20:52			20:24	49	19:53 (MO04)	19:34	18:42	16:58	16:41
11	05:46			06:16		19:04 (MO04)	06:49	07:21	06:59	07:33
	20:52			20:22	49	19:53 (MO04)	19:33	18:40	16:57	16:41
12	05:47			06:17		19:04 (MO04)	06:50	07:22	07:00	07:33
	20:52			20:21	49	19:53 (MO04)	19:31	18:39	16:56	16:41
13	05:48			06:18		19:04 (MO04)	06:51	07:24	07:01	07:34
	20:51			20:20	49	19:53 (MO04)	19:29	18:37	16:55	16:41
14	05:49			06:19		19:04 (MO04)	06:52	07:25	07:03	07:35
	20:50			20:18	48	19:52 (MO04)	19:27	18:35	16:54	16:42
15	05:50			06:20		19:04 (MO04)	06:53	07:26	07:04	07:36
	20:50			20:17	48	19:52 (MO04)	19:26	18:34	16:53	16:42
16	05:50			06:21		19:04 (MO04)	06:54	07:27	07:05	07:36
	20:49			20:15	47	19:51 (MO04)	19:24	18:32	16:52	16:42
17	05:51			06:22		19:04 (MO04)	06:55	07:28	07:06	07:37
	20:49			20:14	46	19:50 (MO04)	19:22	18:30	16:51	16:42
18	05:52			06:23		19:04 (MO04)	06:56	07:29	07:08	07:38
	20:48			20:12	45	19:49 (MO04)	19:20	18:29	16:50	16:43
19	05:53		19:24 (MO04)	06:24		19:04 (MO04)	06:57	07:30	07:09	07:38
	20:47	11	19:35 (MO04)	20:11	43	19:47 (MO04)	19:18	18:27	16:49	16:43
20	05:54		19:22 (MO04)	06:25		19:05 (MO04)	06:58	07:32	07:10	07:39
	20:46	16	19:38 (MO04)	20:09	41	19:46 (MO04)	19:17	18:26	16:49	16:43
21	05:55		19:20 (MO04)	06:26		19:05 (MO04)	06:59	07:33	07:11	07:40
	20:46	20	19:40 (MO04)	20:08	39	19:44 (MO04)	19:15	18:24	16:48	16:44
22	05:56		19:19 (MO04)	06:27		19:06 (MO04)	07:00	07:34	07:12	07:40
	20:45	23	19:42 (MO04)	20:06	37	19:43 (MO04)	19:13	18:23	16:47	16:44
23	05:57		19:17 (MO04)	06:29		19:07 (MO04)	07:01	07:35	07:14	07:41
	20:44	26	19:43 (MO04)	20:05	34	19:41 (MO04)	19:11	18:21	16:47	16:45
24	05:58		19:15 (MO04)	06:30		19:07 (MO04)	07:02	07:36	07:15	07:41
	20:43	29	19:44 (MO04)	20:03	33	19:40 (MO04)	19:10	18:20	16:46	16:45
25	05:58		19:14 (MO04)	06:31		19:09 (MO04)	07:04	06:38	07:16	07:42
	20:42	31	19:45 (MO04)	20:01	29	19:38 (MO04)	19:08	17:18	16:45	16:46
26	05:59		19:13 (MO04)	06:32		19:10 (MO04)	07:05	06:39	07:17	07:42
	20:41	33	19:46 (MO04)	20:00	27	19:37 (MO04)	19:06	17:17	16:45	16:47
27	06:00		19:12 (MO04)	06:33		19:12 (MO04)	07:06	06:40	07:18	07:42
	20:40	35	19:47 (MO04)	19:58	23	19:35 (MO04)	19:04	17:15	16:44	16:47
28	06:01		19:11 (MO04)	06:34		19:14 (MO04)	07:07	06:41	07:19	07:43
	20:39	37	19:48 (MO04)	19:56	19	19:33 (MO04)	19:03	17:14	16:44	16:48
29	06:02		19:11 (MO04)	06:35		19:18 (MO04)	07:08	06:43	07:21	07:43
	20:38	38	19:49 (MO04)	19:55	12	19:30 (MO04)	19:01	17:13	16:43	16:49
30	06:03		19:10 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	40	19:50 (MO04)	19:53			18:59	17:11	16:43	16:49
31	06:04		19:09 (MO04)	06:37				06:45		07:43
	20:36	41	19:50 (MO04)	19:51				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		380			1181					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		268			827					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 279 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1177)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April			May			June		
1	07:44		07:29		06:51		06:58			06:11		19:04 (MO04)	05:40		19:02 (MO04)
	16:51		17:27		18:03		19:39			20:13	45	19:49 (MO04)	20:44	52	19:54 (MO04)
2	07:44		07:28		06:50		06:57			06:09		19:03 (MO04)	05:40		19:03 (MO04)
	16:52		17:28		18:04		19:40			20:14	47	19:50 (MO04)	20:45	51	19:54 (MO04)
3	07:44		07:27		06:48		06:55			06:08		19:02 (MO04)	05:39		19:03 (MO04)
	16:53		17:30		18:05		19:41			20:15	50	19:52 (MO04)	20:45	51	19:54 (MO04)
4	07:44		07:26		06:46		06:53			06:07		19:01 (MO04)	05:39		19:04 (MO04)
	16:54		17:31		18:06		19:42			20:16	51	19:52 (MO04)	20:46	50	19:54 (MO04)
5	07:44		07:25		06:45		06:51			06:05		19:00 (MO04)	05:38		19:04 (MO04)
	16:55		17:32		18:08		19:43			20:17	53	19:53 (MO04)	20:47	50	19:54 (MO04)
6	07:44		07:23		06:43		06:50			06:04		19:00 (MO04)	05:38		19:04 (MO04)
	16:56		17:33		18:09		19:45			20:18	53	19:53 (MO04)	20:47	49	19:53 (MO04)
7	07:44		07:22		06:41		06:48			06:03		19:00 (MO04)	05:38		19:05 (MO04)
	16:57		17:35		18:10		19:46			20:19	54	19:54 (MO04)	20:48	48	19:53 (MO04)
8	07:43		07:21		06:40		06:46			06:01		18:59 (MO04)	05:37		19:05 (MO04)
	16:58		17:36		18:11		19:47			20:20	55	19:54 (MO04)	20:49	49	19:54 (MO04)
9	07:43		07:20		06:38		06:45			06:00		18:59 (MO04)	05:37		19:06 (MO04)
	16:59		17:37		18:12		19:48			20:22	56	19:55 (MO04)	20:49	48	19:54 (MO04)
10	07:43		07:19		06:36		06:43			05:59		18:58 (MO04)	05:37		19:07 (MO04)
	17:00		17:39		18:14		19:49			20:23	56	19:54 (MO04)	20:50	47	19:54 (MO04)
11	07:43		07:17		06:35		06:41			05:58		18:58 (MO04)	05:37		19:06 (MO04)
	17:01		17:40		18:15		19:50			20:24	57	19:55 (MO04)	20:51	47	19:53 (MO04)
12	07:42		07:16		06:33		06:40			05:57		18:58 (MO04)	05:37		19:07 (MO04)
	17:02		17:41		18:16		19:51			20:25	57	19:55 (MO04)	20:51	46	19:53 (MO04)
13	07:42		07:15		06:31		06:38			05:56		18:58 (MO04)	05:37		19:07 (MO04)
	17:03		17:43		18:17		19:52			20:26	57	19:55 (MO04)	20:52	46	19:53 (MO04)
14	07:42		07:13		06:30		06:36			05:55		18:57 (MO04)	05:36		19:08 (MO04)
	17:04		17:44		18:18		19:54			20:27	58	19:55 (MO04)	20:52	45	19:53 (MO04)
15	07:41		07:12		06:28		06:35			05:54		18:57 (MO04)	05:36		19:08 (MO04)
	17:06		17:45		18:19		19:55			20:28	58	19:55 (MO04)	20:52	45	19:53 (MO04)
16	07:41		07:11		06:26		06:33			05:52		18:57 (MO04)	05:36		19:08 (MO04)
	17:07		17:46		18:21		19:56			20:29	58	19:55 (MO04)	20:53	45	19:53 (MO04)
17	07:40		07:09		06:24		06:32			05:51		18:57 (MO04)	05:36		19:09 (MO04)
	17:08		17:48		18:22		19:57			20:30	58	19:55 (MO04)	20:53	44	19:53 (MO04)
18	07:40		07:08		06:23		06:30			05:51		18:57 (MO04)	05:36		19:09 (MO04)
	17:09		17:49		18:23		19:58			20:31	58	19:55 (MO04)	20:54	44	19:53 (MO04)
19	07:39		07:06		06:21		06:28			05:50		18:58 (MO04)	05:37		19:10 (MO04)
	17:10		17:50		18:24		19:59			20:32	58	19:56 (MO04)	20:54	44	19:54 (MO04)
20	07:39		07:05		06:19		06:27			05:49		18:58 (MO04)	05:37		19:10 (MO04)
	17:12		17:52		18:25		20:00			20:33	58	19:56 (MO04)	20:54	44	19:54 (MO04)
21	07:38		07:04		06:17		06:25			05:48		18:58 (MO04)	05:37		19:10 (MO04)
	17:13		17:53		18:26		20:01			20:34	57	19:55 (MO04)	20:54	44	19:54 (MO04)
22	07:37		07:02		06:16		06:24			05:47		18:58 (MO04)	05:37		19:10 (MO04)
	17:14		17:54		18:28		20:03			20:35	57	19:55 (MO04)	20:55	44	19:54 (MO04)
23	07:37		07:01		06:14		06:22		19:20 (MO04)	05:46		18:58 (MO04)	05:37		19:10 (MO04)
	17:15		17:55		18:29		20:04	16	19:36 (MO04)	20:36	57	19:55 (MO04)	20:55	44	19:54 (MO04)
24	07:36		06:59		06:12		06:21		19:17 (MO04)	05:45		18:59 (MO04)	05:38		19:11 (MO04)
	17:17		17:57		18:30		20:05	23	19:40 (MO04)	20:37	56	19:55 (MO04)	20:55	44	19:55 (MO04)
25	07:35		06:57		06:10		06:19		19:14 (MO04)	05:45		18:59 (MO04)	05:38		19:11 (MO04)
	17:18		17:58		18:31		20:06	29	19:43 (MO04)	20:38	56	19:55 (MO04)	20:55	44	19:55 (MO04)
26	07:34		06:56		06:09		06:18		19:11 (MO04)	05:44		18:59 (MO04)	05:38		19:10 (MO04)
	17:19		17:59		18:32		20:07	33	19:44 (MO04)	20:39	55	19:54 (MO04)	20:55	45	19:55 (MO04)
27	07:34		06:54		06:07		06:16		19:10 (MO04)	05:43		19:00 (MO04)	05:39		19:11 (MO04)
	17:20		18:00		18:33		20:08	35	19:45 (MO04)	20:40	55	19:55 (MO04)	20:55	45	19:56 (MO04)
28	07:33		06:53		06:05		06:15		19:08 (MO04)	05:42		19:00 (MO04)	05:39		19:11 (MO04)
	17:22		18:02		18:34		20:09	38	19:46 (MO04)	20:40	54	19:54 (MO04)	20:55	45	19:56 (MO04)
29	07:32				07:03		06:13		19:07 (MO04)	05:42		19:01 (MO04)	05:39		19:11 (MO04)
	17:23				19:36		20:10	40	19:47 (MO04)	20:41	54	19:55 (MO04)	20:55	46	19:57 (MO04)
30	07:31				07:02		06:12		19:06 (MO04)	05:41		19:01 (MO04)	05:40		19:11 (MO04)
	17:24				19:37		20:12	43	19:49 (MO04)	20:42	53	19:54 (MO04)	20:55	46	19:57 (MO04)
31	07:30				07:00					05:41		19:02 (MO04)			
	17:26				19:38					20:43	53	19:55 (MO04)			
Potential sun hours	293		295		369		400			452			457		
Total, worst case							257			1704			1392		
Sun reduction							0.49			0.57			0.61		
Oper. time red.							1.00			1.00			1.00		
Wind dir. red.							1.00			1.00			1.00		
Total reduction							0.49			0.57			0.61		
Total, real							127			970			850		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 279 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1177)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September	October	November	December
1	05:40		06:05		06:38	07:10	06:46	07:23
	20:55	47	20:35	57	19:50	18:57	17:09	16:43
2	05:41		06:06		06:39	07:11	06:48	07:24
	20:55	47	20:34	57	19:48	18:56	17:07	16:42
3	05:41		06:07		06:40	07:12	06:49	07:25
	20:55	48	20:33	56	19:46	18:54	17:06	16:42
4	05:42		06:08		06:41	07:13	06:50	07:26
	20:54	48	20:31	55	19:45	18:52	17:05	16:42
5	05:42		06:09		06:42	07:14	06:51	07:27
	20:54	49	20:30	55	19:43	18:50	17:04	16:42
6	05:43		06:11		06:43	07:16	06:53	07:28
	20:54	49	20:29	54	19:41	18:49	17:02	16:41
7	05:44		06:12		06:44	07:17	06:54	07:29
	20:54	49	20:28	53	19:40	18:47	17:01	16:41
8	05:44		06:13		06:45	07:18	06:55	07:30
	20:53	50	20:26	52	19:38	18:45	17:00	16:41
9	05:45		06:14		06:47	07:19	06:56	07:31
	20:53	51	20:25	50	19:36	18:44	16:59	16:41
10	05:46		06:15		06:48	07:20	06:58	07:32
	20:52	51	20:24	49	19:34	18:42	16:58	16:41
11	05:46		06:16		06:49	07:21	06:59	07:33
	20:52	52	20:22	47	19:33	18:40	16:57	16:41
12	05:47		06:17		06:50	07:22	07:00	07:33
	20:52	52	20:21	44	19:31	18:39	16:56	16:41
13	05:48		06:18		06:51	07:24	07:01	07:34
	20:51	52	20:20	42	19:29	18:37	16:55	16:41
14	05:49		06:19		06:52	07:25	07:03	07:35
	20:50	53	20:18	40	19:27	18:35	16:54	16:42
15	05:50		06:20		06:53	07:26	07:04	07:36
	20:50	54	20:17	37	19:26	18:34	16:53	16:42
16	05:50		06:21		06:54	07:27	07:05	07:36
	20:49	54	20:15	35	19:24	18:32	16:52	16:42
17	05:51		06:22		06:55	07:28	07:06	07:37
	20:49	55	20:14	31	19:22	18:30	16:51	16:42
18	05:52		06:23		06:56	07:29	07:08	07:38
	20:48	55	20:12	27	19:20	18:29	16:50	16:43
19	05:53		06:24		06:57	07:30	07:09	07:38
	20:47	56	20:11	22	19:18	18:27	16:49	16:43
20	05:54		06:25		06:58	07:32	07:10	07:39
	20:46	56	20:09	14	19:17	18:26	16:49	16:43
21	05:55		06:26		06:59	07:33	07:11	07:40
	20:46	56	20:08		19:15	18:24	16:48	16:44
22	05:56		06:27		07:00	07:34	07:12	07:40
	20:45	57	20:06		19:13	18:23	16:47	16:44
23	05:57		06:29		07:01	07:35	07:14	07:41
	20:44	57	20:05		19:11	18:21	16:47	16:45
24	05:58		06:30		07:02	07:36	07:15	07:41
	20:43	57	20:03		19:10	18:20	16:46	16:45
25	05:58		06:31		07:04	06:38	07:16	07:42
	20:42	57	20:01		19:08	17:18	16:45	16:46
26	05:59		06:32		07:05	06:39	07:17	07:42
	20:41	58	20:00		19:06	17:17	16:45	16:47
27	06:00		06:33		07:06	06:40	07:18	07:42
	20:40	58	19:58		19:04	17:15	16:44	16:47
28	06:01		06:34		07:07	06:41	07:19	07:43
	20:39	58	19:56		19:03	17:14	16:44	16:48
29	06:02		06:35		07:08	06:43	07:21	07:43
	20:38	58	19:55		19:01	17:13	16:43	16:49
30	06:03		06:36		07:09	06:44	07:22	07:43
	20:37	58	19:53		18:59	17:11	16:43	16:49
31	06:04		06:37			06:45		07:43
	20:36	57	19:51			17:10		16:50
Potential sun hours	463		431		376	344	295	283
Total, worst case		1659		877				
Sun reduction		0.71		0.70				
Oper. time red.		1.00		1.00				
Wind dir. red.		1.00		1.00				
Total reduction		0.71		0.70				
Total, real		1170		614				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 280 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1178)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:58	06:11			05:40		19:26 (MO04)
	16:51	17:27	18:03	19:39	20:13			20:44	48	20:14 (MO04)
2	07:44	07:28	06:50	06:57	06:09			05:40		19:27 (MO04)
	16:52	17:28	18:04	19:40	20:14			20:45	48	20:15 (MO04)
3	07:44	07:27	06:48	06:55	06:08			05:39		19:26 (MO04)
	16:53	17:30	18:05	19:41	20:15			20:45	49	20:15 (MO04)
4	07:44	07:26	06:46	06:53	06:07			05:39		19:27 (MO04)
	16:54	17:31	18:06	19:42	20:16			20:46	48	20:15 (MO04)
5	07:44	07:25	06:45	06:51	06:05			05:38		19:27 (MO04)
	16:55	17:32	18:08	19:43	20:17			20:47	49	20:16 (MO04)
6	07:44	07:23	06:43	06:50	06:04			05:38		19:27 (MO04)
	16:56	17:33	18:09	19:45	20:18			20:47	48	20:15 (MO04)
7	07:44	07:22	06:41	06:48	06:03		19:47 (MO04)	05:38		19:27 (MO04)
	16:57	17:35	18:10	19:46	20:19	5	19:52 (MO04)	20:48	48	20:15 (MO04)
8	07:43	07:21	06:40	06:46	06:01		19:42 (MO04)	05:37		19:28 (MO04)
	16:58	17:36	18:11	19:47	20:20	15	19:57 (MO04)	20:49	48	20:16 (MO04)
9	07:43	07:20	06:38	06:45	06:00		19:39 (MO04)	05:37		19:28 (MO04)
	16:59	17:37	18:12	19:48	20:22	19	19:58 (MO04)	20:49	48	20:16 (MO04)
10	07:43	07:19	06:36	06:43	05:59		19:36 (MO04)	05:37		19:28 (MO04)
	17:00	17:39	18:14	19:49	20:23	22	19:58 (MO04)	20:50	49	20:17 (MO04)
11	07:43	07:17	06:35	06:41	05:58		19:35 (MO04)	05:37		19:28 (MO04)
	17:01	17:40	18:15	19:50	20:24	24	19:59 (MO04)	20:51	48	20:16 (MO04)
12	07:42	07:16	06:33	06:40	05:57		19:33 (MO04)	05:37		19:28 (MO04)
	17:02	17:41	18:16	19:51	20:25	27	20:00 (MO04)	20:51	48	20:16 (MO04)
13	07:42	07:15	06:31	06:38	05:56		19:32 (MO04)	05:37		19:28 (MO04)
	17:03	17:43	18:17	19:52	20:26	29	20:01 (MO04)	20:52	48	20:16 (MO04)
14	07:42	07:13	06:30	06:36	05:55		19:31 (MO04)	05:36		19:29 (MO04)
	17:04	17:44	18:18	19:54	20:27	31	20:02 (MO04)	20:52	48	20:17 (MO04)
15	07:41	07:12	06:28	06:35	05:54		19:30 (MO04)	05:36		19:29 (MO04)
	17:06	17:45	18:19	19:55	20:28	33	20:03 (MO04)	20:52	48	20:17 (MO04)
16	07:41	07:11	06:26	06:33	05:52		19:29 (MO04)	05:36		19:29 (MO04)
	17:07	17:46	18:21	19:56	20:29	35	20:04 (MO04)	20:53	48	20:17 (MO04)
17	07:40	07:09	06:24	06:32	05:51		19:29 (MO04)	05:36		19:29 (MO04)
	17:08	17:48	18:22	19:57	20:30	36	20:05 (MO04)	20:53	48	20:17 (MO04)
18	07:40	07:08	06:23	06:30	05:51		19:28 (MO04)	05:36		19:29 (MO04)
	17:09	17:49	18:23	19:58	20:31	38	20:06 (MO04)	20:54	48	20:17 (MO04)
19	07:39	07:06	06:21	06:28	05:50		19:28 (MO04)	05:37		19:31 (MO04)
	17:10	17:50	18:24	19:59	20:32	40	20:08 (MO04)	20:54	47	20:18 (MO04)
20	07:39	07:05	06:19	06:27	05:49		19:28 (MO04)	05:37		19:31 (MO04)
	17:12	17:52	18:25	20:00	20:33	40	20:08 (MO04)	20:54	47	20:18 (MO04)
21	07:38	07:03	06:17	06:25	05:48		19:27 (MO04)	05:37		19:31 (MO04)
	17:13	17:53	18:26	20:01	20:34	42	20:09 (MO04)	20:54	47	20:18 (MO04)
22	07:37	07:02	06:16	06:24	05:47		19:27 (MO04)	05:37		19:31 (MO04)
	17:14	17:54	18:28	20:03	20:35	43	20:10 (MO04)	20:55	47	20:18 (MO04)
23	07:37	07:00	06:14	06:22	05:46		19:26 (MO04)	05:37		19:31 (MO04)
	17:15	17:55	18:29	20:04	20:36	44	20:10 (MO04)	20:55	47	20:18 (MO04)
24	07:36	06:59	06:12	06:21	05:45		19:27 (MO04)	05:38		19:32 (MO04)
	17:17	17:57	18:30	20:05	20:37	45	20:12 (MO04)	20:55	47	20:19 (MO04)
25	07:35	06:57	06:10	06:19	05:45		19:26 (MO04)	05:38		19:31 (MO04)
	17:18	17:58	18:31	20:06	20:38	47	20:13 (MO04)	20:55	48	20:19 (MO04)
26	07:34	06:56	06:09	06:18	05:44		19:26 (MO04)	05:38		19:31 (MO04)
	17:19	17:59	18:32	20:07	20:39	47	20:13 (MO04)	20:55	48	20:19 (MO04)
27	07:34	06:54	06:07	06:16	05:43		19:26 (MO04)	05:39		19:32 (MO04)
	17:20	18:00	18:33	20:08	20:40	48	20:14 (MO04)	20:55	48	20:20 (MO04)
28	07:33	06:53	06:05	06:15	05:42		19:26 (MO04)	05:39		19:32 (MO04)
	17:22	18:02	18:34	20:09	20:40	47	20:13 (MO04)	20:55	48	20:20 (MO04)
29	07:32		07:03	06:13	05:42		19:26 (MO04)	05:39		19:33 (MO04)
	17:23		19:36	20:10	20:41	48	20:14 (MO04)	20:55	47	20:20 (MO04)
30	07:31		07:02	06:12	05:41		19:26 (MO04)	05:40		19:32 (MO04)
	17:24		19:37	20:12	20:42	48	20:14 (MO04)	20:55	48	20:20 (MO04)
31	07:30		07:00		05:41		19:27 (MO04)			
	17:26		19:38		20:43	48	20:15 (MO04)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						901			1436	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						513			877	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 280 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1178)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September	October	November	December
1	05:40		19:33 (MO04)	06:05		19:44 (MO04)	06:38	07:10	06:46	07:23
	20:55	48	20:21 (MO04)	20:35	26	20:10 (MO04)	19:50	18:57	17:09	16:43
2	05:41		19:33 (MO04)	06:06		19:46 (MO04)	06:39	07:11	06:48	07:24
	20:55	48	20:21 (MO04)	20:34	23	20:09 (MO04)	19:48	18:56	17:07	16:42
3	05:41		19:33 (MO04)	06:07		19:47 (MO04)	06:40	07:12	06:49	07:25
	20:55	48	20:21 (MO04)	20:33	21	20:08 (MO04)	19:46	18:54	17:06	16:42
4	05:42		19:33 (MO04)	06:08		19:50 (MO04)	06:41	07:13	06:50	07:26
	20:54	48	20:21 (MO04)	20:31	17	20:07 (MO04)	19:45	18:52	17:05	16:42
5	05:42		19:33 (MO04)	06:09		19:53 (MO04)	06:42	07:14	06:51	07:27
	20:54	49	20:22 (MO04)	20:30	13	20:06 (MO04)	19:43	18:50	17:04	16:42
6	05:43		19:33 (MO04)	06:11			06:43	07:16	06:53	07:28
	20:54	48	20:21 (MO04)	20:29			19:41	18:49	17:02	16:41
7	05:44		19:33 (MO04)	06:12			06:44	07:17	06:54	07:29
	20:54	49	20:22 (MO04)	20:28			19:40	18:47	17:01	16:41
8	05:44		19:34 (MO04)	06:13			06:45	07:18	06:55	07:30
	20:53	48	20:22 (MO04)	20:26			19:38	18:45	17:00	16:41
9	05:45		19:33 (MO04)	06:14			06:47	07:19	06:56	07:31
	20:53	49	20:22 (MO04)	20:25			19:36	18:44	16:59	16:41
10	05:46		19:34 (MO04)	06:15			06:48	07:20	06:58	07:32
	20:52	48	20:22 (MO04)	20:24			19:34	18:42	16:58	16:41
11	05:46		19:34 (MO04)	06:16			06:49	07:21	06:59	07:33
	20:52	49	20:23 (MO04)	20:22			19:33	18:40	16:57	16:41
12	05:47		19:34 (MO04)	06:17			06:50	07:22	07:00	07:33
	20:52	48	20:22 (MO04)	20:21			19:31	18:39	16:56	16:41
13	05:48		19:34 (MO04)	06:18			06:51	07:24	07:01	07:34
	20:51	48	20:22 (MO04)	20:19			19:29	18:37	16:55	16:41
14	05:49		19:35 (MO04)	06:19			06:52	07:25	07:03	07:35
	20:50	48	20:23 (MO04)	20:18			19:27	18:35	16:54	16:42
15	05:50		19:35 (MO04)	06:20			06:53	07:26	07:04	07:36
	20:50	48	20:23 (MO04)	20:17			19:26	18:34	16:53	16:42
16	05:50		19:36 (MO04)	06:21			06:54	07:27	07:05	07:36
	20:49	47	20:23 (MO04)	20:15			19:24	18:32	16:52	16:42
17	05:51		19:35 (MO04)	06:22			06:55	07:28	07:06	07:37
	20:49	47	20:22 (MO04)	20:14			19:22	18:30	16:51	16:42
18	05:52		19:35 (MO04)	06:23			06:56	07:29	07:08	07:38
	20:48	47	20:22 (MO04)	20:12			19:20	18:29	16:50	16:43
19	05:53		19:36 (MO04)	06:24			06:57	07:30	07:09	07:38
	20:47	46	20:22 (MO04)	20:11			19:18	18:27	16:49	16:43
20	05:54		19:36 (MO04)	06:25			06:58	07:32	07:10	07:39
	20:46	45	20:21 (MO04)	20:09			19:17	18:26	16:49	16:43
21	05:55		19:37 (MO04)	06:26			06:59	07:33	07:11	07:40
	20:46	44	20:21 (MO04)	20:08			19:15	18:24	16:48	16:44
22	05:56		19:37 (MO04)	06:27			07:00	07:34	07:12	07:40
	20:45	43	20:20 (MO04)	20:06			19:13	18:23	16:47	16:44
23	05:57		19:38 (MO04)	06:29			07:01	07:35	07:14	07:41
	20:44	41	20:19 (MO04)	20:05			19:11	18:21	16:47	16:45
24	05:58		19:37 (MO04)	06:30			07:02	07:36	07:15	07:41
	20:43	41	20:18 (MO04)	20:03			19:10	18:20	16:46	16:45
25	05:58		19:38 (MO04)	06:31			07:04	06:38	07:16	07:42
	20:42	39	20:17 (MO04)	20:01			19:08	17:18	16:45	16:46
26	05:59		19:39 (MO04)	06:32			07:05	06:39	07:17	07:42
	20:41	37	20:16 (MO04)	20:00			19:06	17:17	16:45	16:47
27	06:00		19:39 (MO04)	06:33			07:06	06:40	07:18	07:42
	20:40	36	20:15 (MO04)	19:58			19:04	17:15	16:44	16:47
28	06:01		19:40 (MO04)	06:34			07:07	06:41	07:19	07:43
	20:39	34	20:14 (MO04)	19:56			19:03	17:14	16:44	16:48
29	06:02		19:41 (MO04)	06:35			07:08	06:43	07:21	07:43
	20:38	32	20:13 (MO04)	19:55			19:01	17:13	16:43	16:49
30	06:03		19:42 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	30	20:12 (MO04)	19:53			18:59	17:11	16:43	16:49
31	06:04		19:43 (MO04)	06:37				06:45		07:43
	20:36	28	20:11 (MO04)	19:51				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		1361			100					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		960			70					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 281 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1213)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 282 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1215)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 283 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1214)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:10	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 284 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1182)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 285 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1183)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
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	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
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	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
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	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
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25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 286 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1184)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:33
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12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
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	17:03	17:43	18:17	19:52	20:26	20:52	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
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	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
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	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
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29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:49
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 287 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1185)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
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	17:03	17:43	18:17	19:52	20:26	20:51	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 288 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1186)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:43	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:47	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:07	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:32	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:08	06:41	07:13	06:50	07:26
	16:54	17:31	18:06	19:42	20:16	20:46	20:54	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:51	06:05	05:38	05:42	06:09	06:42	07:14	06:51	07:27
	16:55	17:32	18:08	19:43	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:23	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:33	18:09	19:45	20:18	20:47	20:54	20:29	19:41	18:49	17:02	16:41
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:01	05:37	05:44	06:13	06:45	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:20	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
	16:59	17:37	18:12	19:48	20:22	20:49	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:36	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:52	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:46	06:16	06:49	07:21	06:59	07:32
	17:01	17:40	18:15	19:50	20:24	20:50	20:52	20:22	19:33	18:40	16:57	16:41
12	07:42	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:51	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:23	07:01	07:34
	17:03	17:43	18:17	19:52	20:26	20:51	20:51	20:19	19:29	18:37	16:55	16:41
14	07:42	07:13	06:30	06:36	05:55	05:36	05:49	06:19	06:52	07:25	07:03	07:35
	17:04	17:44	18:18	19:54	20:27	20:52	20:50	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:19	19:55	20:28	20:52	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:52	05:36	05:50	06:21	06:54	07:27	07:05	07:36
	17:07	17:46	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:51	05:36	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:30	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:36	05:52	06:23	06:56	07:29	07:07	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:12	19:20	18:29	16:50	16:43
19	07:39	07:06	06:21	06:28	05:50	05:37	05:53	06:24	06:57	07:30	07:09	07:38
	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:18	18:27	16:49	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:43
21	07:38	07:03	06:17	06:25	05:48	05:37	05:55	06:26	06:59	07:33	07:11	07:40
	17:13	17:53	18:26	20:01	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
22	07:37	07:02	06:16	06:24	05:47	05:37	05:56	06:27	07:00	07:34	07:12	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:44
23	07:37	07:00	06:14	06:22	05:46	05:37	05:57	06:29	07:01	07:35	07:14	07:41
	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:04	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:02	07:36	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:45
25	07:35	06:57	06:10	06:19	05:45	05:38	05:58	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
26	07:34	06:56	06:09	06:18	05:44	05:38	05:59	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:54	06:07	06:16	05:43	05:39	06:00	06:33	07:06	06:40	07:18	07:42
	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:42	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:40	20:55	20:39	19:56	19:03	17:14	16:44	16:48
29	07:32		07:03	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:20	07:43
	17:23		19:35	20:10	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:51		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 289 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1187)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:58	06:11	05:40	05:40	06:05	06:38	07:10	06:46	07:23
	16:51	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:57	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:06	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:07	16:42
3	07:44	07:27	06:48	06:55	06:08	05:39	05:41	06:08	06:40	07:12	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:45	20:55	20:33	19:46	18:54	17:06	16:42
4	07:44	07:26	06:46	06:53	06:07	05:39	05:42	06:09	06:41	07:13	06:50	07:26
	16:54	17:31	18:07	19:42	20:16	20:46	20:55	20:31	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:38	05:43	06:10	06:42	07:15	06:51	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:54	20:30	19:43	18:50	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:43	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:18	20:48	20:54	20:29	19:41	18:49	17:02	16:42
7	07:44	07:22	06:41	06:48	06:03	05:38	05:44	06:12	06:44	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:19	20:48	20:54	20:28	19:40	18:47	17:01	16:41
8	07:43	07:21	06:40	06:46	06:02	05:37	05:44	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:11	19:47	20:21	20:49	20:53	20:26	19:38	18:45	17:00	16:41
9	07:43	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:56	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:34	18:42	16:58	16:41
11	07:43	07:17	06:35	06:41	05:58	05:37	05:47	06:16	06:49	07:21	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:22	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:22	07:00	07:33
	17:02	17:41	18:16	19:51	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:41
13	07:42	07:15	06:31	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:01	07:34
	17:03	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:13	06:30	06:36	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:18	19:54	20:27	20:52	20:51	20:18	19:27	18:35	16:54	16:42
15	07:41	07:12	06:28	06:35	05:54	05:36	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:36	05:50	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:49	20:15	19:24	18:32	16:52	16:42
17	07:40	07:09	06:24	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:06	07:37
	17:08	17:48	18:22	19:57	20:30	20:53	20:49	20:14	19:22	18:31	16:51	16:42
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:29	07:08	07:38
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	17:10	17:50	18:24	19:59	20:32	20:54	20:47	20:11	19:19	18:27	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:25	06:58	07:32	07:10	07:39
	17:12	17:52	18:25	20:00	20:33	20:54	20:46	20:09	19:17	18:26	16:49	16:44
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	17:13	17:53	18:26	20:02	20:34	20:54	20:46	20:08	19:15	18:24	16:48	16:44
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	17:15	17:55	18:29	20:04	20:36	20:55	20:44	20:05	19:11	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:45	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
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	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:01	19:08	17:18	16:45	16:46
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	17:20	18:00	18:33	20:08	20:40	20:55	20:40	19:58	19:04	17:15	16:44	16:47
28	07:33	06:53	06:05	06:15	05:43	05:39	06:01	06:34	07:07	06:41	07:19	07:43
	17:22	18:02	18:34	20:09	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:13	05:42	05:39	06:02	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:41	20:55	20:38	19:55	19:01	17:13	16:43	16:49
30	07:31		07:02	06:12	05:41	05:40	06:03	06:36	07:09	06:44	07:22	07:43
	17:24		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:04	06:37		06:45		07:43
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 290 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1188)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:58	06:11			05:40		06:16 (MO04)
	16:51	17:27	18:03	19:39	20:13			20:44	14	06:30 (MO04)
2	07:44	07:28	06:50	06:57	06:09			05:40		06:18 (MO04)
	16:52	17:28	18:04	19:40	20:14			20:45	12	06:30 (MO04)
3	07:44	07:27	06:48	06:55	06:08			05:39		06:19 (MO04)
	16:53	17:30	18:05	19:41	20:15			20:45	9	06:28 (MO04)
4	07:44	07:26	06:46	06:53	06:07			05:39		06:20 (MO04)
	16:54	17:31	18:07	19:42	20:16			20:46	7	06:27 (MO04)
5	07:44	07:25	06:45	06:52	06:05			05:38		
	16:55	17:32	18:08	19:44	20:17			20:47		
6	07:44	07:24	06:43	06:50	06:04			05:38		
	16:56	17:34	18:09	19:45	20:18			20:48		
7	07:44	07:22	06:41	06:48	06:03		06:23 (MO04)	05:38		
	16:57	17:35	18:10	19:46	20:19	3	06:26 (MO04)	20:48		
8	07:44	07:21	06:40	06:46	06:02		06:22 (MO04)	05:38		
	16:58	17:36	18:11	19:47	20:21	7	06:29 (MO04)	20:49		
9	07:43	07:20	06:38	06:45	06:00		06:21 (MO04)	05:37		
	16:59	17:37	18:13	19:48	20:22	10	06:31 (MO04)	20:49		
10	07:43	07:19	06:36	06:43	05:59		06:20 (MO04)	05:37		
	17:00	17:39	18:14	19:49	20:23	12	06:32 (MO04)	20:50		
11	07:43	07:17	06:35	06:41	05:58		06:18 (MO04)	05:37		
	17:01	17:40	18:15	19:50	20:24	14	06:32 (MO04)	20:51		
12	07:43	07:16	06:33	06:40	05:57		06:17 (MO04)	05:37		
	17:02	17:41	18:16	19:51	20:25	16	06:33 (MO04)	20:51		
13	07:42	07:15	06:31	06:38	05:56		06:16 (MO04)	05:37		
	17:03	17:43	18:17	19:53	20:26	17	06:33 (MO04)	20:52		
14	07:42	07:14	06:30	06:36	05:55		06:15 (MO04)	05:37		
	17:05	17:44	18:18	19:54	20:27	19	06:34 (MO04)	20:52		
15	07:41	07:12	06:28	06:35	05:54		06:14 (MO04)	05:37		
	17:06	17:45	18:20	19:55	20:28	20	06:34 (MO04)	20:53		
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37		
	17:07	17:47	18:21	19:56	20:29	21	06:34 (MO04)	20:53		
17	07:41	07:09	06:24	06:32	05:52		06:12 (MO04)	05:37		
	17:08	17:48	18:22	19:57	20:30	22	06:34 (MO04)	20:53		
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO04)	05:37		
	17:09	17:49	18:23	19:58	20:31	23	06:35 (MO04)	20:54		
19	07:39	07:07	06:21	06:28	05:50		06:11 (MO04)	05:37		
	17:10	17:50	18:24	19:59	20:32	24	06:35 (MO04)	20:54		
20	07:39	07:05	06:19	06:27	05:49		06:10 (MO04)	05:37		
	17:12	17:52	18:25	20:00	20:33	25	06:35 (MO04)	20:54		
21	07:38	07:04	06:18	06:25	05:48		06:10 (MO04)	05:37		
	17:13	17:53	18:27	20:02	20:34	25	06:35 (MO04)	20:55		
22	07:38	07:02	06:16	06:24	05:47		06:10 (MO04)	05:37		
	17:14	17:54	18:28	20:03	20:35	24	06:34 (MO04)	20:55		
23	07:37	07:01	06:14	06:22	05:46		06:11 (MO04)	05:37		
	17:15	17:55	18:29	20:04	20:36	24	06:35 (MO04)	20:55		
24	07:36	06:59	06:12	06:21	05:45		06:11 (MO04)	05:38		
	17:17	17:57	18:30	20:05	20:37	23	06:34 (MO04)	20:55		
25	07:35	06:58	06:11	06:19	05:45		06:11 (MO04)	05:38		
	17:18	17:58	18:31	20:06	20:38	23	06:34 (MO04)	20:55		
26	07:34	06:56	06:09	06:18	05:44		06:13 (MO04)	05:38		
	17:19	17:59	18:32	20:07	20:39	21	06:34 (MO04)	20:55		
27	07:34	06:54	06:07	06:16	05:43		06:13 (MO04)	05:39		
	17:21	18:00	18:33	20:08	20:40	20	06:33 (MO04)	20:55		
28	07:33	06:53	06:05	06:15	05:43		06:13 (MO04)	05:39		
	17:22	18:02	18:34	20:09	20:41	19	06:32 (MO04)	20:55		
29	07:32		07:04	06:13	05:42		06:14 (MO04)	05:39		
	17:23		19:36	20:11	20:41	18	06:32 (MO04)	20:55		
30	07:31		07:02	06:12	05:41		06:15 (MO04)	05:40		
	17:24		19:37	20:12	20:42	16	06:31 (MO04)	20:55		
31	07:30		07:00		05:41		06:16 (MO04)			
	17:26		19:38		20:43	15	06:31 (MO04)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						461			42	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						262			26	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 290 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1188)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July			August			September	October	November	December
1	05:40			06:06		06:28 (MO04)	06:38	07:10	06:46	07:23
	20:55			20:35	15	06:43 (MO04)	19:50	18:57	17:09	16:43
2	05:41			06:07		06:29 (MO04)	06:39	07:11	06:48	07:24
	20:55			20:34	13	06:42 (MO04)	19:48	18:56	17:07	16:42
3	05:41			06:08		06:30 (MO04)	06:40	07:12	06:49	07:25
	20:55			20:33	11	06:41 (MO04)	19:47	18:54	17:06	16:42
4	05:42			06:09		06:31 (MO04)	06:41	07:13	06:50	07:26
	20:55			20:31	9	06:40 (MO04)	19:45	18:52	17:05	16:42
5	05:43			06:10		06:32 (MO04)	06:42	07:15	06:51	07:27
	20:54			20:30	6	06:38 (MO04)	19:43	18:50	17:04	16:42
6	05:43			06:11		06:33 (MO04)	06:43	07:16	06:53	07:28
	20:54			20:29	1	06:34 (MO04)	19:41	18:49	17:02	16:42
7	05:44			06:12			06:45	07:17	06:54	07:29
	20:54			20:28			19:40	18:47	17:01	16:41
8	05:44		06:29 (MO04)	06:13			06:46	07:18	06:55	07:30
	20:53	5	06:34 (MO04)	20:26			19:38	18:45	17:00	16:41
9	05:45		06:26 (MO04)	06:14			06:47	07:19	06:56	07:31
	20:53	9	06:35 (MO04)	20:25			19:36	18:44	16:59	16:41
10	05:46		06:26 (MO04)	06:15			06:48	07:20	06:58	07:32
	20:53	11	06:37 (MO04)	20:24			19:34	18:42	16:58	16:41
11	05:47		06:25 (MO04)	06:16			06:49	07:21	06:59	07:33
	20:52	13	06:38 (MO04)	20:22			19:33	18:40	16:57	16:41
12	05:47		06:25 (MO04)	06:17			06:50	07:22	07:00	07:33
	20:52	14	06:39 (MO04)	20:21			19:31	18:39	16:56	16:41
13	05:48		06:23 (MO04)	06:18			06:51	07:24	07:01	07:34
	20:51	16	06:39 (MO04)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:23 (MO04)	06:19			06:52	07:25	07:03	07:35
	20:51	18	06:41 (MO04)	20:18			19:27	18:35	16:54	16:42
15	05:50		06:23 (MO04)	06:20			06:53	07:26	07:04	07:36
	20:50	18	06:41 (MO04)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:22 (MO04)	06:21			06:54	07:27	07:05	07:37
	20:49	20	06:42 (MO04)	20:15			19:24	18:32	16:52	16:42
17	05:51		06:22 (MO04)	06:22			06:55	07:28	07:06	07:37
	20:49	21	06:43 (MO04)	20:14			19:22	18:31	16:51	16:42
18	05:52		06:21 (MO04)	06:23			06:56	07:29	07:08	07:38
	20:48	22	06:43 (MO04)	20:12			19:20	18:29	16:50	16:43
19	05:53		06:21 (MO04)	06:24			06:57	07:31	07:09	07:39
	20:47	22	06:43 (MO04)	20:11			19:19	18:27	16:50	16:43
20	05:54		06:21 (MO04)	06:25			06:58	07:32	07:10	07:39
	20:46	23	06:44 (MO04)	20:09			19:17	18:26	16:49	16:44
21	05:55		06:21 (MO04)	06:27			06:59	07:33	07:11	07:40
	20:46	24	06:45 (MO04)	20:08			19:15	18:24	16:48	16:44
22	05:56		06:21 (MO04)	06:28			07:00	07:34	07:12	07:40
	20:45	24	06:45 (MO04)	20:06			19:13	18:23	16:47	16:45
23	05:57		06:21 (MO04)	06:29			07:01	07:35	07:14	07:41
	20:44	24	06:45 (MO04)	20:05			19:11	18:21	16:47	16:45
24	05:58		06:21 (MO04)	06:30			07:03	07:37	07:15	07:41
	20:43	25	06:46 (MO04)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:22 (MO04)	06:31			07:04	06:38	07:16	07:42
	20:42	24	06:46 (MO04)	20:01			19:08	17:18	16:46	16:46
26	06:00		06:22 (MO04)	06:32			07:05	06:39	07:17	07:42
	20:41	23	06:45 (MO04)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:23 (MO04)	06:33			07:06	06:40	07:18	07:42
	20:40	22	06:45 (MO04)	19:58			19:04	17:16	16:44	16:47
28	06:01		06:24 (MO04)	06:34			07:07	06:41	07:20	07:43
	20:39	21	06:45 (MO04)	19:57			19:03	17:14	16:44	16:48
29	06:02		06:25 (MO04)	06:35			07:08	06:43	07:21	07:43
	20:38	19	06:44 (MO04)	19:55			19:01	17:13	16:44	16:49
30	06:03		06:26 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	18	06:44 (MO04)	19:53			18:59	17:11	16:43	16:50
31	06:04		06:27 (MO04)	06:37				06:45		07:43
	20:36	17	06:44 (MO04)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		453			55					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		319			39					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 291 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1189)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May			June		
1	07:44	07:29	06:51	06:58	06:11			05:40		06:07 (MO04)
	16:51	17:27	18:03	19:39	20:13			20:44	22	06:29 (MO04)
2	07:44	07:28	06:50	06:57	06:09			05:40		06:07 (MO04)
	16:52	17:28	18:04	19:40	20:14			20:45	22	06:29 (MO04)
3	07:44	07:27	06:48	06:55	06:08			05:39		06:07 (MO04)
	16:53	17:30	18:05	19:41	20:15			20:45	21	06:28 (MO04)
4	07:44	07:26	06:46	06:53	06:07			05:39		06:08 (MO04)
	16:54	17:31	18:07	19:42	20:16			20:46	21	06:29 (MO04)
5	07:44	07:25	06:45	06:52	06:05			05:38		06:09 (MO04)
	16:55	17:32	18:08	19:44	20:17			20:47	20	06:29 (MO04)
6	07:44	07:24	06:43	06:50	06:04			05:38		06:10 (MO04)
	16:56	17:34	18:09	19:45	20:18			20:48	19	06:29 (MO04)
7	07:44	07:22	06:41	06:48	06:03			05:38		06:10 (MO04)
	16:57	17:35	18:10	19:46	20:19			20:48	18	06:28 (MO04)
8	07:44	07:21	06:40	06:46	06:02			05:38		06:10 (MO04)
	16:58	17:36	18:11	19:47	20:21			20:49	18	06:28 (MO04)
9	07:43	07:20	06:38	06:45	06:00			05:37		06:11 (MO04)
	16:59	17:37	18:13	19:48	20:22			20:49	17	06:28 (MO04)
10	07:43	07:19	06:36	06:43	05:59			05:37		06:12 (MO04)
	17:00	17:39	18:14	19:49	20:23			20:50	16	06:28 (MO04)
11	07:43	07:17	06:35	06:41	05:58			05:37		06:13 (MO04)
	17:01	17:40	18:15	19:50	20:24			20:51	15	06:28 (MO04)
12	07:43	07:16	06:33	06:40	05:57		06:17 (MO04)	05:37		06:12 (MO04)
	17:02	17:41	18:16	19:51	20:25	3	06:20 (MO04)	20:51	15	06:27 (MO04)
13	07:42	07:15	06:31	06:38	05:56		06:16 (MO04)	05:37		06:13 (MO04)
	17:03	17:43	18:17	19:53	20:26	6	06:22 (MO04)	20:52	14	06:27 (MO04)
14	07:42	07:14	06:30	06:36	05:55		06:15 (MO04)	05:37		06:13 (MO04)
	17:05	17:44	18:18	19:54	20:27	9	06:24 (MO04)	20:52	14	06:27 (MO04)
15	07:41	07:12	06:28	06:35	05:54		06:14 (MO04)	05:37		06:14 (MO04)
	17:06	17:45	18:20	19:55	20:28	11	06:25 (MO04)	20:53	12	06:26 (MO04)
16	07:41	07:11	06:26	06:33	05:53		06:13 (MO04)	05:37		06:14 (MO04)
	17:07	17:47	18:21	19:56	20:29	13	06:26 (MO04)	20:53	12	06:26 (MO04)
17	07:41	07:09	06:24	06:32	05:52		06:12 (MO04)	05:37		06:16 (MO04)
	17:08	17:48	18:22	19:57	20:30	15	06:27 (MO04)	20:53	11	06:27 (MO04)
18	07:40	07:08	06:23	06:30	05:51		06:12 (MO04)	05:37		06:16 (MO04)
	17:09	17:49	18:23	19:58	20:31	16	06:28 (MO04)	20:54	11	06:27 (MO04)
19	07:39	07:07	06:21	06:28	05:50		06:11 (MO04)	05:37		06:16 (MO04)
	17:10	17:50	18:24	19:59	20:32	17	06:28 (MO04)	20:54	11	06:27 (MO04)
20	07:39	07:05	06:19	06:27	05:49		06:10 (MO04)	05:37		06:17 (MO04)
	17:12	17:52	18:25	20:00	20:33	19	06:29 (MO04)	20:54	10	06:27 (MO04)
21	07:38	07:04	06:18	06:25	05:48		06:09 (MO04)	05:37		06:17 (MO04)
	17:13	17:53	18:27	20:02	20:34	20	06:29 (MO04)	20:55	10	06:27 (MO04)
22	07:38	07:02	06:16	06:24	05:47		06:08 (MO04)	05:37		06:17 (MO04)
	17:14	17:54	18:28	20:03	20:35	21	06:29 (MO04)	20:55	10	06:27 (MO04)
23	07:37	07:01	06:14	06:22	05:46		06:08 (MO04)	05:37		06:17 (MO04)
	17:15	17:55	18:29	20:04	20:36	22	06:30 (MO04)	20:55	11	06:28 (MO04)
24	07:36	06:59	06:12	06:21	05:45		06:07 (MO04)	05:38		06:17 (MO04)
	17:17	17:57	18:30	20:05	20:37	22	06:29 (MO04)	20:55	11	06:28 (MO04)
25	07:35	06:58	06:11	06:19	05:45		06:06 (MO04)	05:38		06:17 (MO04)
	17:18	17:58	18:31	20:06	20:38	23	06:29 (MO04)	20:55	11	06:28 (MO04)
26	07:34	06:56	06:09	06:18	05:44		06:06 (MO04)	05:38		06:18 (MO04)
	17:19	17:59	18:32	20:07	20:39	24	06:30 (MO04)	20:55	11	06:29 (MO04)
27	07:34	06:54	06:07	06:16	05:43		06:05 (MO04)	05:39		06:17 (MO04)
	17:21	18:00	18:33	20:08	20:40	25	06:30 (MO04)	20:55	12	06:29 (MO04)
28	07:33	06:53	06:05	06:15	05:43		06:05 (MO04)	05:39		06:17 (MO04)
	17:22	18:02	18:34	20:09	20:41	24	06:29 (MO04)	20:55	12	06:29 (MO04)
29	07:32		07:04	06:13	05:42		06:06 (MO04)	05:39		06:17 (MO04)
	17:23		19:36	20:11	20:41	24	06:30 (MO04)	20:55	14	06:31 (MO04)
30	07:31		07:02	06:12	05:41		06:06 (MO04)	05:40		06:17 (MO04)
	17:24		19:37	20:12	20:42	23	06:29 (MO04)	20:55	14	06:31 (MO04)
31	07:30		07:00		05:41		06:07 (MO04)			
	17:26		19:38		20:43	23	06:30 (MO04)			
Potential sun hours	293	295	369	400	452			457		
Total, worst case						360			435	
Sun reduction						0.57			0.61	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.57			0.61	
Total, real						205			266	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 291 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1189)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September	October	November	December
1	05:40		06:17 (MO04)	06:06		06:28 (MO04)	06:38	07:10	06:46	07:23
	20:55	15	06:32 (MO04)	20:35	1	06:29 (MO04)	19:50	18:57	17:09	16:43
2	05:41		06:16 (MO04)	06:07			06:39	07:11	06:48	07:24
	20:55	16	06:32 (MO04)	20:34			19:48	18:56	17:07	16:42
3	05:41		06:16 (MO04)	06:08			06:40	07:12	06:49	07:25
	20:55	17	06:33 (MO04)	20:33			19:47	18:54	17:06	16:42
4	05:42		06:16 (MO04)	06:09			06:41	07:13	06:50	07:26
	20:55	17	06:33 (MO04)	20:31			19:45	18:52	17:05	16:42
5	05:43		06:16 (MO04)	06:10			06:42	07:15	06:51	07:27
	20:54	18	06:34 (MO04)	20:30			19:43	18:50	17:04	16:42
6	05:43		06:16 (MO04)	06:11			06:43	07:16	06:53	07:28
	20:54	19	06:35 (MO04)	20:29			19:41	18:49	17:02	16:42
7	05:44		06:15 (MO04)	06:12			06:45	07:17	06:54	07:29
	20:54	20	06:35 (MO04)	20:28			19:40	18:47	17:01	16:41
8	05:44		06:16 (MO04)	06:13			06:46	07:18	06:55	07:30
	20:53	20	06:36 (MO04)	20:26			19:38	18:45	17:00	16:41
9	05:45		06:15 (MO04)	06:14			06:47	07:19	06:56	07:31
	20:53	20	06:35 (MO04)	20:25			19:36	18:44	16:59	16:41
10	05:46		06:15 (MO04)	06:15			06:48	07:20	06:58	07:32
	20:53	21	06:36 (MO04)	20:24			19:34	18:42	16:58	16:41
11	05:47		06:15 (MO04)	06:16			06:49	07:21	06:59	07:33
	20:52	22	06:37 (MO04)	20:22			19:33	18:40	16:57	16:41
12	05:47		06:15 (MO04)	06:17			06:50	07:22	07:00	07:33
	20:52	23	06:38 (MO04)	20:21			19:31	18:39	16:56	16:41
13	05:48		06:14 (MO04)	06:18			06:51	07:24	07:01	07:34
	20:51	23	06:37 (MO04)	20:20			19:29	18:37	16:55	16:42
14	05:49		06:14 (MO04)	06:19			06:52	07:25	07:03	07:35
	20:51	24	06:38 (MO04)	20:18			19:27	18:35	16:54	16:42
15	05:50		06:15 (MO04)	06:20			06:53	07:26	07:04	07:36
	20:50	23	06:38 (MO04)	20:17			19:26	18:34	16:53	16:42
16	05:51		06:15 (MO04)	06:21			06:54	07:27	07:05	07:37
	20:49	24	06:39 (MO04)	20:15			19:24	18:32	16:52	16:42
17	05:51		06:15 (MO04)	06:22			06:55	07:28	07:06	07:37
	20:49	24	06:39 (MO04)	20:14			19:22	18:31	16:51	16:42
18	05:52		06:15 (MO04)	06:23			06:56	07:29	07:08	07:38
	20:48	24	06:39 (MO04)	20:12			19:20	18:29	16:50	16:43
19	05:53		06:16 (MO04)	06:24			06:57	07:31	07:09	07:39
	20:47	23	06:39 (MO04)	20:11			19:19	18:27	16:50	16:43
20	05:54		06:17 (MO04)	06:25			06:58	07:32	07:10	07:39
	20:46	22	06:39 (MO04)	20:09			19:17	18:26	16:49	16:44
21	05:55		06:18 (MO04)	06:27			06:59	07:33	07:11	07:40
	20:46	21	06:39 (MO04)	20:08			19:15	18:24	16:48	16:44
22	05:56		06:19 (MO04)	06:28			07:00	07:34	07:12	07:40
	20:45	20	06:39 (MO04)	20:06			19:13	18:23	16:47	16:45
23	05:57		06:20 (MO04)	06:29			07:01	07:35	07:14	07:41
	20:44	19	06:39 (MO04)	20:05			19:11	18:21	16:47	16:45
24	05:58		06:21 (MO04)	06:30			07:03	07:37	07:15	07:41
	20:43	18	06:39 (MO04)	20:03			19:10	18:20	16:46	16:46
25	05:59		06:22 (MO04)	06:31			07:04	06:38	07:16	07:42
	20:42	17	06:39 (MO04)	20:01			19:08	17:18	16:46	16:46
26	06:00		06:22 (MO04)	06:32			07:05	06:39	07:17	07:42
	20:41	15	06:37 (MO04)	20:00			19:06	17:17	16:45	16:47
27	06:01		06:23 (MO04)	06:33			07:06	06:40	07:18	07:42
	20:40	14	06:37 (MO04)	19:58			19:04	17:16	16:44	16:47
28	06:01		06:24 (MO04)	06:34			07:07	06:41	07:20	07:43
	20:39	12	06:36 (MO04)	19:57			19:03	17:14	16:44	16:48
29	06:02		06:25 (MO04)	06:35			07:08	06:43	07:21	07:43
	20:38	10	06:35 (MO04)	19:55			19:01	17:13	16:44	16:49
30	06:03		06:26 (MO04)	06:36			07:09	06:44	07:22	07:43
	20:37	8	06:34 (MO04)	19:53			18:59	17:11	16:43	16:50
31	06:04		06:27 (MO04)	06:37				06:45		07:43
	20:36	5	06:32 (MO04)	19:52				17:10		16:50
Potential sun hours	463			431			376	344	295	283
Total, worst case		574			1					
Sun reduction		0.71			0.70					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.71			0.70					
Total, real		405			1					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 292 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1190)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February			March			April	May	June	July	August	September	October			November	December
1	07:44	07:29			06:51		07:11 (MO05)	06:59	06:11	05:40	05:41	06:06	06:38	07:10			06:47	07:23
	16:52	17:27			18:03	13	07:24 (MO05)	19:39	20:13	20:44	20:55	20:35	19:50	18:58			17:09	16:43
2	07:44	07:28			06:50		07:09 (MO05)	06:57	06:09	05:40	05:41	06:07	06:39	07:11			06:48	07:24
	16:53	17:28			18:04	15	07:24 (MO05)	19:40	20:14	20:45	20:55	20:34	19:48	18:56			17:08	16:43
3	07:44	07:27			06:48		07:08 (MO05)	06:55	06:08	05:39	05:42	06:08	06:40	07:13			06:49	07:25
	16:53	17:30			18:06	17	07:25 (MO05)	19:41	20:15	20:46	20:55	20:33	19:47	18:54			17:06	16:42
4	07:44	07:26			06:47		07:06 (MO05)	06:53	06:07	05:39	05:42	06:09	06:42	07:14		07:43 (MO05)	06:50	07:26
	16:54	17:31			18:07	18	07:24 (MO05)	19:43	20:16	20:46	20:55	20:32	19:45	18:52	11	07:54 (MO05)	17:05	16:42
5	07:44	07:25			06:45		07:04 (MO05)	06:52	06:06	05:39	05:43	06:10	06:43	07:15		07:41 (MO05)	06:52	07:27
	16:55	17:32			18:08	19	07:23 (MO05)	19:44	20:17	20:47	20:55	20:30	19:43	18:51	15	07:56 (MO05)	17:04	16:42
6	07:44	07:24			06:43		07:03 (MO05)	06:50	06:04	05:38	05:43	06:11	06:44	07:16		07:39 (MO05)	06:53	07:28
	16:56	17:34			18:09	20	07:23 (MO05)	19:45	20:19	20:48	20:54	20:29	19:42	18:49	18	07:57 (MO05)	17:03	16:42
7	07:44	07:23			06:42		07:02 (MO05)	06:48	06:03	05:38	05:44	06:12	06:45	07:17		07:38 (MO05)	06:54	07:29
	16:57	17:35			18:10	20	07:22 (MO05)	19:46	20:20	20:48	20:54	20:28	19:40	18:47	20	07:58 (MO05)	17:01	16:42
8	07:44	07:21			06:40		07:03 (MO05)	06:47	06:02	05:38	05:45	06:13	06:46	07:18		07:39 (MO05)	06:55	07:30
	16:58	17:36			18:12	17	07:20 (MO05)	19:47	20:21	20:49	20:54	20:27	19:38	18:46	20	07:59 (MO05)	17:00	16:42
9	07:44	07:20			06:38		07:04 (MO05)	06:45	06:01	05:37	05:45	06:14	06:47	07:19		07:40 (MO05)	06:57	07:31
	16:59	17:38			18:13	14	07:18 (MO05)	19:48	20:22	20:50	20:53	20:25	19:36	18:44	19	07:59 (MO05)	16:59	16:42
10	07:43	07:19			06:37		07:08 (MO05)	06:43	05:59	05:37	05:46	06:15	06:48	07:20		07:41 (MO05)	06:58	07:32
	17:00	17:39			18:14	7	07:15 (MO05)	19:49	20:23	20:50	20:53	20:24	19:35	18:42	17	07:58 (MO05)	16:58	16:42
11	07:43	07:18			06:35			06:42	05:58	05:37	05:47	06:16	06:49	07:22		07:42 (MO05)	06:59	07:33
	17:01	17:40			18:15			19:50	20:24	20:51	20:52	20:23	19:33	18:40	16	07:58 (MO05)	16:57	16:42
12	07:43	07:16			06:33			06:40	05:57	05:37	05:48	06:17	06:50	07:23		07:43 (MO05)	07:00	07:34
	17:02	17:42			18:16			19:52	20:25	20:51	20:52	20:21	19:31	18:39	14	07:57 (MO05)	16:56	16:42
13	07:42	07:15			06:32			06:38	05:56	05:37	05:48	06:18	06:51	07:24		07:45 (MO05)	07:02	07:34
	17:04	17:43			18:17			19:53	20:26	20:52	20:51	20:20	19:29	18:37	12	07:57 (MO05)	16:55	16:42
14	07:42	07:14			06:30			06:37	05:55	05:37	05:49	06:19	06:52	07:25		07:46 (MO05)	07:03	07:35
	17:05	17:44			18:19			19:54	20:27	20:52	20:51	20:18	19:28	18:36	10	07:56 (MO05)	16:54	16:42
15	07:42	07:12			06:28			06:35	05:54	05:37	05:50	06:20	06:53	07:26		07:47 (MO05)	07:04	07:36
	17:06	17:45			18:20			19:55	20:28	20:53	20:50	20:17	19:26	18:34	8	07:55 (MO05)	16:53	16:42
16	07:41	07:11			06:26			06:33	05:53	05:37	05:51	06:21	06:54	07:27		07:48 (MO05)	07:05	07:37
	17:07	17:47			18:21			19:56	20:29	20:53	20:50	20:15	19:24	18:32	5	07:53 (MO05)	16:52	16:42
17	07:41	07:10			06:25			06:32	05:52	05:37	05:52	06:22	06:55	07:28		07:49 (MO05)	07:07	07:37
	17:08	17:48			18:22			19:57	20:30	20:54	20:49	20:14	19:22	18:31	1	07:50 (MO05)	16:51	16:43
18	07:40	07:08			06:23			06:30	05:51	05:37	05:52	06:23	06:56	07:30			07:08	07:38
	17:09	17:49			18:23			19:58	20:31	20:54	20:48	20:13	19:21	18:29			16:51	16:43
19	07:40	07:07			06:21			06:29	05:50	05:37	05:53	06:25	06:57	07:31			07:09	07:39
	17:11	17:51			18:24			20:00	20:32	20:54	20:47	20:11	19:19	18:28			16:50	16:43
20	07:39	07:05			06:19			06:27	05:49	05:37	05:54	06:26	06:58	07:32			07:10	07:39
	17:12	17:52			18:26			20:01	20:33	20:54	20:47	20:09	19:17	18:26			16:49	16:44
21	07:38	07:04			06:18			06:26	05:48	05:37	05:55	06:27	07:00	07:33			07:11	07:40
	17:13	17:53			18:27			20:02	20:34	20:55	20:46	20:08	19:15	18:25			16:48	16:44
22	07:38	07:02			06:16			06:24	05:47	05:37	05:56	06:28	07:01	07:34			07:13	07:40
	17:14	17:54			18:28			20:03	20:35	20:55	20:45	20:06	19:13	18:23			16:48	16:45
23	07:37	07:01			06:14			06:22	05:46	05:38	05:57	06:29	07:02	07:36			07:14	07:41
	17:16	17:56			18:29			20:04	20:36	20:55	20:44	20:05	19:12	18:21			16:47	16:45
24	07:36	06:59			06:12			06:21	05:46	05:38	05:58	06:30	07:03	07:37			07:15	07:41
	17:17	17:57			18:30			20:05	20:37	20:55	20:43	20:03	19:10	18:20			16:46	16:46
25	07:35	06:58		07:17 (MO05)	06:11			06:19	05:45	05:38	05:59	06:31	07:04	06:38			07:16	07:42
	17:18	17:58	3	07:20 (MO05)	18:31			20:06	20:38	20:55	20:42	20:02	19:08	17:19			16:46	16:46
26	07:35	06:56		07:16 (MO05)	06:09			06:18	05:44	05:38	06:00	06:32	07:05	06:39			07:17	07:42
	17:19	17:59	6	07:22 (MO05)	18:32			20:07	20:39	20:55	20:41	20:00	19:06	17:17			16:45	16:47
27	07:34	06:55		07:14 (MO05)	06:07			06:17	05:43	05:39	06:01	06:33	07:06	06:40			07:19	07:43
	17:21	18:01	9	07:23 (MO05)	18:34			20:09	20:40	20:55	20:40	19:58	19:05	17:16			16:45	16:48
28	07:33	06:53		07:12 (MO05)	06:06			06:15	05:43	05:39	06:02	06:34	07:07	06:42			07:20	07:43
	17:22	18:02	11	07:23 (MO05)	18:35			20:10	20:41	20:55	20:39	19:57	19:03	17:14			16:44	16:48
29	07:32				07:04			06:14	05:42	05:40	06:03	06:35	07:08	06:43			07:21	07:43
	17:23				19:36			20:11	20:42	20:55	20:38	19:55	19:01	17:13			16:44	16:49
30	07:31				07:02			06:12	05:42	05:40	06:04	06:36	07:09	06:44			07:22	07:43
	17:25				19:37			20:12	20:42	20:55	20:37	19:53	18:59	17:12			16:43	16:50
31	07:30				07:00				05:41		06:05	06:37		06:45				07:44
	17:26				19:38				20:43		20:36	19:52		17:10				16:51
Potential sun hours	293	295			369			400	452	457	463	431	376	344			295	283
Total, worst case			29			160									186			
Sun reduction			0.46			0.46									0.55			
Oper. time red.			1.00			1.00									1.00			
Wind dir. red.			1.00			1.00									1.00			
Total reduction			0.46			0.46									0.55			
Total, real			13			73									102			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 293 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1191)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March		April	May	June	July	August	September	October		November	December
1	07:44	07:29		06:51	07:11 (MO05)	06:59	06:11	05:40	05:41	06:06	06:38	07:10		06:47	07:23
	16:52	17:27		18:03	12 07:23 (MO05)	19:39	20:13	20:44	20:55	20:35	19:50	18:58		17:09	16:43
2	07:44	07:28		06:50	07:09 (MO05)	06:57	06:09	05:40	05:41	06:07	06:39	07:11		06:48	07:24
	16:53	17:29		18:04	14 07:23 (MO05)	19:40	20:14	20:45	20:55	20:34	19:48	18:56		17:08	16:43
3	07:44	07:27		06:48	07:08 (MO05)	06:55	06:08	05:39	05:42	06:08	06:40	07:13	07:46 (MO05)	06:49	07:25
	16:53	17:30		18:06	15 07:23 (MO05)	19:41	20:15	20:46	20:55	20:33	19:47	18:54	5 07:51 (MO05)	17:06	16:42
4	07:44	07:26		06:47	07:06 (MO05)	06:53	06:07	05:39	05:42	06:09	06:42	07:14	07:42 (MO05)	06:50	07:26
	16:54	17:31		18:07	17 07:23 (MO05)	19:43	20:16	20:46	20:55	20:32	19:45	18:52	12 07:54 (MO05)	17:05	16:42
5	07:44	07:25		06:45	07:04 (MO05)	06:52	06:06	05:39	05:43	06:10	06:43	07:15	07:39 (MO05)	06:52	07:27
	16:55	17:32		18:08	18 07:22 (MO05)	19:44	20:17	20:47	20:55	20:30	19:43	18:51	16 07:55 (MO05)	17:04	16:42
6	07:44	07:24		06:43	07:03 (MO05)	06:50	06:04	05:38	05:43	06:11	06:44	07:16	07:38 (MO05)	06:53	07:28
	16:56	17:34		18:09	19 07:22 (MO05)	19:45	20:19	20:48	20:54	20:29	19:42	18:49	18 07:56 (MO05)	17:03	16:42
7	07:44	07:23		06:42	07:01 (MO05)	06:48	06:03	05:38	05:44	06:12	06:45	07:17	07:38 (MO05)	06:54	07:29
	16:57	17:35		18:10	20 07:21 (MO05)	19:46	20:20	20:48	20:54	20:28	19:40	18:47	19 07:57 (MO05)	17:01	16:42
8	07:44	07:21		06:40	07:02 (MO05)	06:47	06:02	05:38	05:45	06:13	06:46	07:18	07:39 (MO05)	06:55	07:30
	16:58	17:36		18:12	17 07:19 (MO05)	19:47	20:21	20:49	20:54	20:27	19:38	18:46	19 07:58 (MO05)	17:00	16:42
9	07:44	07:20		06:38	07:03 (MO05)	06:45	06:01	05:37	05:45	06:14	06:47	07:19	07:40 (MO05)	06:57	07:31
	16:59	17:38		18:13	14 07:17 (MO05)	19:48	20:22	20:50	20:53	20:25	19:36	18:44	17 07:57 (MO05)	16:59	16:42
10	07:43	07:19		06:37	07:06 (MO05)	06:43	05:59	05:37	05:46	06:15	06:48	07:20	07:41 (MO05)	06:58	07:32
	17:00	17:39		18:14	9 07:15 (MO05)	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16 07:57 (MO05)	16:58	16:42
11	07:43	07:18		06:35		06:42	05:58	05:37	05:47	06:16	06:49	07:22	07:42 (MO05)	06:59	07:33
	17:01	17:40		18:15		19:50	20:24	20:51	20:52	20:23	19:33	18:40	15 07:57 (MO05)	16:57	16:42
12	07:43	07:16		06:33		06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:43 (MO05)	07:00	07:34
	17:03	17:42		18:16		19:52	20:25	20:51	20:52	20:21	19:31	18:39	13 07:56 (MO05)	16:56	16:42
13	07:42	07:15		06:32		06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:45 (MO05)	07:02	07:34
	17:04	17:43		18:17		19:53	20:26	20:52	20:51	20:20	19:29	18:37	11 07:56 (MO05)	16:55	16:42
14	07:42	07:14		06:30		06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:46 (MO05)	07:03	07:35
	17:05	17:44		18:19		19:54	20:27	20:52	20:51	20:18	19:28	18:36	9 07:55 (MO05)	16:54	16:42
15	07:42	07:12		06:28		06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:47 (MO05)	07:04	07:36
	17:06	17:45		18:20		19:55	20:28	20:53	20:50	20:17	19:26	18:34	6 07:53 (MO05)	16:53	16:42
16	07:41	07:11		06:26		06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:48 (MO05)	07:05	07:37
	17:07	17:47		18:21		19:56	20:29	20:53	20:50	20:15	19:24	18:32	3 07:51 (MO05)	16:52	16:42
17	07:41	07:10		06:25		06:32	05:52	05:37	05:52	06:22	06:55	07:28		07:07	07:37
	17:08	17:48		18:22		19:57	20:30	20:54	20:49	20:14	19:22	18:31		16:51	16:43
18	07:40	07:08		06:23		06:30	05:51	05:37	05:52	06:23	06:56	07:30		07:08	07:38
	17:09	17:49		18:23		19:58	20:31	20:54	20:48	20:13	19:21	18:29		16:51	16:43
19	07:40	07:07		06:21		06:29	05:50	05:37	05:53	06:25	06:57	07:31		07:09	07:39
	17:11	17:51		18:24		20:00	20:32	20:54	20:47	20:11	19:19	18:28		16:50	16:43
20	07:39	07:05		06:19		06:27	05:49	05:37	05:54	06:26	06:58	07:32		07:10	07:39
	17:12	17:52		18:26		20:01	20:33	20:54	20:47	20:09	19:17	18:26		16:49	16:44
21	07:38	07:04		06:18		06:26	05:48	05:37	05:55	06:27	07:00	07:33		07:11	07:40
	17:13	17:53		18:27		20:02	20:34	20:55	20:46	20:08	19:15	18:25		16:48	16:44
22	07:38	07:02		06:16		06:24	05:47	05:37	05:56	06:28	07:01	07:34		07:13	07:40
	17:14	17:54		18:28		20:03	20:35	20:55	20:45	20:06	19:13	18:23		16:48	16:45
23	07:37	07:01		06:14		06:22	05:46	05:38	05:57	06:29	07:02	07:36		07:14	07:41
	17:16	17:56		18:29		20:04	20:36	20:55	20:44	20:05	19:12	18:21		16:47	16:45
24	07:36	06:59		06:12		06:21	05:46	05:38	05:58	06:30	07:03	07:37		07:15	07:41
	17:17	17:57		18:30		20:05	20:37	20:55	20:43	20:03	19:10	18:20		16:46	16:46
25	07:35	06:58		06:11		06:19	05:45	05:38	05:59	06:31	07:04	06:38		07:16	07:42
	17:18	17:58		18:31		20:06	20:38	20:55	20:42	20:02	19:08	17:19		16:46	16:46
26	07:35	06:56	07:16 (MO05)	06:09		06:18	05:44	05:38	06:00	06:32	07:05	06:39		07:17	07:42
	17:19	17:59	4 07:20 (MO05)	18:32		20:07	20:39	20:55	20:41	20:00	19:06	17:17		16:45	16:47
27	07:34	06:55	07:14 (MO05)	06:07		06:17	05:43	05:39	06:01	06:33	07:06	06:40		07:19	07:43
	17:21	18:01	7 07:21 (MO05)	18:34		20:09	20:40	20:55	20:40	19:58	19:05	17:16		16:45	16:48
28	07:33	06:53	07:12 (MO05)	06:06		06:15	05:43	05:39	06:02	06:34	07:07	06:42		07:20	07:43
	17:22	18:02	10 07:22 (MO05)	18:35		20:10	20:41	20:55	20:39	19:57	19:03	17:14		16:44	16:48
29	07:32			07:04		06:14	05:42	05:40	06:03	06:35	07:08	06:43		07:21	07:43
	17:23			19:36		20:11	20:42	20:55	20:38	19:55	19:01	17:13		16:44	16:49
30	07:31			07:02		06:12	05:42	05:40	06:04	06:36	07:09	06:44		07:22	07:43
	17:25			19:37		20:12	20:42	20:55	20:37	19:53	18:59	17:12		16:43	16:50
31	07:30			07:00			05:41		06:05	06:37		06:45			07:44
	17:26			19:38			20:43		20:36	19:52		17:10			16:51
Potential sun hours	293	295		369		400	452	457	463	431	376	344		295	283
Total, worst case			21		155								179		
Sun reduction			0.46		0.46								0.55		
Oper. time red.			1.00		1.00								1.00		
Wind dir. red.			1.00		1.00								1.00		
Total reduction			0.46		0.46								0.55		
Total, real			10		71								98		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 294 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1192)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 295 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1193)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
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18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
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	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	07:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 296 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1194)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
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3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
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	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 297 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1195)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:50	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:35	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:55	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:55	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 298 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1196)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:11	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 299 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1197)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:53	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
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	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:15	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:28	07:07	07:37
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:54	20:47	20:09	19:17	18:26	16:49	16:44
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:40
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23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:55	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:55	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:42	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 300 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1198)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April		May		June	July	August		September	October	November	December
1	07:44	07:29	06:52	06:59		06:11	06:39 (MO06)	05:40	05:41	06:06		06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39		20:13	23 07:02 (MO06)	20:44	20:55	20:35		19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57		06:10	06:39 (MO06)	05:40	05:41	06:07		06:39	07:12	06:48	07:24
	16:53	17:29	18:04	19:40		20:14	22 07:01 (MO06)	20:45	20:55	20:34		19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55		06:08	06:41 (MO06)	05:40	05:42	06:08		06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42		20:15	19 07:00 (MO06)	20:46	20:55	20:33		19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:54		06:07	06:42 (MO06)	05:39	05:42	06:09		06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43		20:16	16 06:58 (MO06)	20:46	20:55	20:32		19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52		06:06	06:45 (MO06)	05:39	05:43	06:10		06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44		20:18	11 06:56 (MO06)	20:47	20:55	20:30		19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50		06:04	06:47 (MO06)	05:38	05:43	06:11		06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45		20:19	5 06:52 (MO06)	20:48	20:54	20:29		19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48		06:03		05:38	05:44	06:12	06:55 (MO06)	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46		20:20		20:49	20:54	20:28	8 07:03 (MO06)	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47		06:02		05:38	05:45	06:13	06:52 (MO06)	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47		20:21		20:49	20:54	20:27	14 07:06 (MO06)	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45		06:01		05:38	05:45	06:14	06:50 (MO06)	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48		20:22		20:50	20:53	20:25	17 07:07 (MO06)	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43		05:59		05:37	05:46	06:15	06:49 (MO06)	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49		20:23		20:50	20:53	20:24	20 07:09 (MO06)	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42		05:58		05:37	05:47	06:16	06:48 (MO06)	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51		20:24		20:51	20:52	20:23	22 07:10 (MO06)	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40		05:57		05:37	05:48	06:17	06:47 (MO06)	06:50	07:23	07:00	07:34
	17:03	17:42	18:16	19:52		20:25		20:51	20:52	20:21	23 07:10 (MO06)	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38		05:56		05:37	05:48	06:18	06:46 (MO06)	06:51	07:24	07:02	07:35
	17:04	17:43	18:18	19:53		20:26		20:52	20:51	20:20	25 07:11 (MO06)	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37		05:55		05:37	05:49	06:19	06:45 (MO06)	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54		20:27		20:52	20:51	20:18	26 07:11 (MO06)	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35		05:54		05:37	05:50	06:20	06:44 (MO06)	06:53	07:26	07:04	07:36
	17:06	17:46	18:20	19:55		20:28		20:53	20:50	20:17	27 07:11 (MO06)	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	06:53 (MO06)	05:53		05:37	05:51	06:21	06:44 (MO06)	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	7 07:00 (MO06)	20:29		20:53	20:50	20:16	28 07:12 (MO06)	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	06:51 (MO06)	05:52		05:37	05:52	06:22	06:45 (MO06)	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	11 07:02 (MO06)	20:30		20:54	20:49	20:14	27 07:12 (MO06)	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	06:49 (MO06)	05:51		05:37	05:52	06:24	06:46 (MO06)	06:56	07:30	07:08	07:38
	17:10	17:49	18:23	19:58	14 07:03 (MO06)	20:31		20:54	20:48	20:13	26 07:12 (MO06)	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	06:48 (MO06)	05:50		05:37	05:53	06:25	06:47 (MO06)	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	16 07:04 (MO06)	20:32		20:54	20:48	20:11	25 07:12 (MO06)	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	06:46 (MO06)	05:49		05:37	05:54	06:26	06:48 (MO06)	06:59	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	18 07:04 (MO06)	20:33		20:55	20:47	20:10	24 07:12 (MO06)	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	06:45 (MO06)	05:48		05:37	05:55	06:27	06:49 (MO06)	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20 07:05 (MO06)	20:34		20:55	20:46	20:08	22 07:11 (MO06)	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	06:43 (MO06)	05:47		05:37	05:56	06:28	06:50 (MO06)	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	22 07:05 (MO06)	20:35		20:55	20:45	20:06	20 07:10 (MO06)	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:23	06:42 (MO06)	05:46		05:38	05:57	06:29	06:51 (MO06)	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	24 07:06 (MO06)	20:36		20:55	20:44	20:05	18 07:09 (MO06)	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	06:40 (MO06)	05:46		05:38	05:58	06:30	06:52 (MO06)	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	25 07:05 (MO06)	20:37		20:55	20:43	20:03	16 07:08 (MO06)	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:20	06:39 (MO06)	05:45		05:38	05:59	06:31	06:53 (MO06)	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	27 07:06 (MO06)	20:38		20:55	20:42	20:02	13 07:06 (MO06)	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	06:38 (MO06)	05:44		05:39	06:00	06:32	06:54 (MO06)	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	28 07:06 (MO06)	20:39		20:56	20:42	20:00	10 07:04 (MO06)	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	06:37 (MO06)	05:43		05:39	06:01	06:33	06:55 (MO06)	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	28 07:05 (MO06)	20:40		20:56	20:41	19:58	7 07:02 (MO06)	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	06:38 (MO06)	05:43		05:39	06:02	06:34		07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	27 07:05 (MO06)	20:41		20:56	20:40	19:57		19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	06:38 (MO06)	05:42		05:40	06:03	06:35		07:08	06:43	07:21	07:43
	17:23		19:36	20:11	25 07:03 (MO06)	20:42		20:56	20:38	19:55		19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	06:38 (MO06)	05:42		05:40	06:04	06:36		07:09	06:44	07:22	07:43
	17:25		19:37	20:12	25 07:03 (MO06)	20:43		20:56	20:37	19:54		18:59	17:12	16:43	16:50
31	07:30		07:00			05:41			06:05	06:37			06:45		07:44
	17:26		19:38			20:43			20:36	19:52			17:10		16:51
Potential sun hours	293	295	369	400		452		457	463	431		376	344	295	283
Total, worst case					317		96				418				
Sun reduction					0.49		0.57				0.70				
Oper. time red.					1.00		1.00				1.00				
Wind dir. red.					1.00		1.00				1.00				
Total reduction					0.49		0.57				0.70				
Total, real					157		55				293				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 301 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1199)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44			07:29		07:50 (MO06)	06:52	06:59	06:11	05:40
	16:52			17:27	25	08:15 (MO06)	18:03	19:39	20:13	20:44
2	07:44			07:28		07:49 (MO06)	06:50	06:57	06:10	05:40
	16:53			17:29	26	08:15 (MO06)	18:04	19:40	20:14	20:45
3	07:44			07:27		07:48 (MO06)	06:48	06:55	06:08	05:39
	16:53			17:30	27	08:15 (MO06)	18:06	19:42	20:15	20:46
4	07:44			07:26		07:47 (MO06)	06:47	06:53	06:07	05:39
	16:54			17:31	29	08:16 (MO06)	18:07	19:43	20:16	20:46
5	07:44			07:25		07:45 (MO06)	06:45	06:52	06:06	05:39
	16:55			17:32	30	08:15 (MO06)	18:08	19:44	20:18	20:47
6	07:44			07:24		07:46 (MO06)	06:43	06:50	06:04	05:38
	16:56			17:34	28	08:14 (MO06)	18:09	19:45	20:19	20:48
7	07:44			07:23		07:47 (MO06)	06:42	06:48	06:03	05:38
	16:57			17:35	27	08:14 (MO06)	18:10	19:46	20:20	20:49
8	07:44			07:21		07:48 (MO06)	06:40	06:47	06:02	05:38
	16:58			17:36	26	08:14 (MO06)	18:12	19:47	20:21	20:49
9	07:44			07:20		07:48 (MO06)	06:38	06:45	06:01	05:37
	16:59			17:38	24	08:12 (MO06)	18:13	19:48	20:22	20:50
10	07:43			07:19		07:49 (MO06)	06:37	06:43	05:59	05:37
	17:00			17:39	23	08:12 (MO06)	18:14	19:49	20:23	20:50
11	07:43			07:18		07:51 (MO06)	06:35	06:42	05:58	05:37
	17:01			17:40	20	08:11 (MO06)	18:15	19:51	20:24	20:51
12	07:43			07:16		07:52 (MO06)	06:33	06:40	05:57	05:37
	17:03			17:42	16	08:08 (MO06)	18:16	19:52	20:25	20:51
13	07:43			07:15		07:55 (MO06)	06:32	06:38	05:56	05:37
	17:04			17:43	11	08:06 (MO06)	18:18	19:53	20:26	20:52
14	07:42			07:14			06:30	06:37	05:55	05:37
	17:05			17:44			18:19	19:54	20:27	20:52
15	07:42			07:12			06:28	06:35	05:54	05:37
	17:06			17:46			18:20	19:55	20:28	20:53
16	07:41			07:11			06:26	06:33	05:53	05:37
	17:07			17:47			18:21	19:56	20:29	20:53
17	07:41			07:10			06:25	06:32	05:52	05:37
	17:08			17:48			18:22	19:57	20:30	20:54
18	07:40			07:08			06:23	06:30	05:51	05:37
	17:09			17:49			18:23	19:58	20:31	20:54
19	07:40			07:07			06:21	06:29	05:50	05:37
	17:11			17:51			18:24	20:00	20:32	20:54
20	07:39		08:01 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	2	08:03 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:00 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	5	08:05 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		07:59 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	7	08:06 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		07:58 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	9	08:07 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		07:58 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	12	08:10 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		07:57 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	14	08:11 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		07:56 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	15	08:11 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		07:55 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	17	08:12 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		07:54 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	19	08:13 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		07:53 (MO06)				07:04	06:14	05:42	05:40
	17:23	20	08:13 (MO06)				19:36	20:11	20:42	20:56
30	07:31		07:52 (MO06)				07:02	06:12	05:42	05:40
	17:25	22	08:14 (MO06)				19:37	20:12	20:43	20:56
31	07:30		07:51 (MO06)				07:00		05:41	
	17:26	23	08:14 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		165			312					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		69			144					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 301 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1199)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October		November		December
1	05:41	06:06	06:38	07:10		06:47	07:19 (MO06)	07:23
	20:55	20:35	19:50	18:58		17:09	23 07:42 (MO06)	16:43
2	05:41	06:07	06:39	07:12		06:48	07:18 (MO06)	07:24
	20:55	20:34	19:49	18:56		17:08	24 07:42 (MO06)	16:43
3	05:42	06:08	06:41	07:13		06:49	07:16 (MO06)	07:25
	20:55	20:33	19:47	18:54		17:06	27 07:43 (MO06)	16:42
4	05:42	06:09	06:42	07:14		06:50	07:16 (MO06)	07:26
	20:55	20:32	19:45	18:52		17:05	28 07:44 (MO06)	16:42
5	05:43	06:10	06:43	07:15		06:52	07:16 (MO06)	07:27
	20:55	20:30	19:43	18:51		17:04	28 07:44 (MO06)	16:42
6	05:43	06:11	06:44	07:16		06:53	07:16 (MO06)	07:28
	20:54	20:29	19:42	18:49		17:03	29 07:45 (MO06)	16:42
7	05:44	06:12	06:45	07:17		06:54	07:17 (MO06)	07:29
	20:54	20:28	19:40	18:47		17:02	28 07:45 (MO06)	16:42
8	05:45	06:13	06:46	07:18		06:55	07:18 (MO06)	07:30
	20:54	20:27	19:38	18:46		17:00	27 07:45 (MO06)	16:42
9	05:45	06:14	06:47	07:19		06:57	07:20 (MO06)	07:31
	20:53	20:25	19:36	18:44		16:59	26 07:46 (MO06)	16:42
10	05:46	06:15	06:48	07:20		06:58	07:21 (MO06)	07:32
	20:53	20:24	19:35	18:42		16:58	25 07:46 (MO06)	16:42
11	05:47	06:16	06:49	07:22		06:59	07:22 (MO06)	07:33
	20:52	20:23	19:33	18:41		16:57	23 07:45 (MO06)	16:42
12	05:48	06:17	06:50	07:23		07:00	07:24 (MO06)	07:34
	20:52	20:21	19:31	18:39		16:56	22 07:46 (MO06)	16:42
13	05:48	06:18	06:51	07:24		07:02	07:25 (MO06)	07:35
	20:51	20:20	19:29	18:37		16:55	20 07:45 (MO06)	16:42
14	05:49	06:19	06:52	07:25		07:03	07:26 (MO06)	07:35
	20:51	20:18	19:28	18:36		16:54	19 07:45 (MO06)	16:42
15	05:50	06:20	06:53	07:26		07:04	07:28 (MO06)	07:36
	20:50	20:17	19:26	18:34		16:53	17 07:45 (MO06)	16:42
16	05:51	06:21	06:54	07:27		07:05	07:29 (MO06)	07:37
	20:50	20:16	19:24	18:32		16:52	15 07:44 (MO06)	16:42
17	05:52	06:22	06:55	07:29		07:07	07:30 (MO06)	07:38
	20:49	20:14	19:22	18:31		16:51	14 07:44 (MO06)	16:43
18	05:52	06:24	06:56	07:30		07:08	07:32 (MO06)	07:38
	20:48	20:13	19:21	18:29		16:51	12 07:44 (MO06)	16:43
19	05:53	06:25	06:57	07:31		07:09	07:33 (MO06)	07:39
	20:48	20:11	19:19	18:28		16:50	9 07:42 (MO06)	16:43
20	05:54	06:26	06:59	07:32		07:10	07:34 (MO06)	07:39
	20:47	20:10	19:17	18:26		16:49	7 07:41 (MO06)	16:44
21	05:55	06:27	07:00	07:33		07:12	07:35 (MO06)	07:40
	20:46	20:08	19:15	18:25		16:48	5 07:40 (MO06)	16:44
22	05:56	06:28	07:01	07:34		07:13	07:37 (MO06)	07:41
	20:45	20:06	19:13	18:23		16:48	2 07:39 (MO06)	16:45
23	05:57	06:29	07:02	07:36		07:14		07:41
	20:44	20:05	19:12	18:22		16:47		16:45
24	05:58	06:30	07:03	07:37		07:15		07:42
	20:43	20:03	19:10	18:20		16:46		16:46
25	05:59	06:31	07:04	06:38		07:16		07:42
	20:42	20:02	19:08	17:19		16:46		16:46
26	06:00	06:32	07:05	06:39		07:18		07:42
	20:42	20:00	19:06	17:17		16:45		16:47
27	06:01	06:33	07:06	06:41		07:19		07:43
	20:41	19:58	19:05	17:16		16:45		16:48
28	06:02	06:34	07:07	06:42		07:20		07:43
	20:40	19:57	19:03	17:14		16:44		16:48
29	06:03	06:35	07:08	06:43	07:24 (MO06)	07:21		07:43
	20:38	19:55	19:01	17:13	12 07:36 (MO06)	16:44		16:49
30	06:04	06:36	07:09	06:44	07:22 (MO06)	07:22		07:44
	20:37	19:54	18:59	17:12	16 07:38 (MO06)	16:43		16:50
31	06:05	06:37		06:45	07:20 (MO06)			07:44
	20:36	19:52		17:10	20 07:40 (MO06)			16:51
Potential sun hours	463	431	376	344		295		283
Total, worst case				48		430		
Sun reduction				0.55		0.46		
Oper. time red.				1.00		1.00		
Wind dir. red.				1.00		1.00		
Total reduction				0.55		0.46		
Total, real				26		196		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 302 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1200)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June	July	August	September	October	November			December
1	07:44			07:29		07:50 (MO06)	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47		07:29 (MO06)	07:23
	16:52			17:27	29	08:19 (MO06)	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	12	07:41 (MO06)	16:43
2	07:44			07:28		07:50 (MO06)	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48		07:26 (MO06)	07:24
	16:53			17:29	29	08:19 (MO06)	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	17	07:43 (MO06)	16:43
3	07:44			07:27		07:50 (MO06)	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49		07:24 (MO06)	07:25
	16:53			17:30	29	08:19 (MO06)	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	20	07:44 (MO06)	16:42
4	07:44			07:26		07:51 (MO06)	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50		07:23 (MO06)	07:26
	16:54			17:31	28	08:19 (MO06)	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	23	07:46 (MO06)	16:42
5	07:44			07:25		07:51 (MO06)	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52		07:22 (MO06)	07:27
	16:55			17:32	26	08:17 (MO06)	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	25	07:47 (MO06)	16:42
6	07:44			07:24		07:52 (MO06)	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53		07:22 (MO06)	07:28
	16:56			17:34	25	08:17 (MO06)	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	26	07:48 (MO06)	16:42
7	07:44			07:23		07:54 (MO06)	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54		07:21 (MO06)	07:29
	16:57			17:35	22	08:16 (MO06)	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	28	07:49 (MO06)	16:42
8	07:44			07:21		07:55 (MO06)	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55		07:20 (MO06)	07:30
	16:58			17:36	20	08:15 (MO06)	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	29	07:49 (MO06)	16:42
9	07:44			07:20		07:57 (MO06)	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57		07:21 (MO06)	07:31
	16:59			17:38	16	08:13 (MO06)	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	29	07:50 (MO06)	16:42
10	07:43			07:19		07:59 (MO06)	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58		07:21 (MO06)	07:32
	17:00			17:39	11	08:10 (MO06)	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	29	07:50 (MO06)	16:42
11	07:43			07:18			06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59		07:22 (MO06)	07:33
	17:01			17:40			18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	28	07:50 (MO06)	16:42
12	07:43			07:16			06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00		07:24 (MO06)	07:34
	17:03			17:42			18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	27	07:51 (MO06)	16:42
13	07:43			07:15			06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02		07:25 (MO06)	07:35
	17:04			17:43			18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	26	07:51 (MO06)	16:42
14	07:42			07:14			06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03		07:26 (MO06)	07:35
	17:05			17:44			18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	25	07:51 (MO06)	16:42
15	07:42		08:04 (MO06)	07:12			06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04		07:28 (MO06)	07:36
	17:06	2	08:06 (MO06)	17:46			18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	23	07:51 (MO06)	16:42
16	07:41		08:03 (MO06)	07:11			06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05		07:29 (MO06)	07:37
	17:07	4	08:07 (MO06)	17:47			18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	22	07:51 (MO06)	16:42
17	07:41		08:03 (MO06)	07:10			06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07		07:30 (MO06)	07:38
	17:08	6	08:09 (MO06)	17:48			18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	20	07:50 (MO06)	16:43
18	07:40		08:02 (MO06)	07:08			06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08		07:32 (MO06)	07:38
	17:09	8	08:10 (MO06)	17:49			18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	19	07:51 (MO06)	16:43
19	07:40		08:01 (MO06)	07:07			06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09		07:33 (MO06)	07:39
	17:11	10	08:11 (MO06)	17:51			18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	17	07:50 (MO06)	16:43
20	07:39		08:01 (MO06)	07:05			06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10		07:34 (MO06)	07:39
	17:12	12	08:13 (MO06)	17:52			18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16	07:50 (MO06)	16:44
21	07:38		08:00 (MO06)	07:04			06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12		07:35 (MO06)	07:40
	17:13	14	08:14 (MO06)	17:53			18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	14	07:49 (MO06)	16:44
22	07:38		07:59 (MO06)	07:02			06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13		07:37 (MO06)	07:41
	17:14	16	08:15 (MO06)	17:54			18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	12	07:49 (MO06)	16:45
23	07:37		07:58 (MO06)	07:01			06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14		07:38 (MO06)	07:41
	17:16	17	08:15 (MO06)	17:56			18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	10	07:48 (MO06)	16:45
24	07:36		07:58 (MO06)	06:59			06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15		07:39 (MO06)	07:42
	17:17	19	08:17 (MO06)	17:57			18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	9	07:48 (MO06)	16:46
25	07:36		07:57 (MO06)	06:58			06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		07:40 (MO06)	07:42
	17:18	20	08:17 (MO06)	17:58			18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	6	07:46 (MO06)	16:46
26	07:35		07:56 (MO06)	06:56			06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		07:42 (MO06)	07:42
	17:19	22	08:18 (MO06)	17:59			18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	4	07:46 (MO06)	16:47
27	07:34		07:55 (MO06)	06:55			06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19		07:43 (MO06)	07:43
	17:21	23	08:18 (MO06)	18:01			18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	2	07:45 (MO06)	16:48
28	07:33		07:54 (MO06)	06:53			06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20			07:43
	17:22	25	08:19 (MO06)	18:02			18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44			16:48
29	07:32		07:53 (MO06)				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21			07:43
	17:23	26	08:19 (MO06)				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44			16:49
30	07:31		07:52 (MO06)				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22			07:44
	17:25	27	08:19 (MO06)				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43			16:50
31	07:30		07:51 (MO06)				07:00		05:41		06:05	06:37		06:45				07:44
	17:26	28	08:19 (MO06)				19:38		20:43		20:36	19:52		17:10				16:51
Potential sun hours	293			295			369	400	452	457	463	431	376	344	295			283
Total, worst case		279			235											518		
Sun reduction		0.42			0.46											0.46		
Oper. time red.		1.00			1.00											1.00		
Wind dir. red.		1.00			1.00											1.00		
Total reduction		0.42			0.46											0.46		
Total, real		117			109											236		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 303 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1201)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February			March	April	May	June
1	07:44			07:29		07:50 (MO06)	06:52	06:59	06:11	05:40
	16:52			17:27	31	08:21 (MO06)	18:03	19:39	20:13	20:44
2	07:44			07:28		07:50 (MO06)	06:50	06:57	06:10	05:40
	16:53			17:29	31	08:21 (MO06)	18:04	19:40	20:14	20:45
3	07:44			07:27		07:51 (MO06)	06:48	06:55	06:08	05:39
	16:53			17:30	30	08:21 (MO06)	18:06	19:42	20:15	20:46
4	07:44			07:26		07:51 (MO06)	06:47	06:53	06:07	05:39
	16:54			17:31	30	08:21 (MO06)	18:07	19:43	20:16	20:46
5	07:44			07:25		07:51 (MO06)	06:45	06:52	06:06	05:39
	16:55			17:32	28	08:19 (MO06)	18:08	19:44	20:18	20:47
6	07:44			07:24		07:52 (MO06)	06:43	06:50	06:04	05:38
	16:56			17:34	27	08:19 (MO06)	18:09	19:45	20:19	20:48
7	07:44			07:23		07:53 (MO06)	06:42	06:48	06:03	05:38
	16:57			17:35	25	08:18 (MO06)	18:10	19:46	20:20	20:49
8	07:44			07:21		07:55 (MO06)	06:40	06:47	06:02	05:38
	16:58			17:36	22	08:17 (MO06)	18:12	19:47	20:21	20:49
9	07:44			07:20		07:56 (MO06)	06:38	06:45	06:01	05:37
	16:59			17:38	19	08:15 (MO06)	18:13	19:48	20:22	20:50
10	07:43			07:19		07:58 (MO06)	06:37	06:43	05:59	05:37
	17:00			17:39	16	08:14 (MO06)	18:14	19:49	20:23	20:50
11	07:43			07:18		08:01 (MO06)	06:35	06:42	05:58	05:37
	17:01			17:40	10	08:11 (MO06)	18:15	19:51	20:24	20:51
12	07:43			07:16			06:33	06:40	05:57	05:37
	17:03			17:42			18:16	19:52	20:25	20:51
13	07:43			07:15			06:32	06:38	05:56	05:37
	17:04			17:43			18:18	19:53	20:26	20:52
14	07:42			07:14			06:30	06:37	05:55	05:37
	17:05			17:44			18:19	19:54	20:27	20:52
15	07:42		08:04 (MO06)	07:12			06:28	06:35	05:54	05:37
	17:06	2	08:06 (MO06)	17:45			18:20	19:55	20:28	20:53
16	07:41		08:03 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	5	08:08 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:03 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	7	08:10 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:02 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	9	08:11 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:01 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	11	08:12 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:01 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	13	08:14 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:00 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	15	08:15 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		07:59 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	17	08:16 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		07:58 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	18	08:16 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		07:58 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	20	08:18 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		07:57 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	22	08:19 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		07:56 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	23	08:19 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		07:55 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	25	08:20 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		07:54 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	26	08:20 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		07:53 (MO06)				07:04	06:14	05:42	05:40
	17:23	27	08:20 (MO06)				19:36	20:11	20:42	20:56
30	07:31		07:52 (MO06)				07:02	06:12	05:42	05:40
	17:25	28	08:20 (MO06)				19:37	20:12	20:43	20:56
31	07:30		07:51 (MO06)				07:00		05:41	
	17:26	30	08:21 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		298			269					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		125			124					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto

Shadow receptor: 303 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1201)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October			November			December	
1	05:41		06:06		06:38		07:10			06:47		07:27 (MO06)	07:23	
	20:55		20:35		19:50		18:58			17:09	17	07:44 (MO06)	16:43	
2	05:41		06:07		06:39		07:12			06:48		07:25 (MO06)	07:24	
	20:55		20:34		19:48		18:56			17:08	20	07:45 (MO06)	16:43	
3	05:42		06:08		06:41		07:13			06:49		07:23 (MO06)	07:25	
	20:55		20:33		19:47		18:54			17:06	23	07:46 (MO06)	16:42	
4	05:42		06:09		06:42		07:14			06:50		07:23 (MO06)	07:26	
	20:55		20:32		19:45		18:52			17:05	25	07:48 (MO06)	16:42	
5	05:43		06:10		06:43		07:15			06:52		07:22 (MO06)	07:27	
	20:55		20:30		19:43		18:51			17:04	27	07:49 (MO06)	16:42	
6	05:43		06:11		06:44		07:16			06:53		07:21 (MO06)	07:28	
	20:54		20:29		19:42		18:49			17:03	28	07:49 (MO06)	16:42	
7	05:44		06:12		06:45		07:17			06:54		07:21 (MO06)	07:29	
	20:54		20:28		19:40		18:47			17:02	29	07:50 (MO06)	16:42	
8	05:45		06:13		06:46		07:18			06:55		07:20 (MO06)	07:30	
	20:54		20:27		19:38		18:46			17:00	31	07:51 (MO06)	16:42	
9	05:45		06:14		06:47		07:19			06:57		07:21 (MO06)	07:31	
	20:53		20:25		19:36		18:44			16:59	31	07:52 (MO06)	16:42	
10	05:46		06:15		06:48		07:20			06:58		07:21 (MO06)	07:32	
	20:53		20:24		19:35		18:42			16:58	31	07:52 (MO06)	16:42	
11	05:47		06:16		06:49		07:22			06:59		07:22 (MO06)	07:33	
	20:52		20:23		19:33		18:41			16:57	30	07:52 (MO06)	16:42	
12	05:48		06:17		06:50		07:23			07:00		07:24 (MO06)	07:34	
	20:52		20:21		19:31		18:39			16:56	28	07:52 (MO06)	16:42	
13	05:48		06:18		06:51		07:24			07:02		07:25 (MO06)	07:35	
	20:51		20:20		19:29		18:37			16:55	27	07:52 (MO06)	16:42	
14	05:49		06:19		06:52		07:25			07:03		07:26 (MO06)	07:35	
	20:51		20:18		19:28		18:36			16:54	26	07:52 (MO06)	16:42	
15	05:50		06:20		06:53		07:26			07:04		07:28 (MO06)	07:36	
	20:50		20:17		19:26		18:34			16:53	24	07:52 (MO06)	16:42	
16	05:51		06:21		06:54		07:27			07:05		07:29 (MO06)	07:37	
	20:50		20:16		19:24		18:32			16:52	23	07:52 (MO06)	16:42	
17	05:52		06:22		06:55		07:29			07:07		07:30 (MO06)	07:38	
	20:49		20:14		19:22		18:31			16:51	22	07:52 (MO06)	16:43	
18	05:52		06:24		06:56		07:30			07:08		07:32 (MO06)	07:38	
	20:48		20:13		19:21		18:29			16:51	20	07:52 (MO06)	16:43	
19	05:53		06:25		06:57		07:31			07:09		07:33 (MO06)	07:39	
	20:48		20:11		19:19		18:28			16:50	18	07:51 (MO06)	16:43	
20	05:54		06:26		06:59		07:32			07:10		07:34 (MO06)	07:39	
	20:47		20:10		19:17		18:26			16:49	17	07:51 (MO06)	16:44	
21	05:55		06:27		07:00		07:33			07:12		07:35 (MO06)	07:40	
	20:46		20:08		19:15		18:25			16:48	15	07:50 (MO06)	16:44	
22	05:56		06:28		07:01		07:34			07:13		07:37 (MO06)	07:41	
	20:45		20:06		19:13		18:23			16:48	13	07:50 (MO06)	16:45	
23	05:57		06:29		07:02		07:36			07:14		07:38 (MO06)	07:41	
	20:44		20:05		19:12		18:22			16:47	11	07:49 (MO06)	16:45	
24	05:58		06:30		07:03		07:37			07:15		07:39 (MO06)	07:42	
	20:43		20:03		19:10		18:20			16:46	9	07:48 (MO06)	16:46	
25	05:59		06:31		07:04		06:38			07:16		07:40 (MO06)	07:42	
	20:42		20:02		19:08		17:19			16:46	7	07:47 (MO06)	16:46	
26	06:00		06:32		07:05		06:39			07:18		07:42 (MO06)	07:42	
	20:42		20:00		19:06		17:17			16:45	5	07:47 (MO06)	16:47	
27	06:01		06:33		07:06		06:41			07:19		07:43 (MO06)	07:43	
	20:41		19:58		19:05		17:16			16:45	2	07:45 (MO06)	16:48	
28	06:02		06:34		07:07		06:42			07:20			07:43	
	20:40		19:57		19:03		17:14			16:44			16:48	
29	06:03		06:35		07:08		06:43			07:21			07:43	
	20:38		19:55		19:01		17:13			16:44			16:49	
30	06:04		06:36		07:09		06:44			07:22			07:44	
	20:37		19:54		18:59		17:12			16:43			16:50	
31	06:05		06:37				06:45		07:29 (MO06)				07:44	
	20:36		19:52				17:10	12	07:41 (MO06)				16:51	
Potential sun hours	463		431		376		344			295			283	
Total, worst case								12			559			
Sun reduction								0.55			0.46			
Oper. time red.								1.00			1.00			
Wind dir. red.								1.00			1.00			
Total reduction								0.55			0.46			
Total, real								7			255			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 304 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1202)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March	April	May	June	July	August	September	October	November		December
1	07:44		07:29	07:51 (MO06)	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:33 (MO06)	07:23
	16:52		17:27	31 08:22 (MO06)	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	8 07:41 (MO06)	16:43
2	07:44		07:28	07:52 (MO06)	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:29 (MO06)	07:24
	16:53		17:29	30 08:22 (MO06)	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	15 07:44 (MO06)	16:43
3	07:44		07:27	07:53 (MO06)	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:27 (MO06)	07:25
	16:53		17:30	28 08:21 (MO06)	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	19 07:46 (MO06)	16:42
4	07:44		07:26	07:54 (MO06)	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26 (MO06)	07:26
	16:54		17:31	27 08:21 (MO06)	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	22 07:48 (MO06)	16:42
5	07:44		07:25	07:54 (MO06)	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:25 (MO06)	07:27
	16:55		17:32	26 08:20 (MO06)	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	24 07:49 (MO06)	16:42
6	07:44		07:24	07:55 (MO06)	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:25 (MO06)	07:28
	16:56		17:34	24 08:19 (MO06)	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	25 07:50 (MO06)	16:42
7	07:44		07:23	07:57 (MO06)	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:23 (MO06)	07:29
	16:57		17:35	21 08:18 (MO06)	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	28 07:51 (MO06)	16:42
8	07:44		07:21	07:58 (MO06)	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:23 (MO06)	07:30
	16:58		17:36	19 08:17 (MO06)	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	28 07:51 (MO06)	16:42
9	07:44		07:20	08:00 (MO06)	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:23 (MO06)	07:31
	16:59		17:38	14 08:14 (MO06)	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	30 07:53 (MO06)	16:42
10	07:43		07:19	08:04 (MO06)	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:22 (MO06)	07:32
	17:00		17:39	6 08:10 (MO06)	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	31 07:53 (MO06)	16:42
11	07:43		07:18		06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:22 (MO06)	07:33
	17:01		17:40		18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	31 07:53 (MO06)	16:42
12	07:43		07:16		06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:24 (MO06)	07:34
	17:03		17:42		18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	30 07:54 (MO06)	16:42
13	07:43	08:05 (MO06)	07:15		06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:25 (MO06)	07:35
	17:04	2 08:07 (MO06)	17:43		18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	29 07:54 (MO06)	16:42
14	07:42	08:04 (MO06)	07:14		06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:26 (MO06)	07:35
	17:05	5 08:09 (MO06)	17:44		18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	27 07:53 (MO06)	16:42
15	07:42	08:04 (MO06)	07:12		06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:28 (MO06)	07:36
	17:06	7 08:11 (MO06)	17:45		18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	26 07:54 (MO06)	16:42
16	07:41	08:03 (MO06)	07:11		06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:29 (MO06)	07:37
	17:07	9 08:12 (MO06)	17:47		18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	25 07:54 (MO06)	16:42
17	07:41	08:03 (MO06)	07:10		06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:30 (MO06)	07:38
	17:08	11 08:14 (MO06)	17:48		18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	23 07:53 (MO06)	16:43
18	07:40	08:02 (MO06)	07:08		06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:32 (MO06)	07:38
	17:09	12 08:14 (MO06)	17:49		18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	22 07:54 (MO06)	16:43
19	07:40	08:01 (MO06)	07:07		06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:33 (MO06)	07:39
	17:11	14 08:15 (MO06)	17:51		18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	21 07:54 (MO06)	16:43
20	07:39	08:01 (MO06)	07:05		06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:34 (MO06)	07:39
	17:12	16 08:17 (MO06)	17:52		18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	19 07:53 (MO06)	16:44
21	07:38	08:00 (MO06)	07:04		06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:35 (MO06)	07:40
	17:13	18 08:18 (MO06)	17:53		18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	18 07:53 (MO06)	16:44
22	07:38	07:59 (MO06)	07:02		06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:37 (MO06)	07:41
	17:14	19 08:18 (MO06)	17:54		18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16 07:53 (MO06)	16:45
23	07:37	07:58 (MO06)	07:01		06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:38 (MO06)	07:41
	17:16	21 08:19 (MO06)	17:56		18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	14 07:52 (MO06)	16:45
24	07:36	07:58 (MO06)	06:59		06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:39 (MO06)	07:42
	17:17	22 08:20 (MO06)	17:57		18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	13 07:52 (MO06)	16:46
25	07:36	07:57 (MO06)	06:58		06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:40 (MO06)	07:42
	17:18	23 08:20 (MO06)	17:58		18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	11 07:51 (MO06)	16:46
26	07:35	07:56 (MO06)	06:56		06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42 (MO06)	07:42
	17:19	25 08:21 (MO06)	17:59		18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	9 07:51 (MO06)	16:47
27	07:34	07:55 (MO06)	06:55		06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43 (MO06)	07:43
	17:21	26 08:21 (MO06)	18:01		18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	7 07:50 (MO06)	16:48
28	07:33	07:54 (MO06)	06:53		06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:44 (MO06)	07:43
	17:22	27 08:21 (MO06)	18:02		18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	5 07:49 (MO06)	16:48
29	07:32	07:53 (MO06)			07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:45 (MO06)	07:43
	17:23	29 08:22 (MO06)			19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	2 07:47 (MO06)	16:49
30	07:31	07:52 (MO06)			07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		07:44
	17:25	30 08:22 (MO06)			19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43		16:50
31	07:30	07:51 (MO06)			07:00		05:41		06:05	06:37		06:45			07:44
	17:26	31 08:22 (MO06)			19:38		20:43		20:36	19:52		17:10			16:51
Potential sun hours	293		295		369	400	452	457	463	431	376	344	295		283
Total, worst case		347		226										578	
Sun reduction		0.42		0.46										0.46	
Oper. time red.		1.00		1.00										1.00	
Wind dir. red.		1.00		1.00										1.00	
Total reduction		0.42		0.46										0.46	
Total, real		146		104										264	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 305 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1203)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January			February	March	April	May	June	July	August	September	October	November			December		
1	07:44		08:07 (MO06)	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47			07:23		07:52 (MO06)
	16:52	28	08:35 (MO06)	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09			16:43	28	08:20 (MO06)
2	07:44		08:07 (MO06)	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48			07:24		07:53 (MO06)
	16:53	29	08:36 (MO06)	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08			16:43	28	08:21 (MO06)
3	07:44		08:07 (MO06)	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49			07:25		07:53 (MO06)
	16:53	29	08:36 (MO06)	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06			16:42	29	08:22 (MO06)
4	07:44		08:07 (MO06)	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50			07:26		07:53 (MO06)
	16:54	30	08:37 (MO06)	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05			16:42	29	08:22 (MO06)
5	07:44		08:07 (MO06)	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52			07:27		07:53 (MO06)
	16:55	30	08:37 (MO06)	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04			16:42	30	08:23 (MO06)
6	07:44		08:07 (MO06)	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53			07:28		07:53 (MO06)
	16:56	30	08:37 (MO06)	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03			16:42	31	08:24 (MO06)
7	07:44		08:08 (MO06)	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54			07:29		07:54 (MO06)
	16:57	30	08:38 (MO06)	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02			16:42	30	08:24 (MO06)
8	07:44		08:08 (MO06)	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55			07:30		07:55 (MO06)
	16:58	29	08:37 (MO06)	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00			16:42	30	08:25 (MO06)
9	07:44		08:09 (MO06)	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57			07:31		07:56 (MO06)
	16:59	29	08:38 (MO06)	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59			16:42	29	08:25 (MO06)
10	07:43		08:10 (MO06)	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58			07:32		07:57 (MO06)
	17:00	28	08:38 (MO06)	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58			16:42	29	08:26 (MO06)
11	07:43		08:10 (MO06)	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59			07:33		07:57 (MO06)
	17:01	28	08:38 (MO06)	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57			16:42	28	08:25 (MO06)
12	07:43		08:11 (MO06)	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00			07:34		07:58 (MO06)
	17:03	27	08:38 (MO06)	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56			16:42	28	08:26 (MO06)
13	07:43		08:12 (MO06)	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02			07:35		07:59 (MO06)
	17:04	27	08:39 (MO06)	17:43	18:18	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55			16:42	28	08:27 (MO06)
14	07:42		08:13 (MO06)	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03			07:35		08:00 (MO06)
	17:05	25	08:38 (MO06)	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54			16:42	27	08:27 (MO06)
15	07:42		08:14 (MO06)	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04			07:36		08:01 (MO06)
	17:06	24	08:38 (MO06)	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53			16:42	27	08:28 (MO06)
16	07:41		08:15 (MO06)	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05			07:37		08:01 (MO06)
	17:07	22	08:37 (MO06)	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52			16:42	27	08:28 (MO06)
17	07:41		08:16 (MO06)	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07			07:38		08:02 (MO06)
	17:08	21	08:37 (MO06)	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51			16:43	27	08:29 (MO06)
18	07:40		08:17 (MO06)	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08			07:38		08:03 (MO06)
	17:09	19	08:36 (MO06)	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51			16:43	27	08:30 (MO06)
19	07:40		08:18 (MO06)	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09			07:39		08:03 (MO06)
	17:11	17	08:35 (MO06)	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50			16:43	26	08:29 (MO06)
20	07:39		08:21 (MO06)	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10			07:39		08:04 (MO06)
	17:12	13	08:34 (MO06)	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49			16:44	26	08:30 (MO06)
21	07:38		08:23 (MO06)	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12		07:58 (MO06)	07:40		08:04 (MO06)
	17:13	9	08:32 (MO06)	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	9	08:07 (MO06)	16:44	26	08:30 (MO06)
22	07:38			07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13		07:57 (MO06)	07:41		08:05 (MO06)
	17:14			17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	13	08:10 (MO06)	16:45	26	08:31 (MO06)
23	07:37			07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14		07:55 (MO06)	07:41		08:05 (MO06)
	17:16			17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	17	08:12 (MO06)	16:45	26	08:31 (MO06)
24	07:36			06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15		07:54 (MO06)	07:42		08:05 (MO06)
	17:17			17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	19	08:13 (MO06)	16:46	26	08:31 (MO06)
25	07:36			06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16		07:53 (MO06)	07:42		08:06 (MO06)
	17:18			17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	21	08:14 (MO06)	16:46	26	08:32 (MO06)
26	07:35			06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18		07:54 (MO06)	07:42		08:06 (MO06)
	17:19			17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	22	08:16 (MO06)	16:47	27	08:33 (MO06)
27	07:34			06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19		07:53 (MO06)	07:43		08:06 (MO06)
	17:21			18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	24	08:17 (MO06)	16:48	27	08:33 (MO06)
28	07:33			06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20		07:53 (MO06)	07:43		08:07 (MO06)
	17:22			18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	25	08:18 (MO06)	16:48	27	08:34 (MO06)
29	07:32				07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21		07:52 (MO06)	07:43		08:07 (MO06)
	17:23				19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	27	08:19 (MO06)	16:49	27	08:34 (MO06)
30	07:31				07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22		07:52 (MO06)	07:44		08:07 (MO06)
	17:25				19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	27	08:19 (MO06)	16:50	28	08:35 (MO06)
31	07:30				07:00		05:41		06:05	06:37		06:45				07:44		08:07 (MO06)
	17:26				19:38		20:43		20:36	19:52		17:10				16:51	28	08:35 (MO06)
Potential sun hours	293			295	369	400	452	457	463	431	376	344	295			283		
Total, worst case		524												204			858	
Sun reduction		0.42												0.46			0.43	
Oper. time red.		1.00												1.00			1.00	
Wind dir. red.		1.00												1.00			1.00	
Total reduction		0.42												0.46			0.43	
Total, real		220												93			371	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Sara / s.cassini@enviarea.it

Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 306 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1204)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:10	05:40	05:41	06:07	06:39	07:12	06:48	07:24
	16:53	17:29	18:04	19:40	20:14	20:45	20:55	20:34	19:49	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:41	07:13	06:49	07:25
	16:53	17:30	18:06	19:42	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:06	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:02	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:42
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:42
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:41	16:57	16:42
12	07:43	07:16	06:33	06:40	05:57	05:37	05:48	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:52	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:24	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:20	06:27	05:49	05:37	05:54	06:26	06:59	07:32	07:10	07:40
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:39	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:56	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:08	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:41	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:39	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:42	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 307 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1205)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March	April	May	June
1	07:44		08:07 (MO06)	07:29	08:20 (MO06)	06:52	06:59	06:11	05:40
	16:52	37	08:44 (MO06)	17:27	32	08:52 (MO06)	18:03	19:39	20:13	20:44
2	07:44		08:07 (MO06)	07:28	08:22 (MO06)	06:50	06:57	06:10	05:40
	16:53	38	08:45 (MO06)	17:29	29	08:51 (MO06)	18:04	19:40	20:14	20:45
3	07:44		08:08 (MO06)	07:27	08:23 (MO06)	06:48	06:55	06:08	05:39
	16:53	38	08:46 (MO06)	17:30	27	08:50 (MO06)	18:06	19:42	20:15	20:46
4	07:44		08:08 (MO06)	07:26	08:24 (MO06)	06:47	06:53	06:07	05:39
	16:54	38	08:46 (MO06)	17:31	23	08:47 (MO06)	18:07	19:43	20:16	20:46
5	07:44		08:08 (MO06)	07:25	08:27 (MO06)	06:45	06:52	06:06	05:39
	16:55	39	08:47 (MO06)	17:32	18	08:45 (MO06)	18:08	19:44	20:18	20:47
6	07:44		08:09 (MO06)	07:24	08:30 (MO06)	06:43	06:50	06:04	05:38
	16:56	39	08:48 (MO06)	17:34	12	08:42 (MO06)	18:09	19:45	20:19	20:48
7	07:44		08:09 (MO06)	07:23			06:42	06:48	06:03	05:38
	16:57	40	08:49 (MO06)	17:35			18:10	19:46	20:20	20:49
8	07:44		08:08 (MO06)	07:21			06:40	06:47	06:02	05:38
	16:58	41	08:49 (MO06)	17:36			18:12	19:47	20:21	20:49
9	07:44		08:09 (MO06)	07:20			06:38	06:45	06:01	05:37
	16:59	40	08:49 (MO06)	17:38			18:13	19:48	20:22	20:50
10	07:43		08:09 (MO06)	07:19			06:37	06:43	05:59	05:37
	17:00	41	08:50 (MO06)	17:39			18:14	19:49	20:23	20:50
11	07:43		08:09 (MO06)	07:18			06:35	06:42	05:58	05:37
	17:01	41	08:50 (MO06)	17:40			18:15	19:51	20:24	20:51
12	07:43		08:09 (MO06)	07:16			06:33	06:40	05:57	05:37
	17:02	42	08:51 (MO06)	17:42			18:16	19:52	20:25	20:51
13	07:43		08:10 (MO06)	07:15			06:32	06:38	05:56	05:37
	17:04	42	08:52 (MO06)	17:43			18:17	19:53	20:26	20:52
14	07:42		08:10 (MO06)	07:14			06:30	06:37	05:55	05:37
	17:05	42	08:52 (MO06)	17:44			18:19	19:54	20:27	20:52
15	07:42		08:11 (MO06)	07:12			06:28	06:35	05:54	05:37
	17:06	42	08:53 (MO06)	17:45			18:20	19:55	20:28	20:53
16	07:41		08:10 (MO06)	07:11			06:26	06:33	05:53	05:37
	17:07	43	08:53 (MO06)	17:47			18:21	19:56	20:29	20:53
17	07:41		08:11 (MO06)	07:10			06:25	06:32	05:52	05:37
	17:08	43	08:54 (MO06)	17:48			18:22	19:57	20:30	20:54
18	07:40		08:11 (MO06)	07:08			06:23	06:30	05:51	05:37
	17:09	43	08:54 (MO06)	17:49			18:23	19:58	20:31	20:54
19	07:40		08:11 (MO06)	07:07			06:21	06:29	05:50	05:37
	17:11	43	08:54 (MO06)	17:51			18:24	20:00	20:32	20:54
20	07:39		08:12 (MO06)	07:05			06:20	06:27	05:49	05:37
	17:12	43	08:55 (MO06)	17:52			18:26	20:01	20:33	20:55
21	07:38		08:12 (MO06)	07:04			06:18	06:26	05:48	05:37
	17:13	43	08:55 (MO06)	17:53			18:27	20:02	20:34	20:55
22	07:38		08:12 (MO06)	07:02			06:16	06:24	05:47	05:37
	17:14	43	08:55 (MO06)	17:54			18:28	20:03	20:35	20:55
23	07:37		08:13 (MO06)	07:01			06:14	06:22	05:46	05:38
	17:16	42	08:55 (MO06)	17:56			18:29	20:04	20:36	20:55
24	07:36		08:14 (MO06)	06:59			06:13	06:21	05:46	05:38
	17:17	41	08:55 (MO06)	17:57			18:30	20:05	20:37	20:55
25	07:36		08:14 (MO06)	06:58			06:11	06:19	05:45	05:38
	17:18	41	08:55 (MO06)	17:58			18:31	20:06	20:38	20:55
26	07:35		08:15 (MO06)	06:56			06:09	06:18	05:44	05:38
	17:19	40	08:55 (MO06)	17:59			18:32	20:07	20:39	20:56
27	07:34		08:16 (MO06)	06:55			06:07	06:17	05:43	05:39
	17:21	39	08:55 (MO06)	18:01			18:34	20:09	20:40	20:56
28	07:33		08:16 (MO06)	06:53			06:06	06:15	05:43	05:39
	17:22	38	08:54 (MO06)	18:02			18:35	20:10	20:41	20:56
29	07:32		08:17 (MO06)				07:04	06:14	05:42	05:40
	17:23	37	08:54 (MO06)				19:36	20:11	20:42	20:56
30	07:31		08:18 (MO06)				07:02	06:12	05:42	05:40
	17:25	35	08:53 (MO06)				19:37	20:12	20:43	20:56
31	07:30		08:19 (MO06)				07:00		05:41	
	17:26	34	08:53 (MO06)				19:38		20:43	
Potential sun hours	293			295			369	400	452	457
Total, worst case		1248			141					
Sun reduction		0.42			0.46					
Oper. time red.		1.00			1.00					
Wind dir. red.		1.00			1.00					
Total reduction		0.42			0.46					
Total, real		525			65					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 307 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1205)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November			December		
1	05:41	06:06	06:38	07:10	06:47			07:23		07:51 (MO06)
	20:55	20:35	19:50	18:58	17:09			16:43	41	08:32 (MO06)
2	05:41	06:07	06:39	07:11	06:48			07:24		07:52 (MO06)
	20:55	20:34	19:48	18:56	17:08			16:43	41	08:33 (MO06)
3	05:42	06:08	06:41	07:13	06:49			07:25		07:53 (MO06)
	20:55	20:33	19:47	18:54	17:06			16:42	41	08:34 (MO06)
4	05:42	06:09	06:42	07:14	06:50			07:26		07:53 (MO06)
	20:55	20:32	19:45	18:52	17:05			16:42	41	08:34 (MO06)
5	05:43	06:10	06:43	07:15	06:52		07:59 (MO06)	07:27		07:54 (MO06)
	20:55	20:30	19:43	18:51	17:04	14	08:13 (MO06)	16:42	40	08:34 (MO06)
6	05:43	06:11	06:44	07:16	06:53		07:56 (MO06)	07:28		07:55 (MO06)
	20:54	20:29	19:42	18:49	17:03	19	08:15 (MO06)	16:42	39	08:34 (MO06)
7	05:44	06:12	06:45	07:17	06:54		07:55 (MO06)	07:29		07:55 (MO06)
	20:54	20:28	19:40	18:47	17:02	23	08:18 (MO06)	16:42	39	08:34 (MO06)
8	05:45	06:13	06:46	07:18	06:55		07:53 (MO06)	07:30		07:56 (MO06)
	20:54	20:27	19:38	18:46	17:00	27	08:20 (MO06)	16:42	38	08:34 (MO06)
9	05:45	06:14	06:47	07:19	06:57		07:52 (MO06)	07:31		07:57 (MO06)
	20:53	20:25	19:36	18:44	16:59	30	08:22 (MO06)	16:42	38	08:35 (MO06)
10	05:46	06:15	06:48	07:20	06:58		07:51 (MO06)	07:32		07:57 (MO06)
	20:53	20:24	19:35	18:42	16:58	32	08:23 (MO06)	16:42	38	08:35 (MO06)
11	05:47	06:16	06:49	07:22	06:59		07:50 (MO06)	07:33		07:57 (MO06)
	20:52	20:23	19:33	18:41	16:57	34	08:24 (MO06)	16:42	37	08:34 (MO06)
12	05:48	06:17	06:50	07:23	07:00		07:50 (MO06)	07:34		07:58 (MO06)
	20:52	20:21	19:31	18:39	16:56	35	08:25 (MO06)	16:42	37	08:35 (MO06)
13	05:48	06:18	06:51	07:24	07:02		07:49 (MO06)	07:35		07:59 (MO06)
	20:51	20:20	19:29	18:37	16:55	37	08:26 (MO06)	16:42	36	08:35 (MO06)
14	05:49	06:19	06:52	07:25	07:03		07:48 (MO06)	07:35		08:00 (MO06)
	20:51	20:18	19:28	18:36	16:54	38	08:26 (MO06)	16:42	36	08:36 (MO06)
15	05:50	06:20	06:53	07:26	07:04		07:48 (MO06)	07:36		08:01 (MO06)
	20:50	20:17	19:26	18:34	16:53	40	08:28 (MO06)	16:42	35	08:36 (MO06)
16	05:51	06:21	06:54	07:27	07:05		07:48 (MO06)	07:37		08:01 (MO06)
	20:50	20:16	19:24	18:32	16:52	40	08:28 (MO06)	16:42	35	08:36 (MO06)
17	05:52	06:22	06:55	07:28	07:07		07:47 (MO06)	07:38		08:02 (MO06)
	20:49	20:14	19:22	18:31	16:51	41	08:28 (MO06)	16:43	34	08:36 (MO06)
18	05:52	06:24	06:56	07:30	07:08		07:48 (MO06)	07:38		08:03 (MO06)
	20:48	20:13	19:21	18:29	16:51	41	08:29 (MO06)	16:43	34	08:37 (MO06)
19	05:53	06:25	06:57	07:31	07:09		07:48 (MO06)	07:39		08:03 (MO06)
	20:48	20:11	19:19	18:28	16:50	42	08:30 (MO06)	16:43	34	08:37 (MO06)
20	05:54	06:26	06:59	07:32	07:10		07:47 (MO06)	07:39		08:04 (MO06)
	20:47	20:10	19:17	18:26	16:49	43	08:30 (MO06)	16:44	34	08:38 (MO06)
21	05:55	06:27	07:00	07:33	07:12		07:47 (MO06)	07:40		08:04 (MO06)
	20:46	20:08	19:15	18:25	16:48	43	08:30 (MO06)	16:44	34	08:38 (MO06)
22	05:56	06:28	07:01	07:34	07:13		07:48 (MO06)	07:41		08:05 (MO06)
	20:45	20:06	19:13	18:23	16:48	43	08:31 (MO06)	16:45	34	08:39 (MO06)
23	05:57	06:29	07:02	07:36	07:14		07:48 (MO06)	07:41		08:05 (MO06)
	20:44	20:05	19:12	18:22	16:47	43	08:31 (MO06)	16:45	34	08:39 (MO06)
24	05:58	06:30	07:03	07:37	07:15		07:48 (MO06)	07:42		08:05 (MO06)
	20:43	20:03	19:10	18:20	16:46	43	08:31 (MO06)	16:46	34	08:39 (MO06)
25	05:59	06:31	07:04	06:38	07:16		07:48 (MO06)	07:42		08:06 (MO06)
	20:42	20:02	19:08	17:19	16:46	43	08:31 (MO06)	16:46	34	08:40 (MO06)
26	06:00	06:32	07:05	06:39	07:18		07:49 (MO06)	07:42		08:06 (MO06)
	20:41	20:00	19:06	17:17	16:45	43	08:32 (MO06)	16:47	34	08:40 (MO06)
27	06:01	06:33	07:06	06:40	07:19		07:50 (MO06)	07:43		08:06 (MO06)
	20:41	19:58	19:05	17:16	16:45	42	08:32 (MO06)	16:48	35	08:41 (MO06)
28	06:02	06:34	07:07	06:42	07:20		07:50 (MO06)	07:43		08:07 (MO06)
	20:40	19:57	19:03	17:14	16:44	42	08:32 (MO06)	16:48	35	08:42 (MO06)
29	06:03	06:35	07:08	06:43	07:21		07:50 (MO06)	07:43		08:07 (MO06)
	20:38	19:55	19:01	17:13	16:44	42	08:32 (MO06)	16:49	35	08:42 (MO06)
30	06:04	06:36	07:09	06:44	07:22		07:51 (MO06)	07:43		08:07 (MO06)
	20:37	19:54	18:59	17:12	16:43	41	08:32 (MO06)	16:50	36	08:43 (MO06)
31	06:05	06:37		06:45				07:44		08:07 (MO06)
	20:36	19:52		17:10				16:51	36	08:43 (MO06)
Potential sun hours	463	431	376	344	295			283		
Total, worst case						961			1129	
Sun reduction						0.46			0.43	
Oper. time red.						1.00			1.00	
Wind dir. red.						1.00			1.00	
Total reduction						0.46			0.43	
Total, real						438			488	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 308 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1206)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:52	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
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	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
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	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
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	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
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	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:29	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:48	20:11	19:19	18:28	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:26	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:25	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:22	16:47	16:45
24	07:36	06:59	06:13	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:18	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:42	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:17	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:40	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:44
	17:25		19:37	20:12	20:43	20:56	20:37	19:54	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 309 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1207)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:41	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:06	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:42
9	07:44	07:20	06:38	06:45	06:01	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:51	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
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22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:48	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
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	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
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	17:21	18:01	18:34	20:09	20:40	20:56	20:41	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:12	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:51
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 310 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1208)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
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	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
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	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
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	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 311 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1209)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:49	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
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12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:43	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
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	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
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	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
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	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:25	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:42
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 312 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1210)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:17	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
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	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
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	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 313 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1211)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:46	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar

Calculation: Real Case con piena operatività dell'impianto **Shadow receptor:** 314 - Shadow Receptor: 1.2 × 1.5 Azimuth: 0.0° Slope: 90.0° (1212)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:44	07:29	06:51	06:59	06:11	05:40	05:40	06:06	06:38	07:10	06:47	07:23
	16:52	17:27	18:03	19:39	20:13	20:44	20:55	20:35	19:50	18:58	17:09	16:43
2	07:44	07:28	06:50	06:57	06:09	05:40	05:41	06:07	06:39	07:11	06:48	07:24
	16:52	17:28	18:04	19:40	20:14	20:45	20:55	20:34	19:48	18:56	17:08	16:43
3	07:44	07:27	06:48	06:55	06:08	05:39	05:42	06:08	06:40	07:13	06:49	07:25
	16:53	17:30	18:05	19:41	20:15	20:46	20:55	20:33	19:47	18:54	17:06	16:42
4	07:44	07:26	06:47	06:53	06:07	05:39	05:42	06:09	06:42	07:14	06:50	07:26
	16:54	17:31	18:07	19:43	20:16	20:46	20:55	20:32	19:45	18:52	17:05	16:42
5	07:44	07:25	06:45	06:52	06:05	05:39	05:43	06:10	06:43	07:15	06:52	07:27
	16:55	17:32	18:08	19:44	20:18	20:47	20:55	20:30	19:43	18:51	17:04	16:42
6	07:44	07:24	06:43	06:50	06:04	05:38	05:43	06:11	06:44	07:16	06:53	07:28
	16:56	17:34	18:09	19:45	20:19	20:48	20:54	20:29	19:42	18:49	17:03	16:42
7	07:44	07:23	06:42	06:48	06:03	05:38	05:44	06:12	06:45	07:17	06:54	07:29
	16:57	17:35	18:10	19:46	20:20	20:48	20:54	20:28	19:40	18:47	17:01	16:42
8	07:44	07:21	06:40	06:47	06:02	05:38	05:45	06:13	06:46	07:18	06:55	07:30
	16:58	17:36	18:12	19:47	20:21	20:49	20:54	20:27	19:38	18:45	17:00	16:41
9	07:44	07:20	06:38	06:45	06:00	05:37	05:45	06:14	06:47	07:19	06:57	07:31
	16:59	17:38	18:13	19:48	20:22	20:50	20:53	20:25	19:36	18:44	16:59	16:41
10	07:43	07:19	06:37	06:43	05:59	05:37	05:46	06:15	06:48	07:20	06:58	07:32
	17:00	17:39	18:14	19:49	20:23	20:50	20:53	20:24	19:35	18:42	16:58	16:41
11	07:43	07:18	06:35	06:42	05:58	05:37	05:47	06:16	06:49	07:22	06:59	07:33
	17:01	17:40	18:15	19:51	20:24	20:51	20:52	20:23	19:33	18:40	16:57	16:41
12	07:43	07:16	06:33	06:40	05:57	05:37	05:47	06:17	06:50	07:23	07:00	07:34
	17:02	17:42	18:16	19:52	20:25	20:51	20:52	20:21	19:31	18:39	16:56	16:42
13	07:42	07:15	06:32	06:38	05:56	05:37	05:48	06:18	06:51	07:24	07:02	07:35
	17:04	17:43	18:17	19:53	20:26	20:52	20:51	20:20	19:29	18:37	16:55	16:42
14	07:42	07:14	06:30	06:37	05:55	05:37	05:49	06:19	06:52	07:25	07:03	07:35
	17:05	17:44	18:19	19:54	20:27	20:52	20:51	20:18	19:28	18:36	16:54	16:42
15	07:42	07:12	06:28	06:35	05:54	05:37	05:50	06:20	06:53	07:26	07:04	07:36
	17:06	17:45	18:20	19:55	20:28	20:53	20:50	20:17	19:26	18:34	16:53	16:42
16	07:41	07:11	06:26	06:33	05:53	05:37	05:51	06:21	06:54	07:27	07:05	07:37
	17:07	17:47	18:21	19:56	20:29	20:53	20:50	20:16	19:24	18:32	16:52	16:42
17	07:41	07:10	06:25	06:32	05:52	05:37	05:51	06:22	06:55	07:28	07:07	07:38
	17:08	17:48	18:22	19:57	20:30	20:54	20:49	20:14	19:22	18:31	16:51	16:43
18	07:40	07:08	06:23	06:30	05:51	05:37	05:52	06:23	06:56	07:30	07:08	07:38
	17:09	17:49	18:23	19:58	20:31	20:54	20:48	20:13	19:21	18:29	16:50	16:43
19	07:40	07:07	06:21	06:29	05:50	05:37	05:53	06:24	06:57	07:31	07:09	07:39
	17:11	17:51	18:24	20:00	20:32	20:54	20:47	20:11	19:19	18:28	16:50	16:43
20	07:39	07:05	06:19	06:27	05:49	05:37	05:54	06:26	06:58	07:32	07:10	07:39
	17:12	17:52	18:26	20:01	20:33	20:55	20:47	20:10	19:17	18:26	16:49	16:44
21	07:38	07:04	06:18	06:25	05:48	05:37	05:55	06:27	07:00	07:33	07:12	07:40
	17:13	17:53	18:27	20:02	20:34	20:55	20:46	20:08	19:15	18:24	16:48	16:44
22	07:38	07:02	06:16	06:24	05:47	05:37	05:56	06:28	07:01	07:34	07:13	07:41
	17:14	17:54	18:28	20:03	20:35	20:55	20:45	20:06	19:13	18:23	16:47	16:45
23	07:37	07:01	06:14	06:22	05:46	05:38	05:57	06:29	07:02	07:36	07:14	07:41
	17:16	17:56	18:29	20:04	20:36	20:55	20:44	20:05	19:12	18:21	16:47	16:45
24	07:36	06:59	06:12	06:21	05:46	05:38	05:58	06:30	07:03	07:37	07:15	07:41
	17:17	17:57	18:30	20:05	20:37	20:55	20:43	20:03	19:10	18:20	16:46	16:46
25	07:36	06:58	06:11	06:19	05:45	05:38	05:59	06:31	07:04	06:38	07:16	07:42
	17:18	17:58	18:31	20:06	20:38	20:55	20:42	20:02	19:08	17:19	16:46	16:46
26	07:35	06:56	06:09	06:18	05:44	05:38	06:00	06:32	07:05	06:39	07:17	07:42
	17:19	17:59	18:32	20:07	20:39	20:56	20:41	20:00	19:06	17:17	16:45	16:47
27	07:34	06:55	06:07	06:16	05:43	05:39	06:01	06:33	07:06	06:40	07:19	07:43
	17:21	18:01	18:34	20:09	20:40	20:56	20:40	19:58	19:05	17:16	16:45	16:48
28	07:33	06:53	06:06	06:15	05:43	05:39	06:02	06:34	07:07	06:42	07:20	07:43
	17:22	18:02	18:35	20:10	20:41	20:56	20:39	19:57	19:03	17:14	16:44	16:48
29	07:32		07:04	06:14	05:42	05:40	06:03	06:35	07:08	06:43	07:21	07:43
	17:23		19:36	20:11	20:42	20:56	20:38	19:55	19:01	17:13	16:44	16:49
30	07:31		07:02	06:12	05:41	05:40	06:04	06:36	07:09	06:44	07:22	07:43
	17:25		19:37	20:12	20:43	20:55	20:37	19:53	18:59	17:11	16:43	16:50
31	07:30		07:00		05:41		06:05	06:37		06:45		07:44
	17:26		19:38		20:43		20:36	19:52		17:10		16:50
Potential sun hours	293	295	369	400	452	457	463	431	376	344	295	283
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)

Allegato 7

Calendar Graph per recettore

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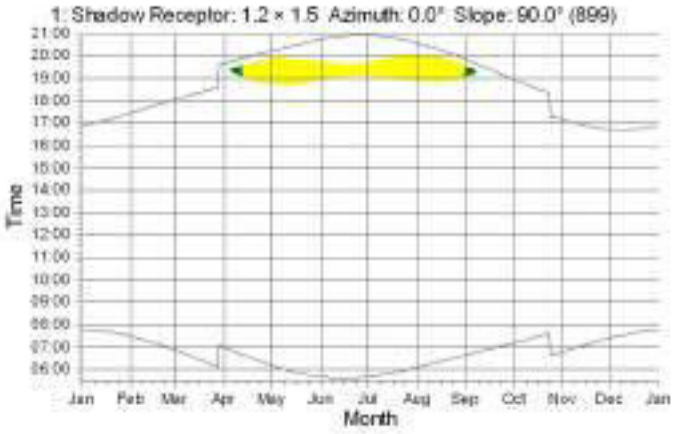
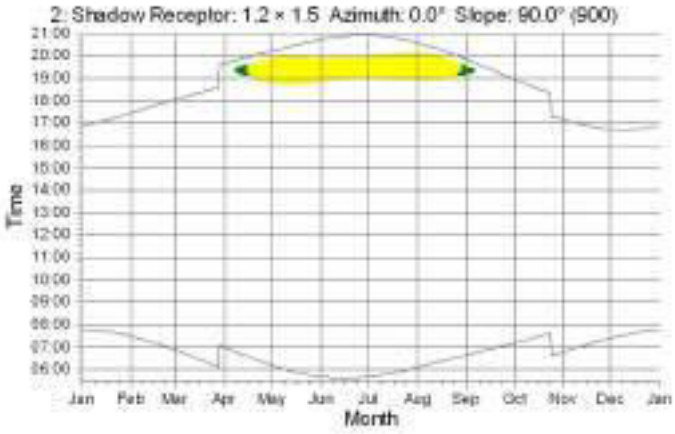
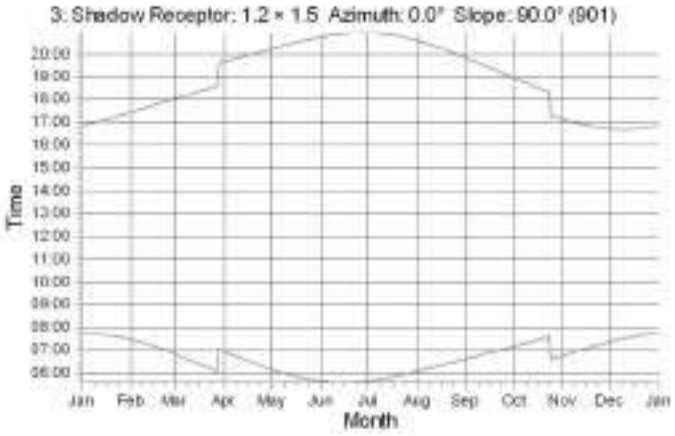
Calculated:
02/09/2023 23:38/3.6.361

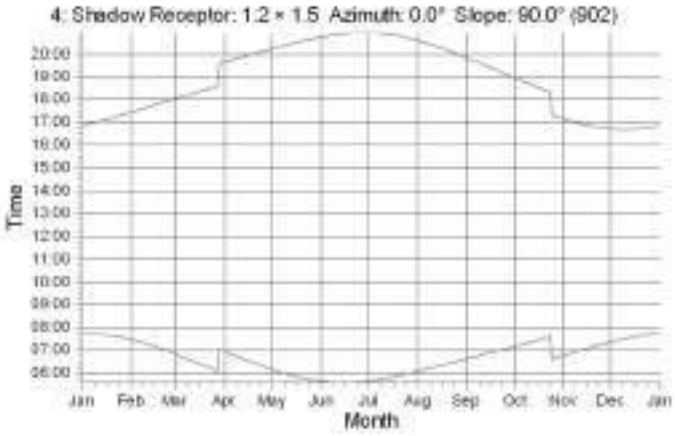
SHADOW - Calendar, graphical

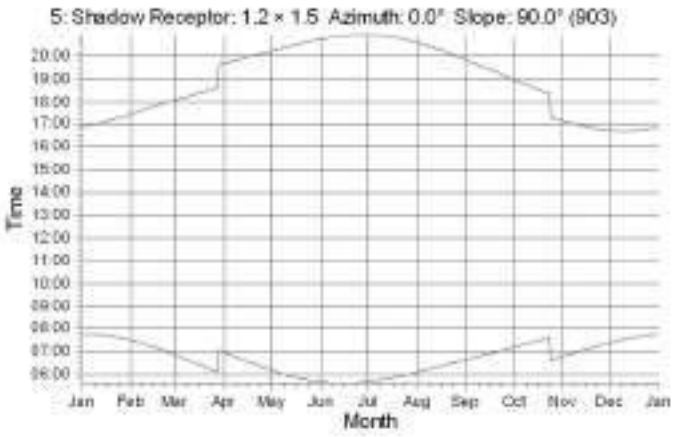
Calculation: Real Case con piena operatività dell'impianto

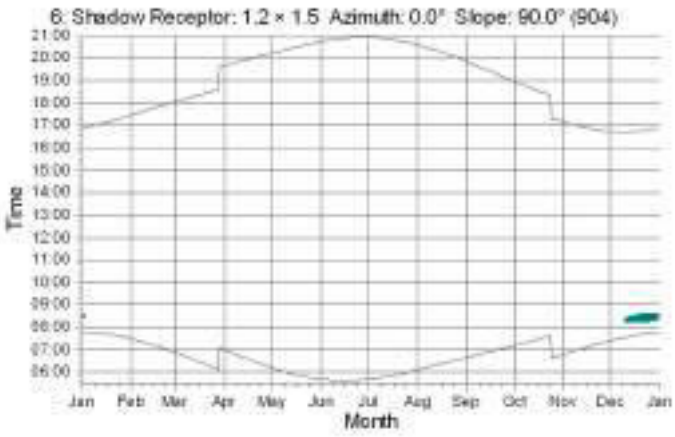












WTGs

MO01: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (1)
MO02: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (2)
MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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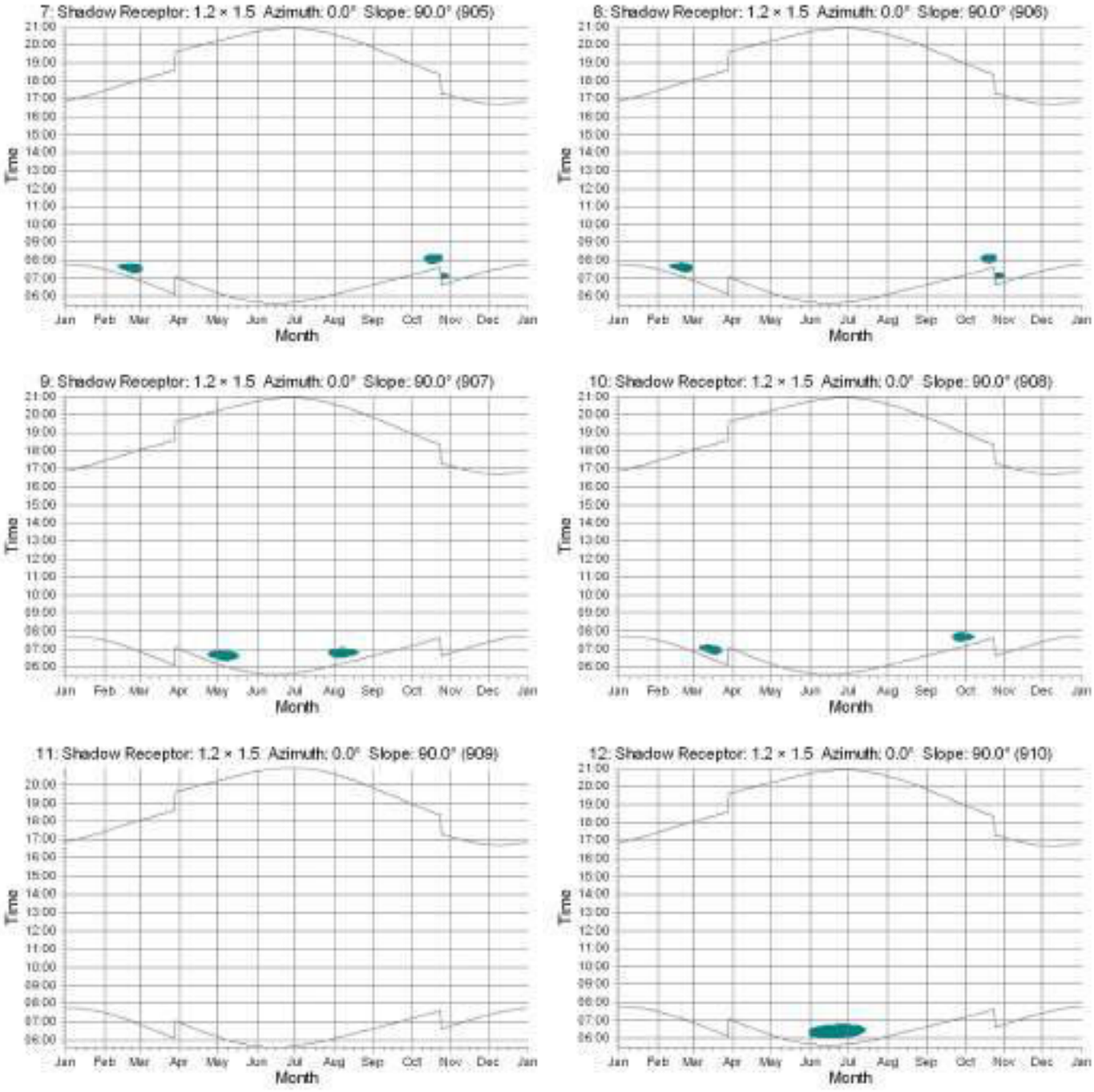
SHADOW - Calendar, graphical

Calculation: Real Case con piena operatività dell'impianto



WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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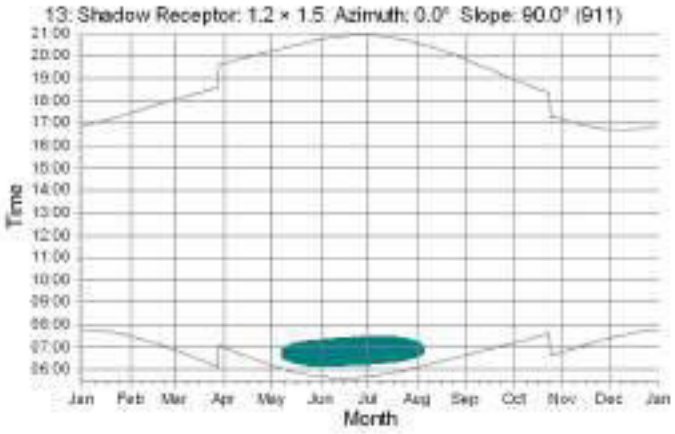
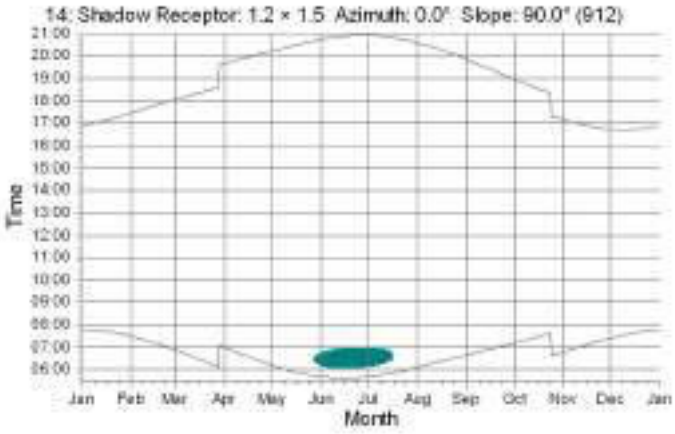
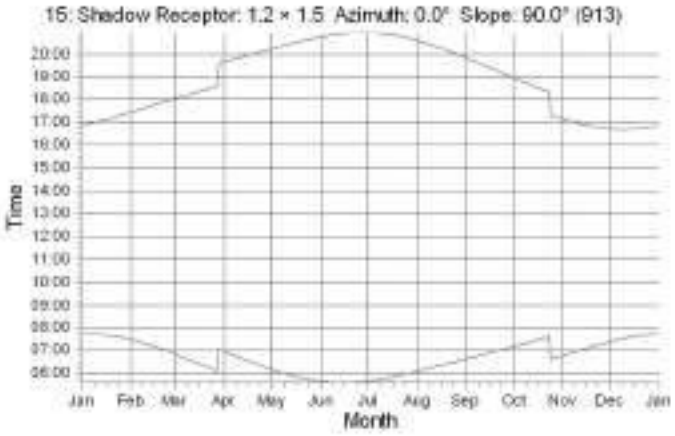
Calculated:
02/09/2023 23:38/3.6.361

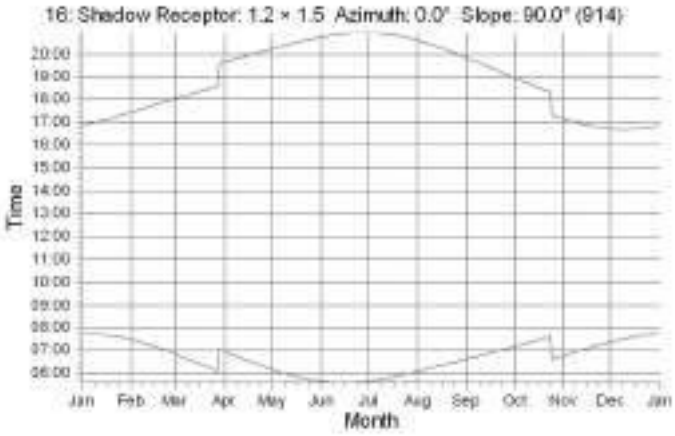
SHADOW - Calendar, graphical

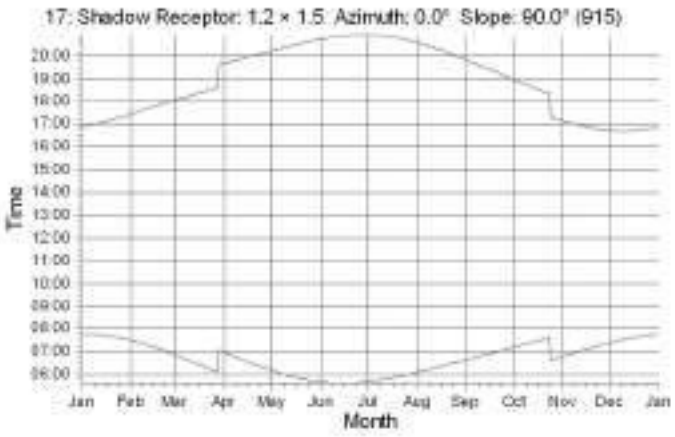
Calculation: Real Case con piena operatività dell'impianto

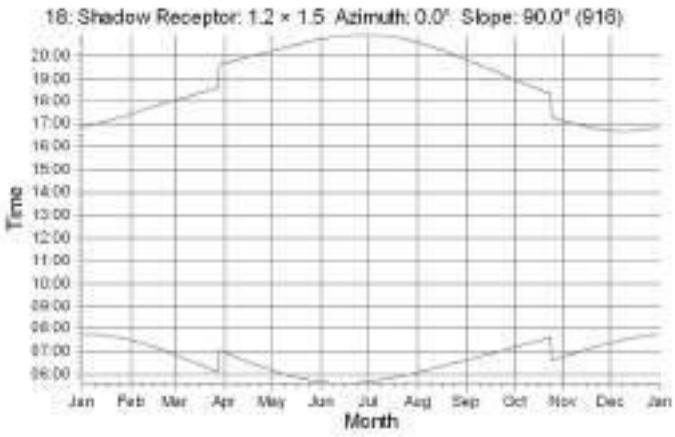












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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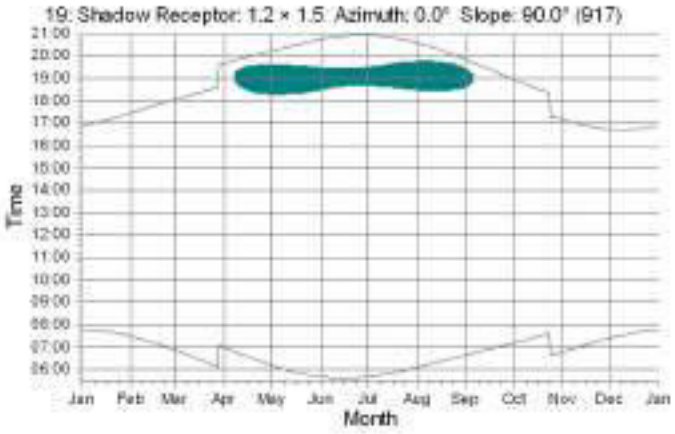
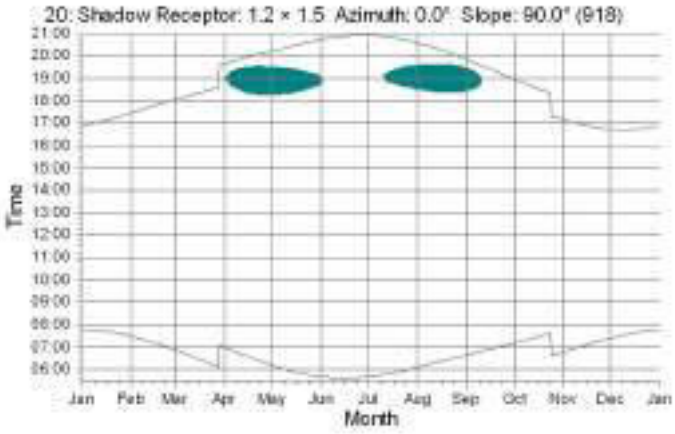
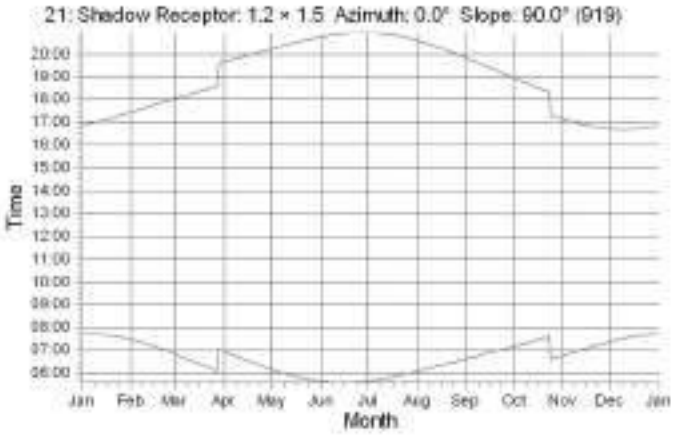
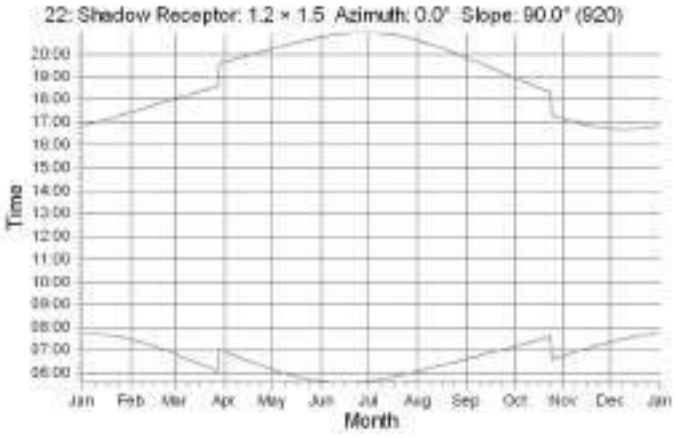
SHADOW - Calendar, graphical

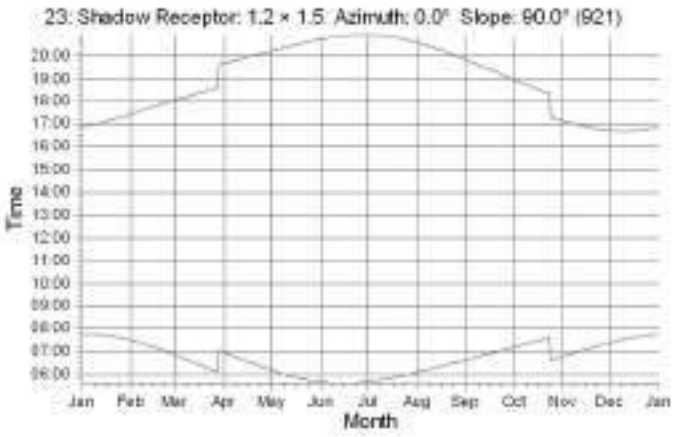
Calculation: Real Case con piena operatività dell'impianto

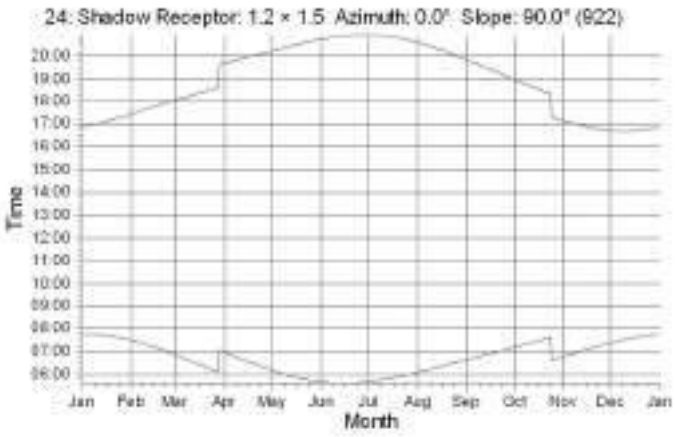












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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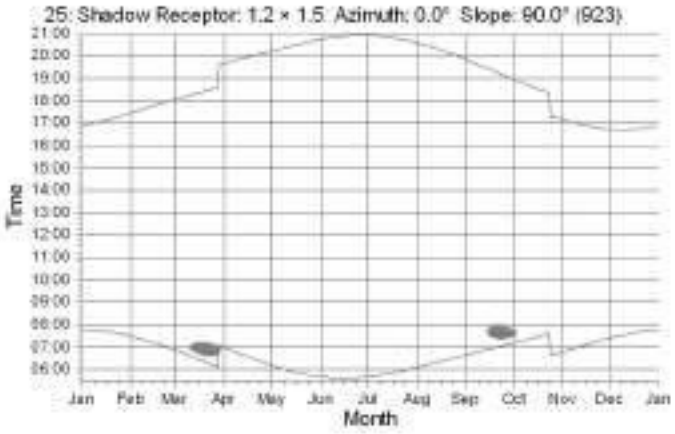
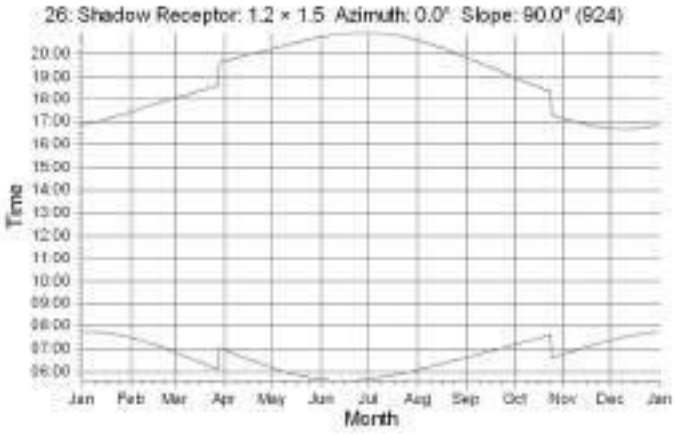
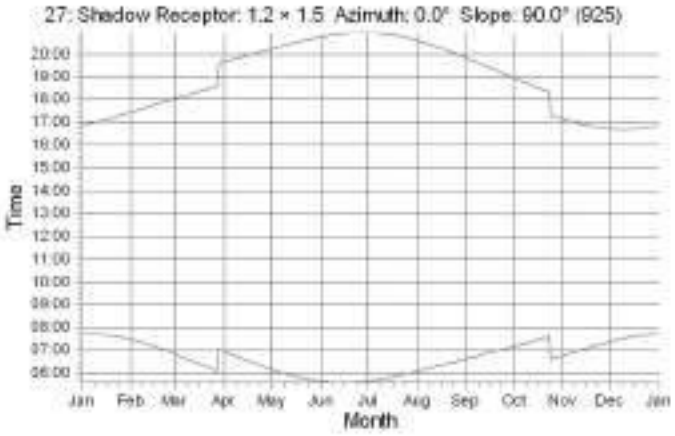
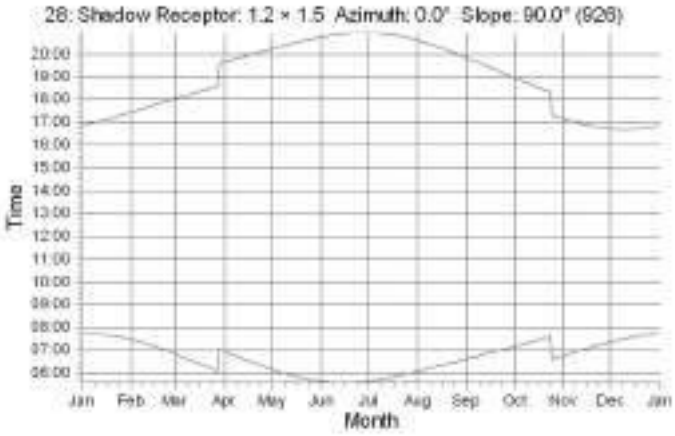
SHADOW - Calendar, graphical

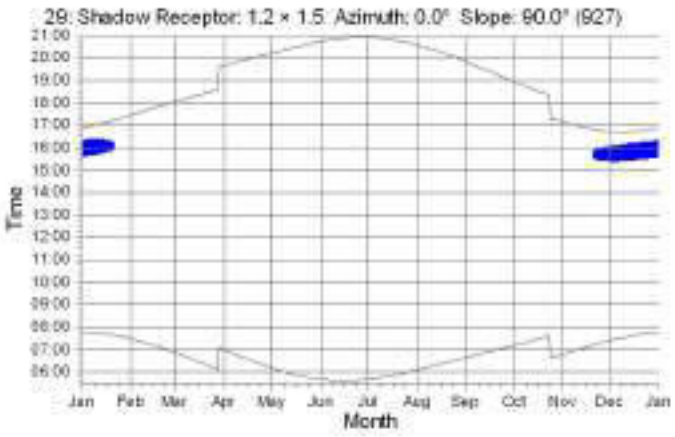
Calculation: Real Case con piena operatività dell'impianto

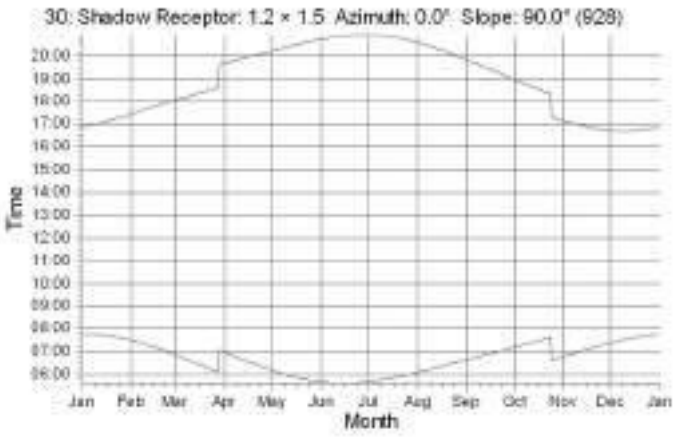












WTGs

MO03: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

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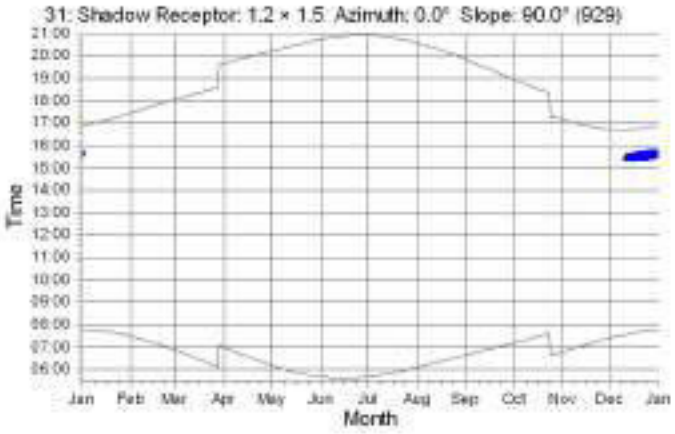
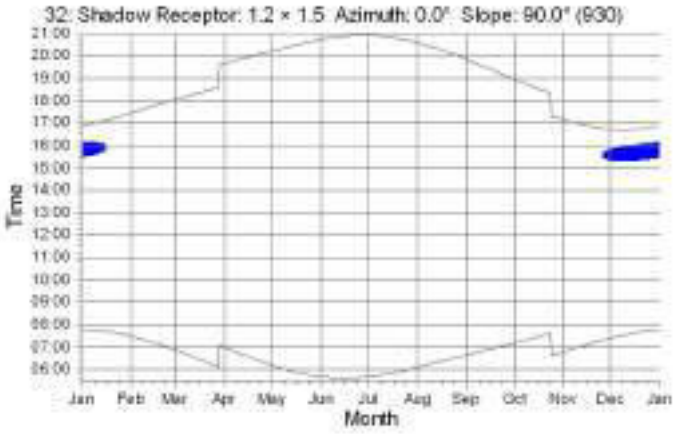
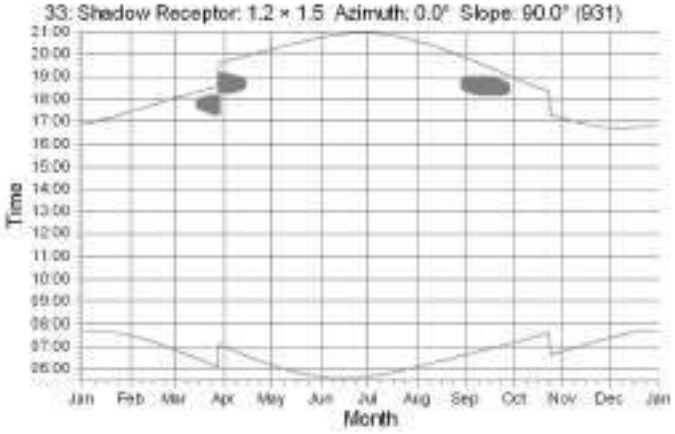
Calculated:
02/09/2023 23:38/3.6.361

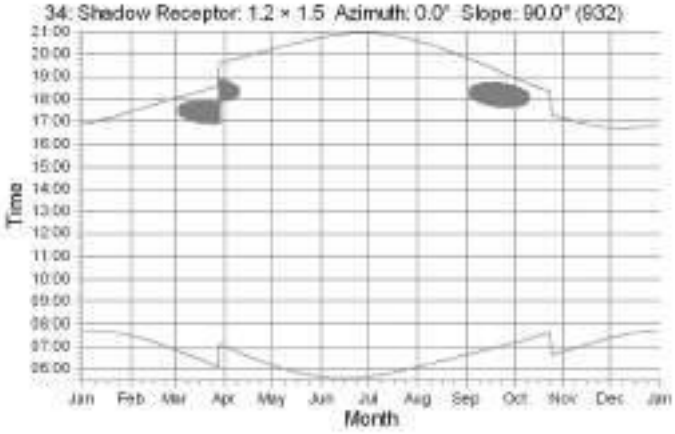
SHADOW - Calendar, graphical

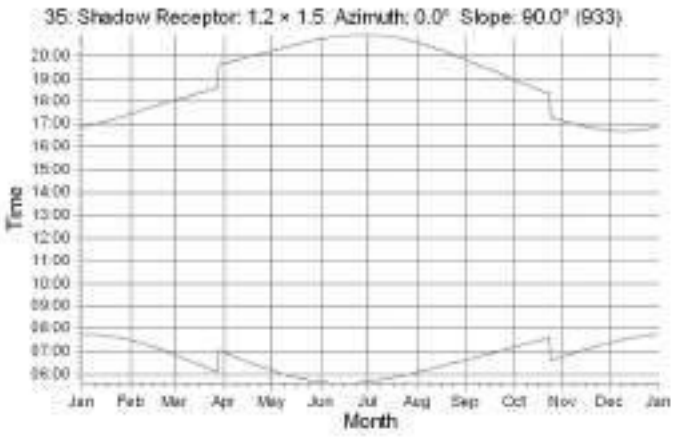
Calculation: Real Case con piena operatività dell'impianto

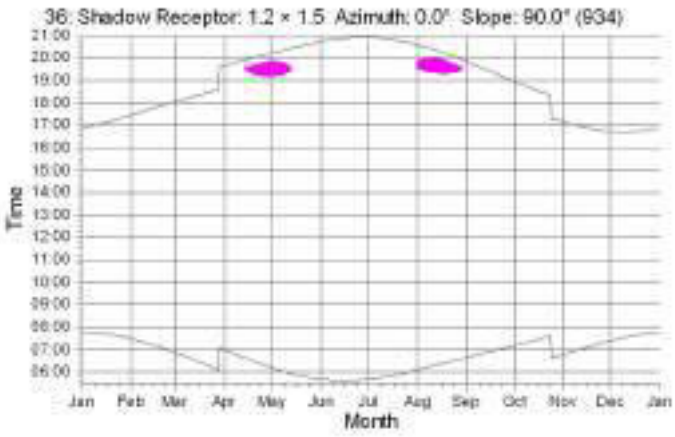












WTGs

MO03: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)
MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)
MO05: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

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Calculated:
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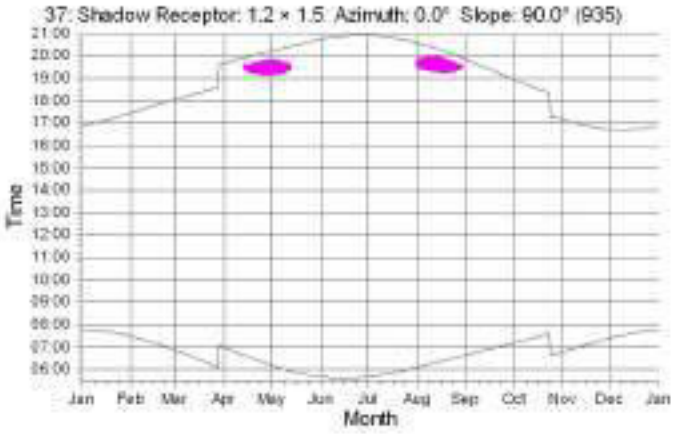
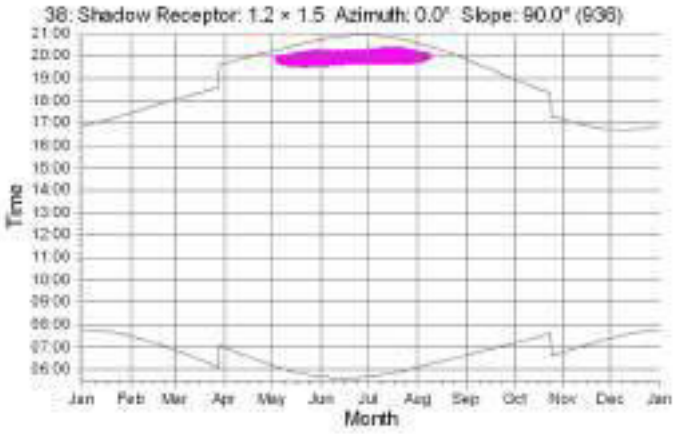
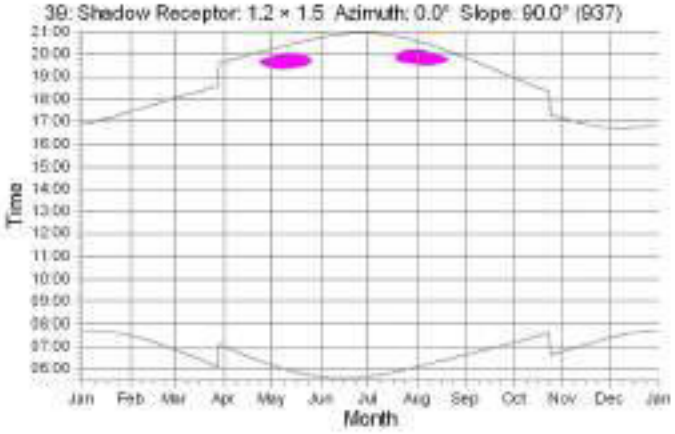
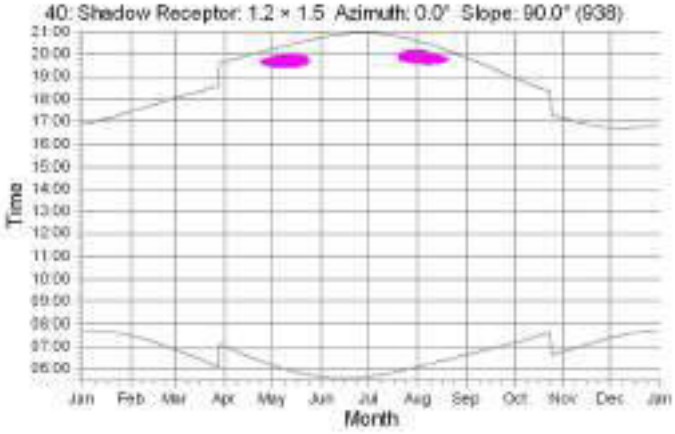
SHADOW - Calendar, graphical

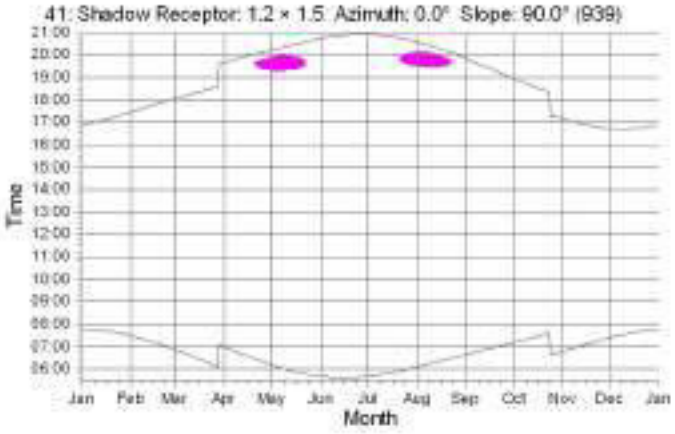
Calculation: Real Case con piena operatività dell'impianto

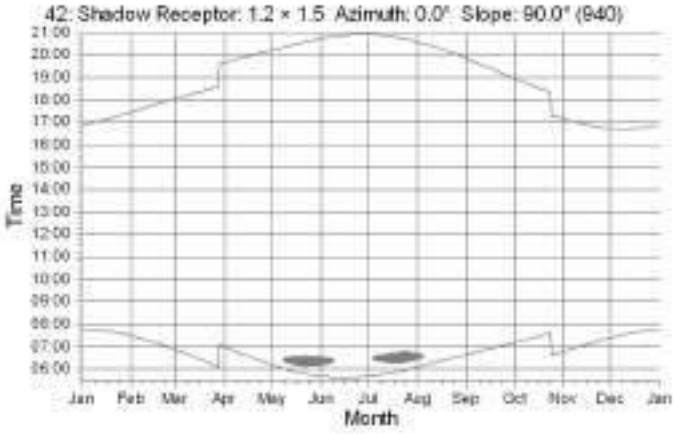












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

MO05: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

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Calculated:
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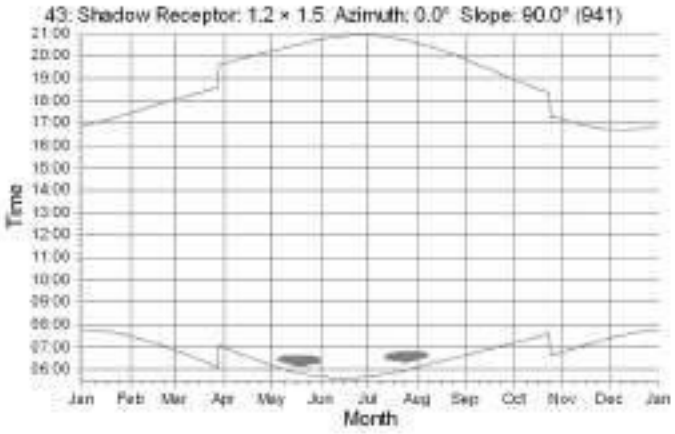
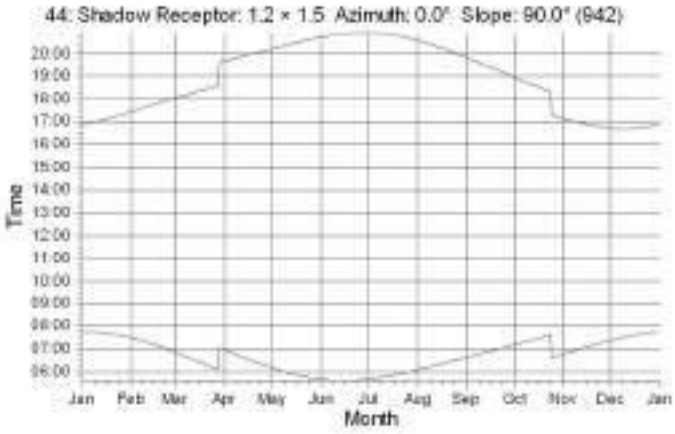
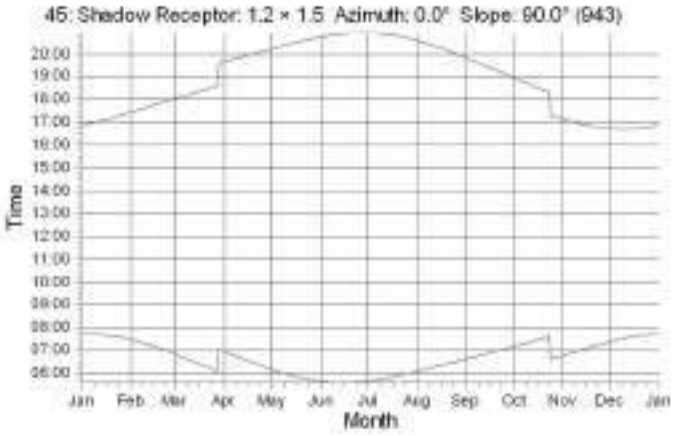
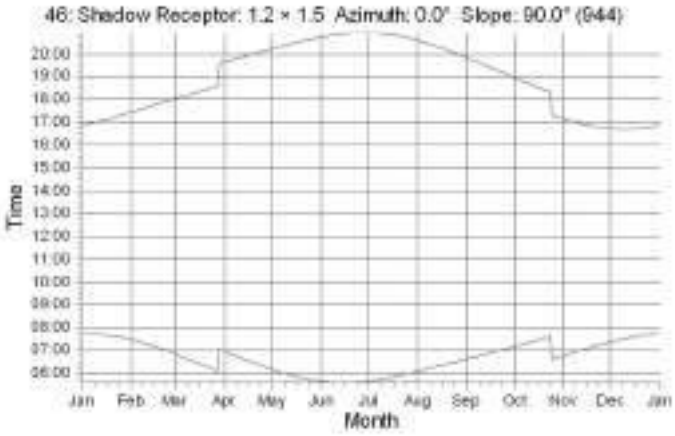
SHADOW - Calendar, graphical

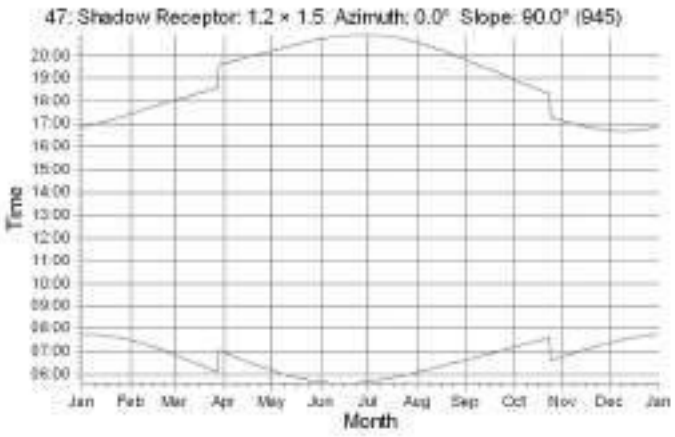
Calculation: Real Case con piena operatività dell'impianto

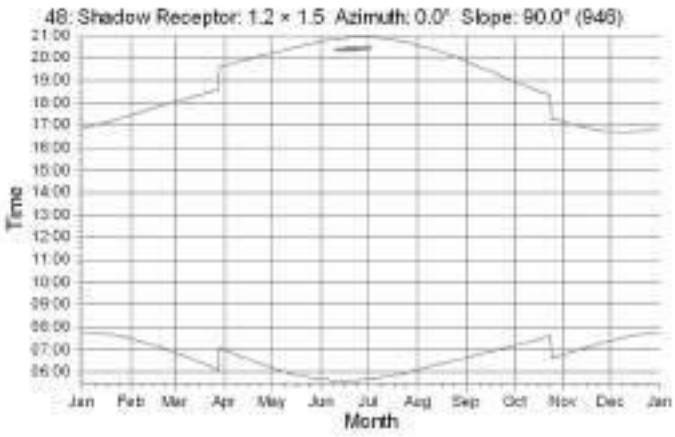












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

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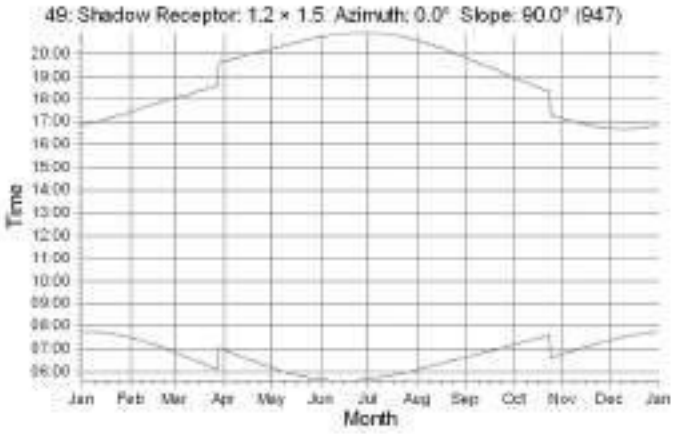
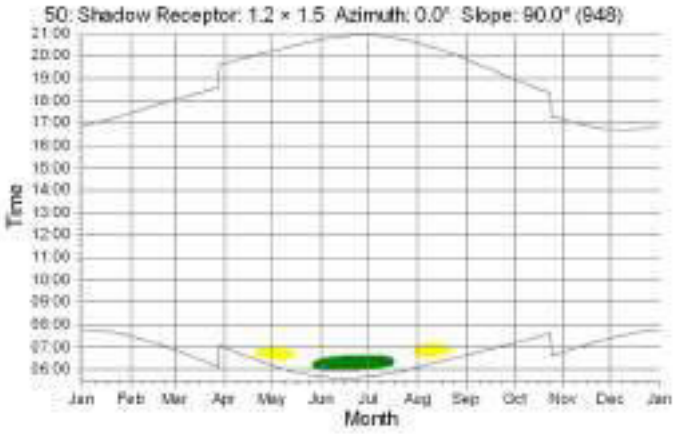
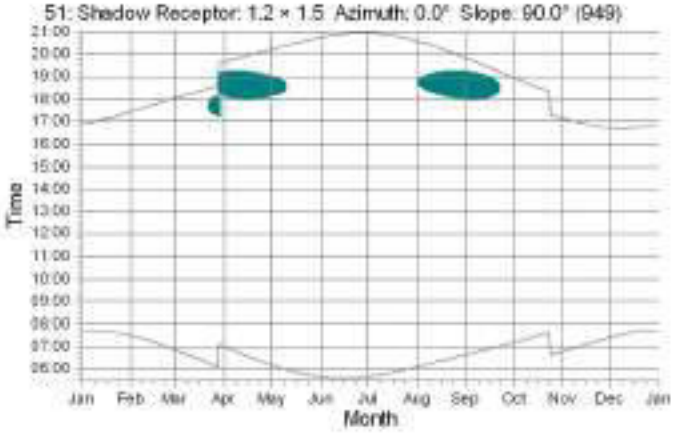
Calculated:
02/09/2023 23:38/3.6.361

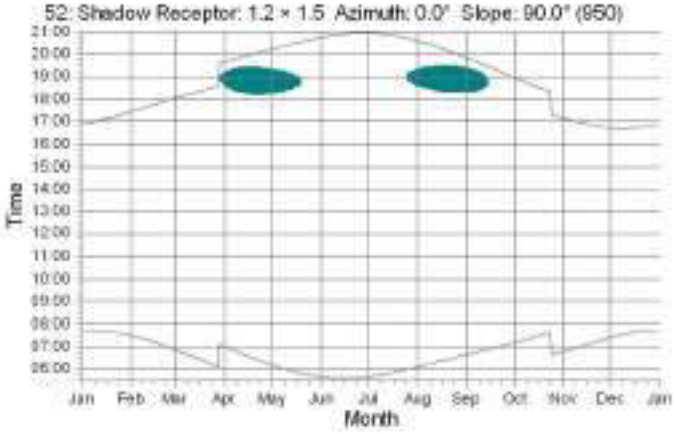
SHADOW - Calendar, graphical

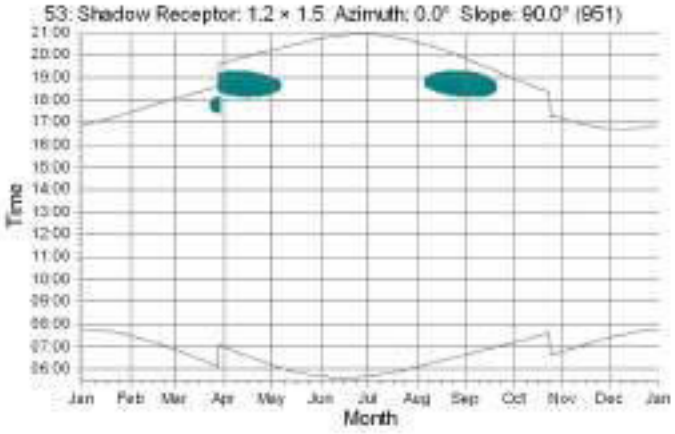
Calculation: Real Case con piena operatività dell'impianto

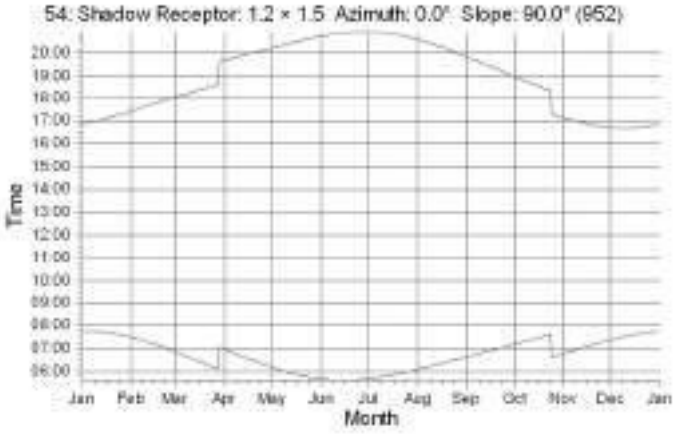












WTGs

MO01: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (1)
MO02: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (2)
MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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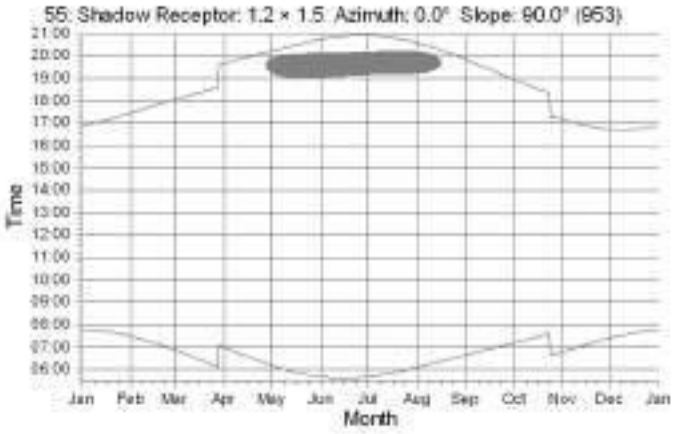
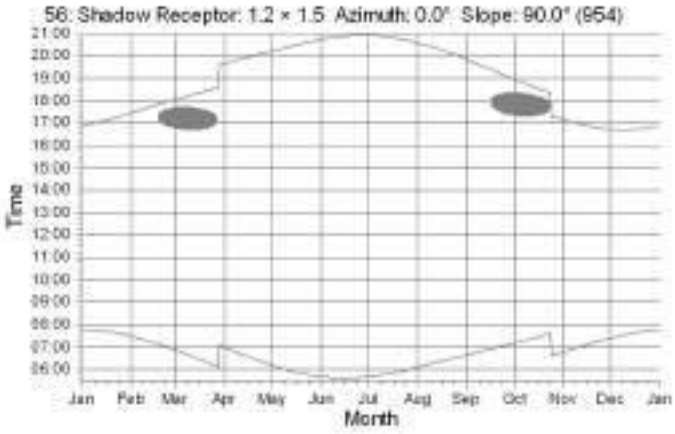
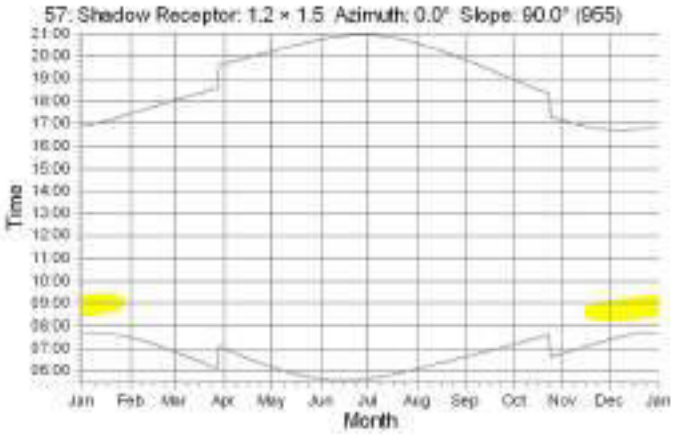
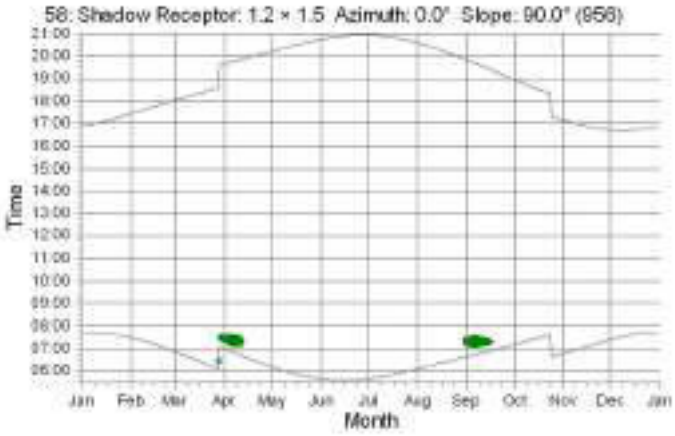
SHADOW - Calendar, graphical

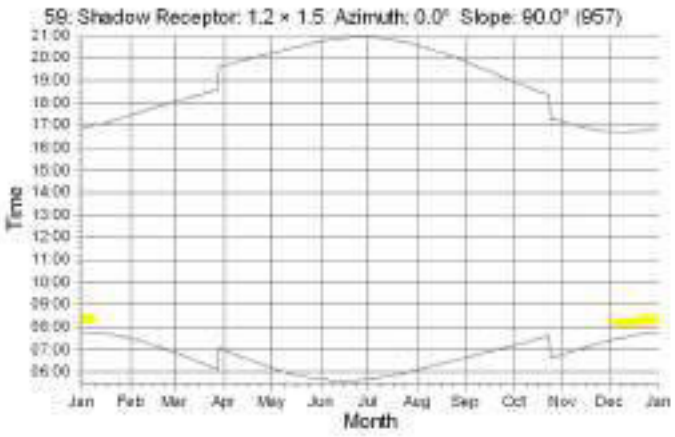
Calculation: Real Case con piena operatività dell'impianto

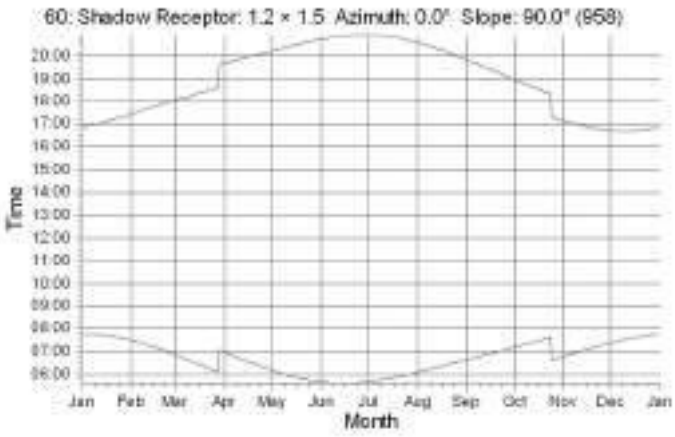












WTGs

MO01: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (1)
MO02: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (2)
MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

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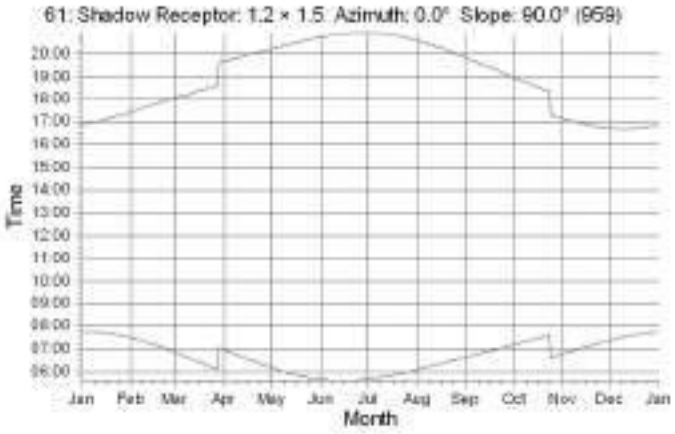
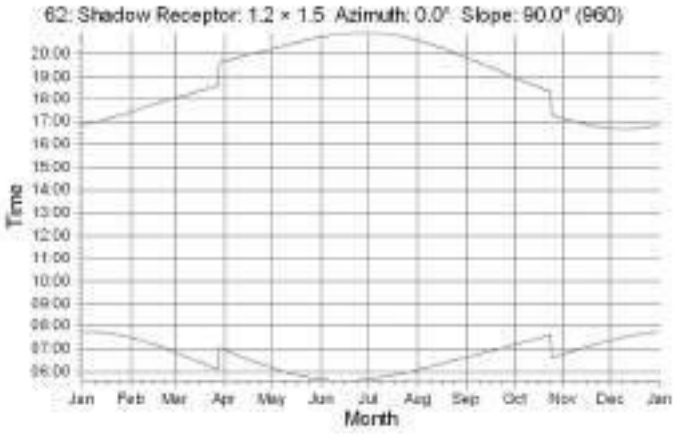
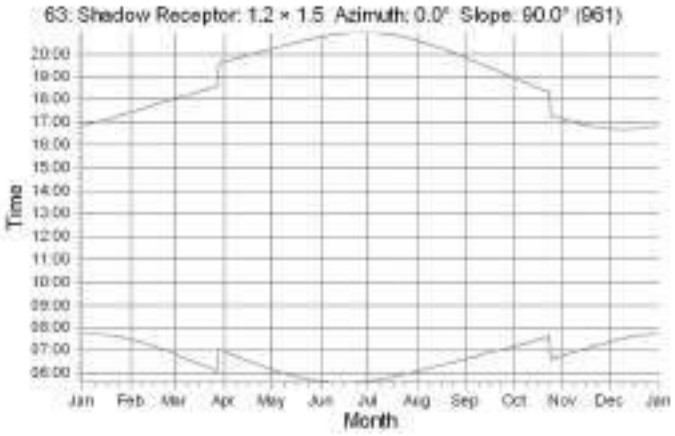
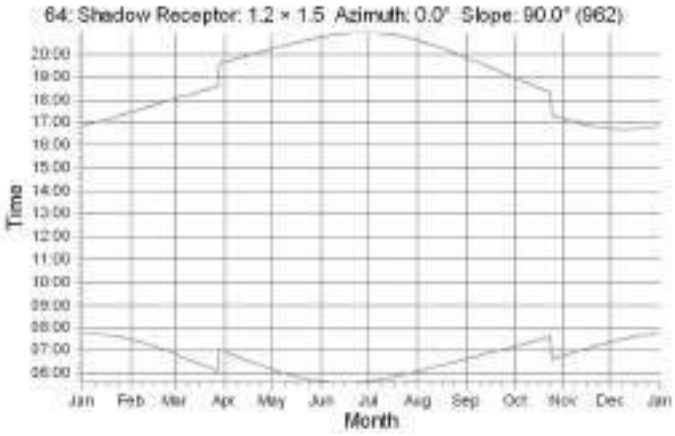
SHADOW - Calendar, graphical

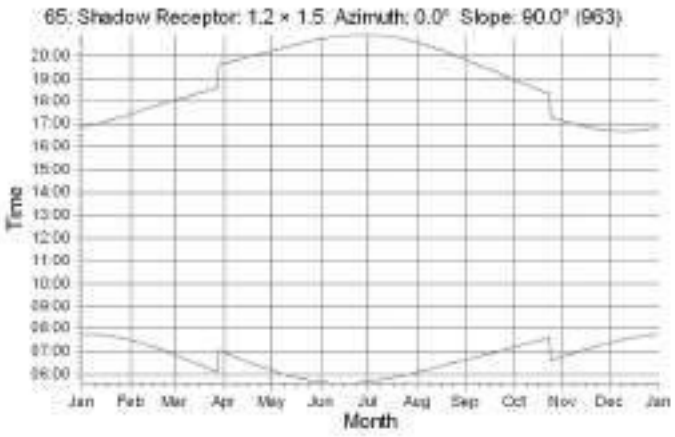
Calculation: Real Case con piena operatività dell'impianto

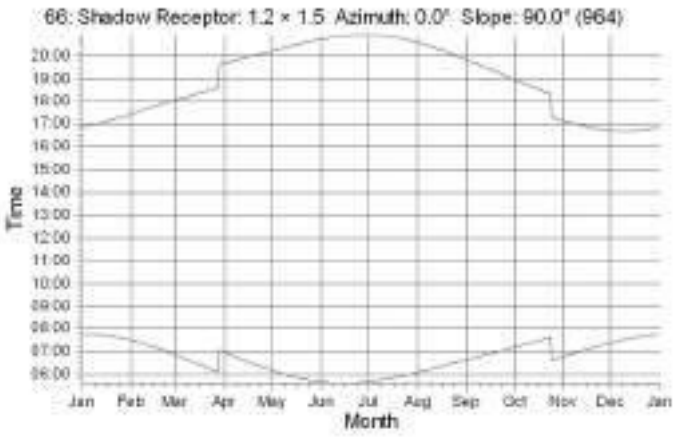












WTGs

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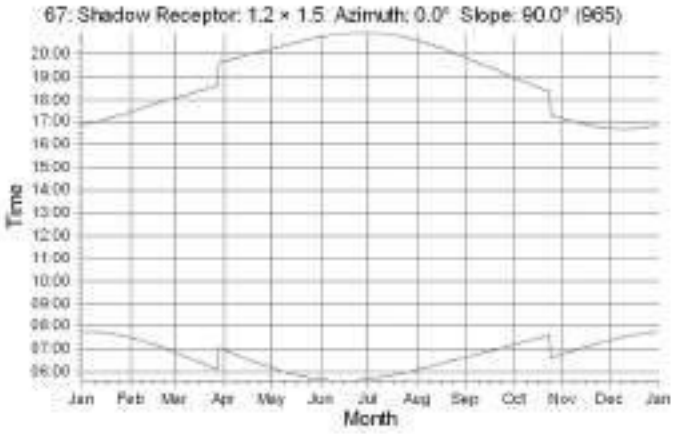
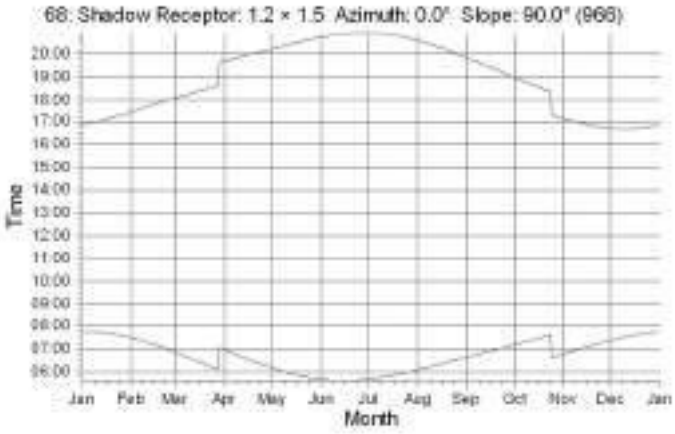
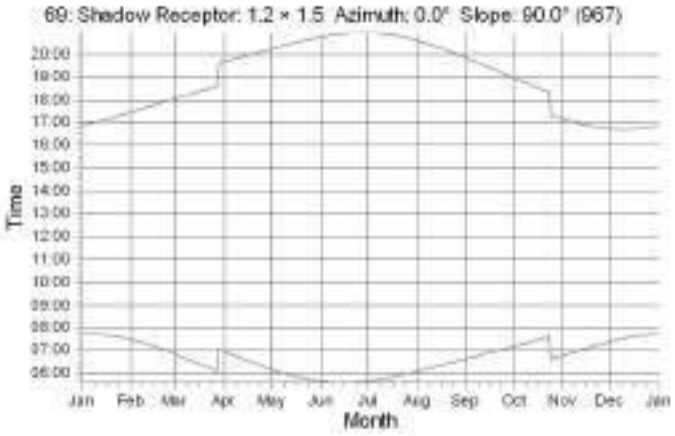
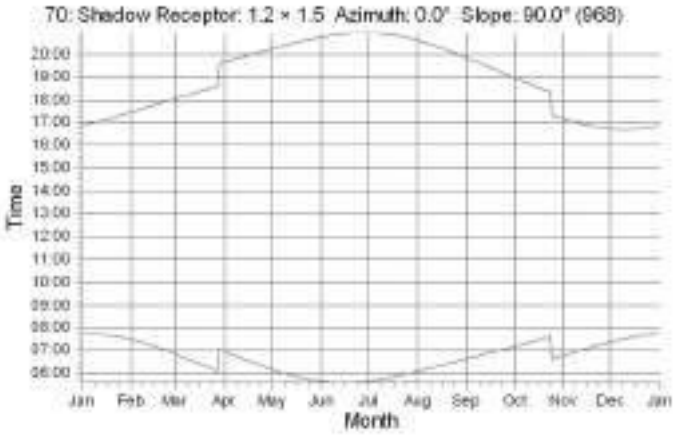
SHADOW - Calendar, graphical

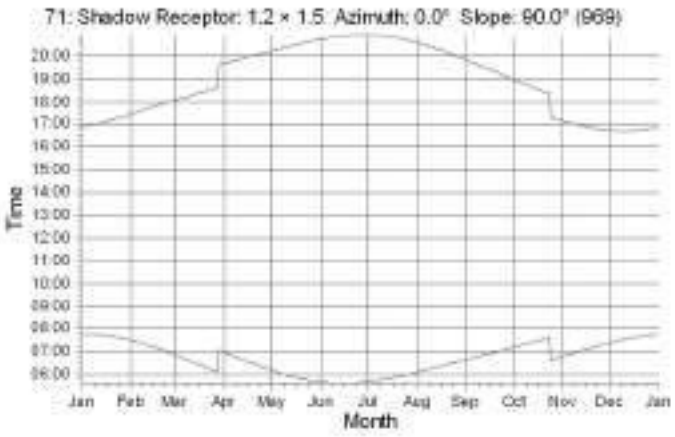
Calculation: Real Case con piena operatività dell'impianto

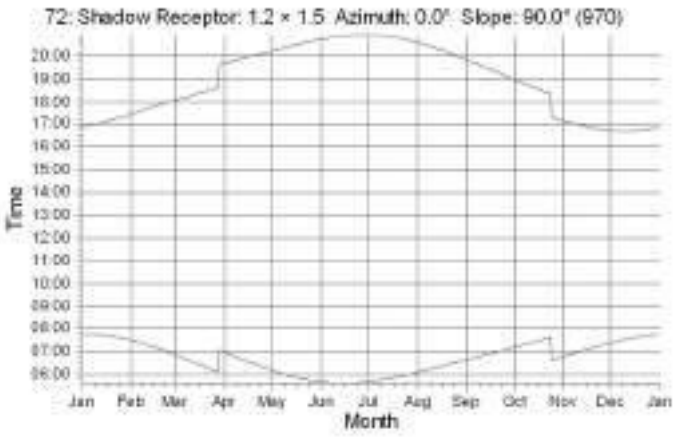












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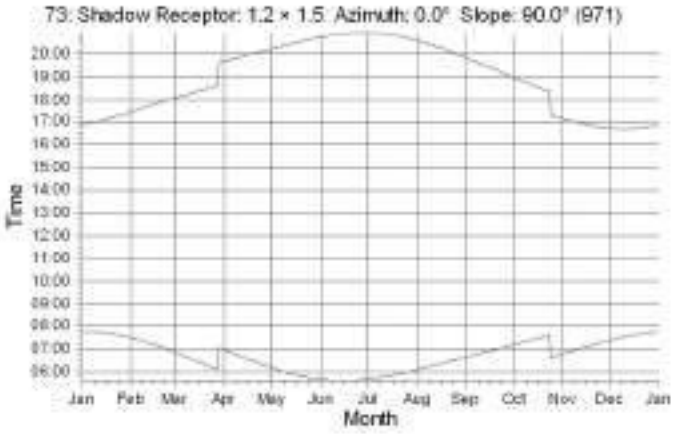
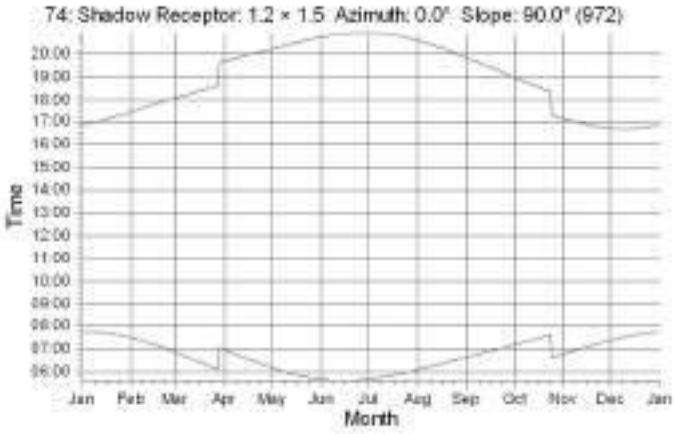
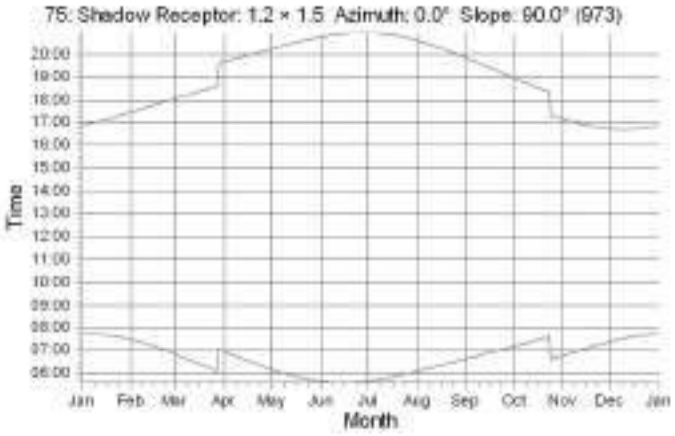
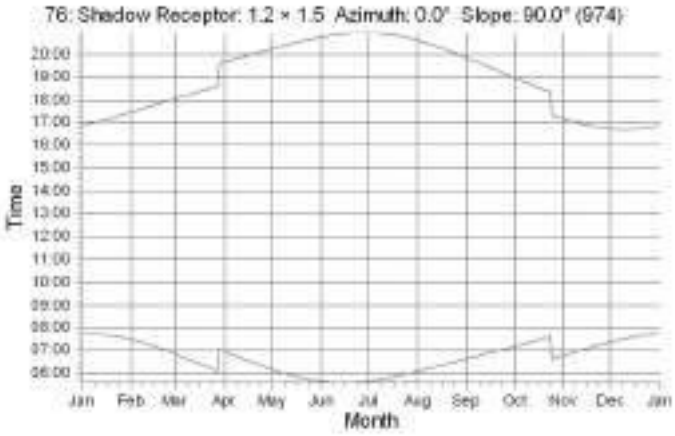
SHADOW - Calendar, graphical

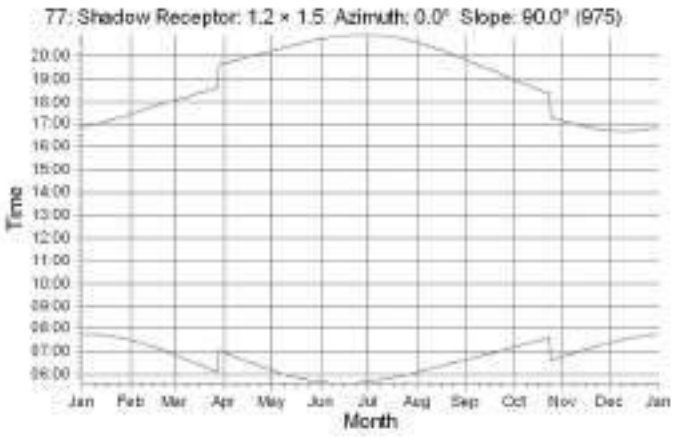
Calculation: Real Case con piena operatività dell'impianto

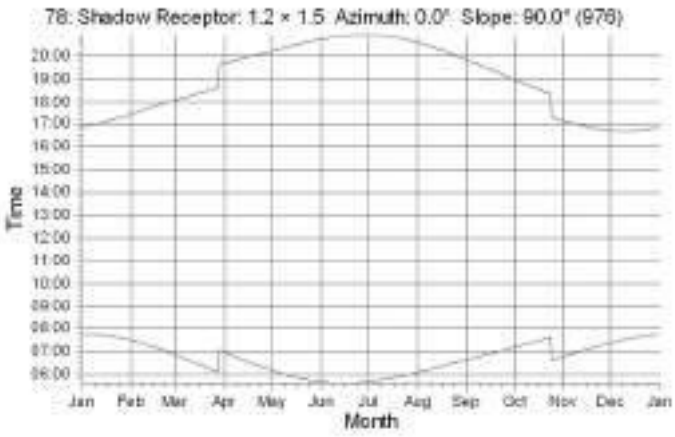












WTGs

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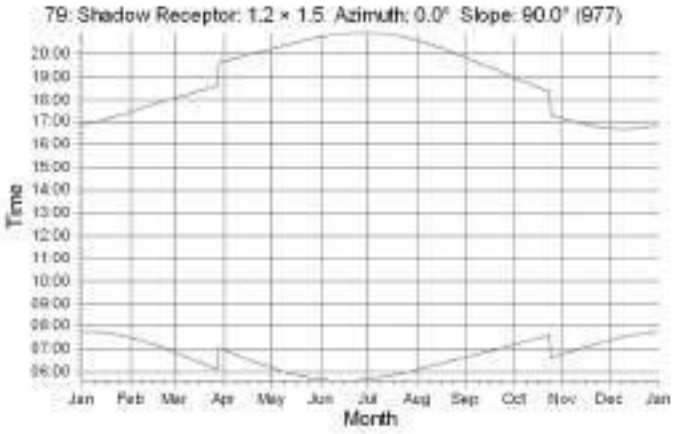
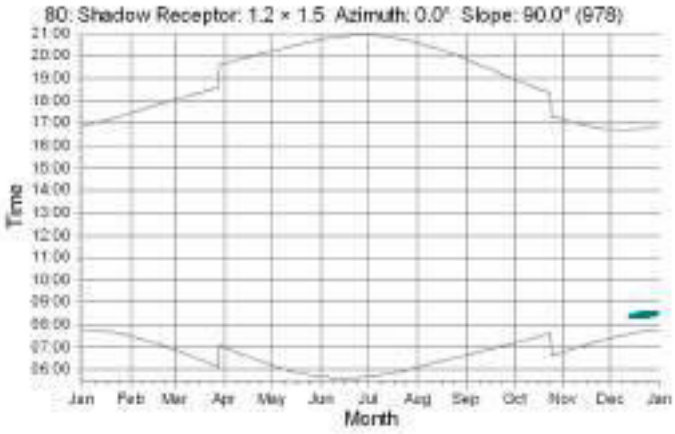
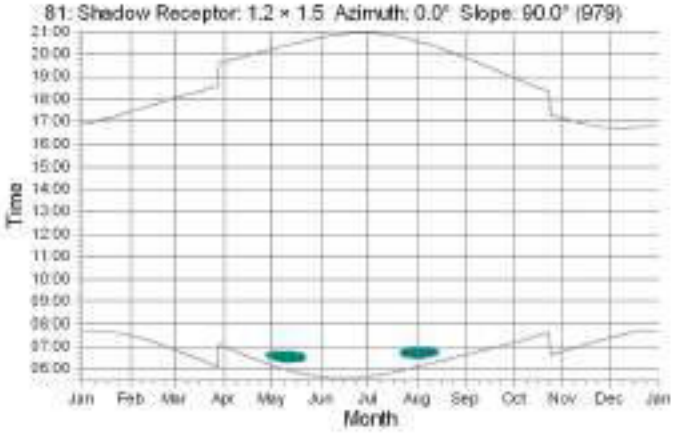
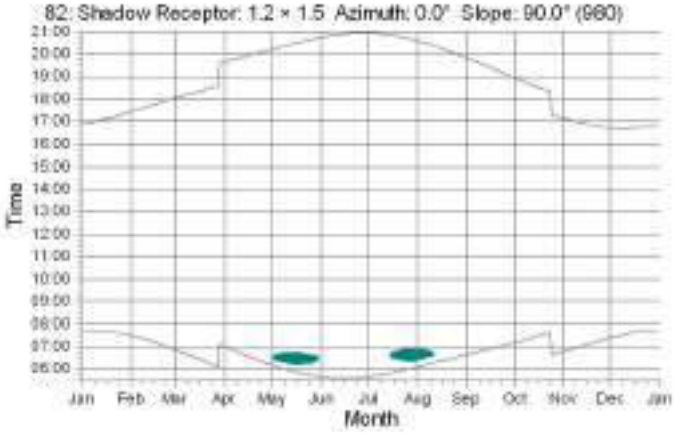
SHADOW - Calendar, graphical

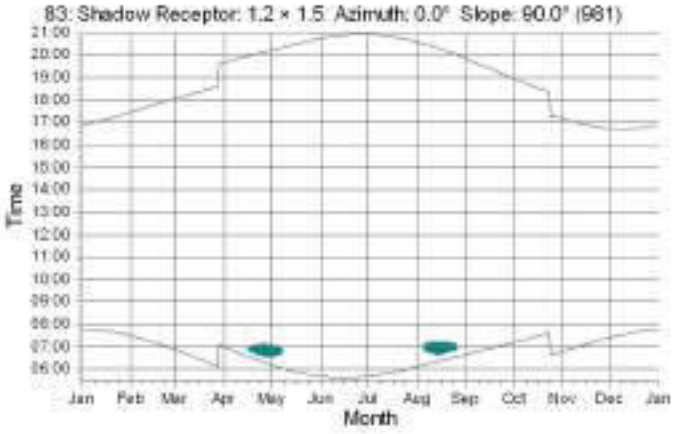
Calculation: Real Case con piena operatività dell'impianto

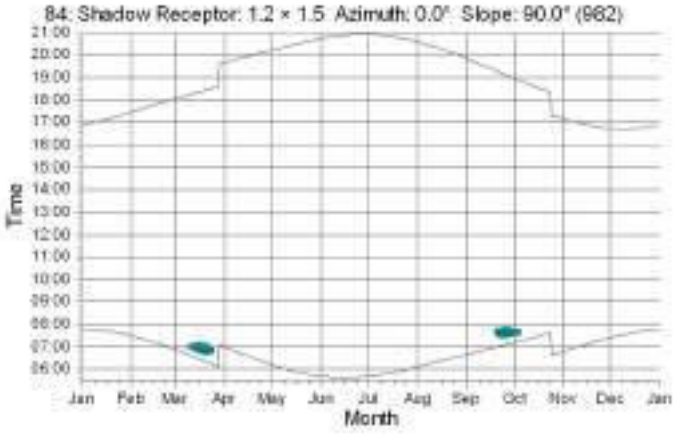












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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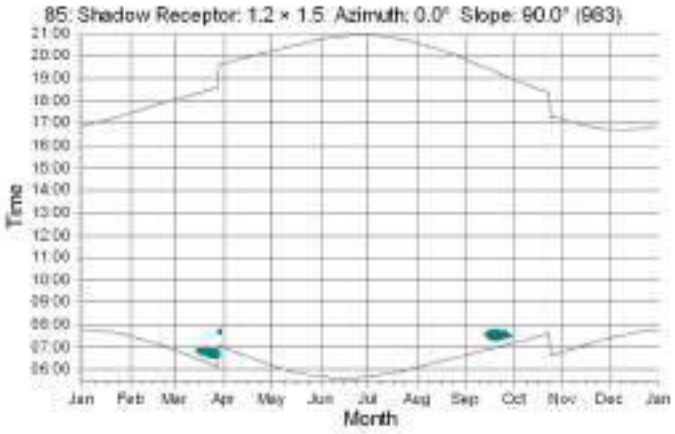
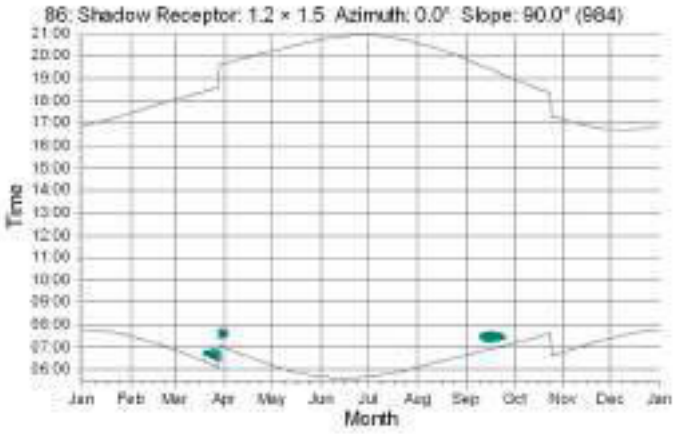
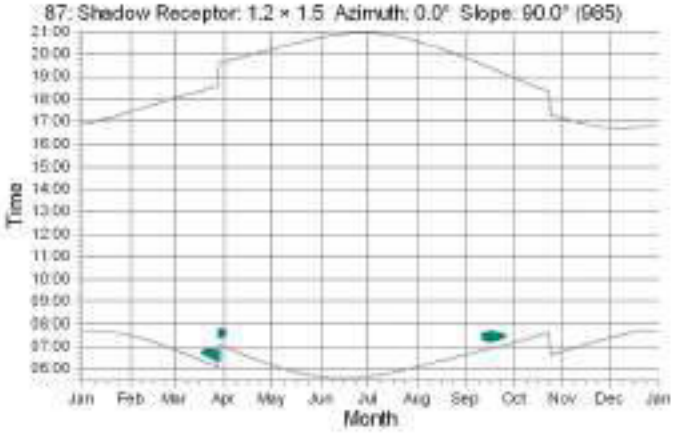
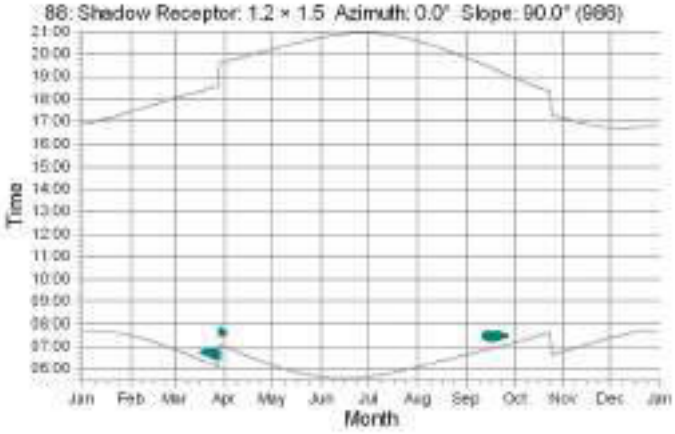
SHADOW - Calendar, graphical

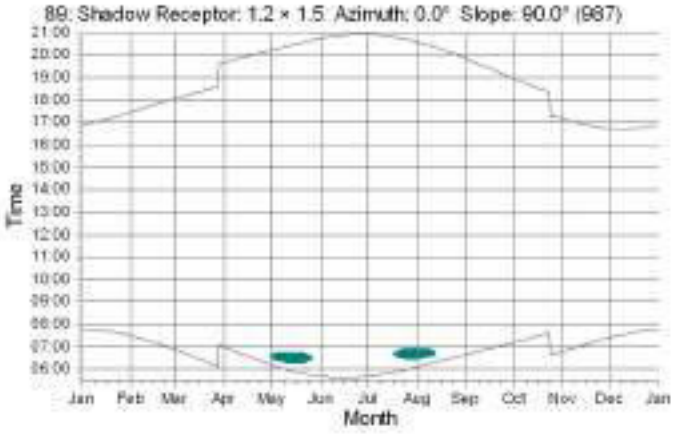
Calculation: Real Case con piena operatività dell'impianto

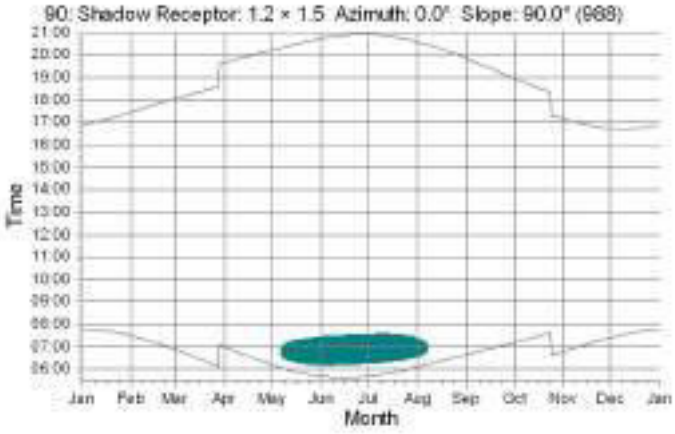












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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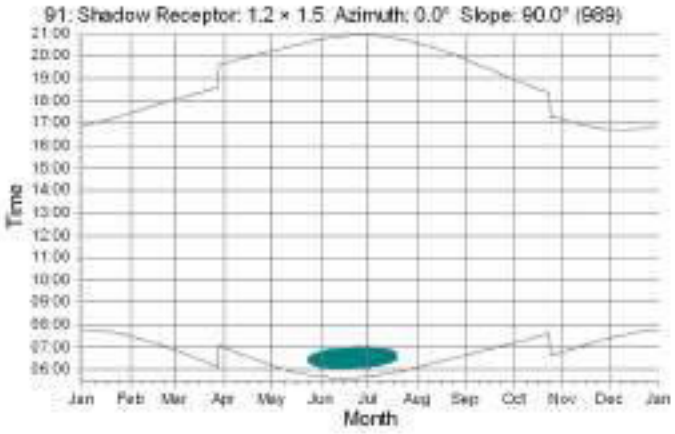
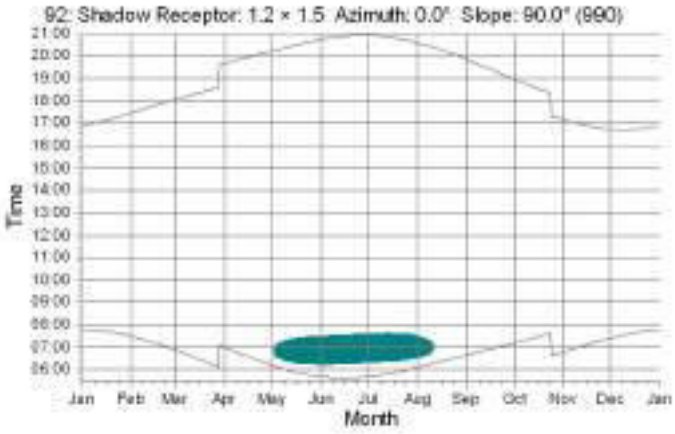
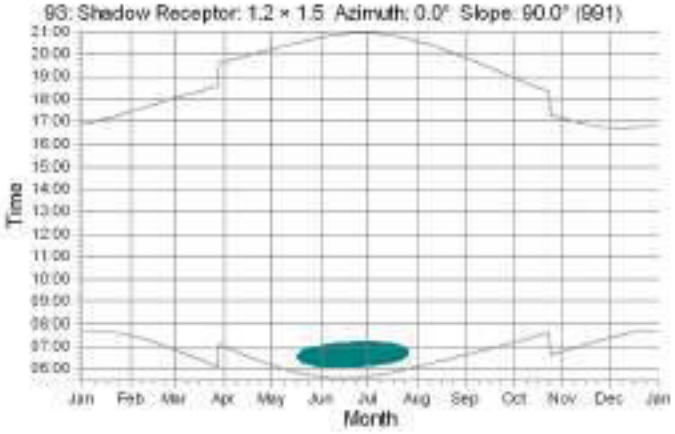
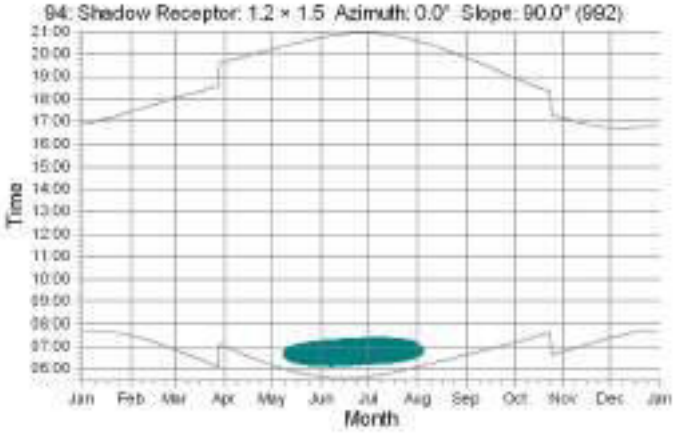
SHADOW - Calendar, graphical

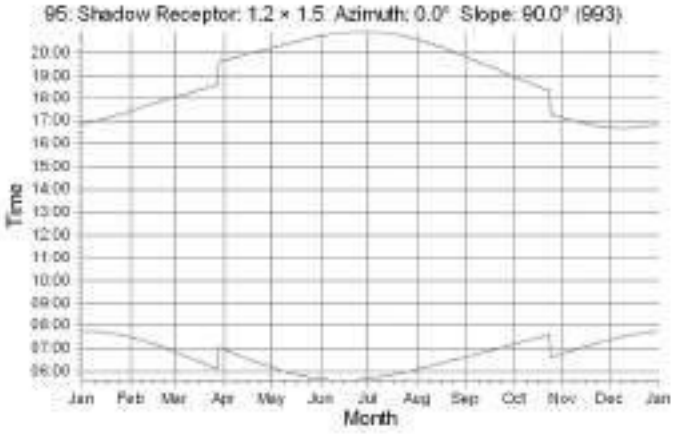
Calculation: Real Case con piena operatività dell'impianto

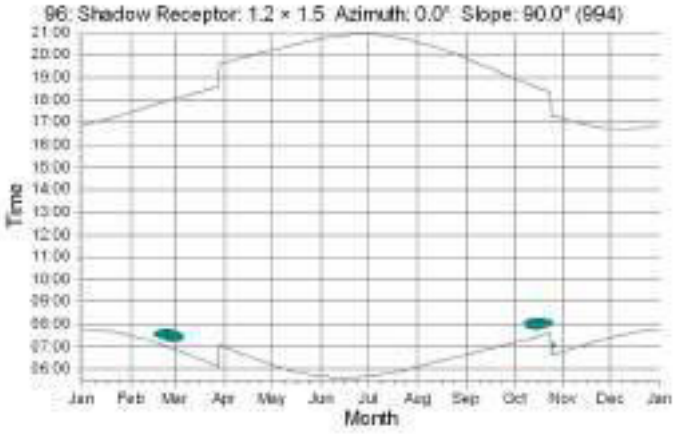












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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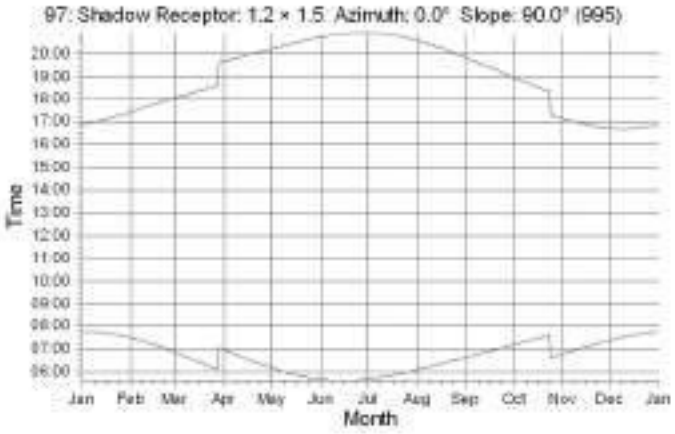
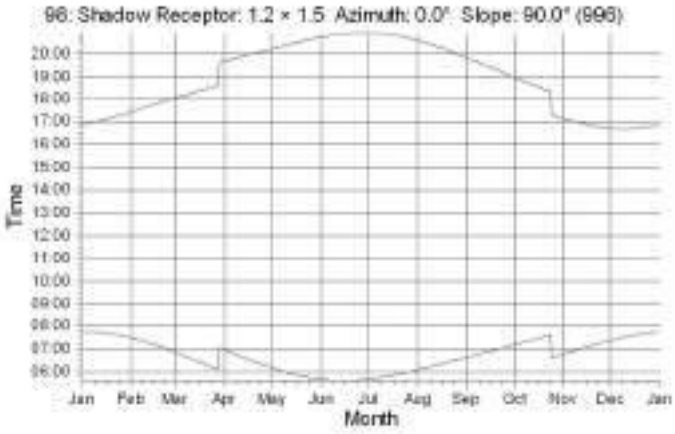
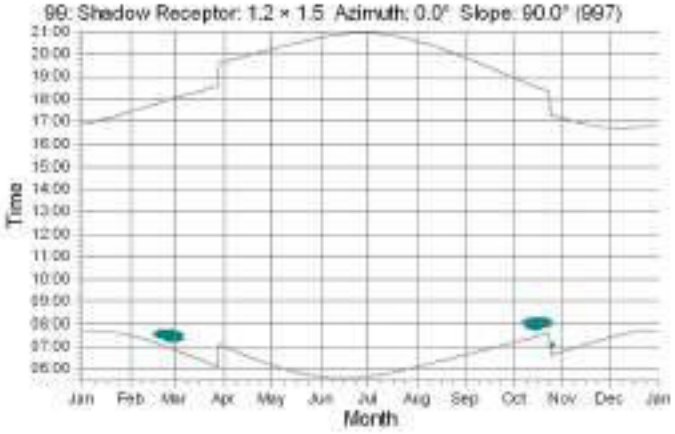
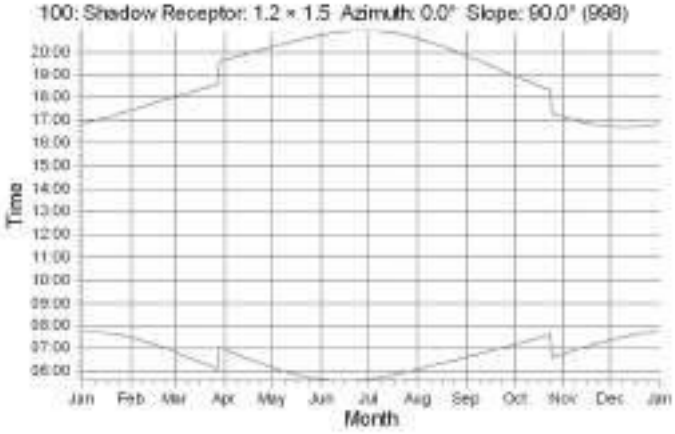
SHADOW - Calendar, graphical

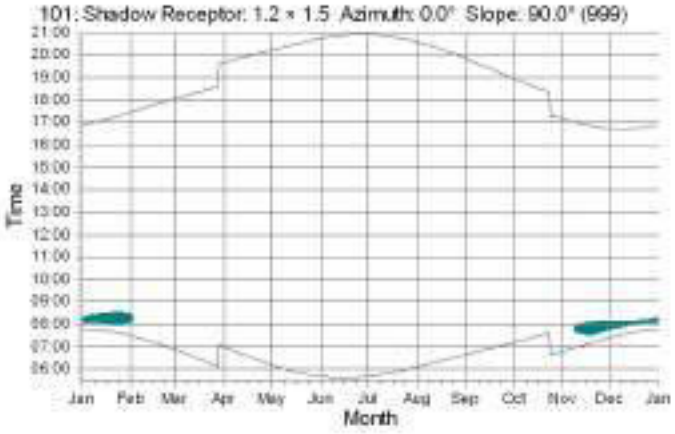
Calculation: Real Case con piena operatività dell'impianto

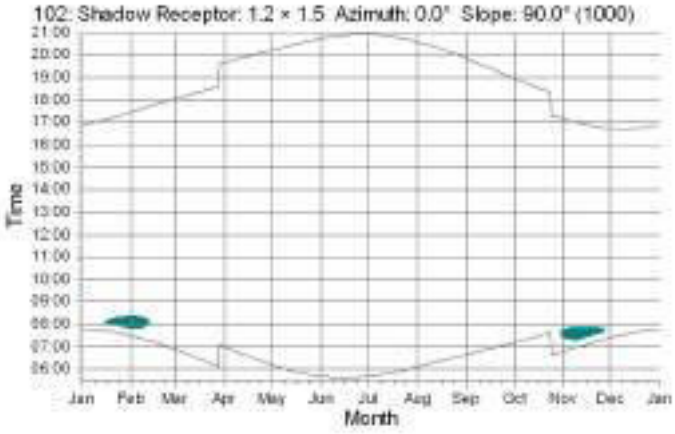












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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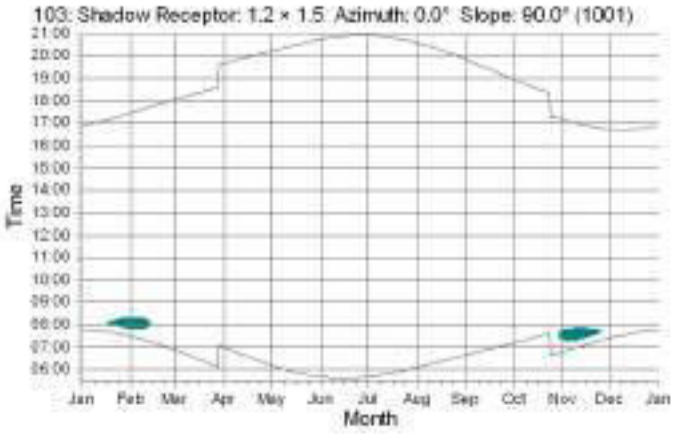
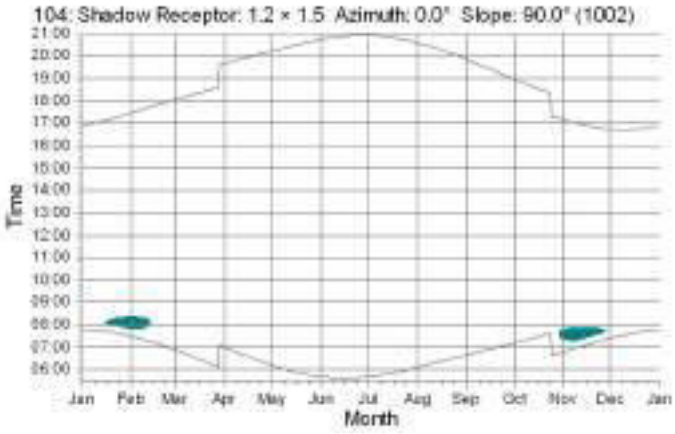
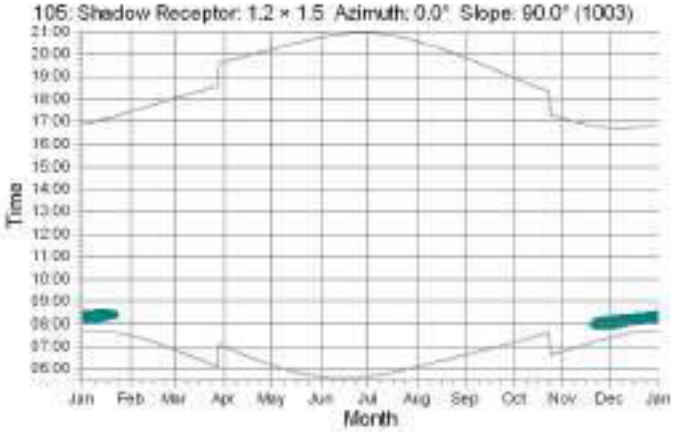
Calculated:
02/09/2023 23:38/3.6.361

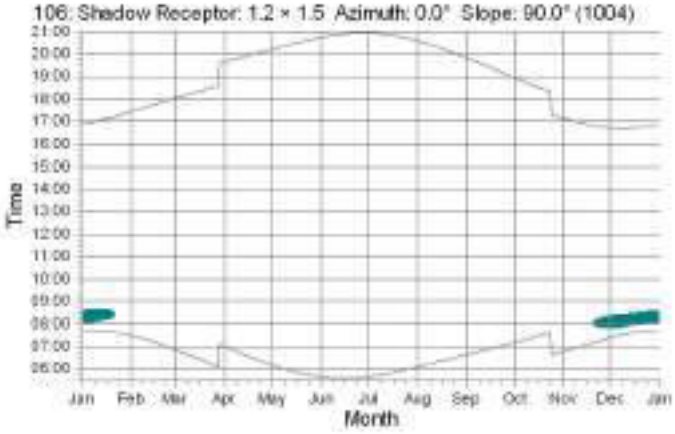
SHADOW - Calendar, graphical

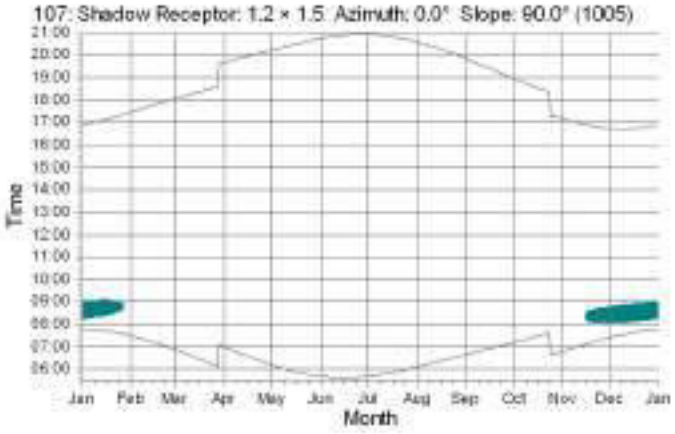
Calculation: Real Case con piena operatività dell'impianto

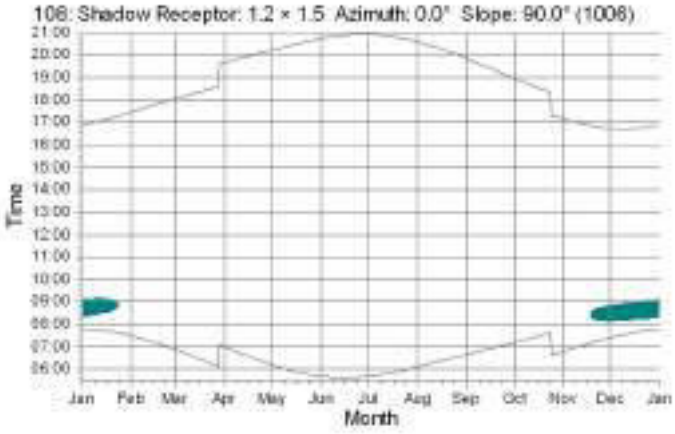












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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Calculated:
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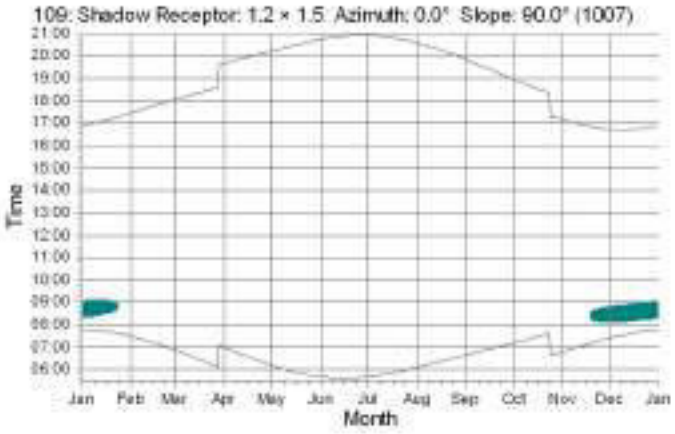
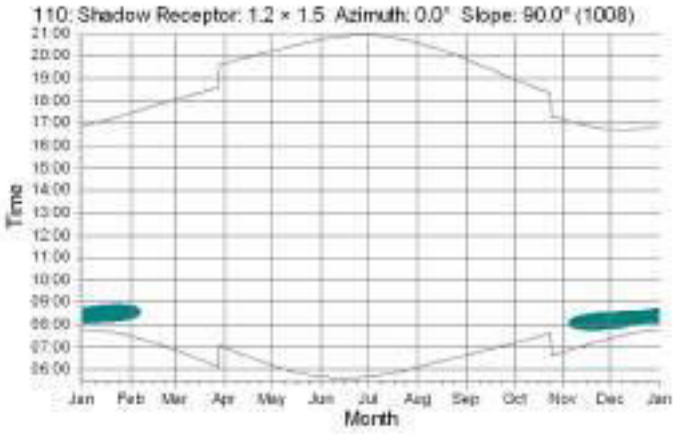
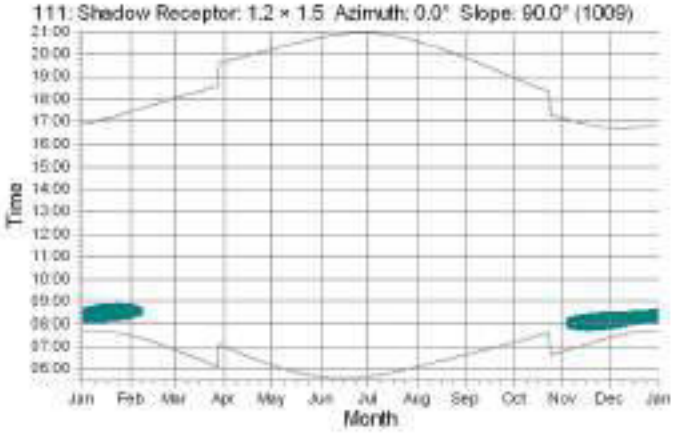
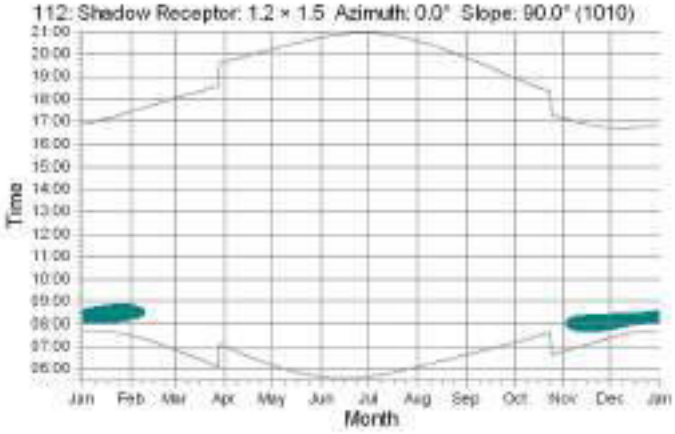
SHADOW - Calendar, graphical

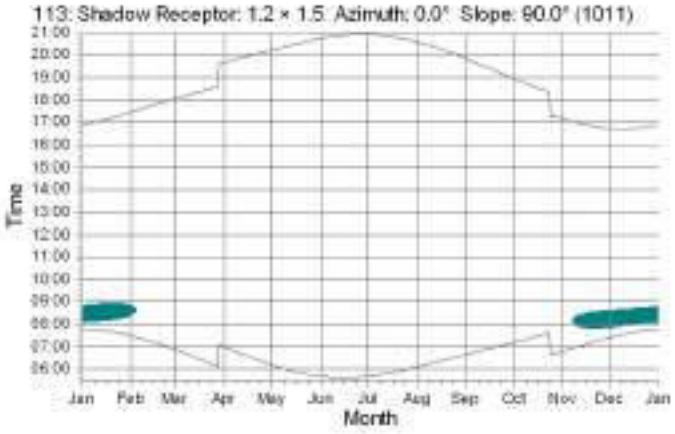
Calculation: Real Case con piena operatività dell'impianto

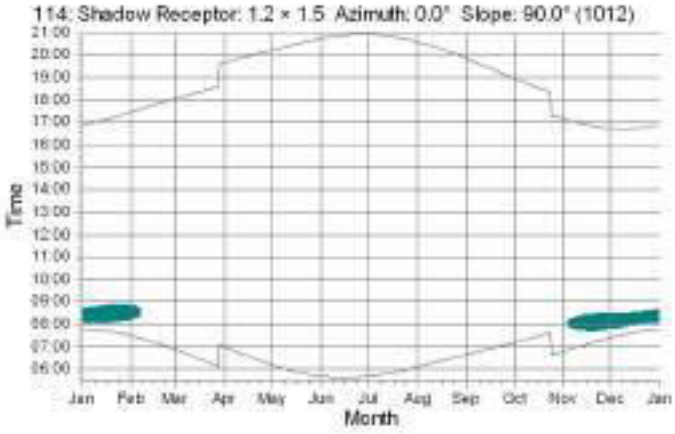












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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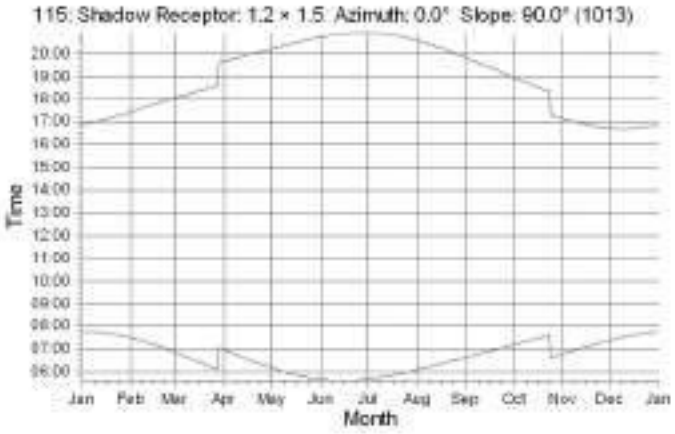
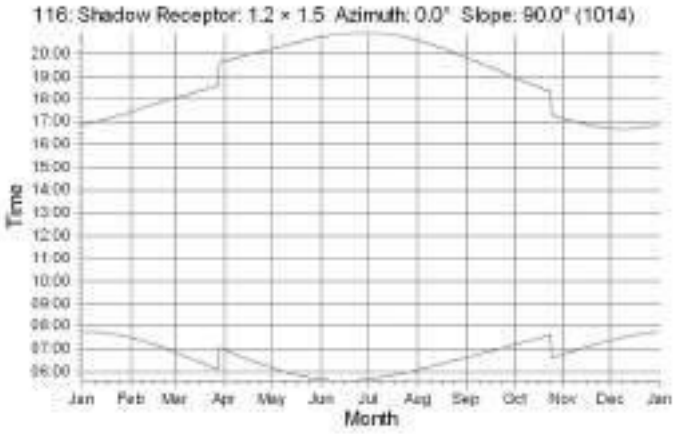
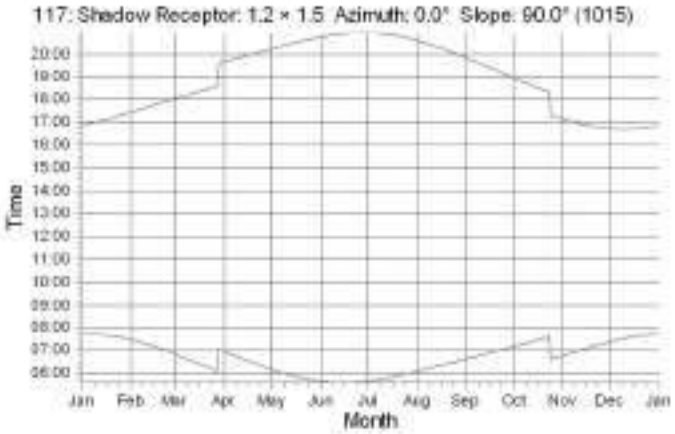
Calculated:
02/09/2023 23:38/3.6.361

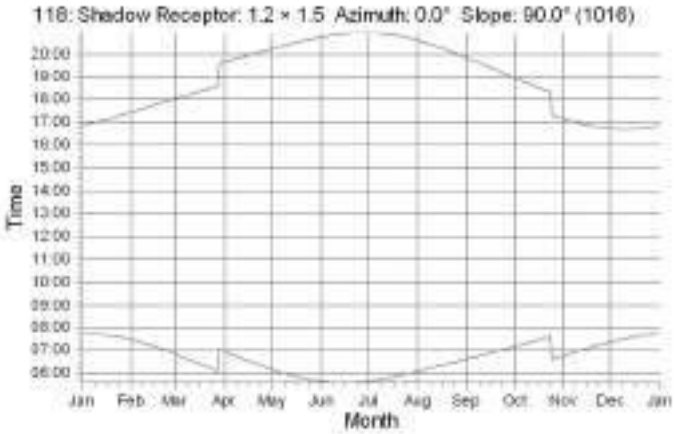
SHADOW - Calendar, graphical

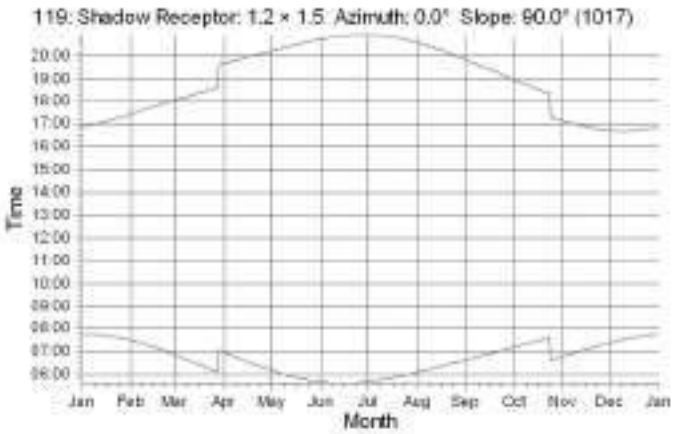
Calculation: Real Case con piena operatività dell'impianto

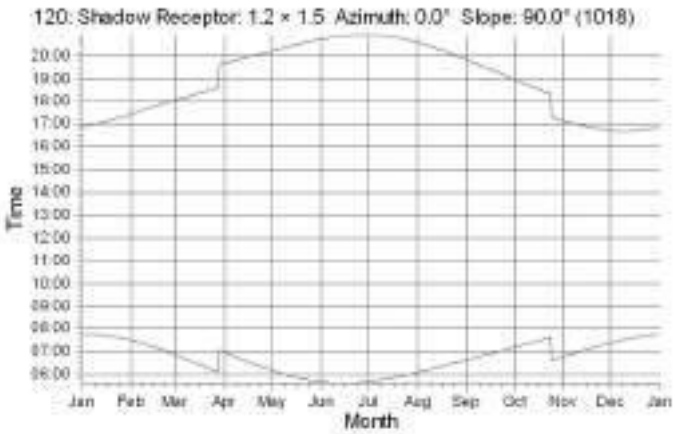












WTGs

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Calculated:
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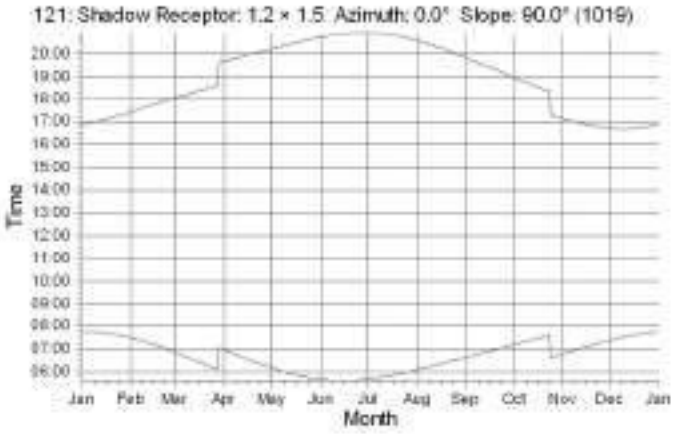
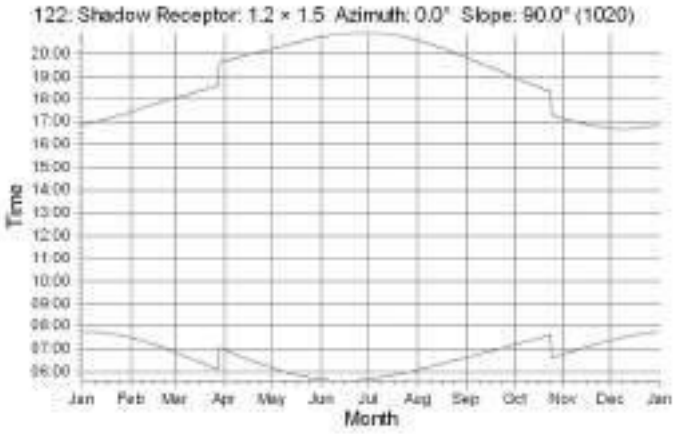
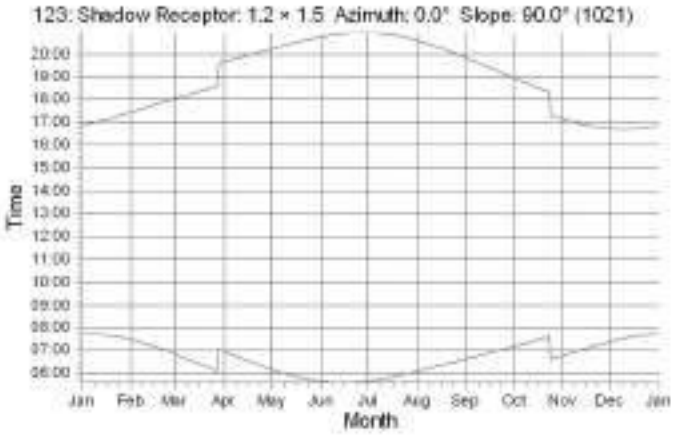
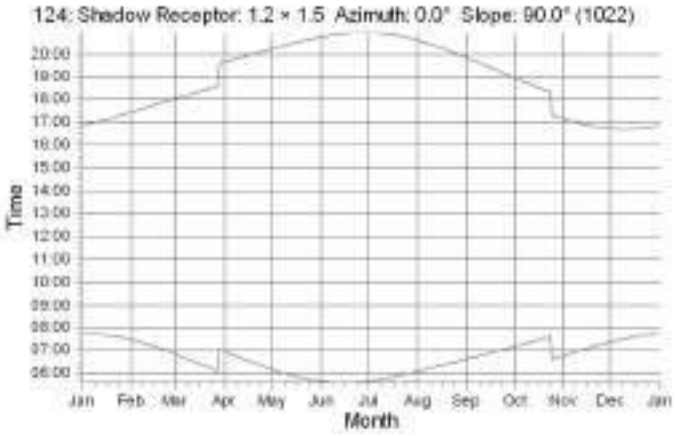
SHADOW - Calendar, graphical

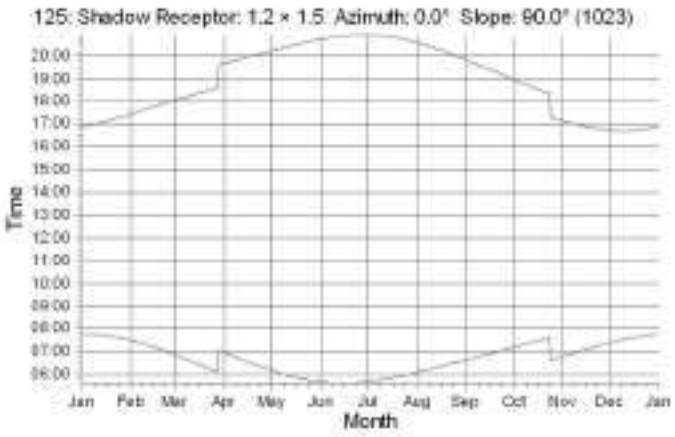
Calculation: Real Case con piena operatività dell'impianto

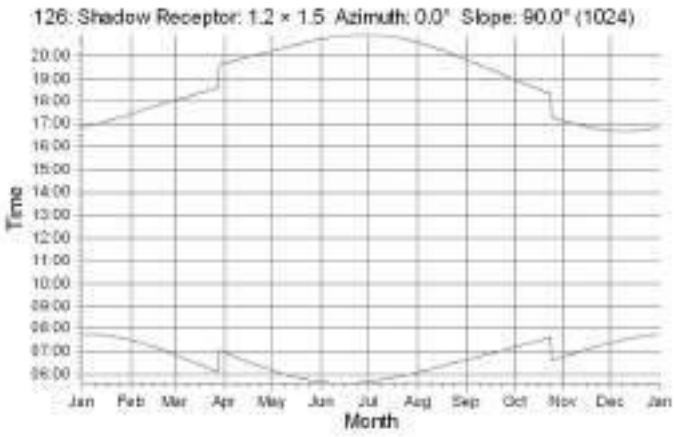












WTGs

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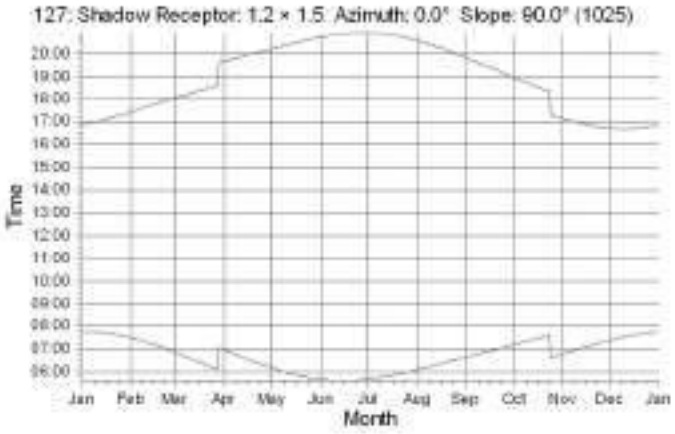
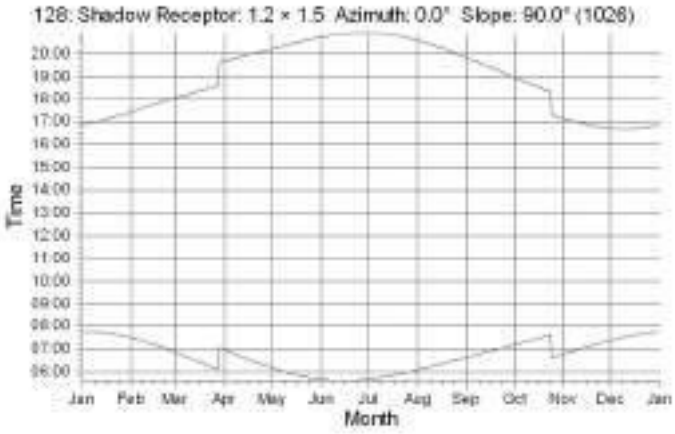
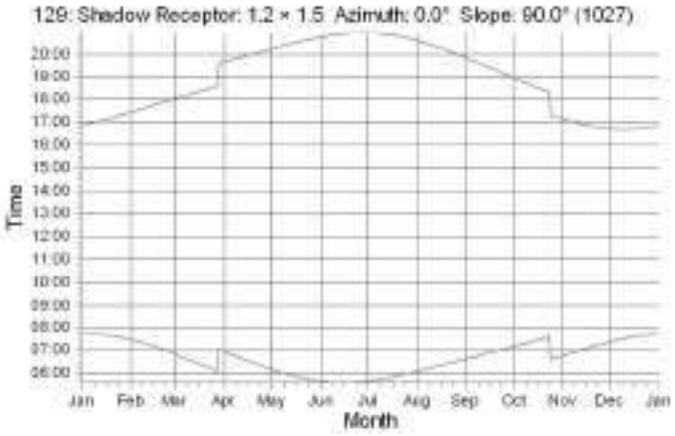
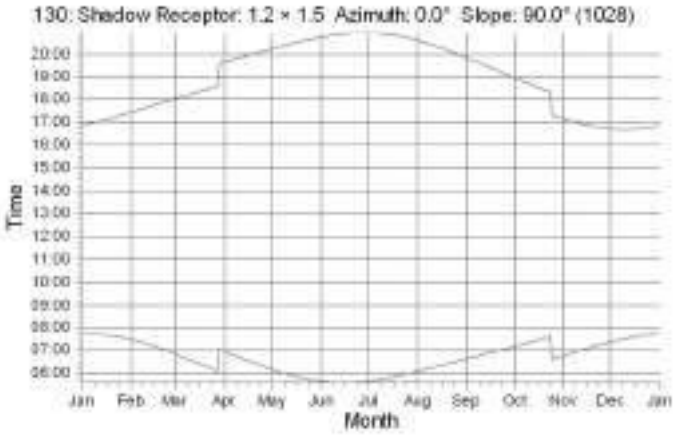
SHADOW - Calendar, graphical

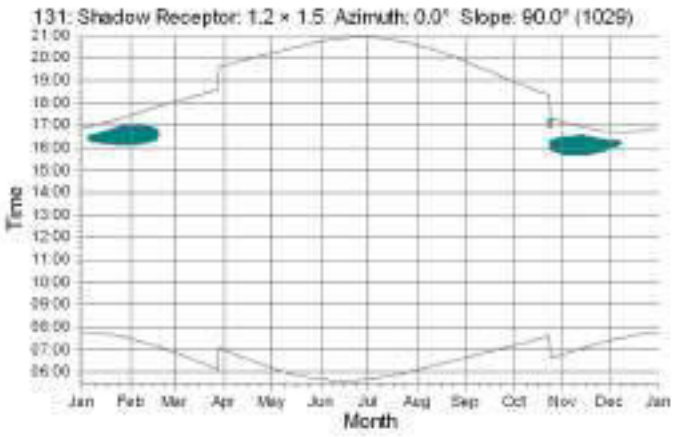
Calculation: Real Case con piena operatività dell'impianto

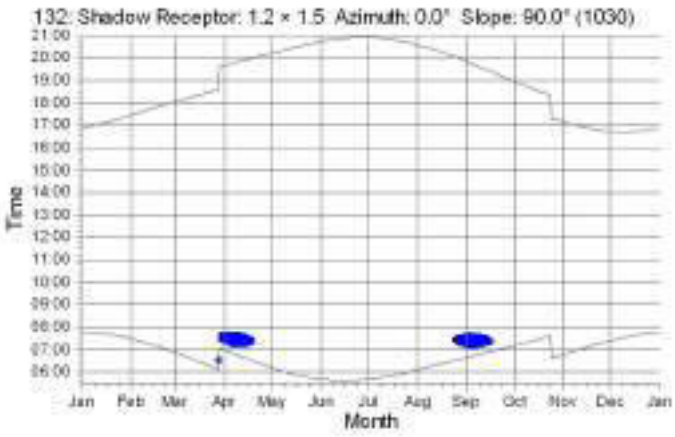












WTGs

MO03: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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Calculated:
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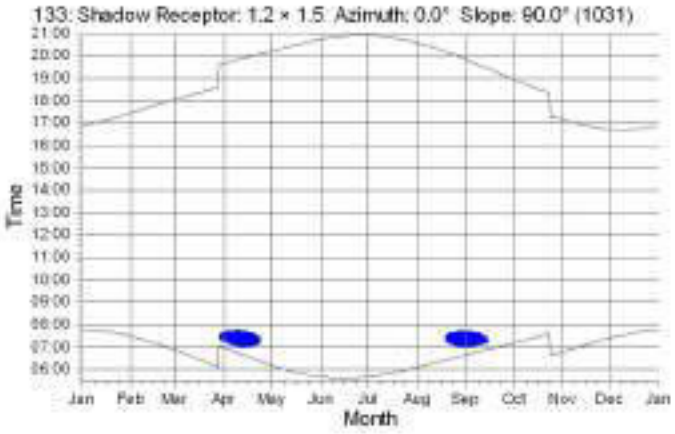
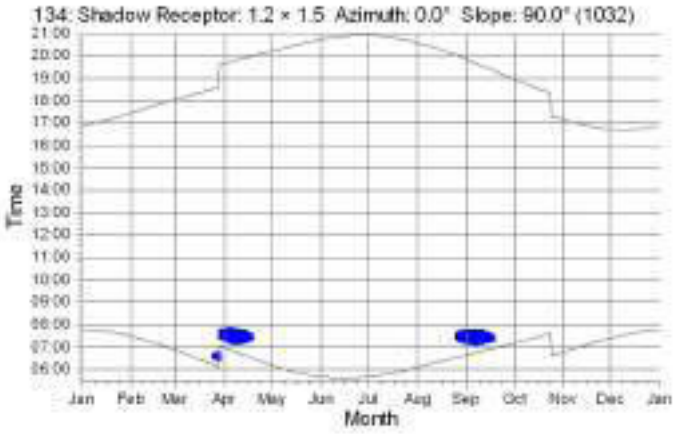
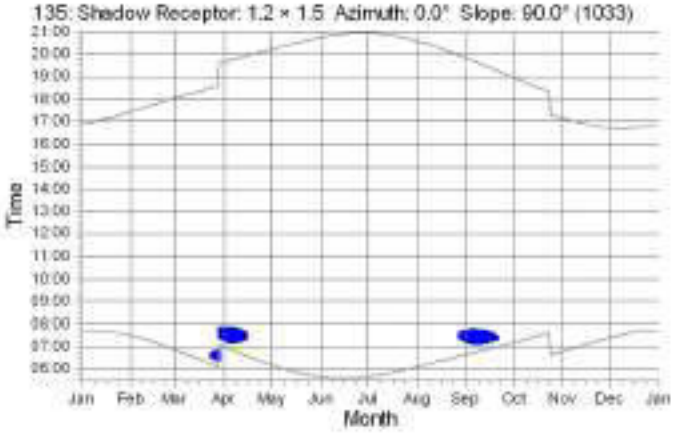
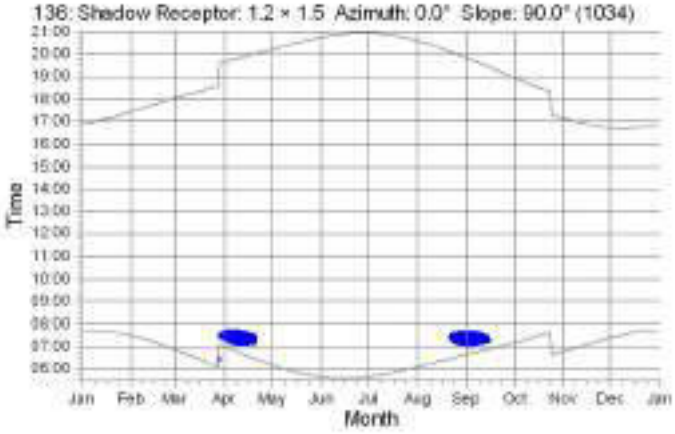
SHADOW - Calendar, graphical

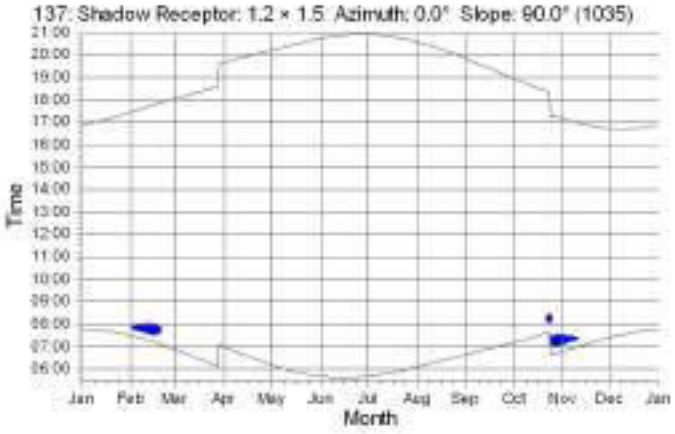
Calculation: Real Case con piena operatività dell'impianto

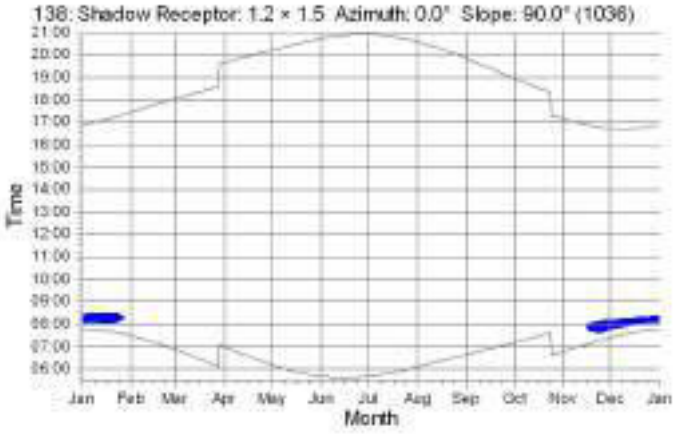












WTGs

MO03: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)

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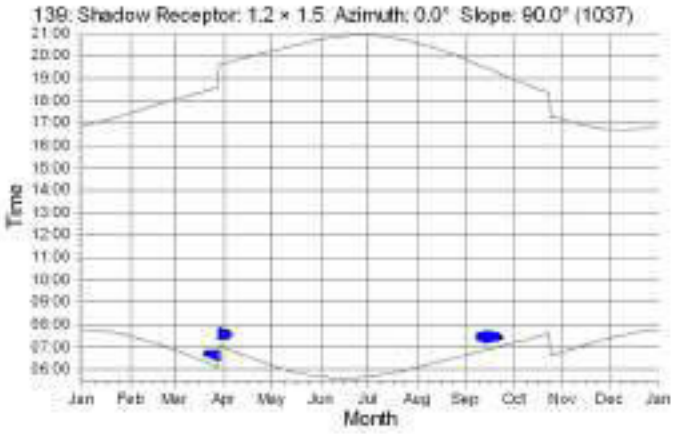
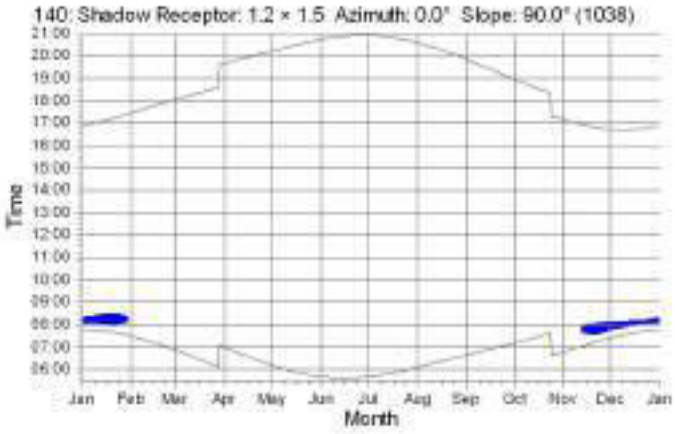
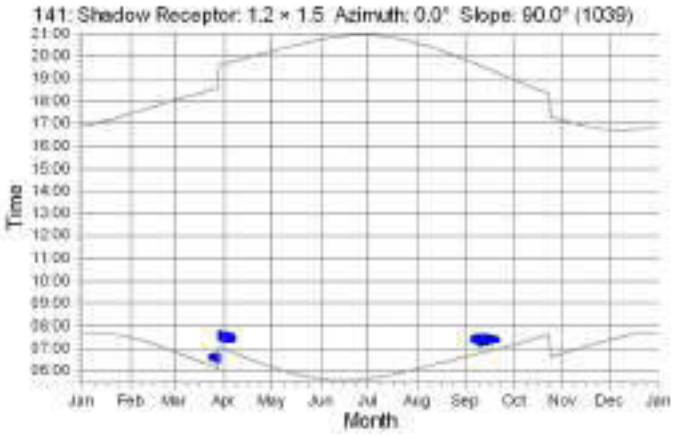
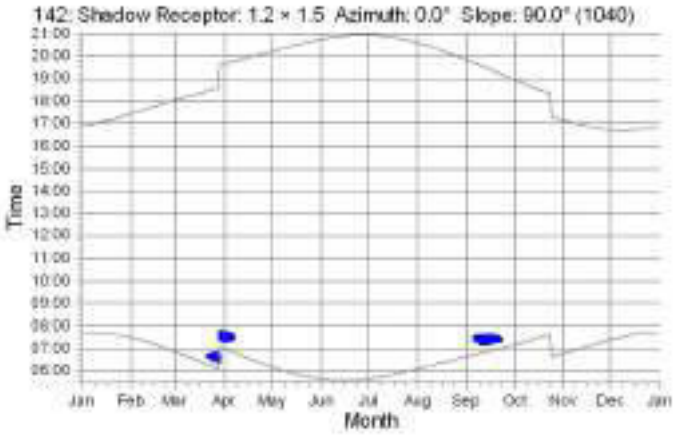
SHADOW - Calendar, graphical

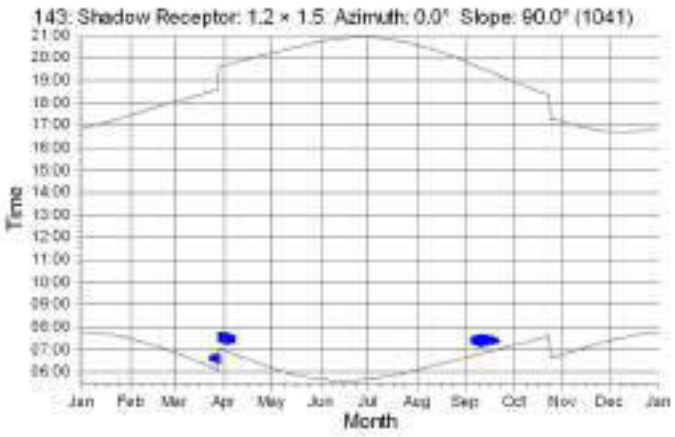
Calculation: Real Case con piena operatività dell'impianto

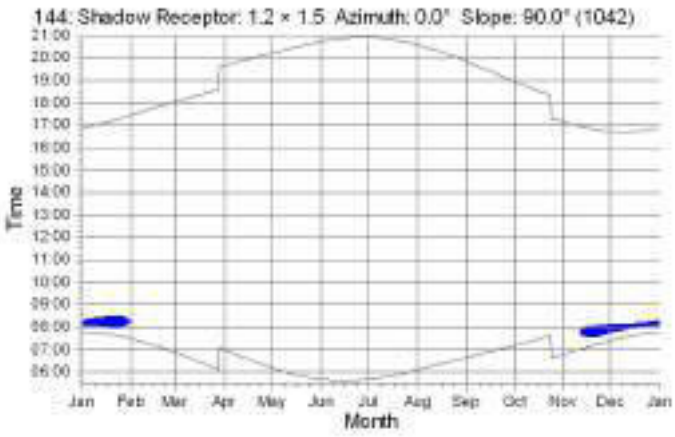












WTGs

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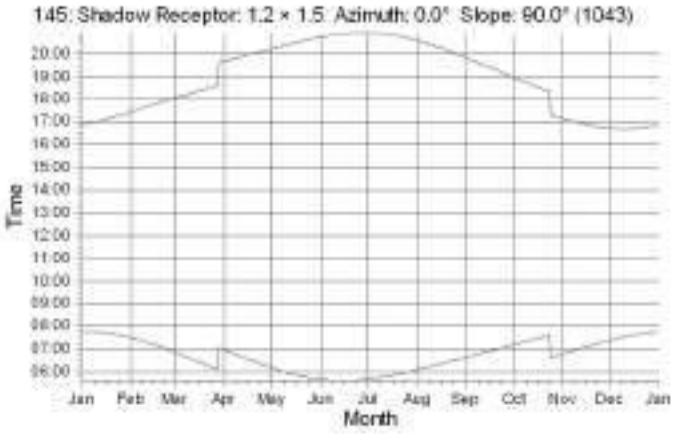
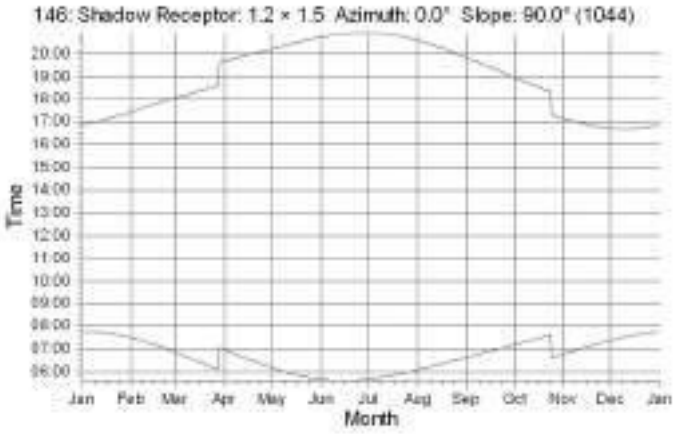
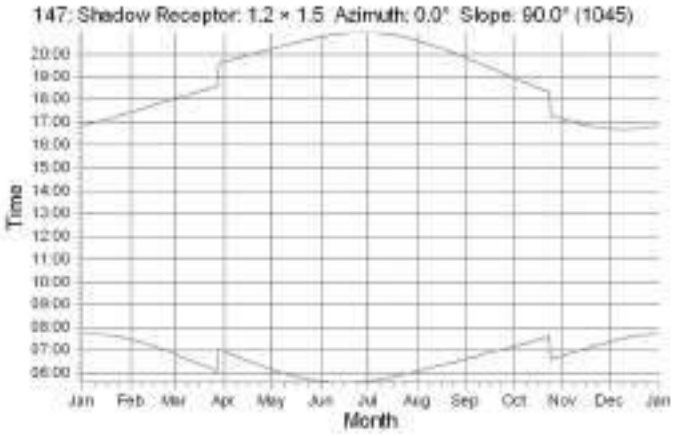
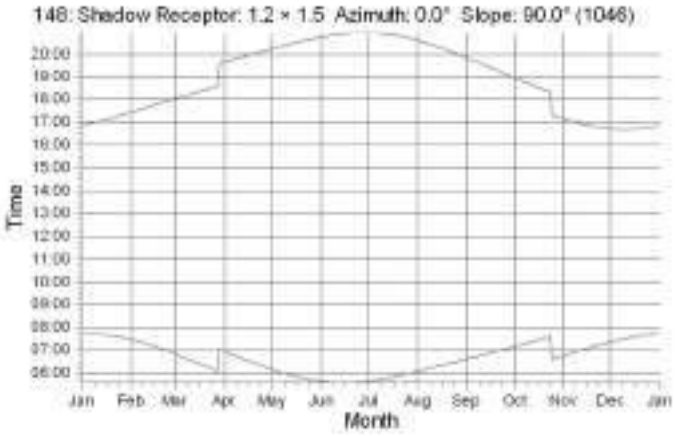
SHADOW - Calendar, graphical

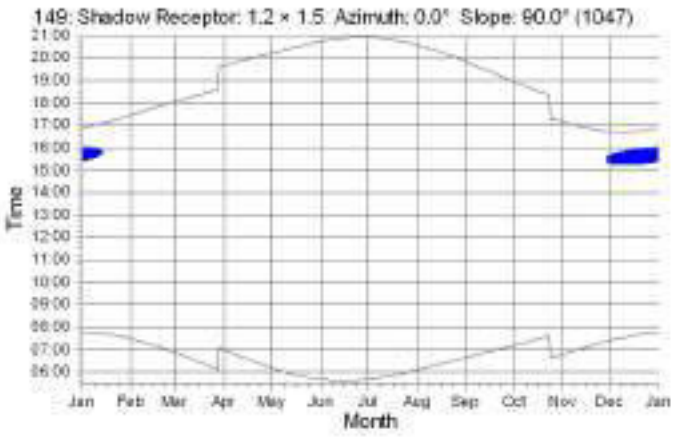
Calculation: Real Case con piena operatività dell'impianto

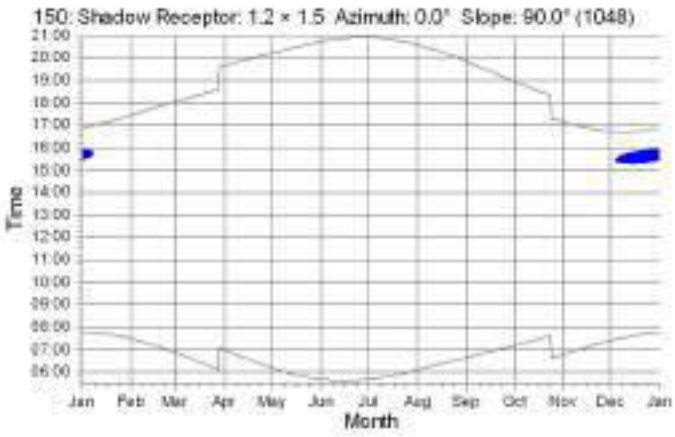












WTGs

MO03: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)

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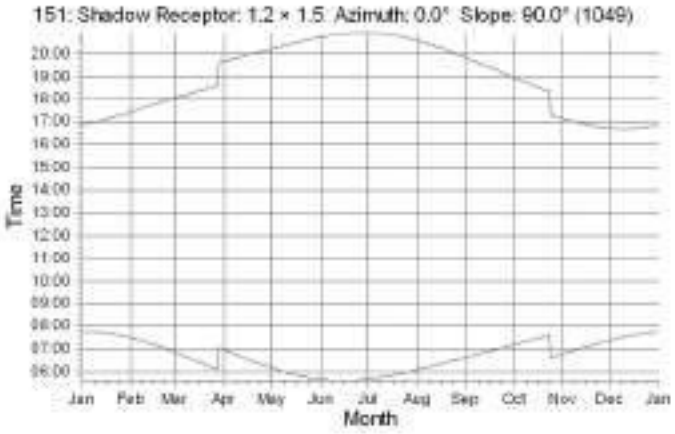
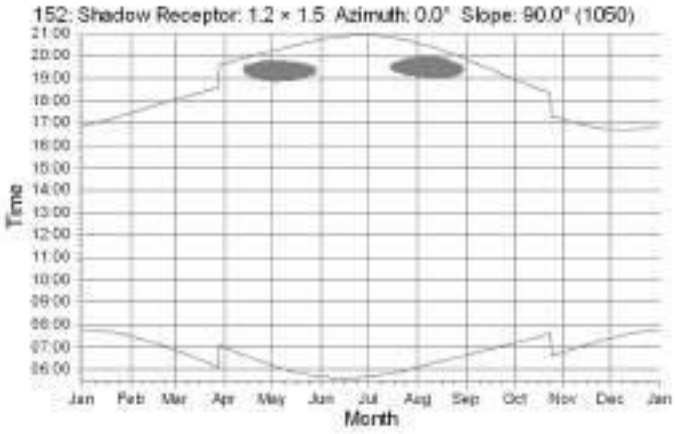
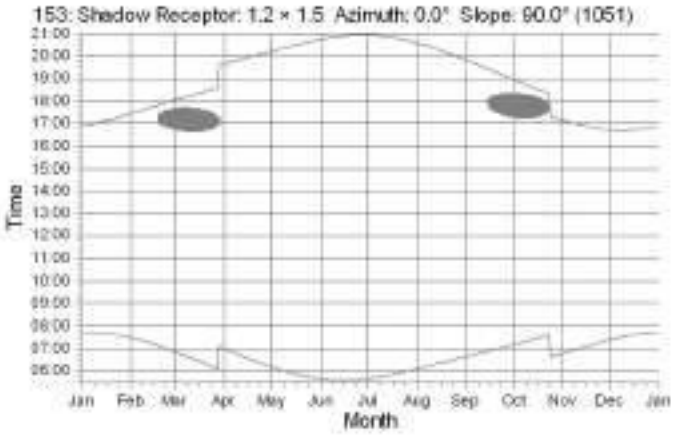
Calculated:
02/09/2023 23:38/3.6.361

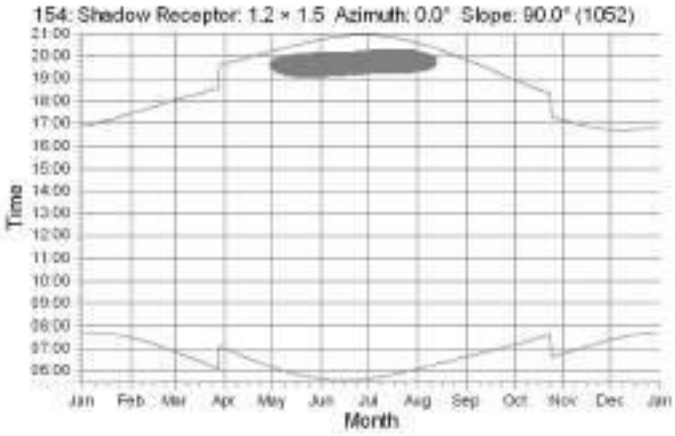
SHADOW - Calendar, graphical

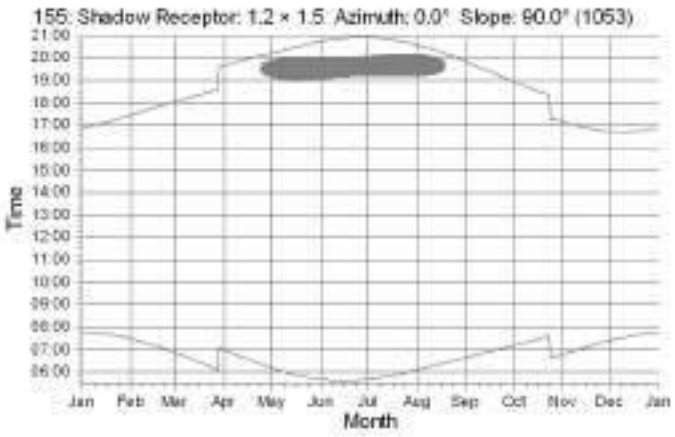
Calculation: Real Case con piena operatività dell'impianto

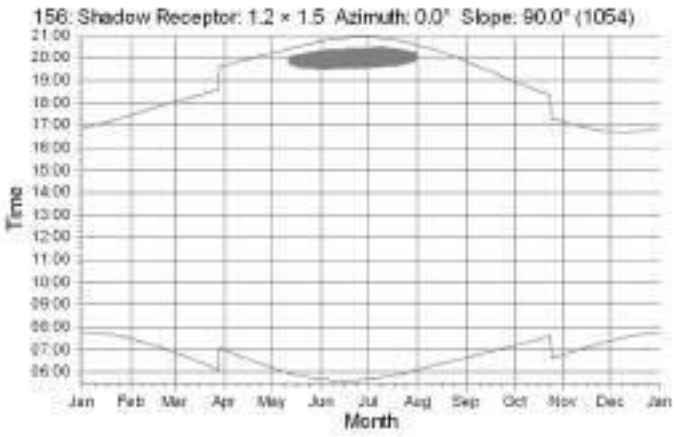












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

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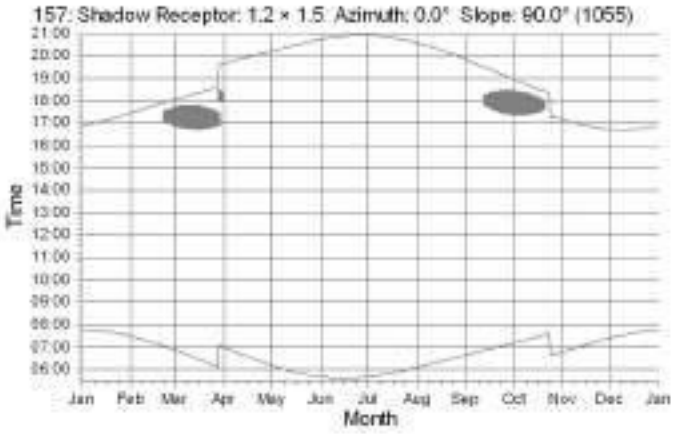
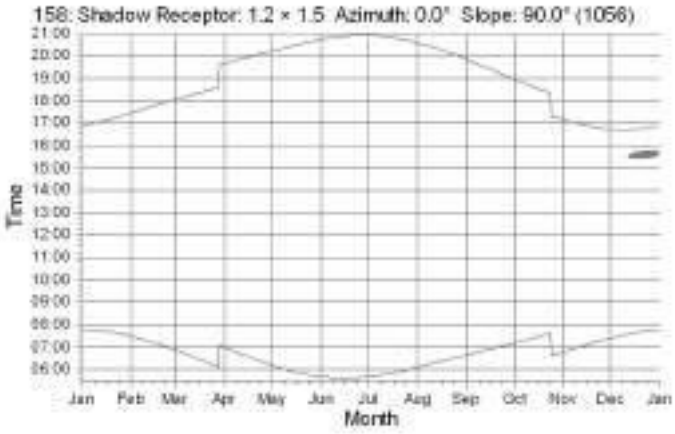
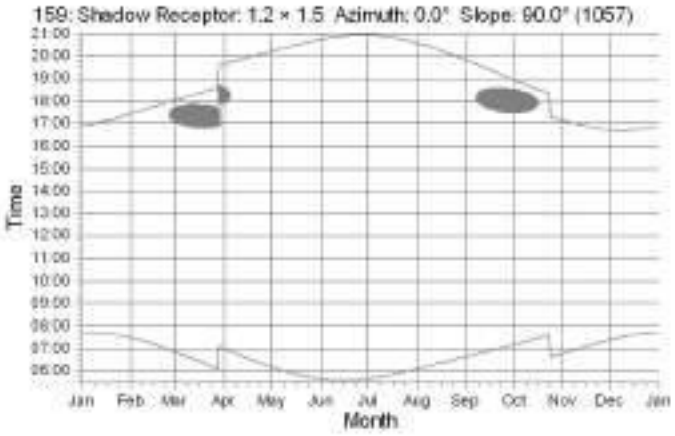
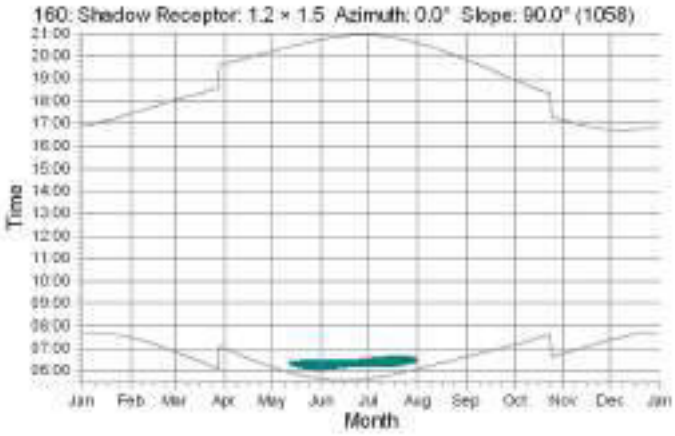
SHADOW - Calendar, graphical

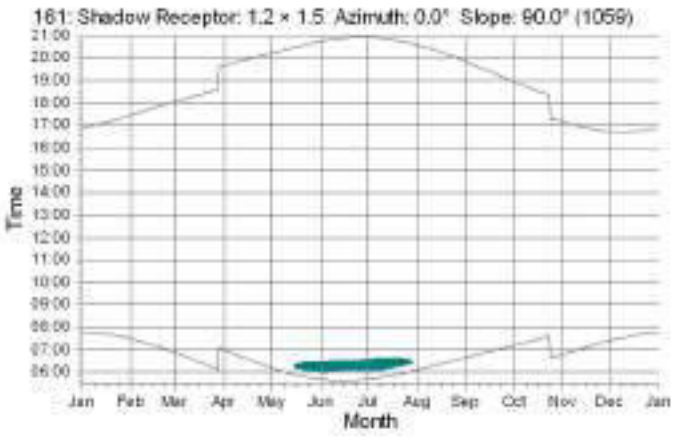
Calculation: Real Case con piena operatività dell'impianto

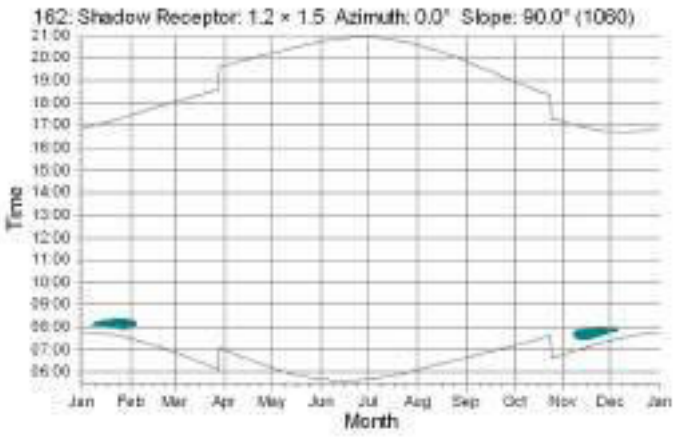












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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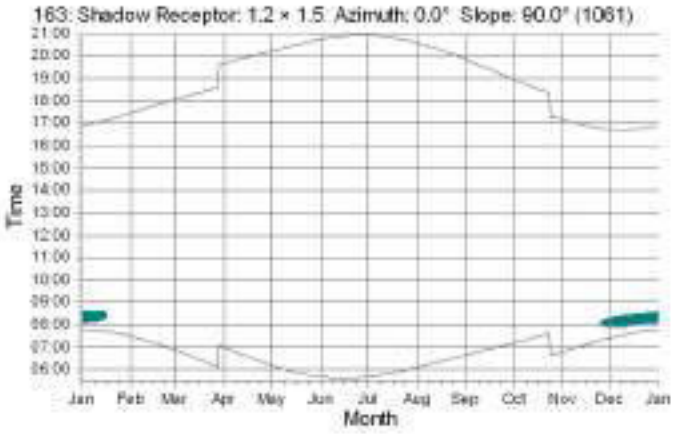
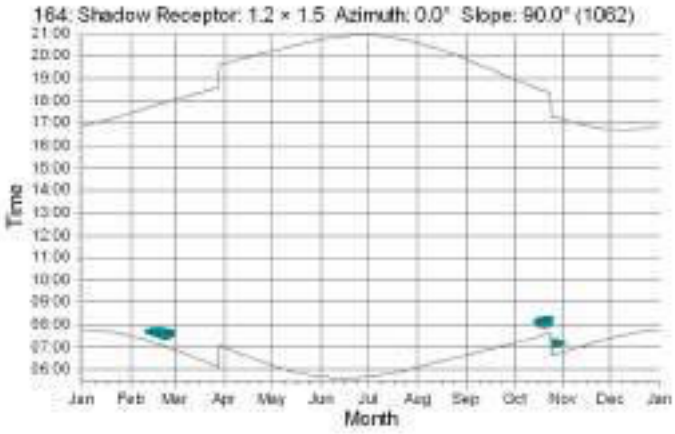
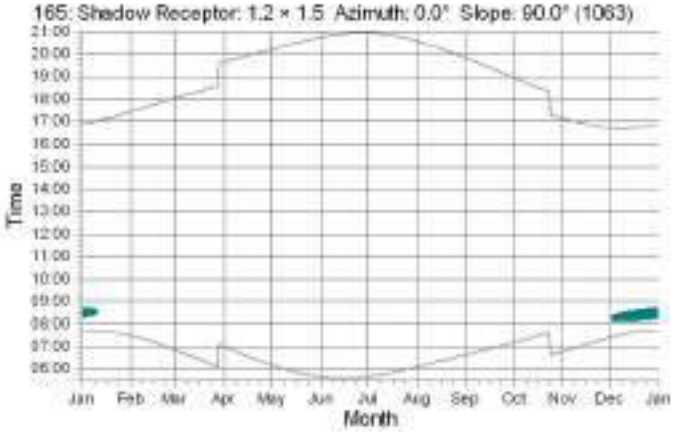
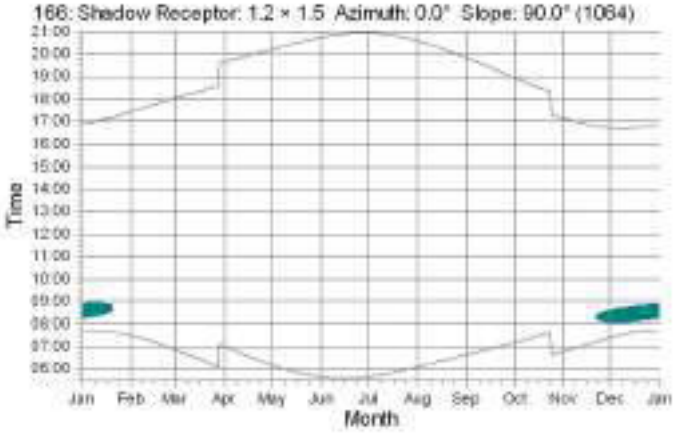
SHADOW - Calendar, graphical

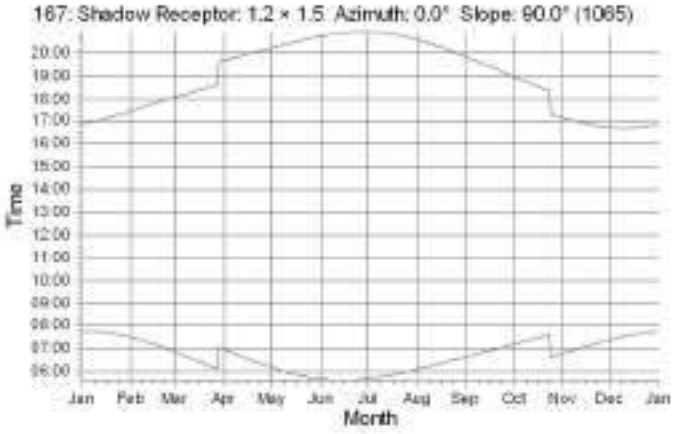
Calculation: Real Case con piena operatività dell'impianto

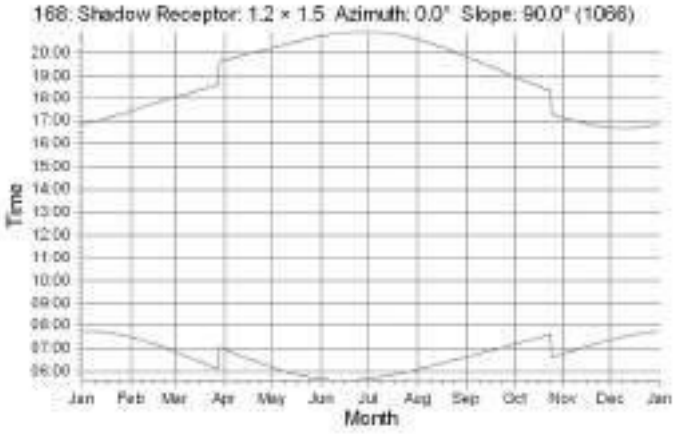












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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Calculated:
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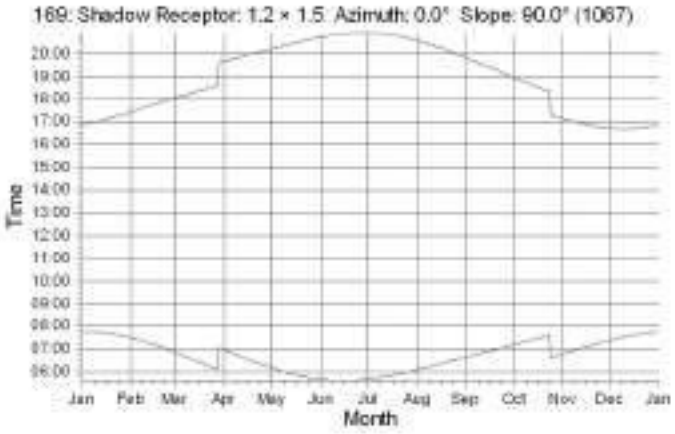
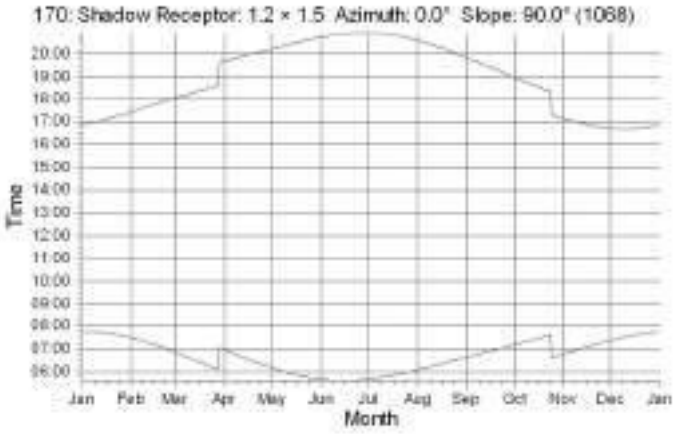
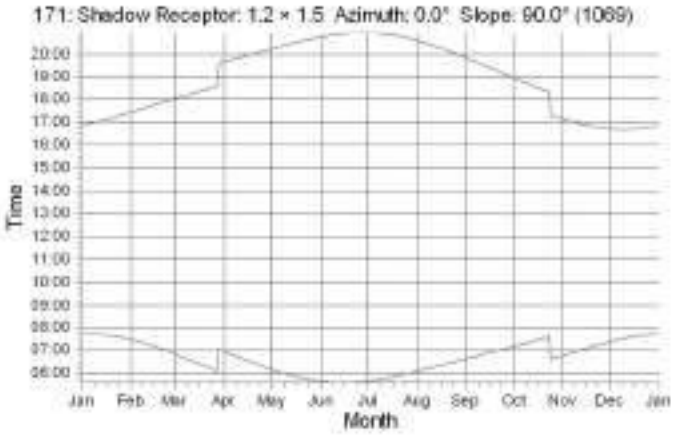
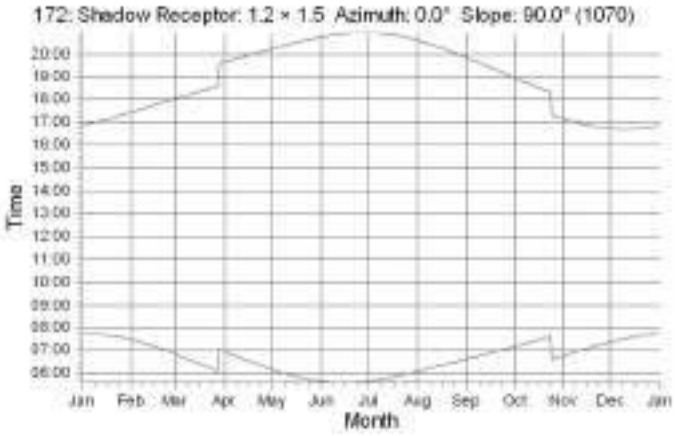
SHADOW - Calendar, graphical

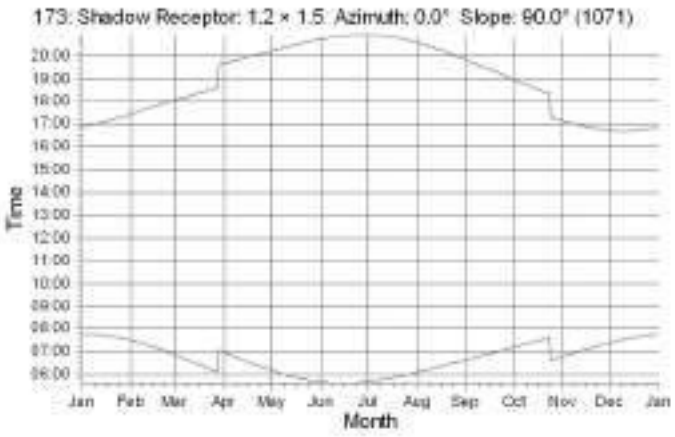
Calculation: Real Case con piena operatività dell'impianto

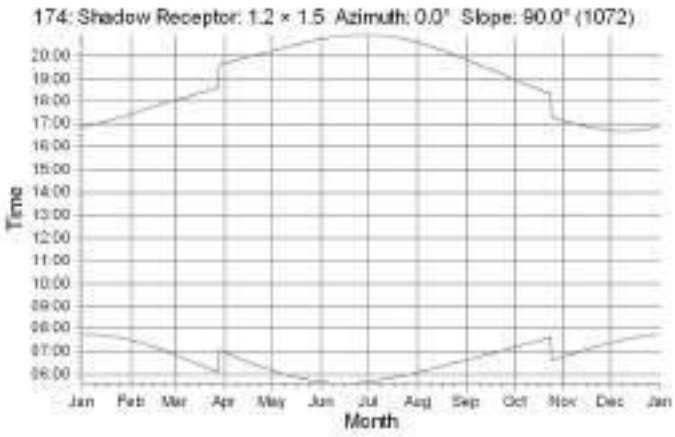












WTGs

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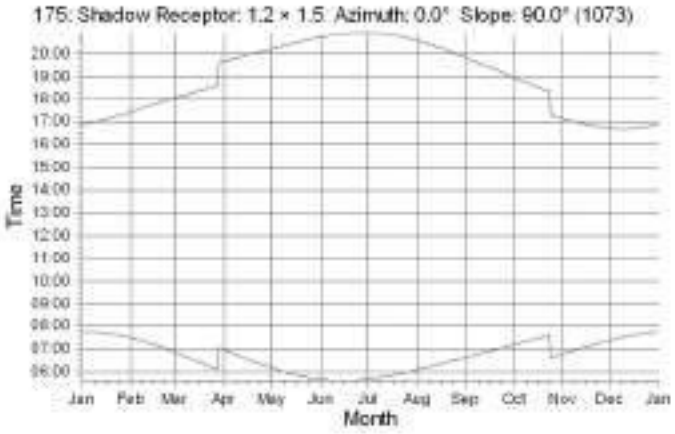
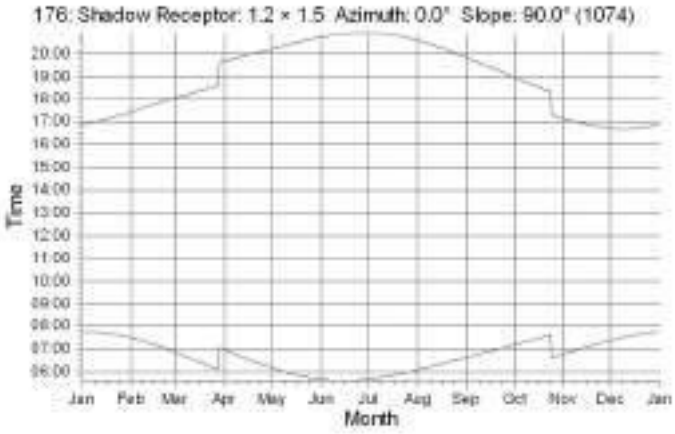
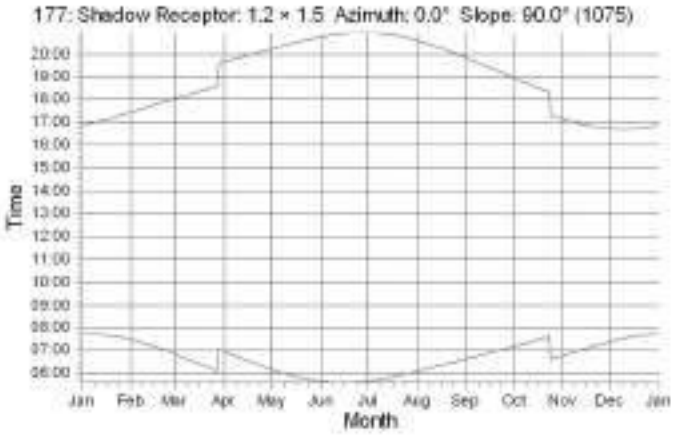
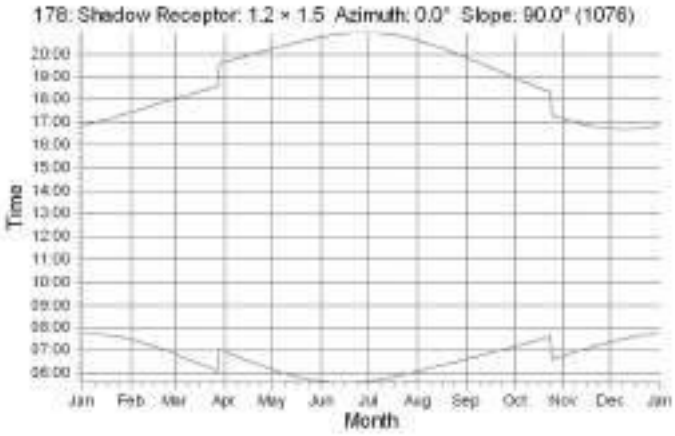
SHADOW - Calendar, graphical

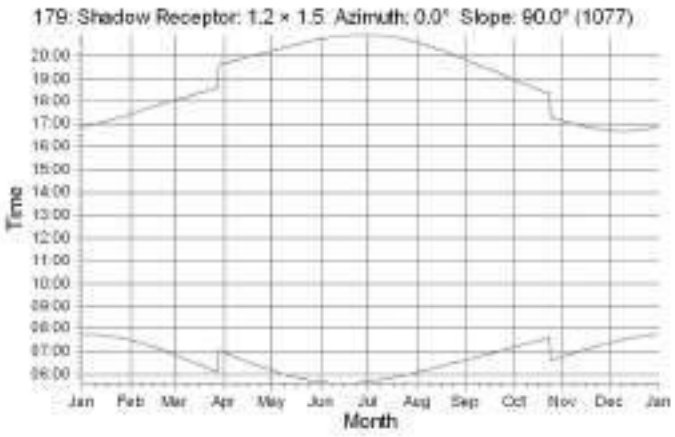
Calculation: Real Case con piena operatività dell'impianto

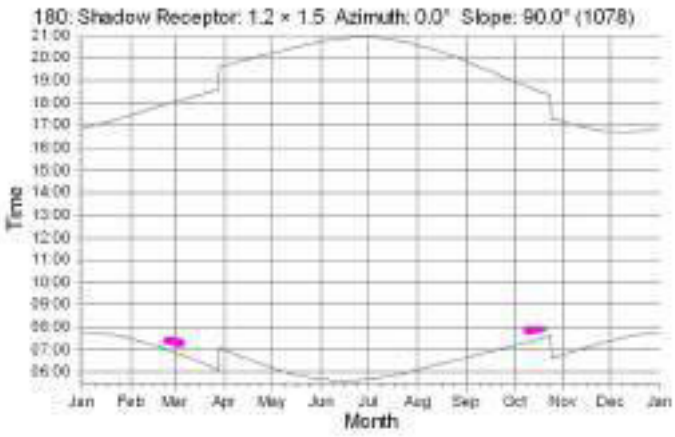












WTGs

MO05: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

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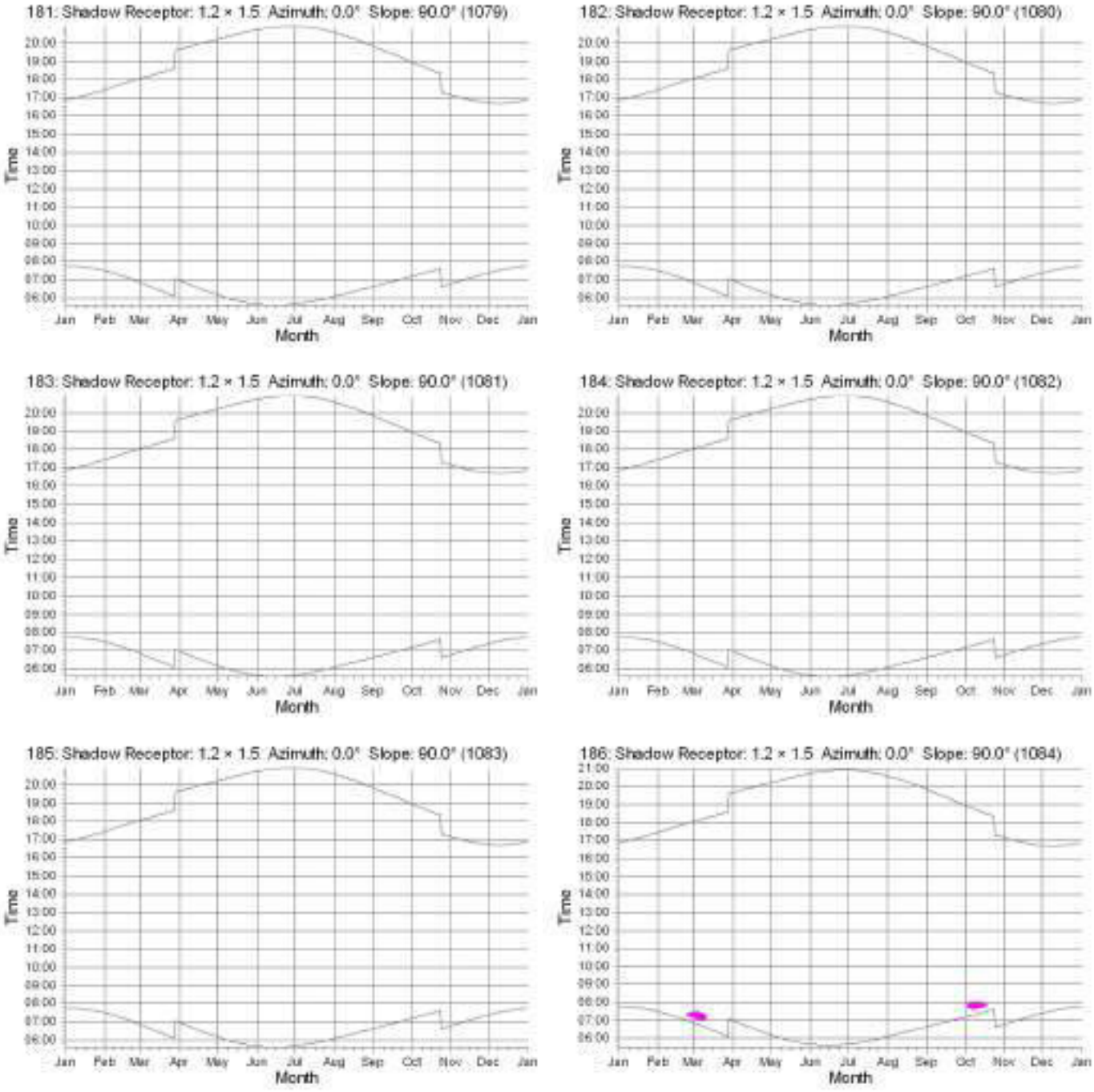
SHADOW - Calendar, graphical

Calculation: Real Case con piena operatività dell'impianto



WTGs

MO05: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

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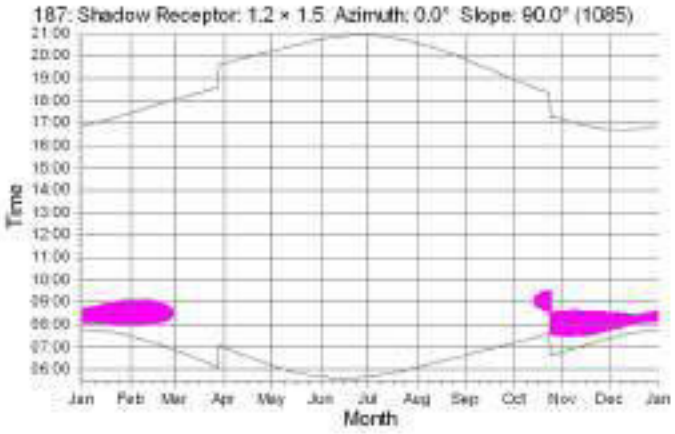
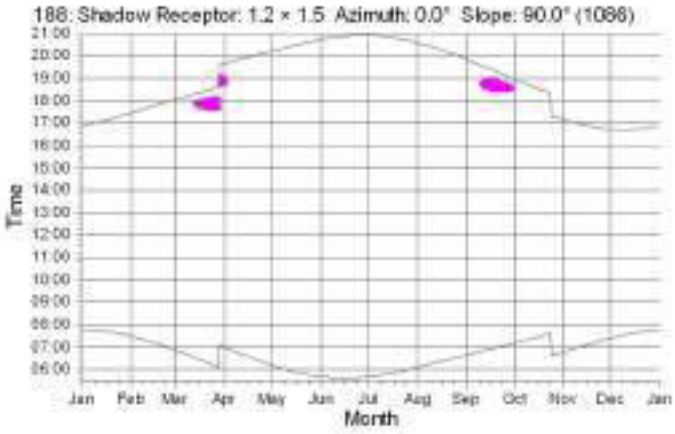
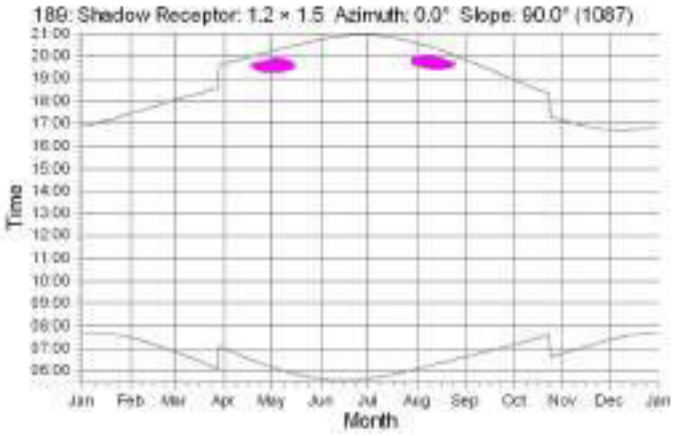
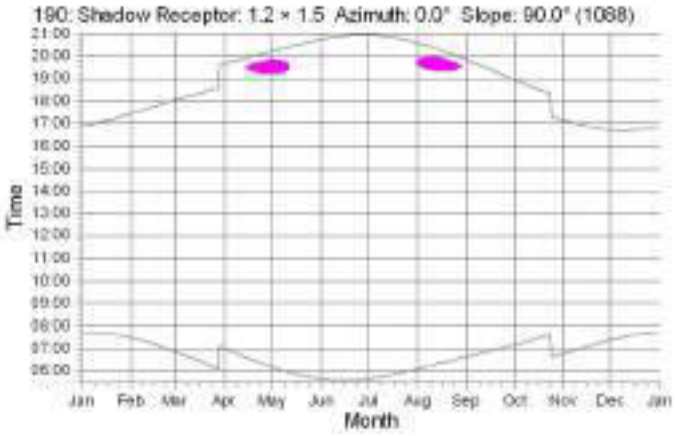
SHADOW - Calendar, graphical

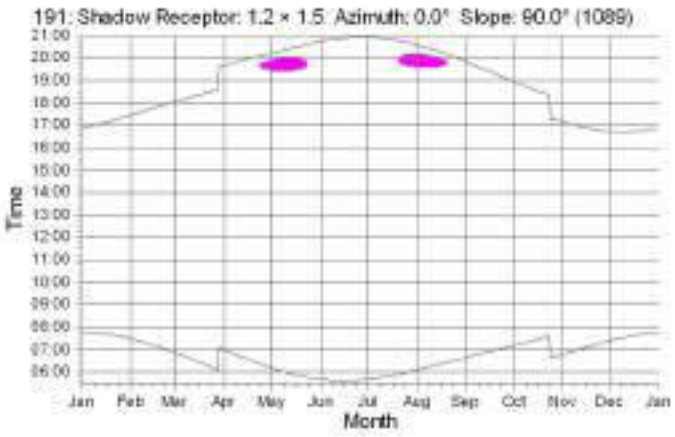
Calculation: Real Case con piena operatività dell'impianto

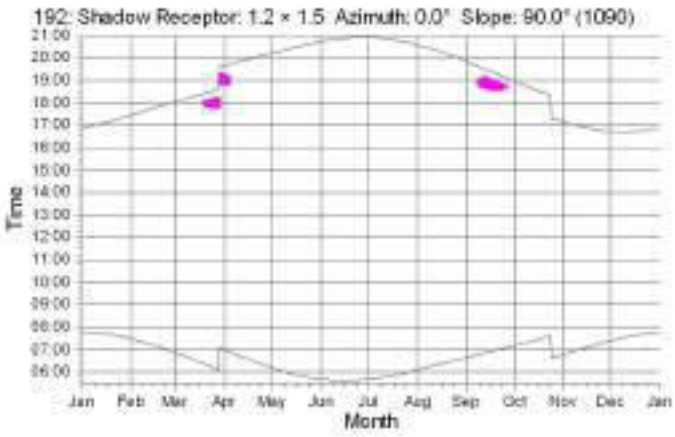












WTGs

MO05: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

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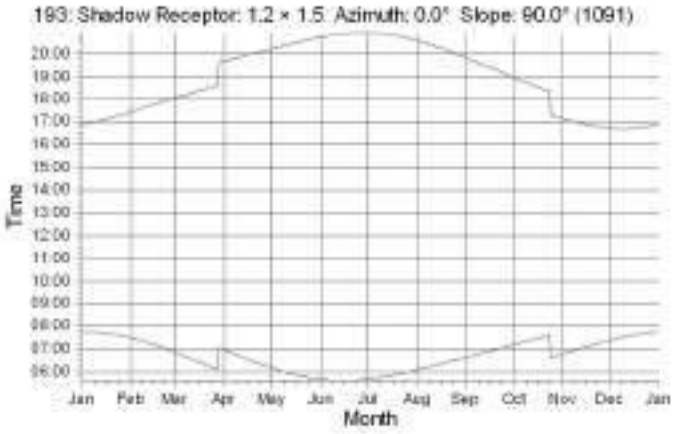
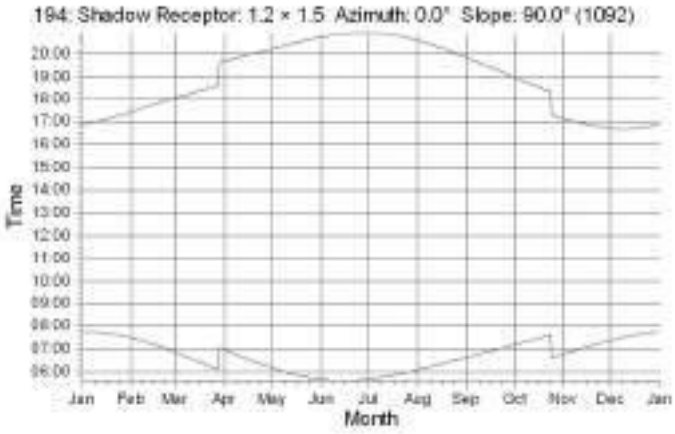
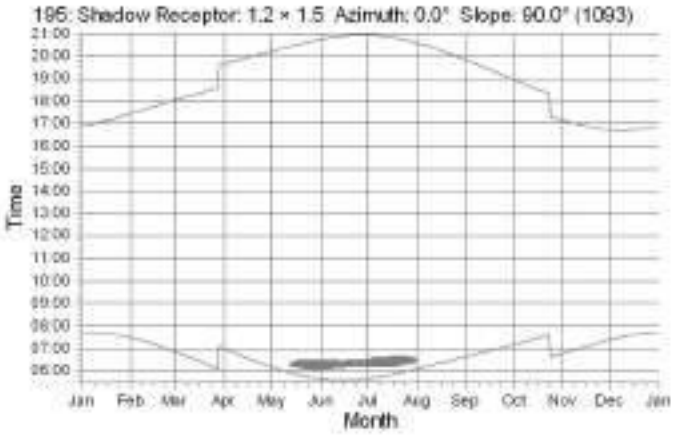
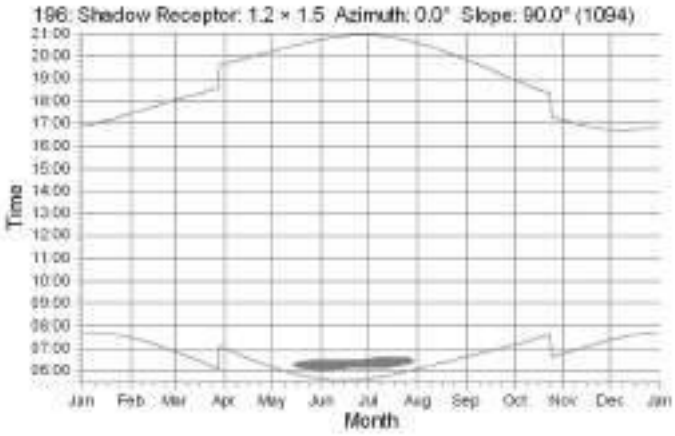
SHADOW - Calendar, graphical

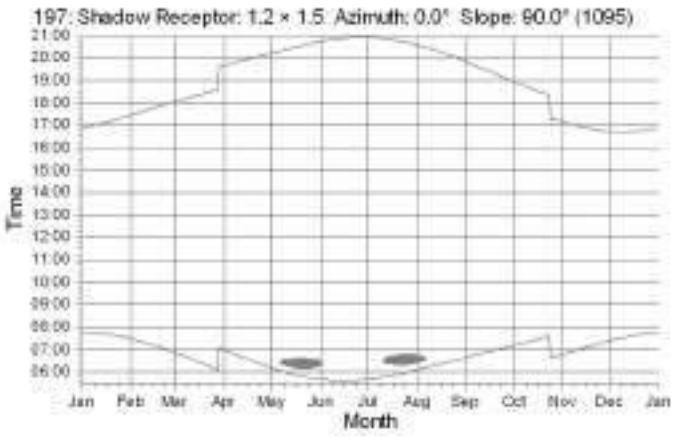
Calculation: Real Case con piena operatività dell'impianto

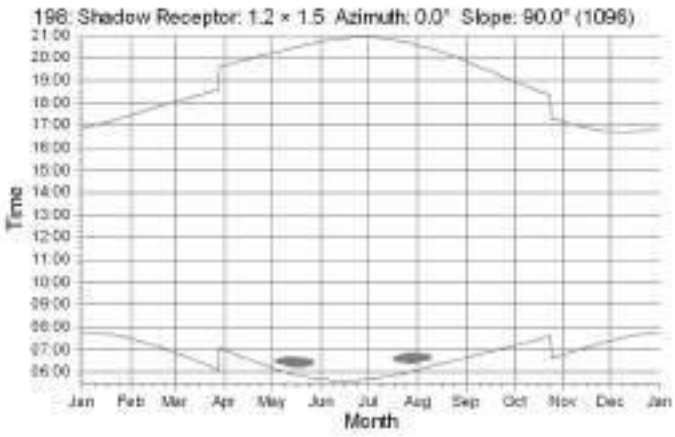












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

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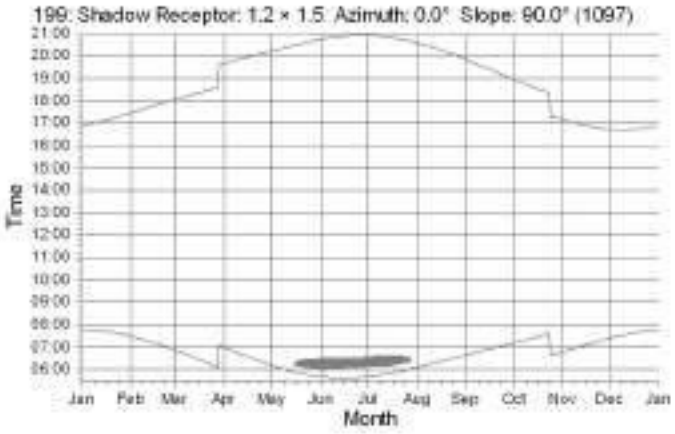
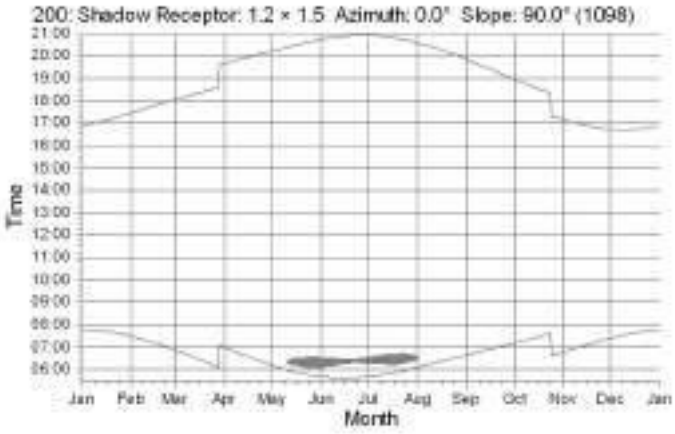
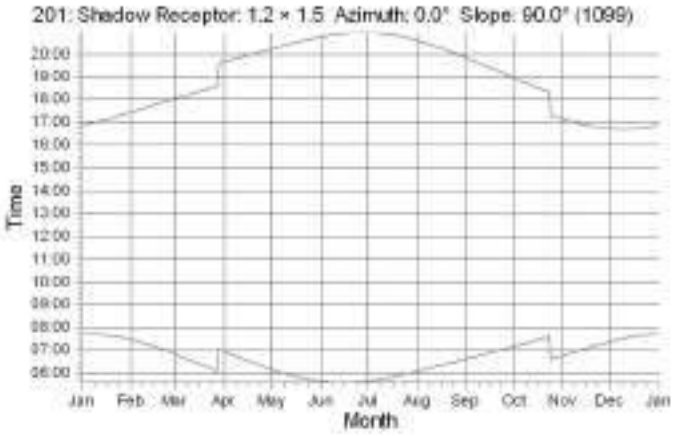
Calculated:
02/09/2023 23:38/3.6.361

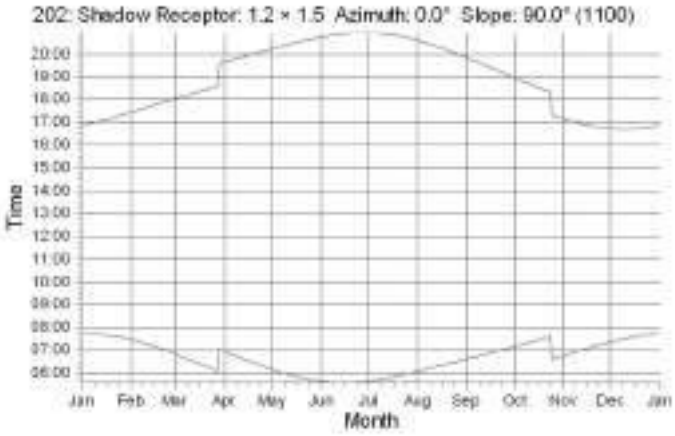
SHADOW - Calendar, graphical

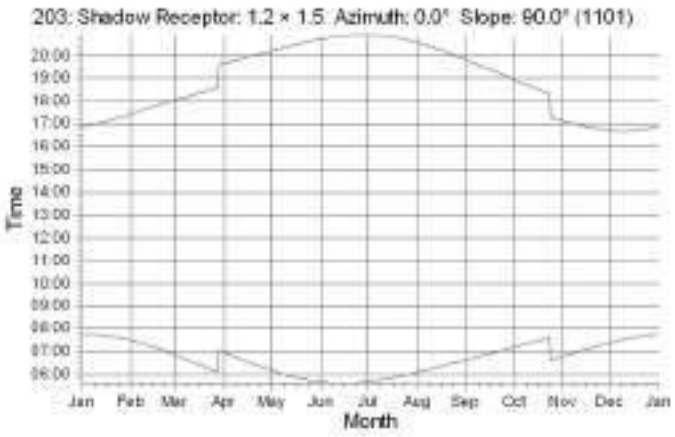
Calculation: Real Case con piena operatività dell'impianto

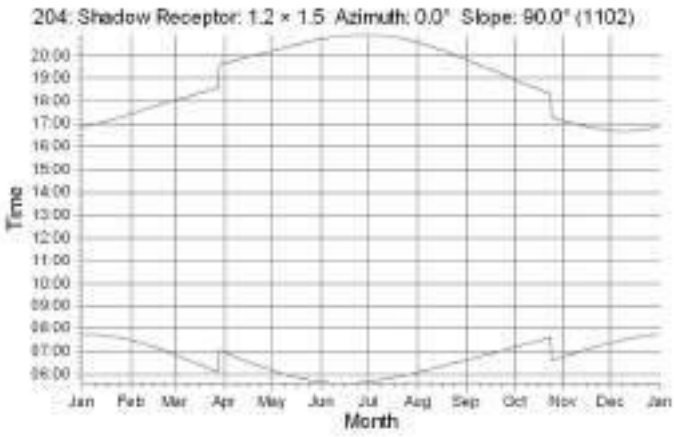












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

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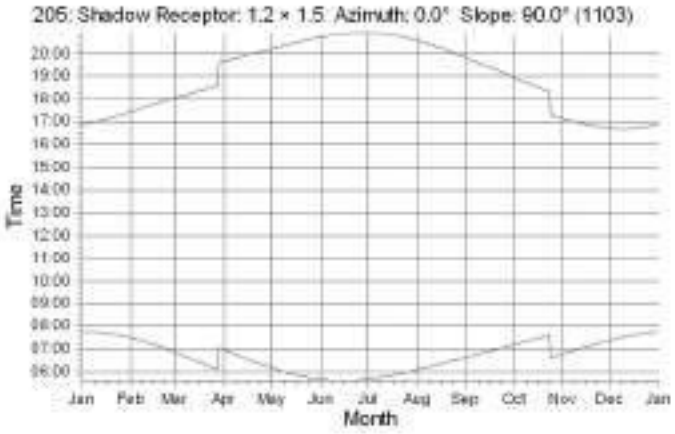
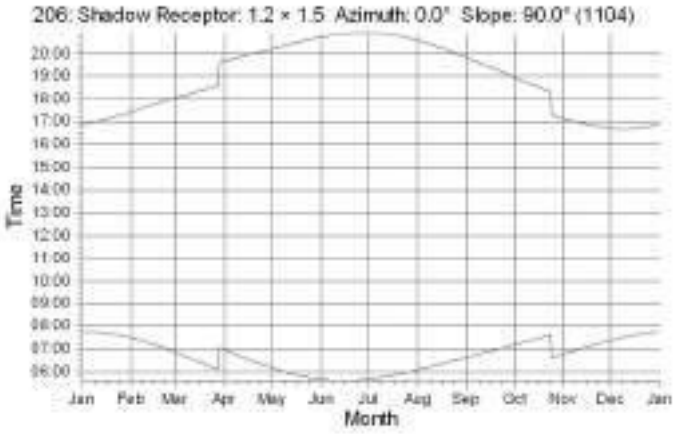
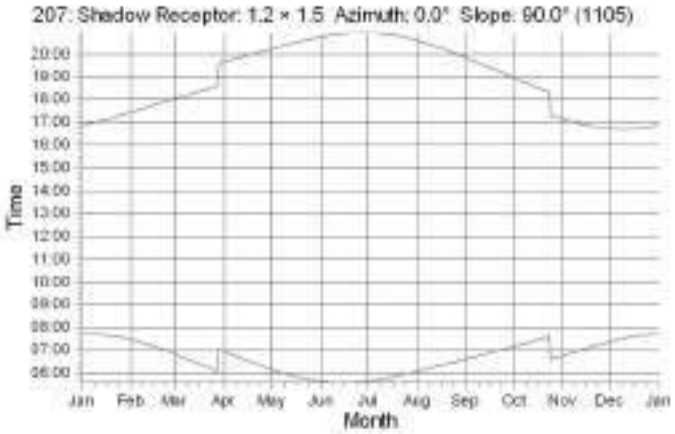
Calculated:
02/09/2023 23:38/3.6.361

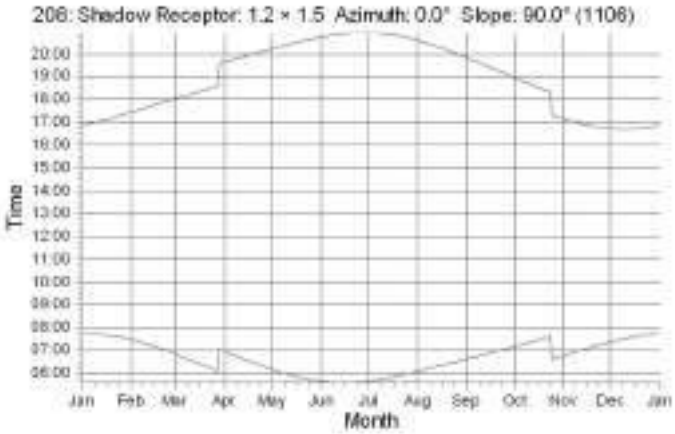
SHADOW - Calendar, graphical

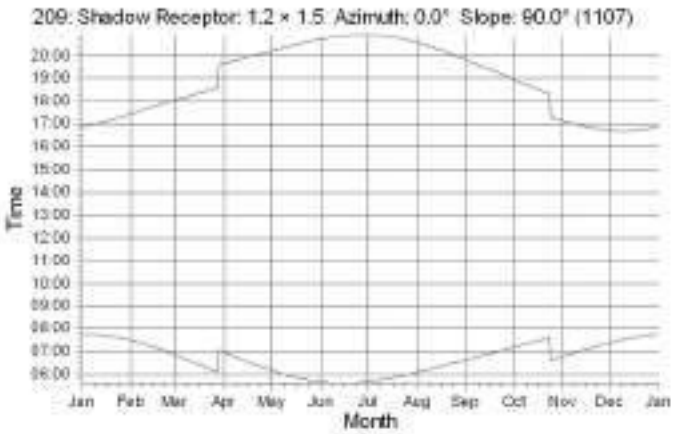
Calculation: Real Case con piena operatività dell'impianto

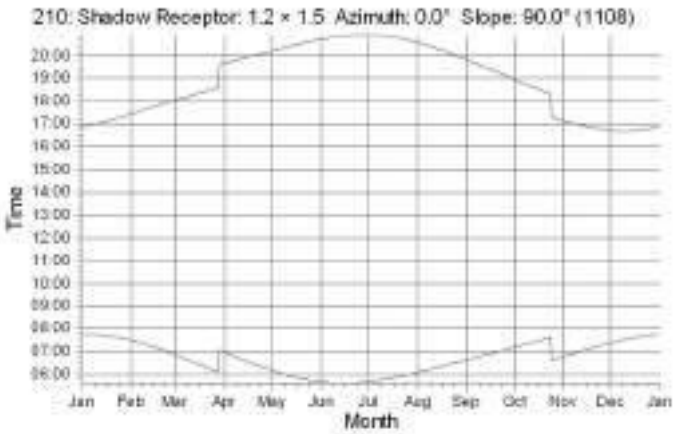












WTGs

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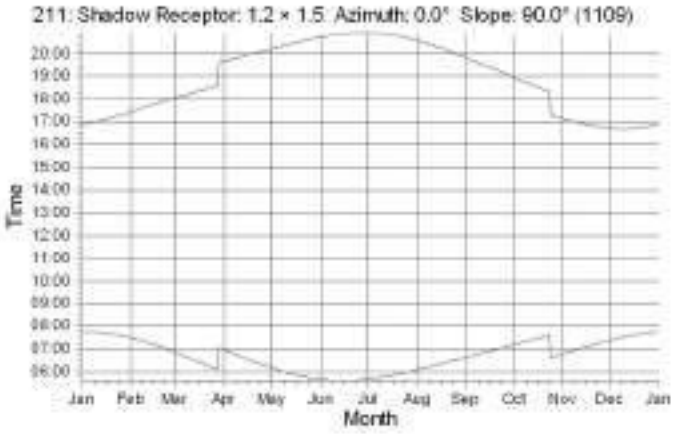
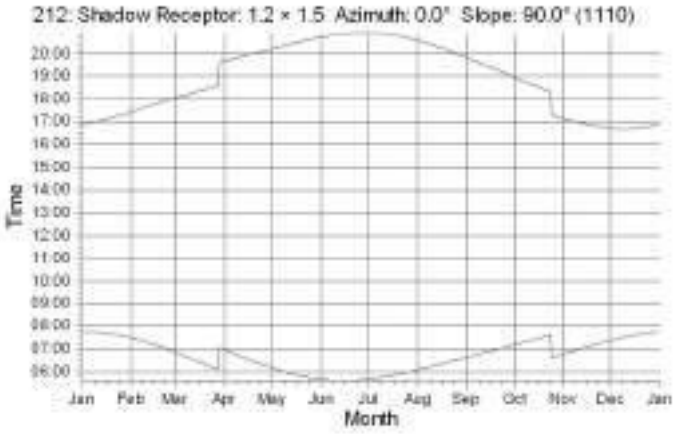
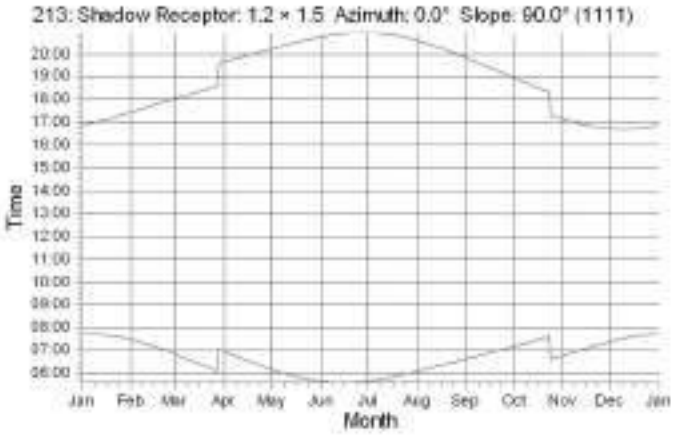
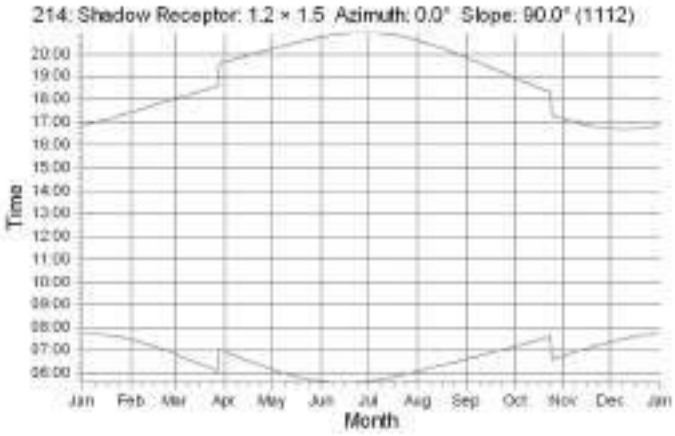
SHADOW - Calendar, graphical

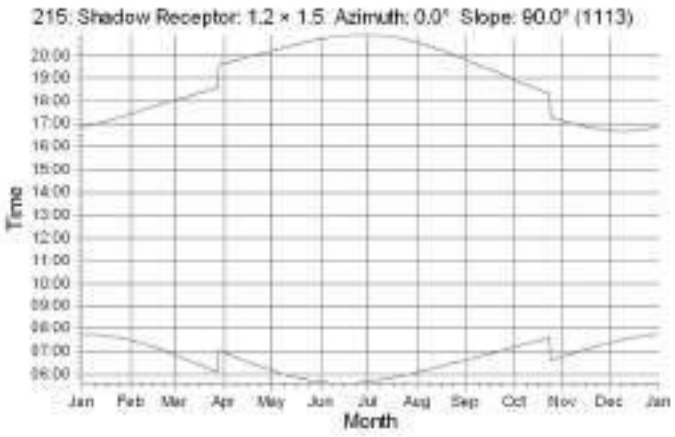
Calculation: Real Case con piena operatività dell'impianto

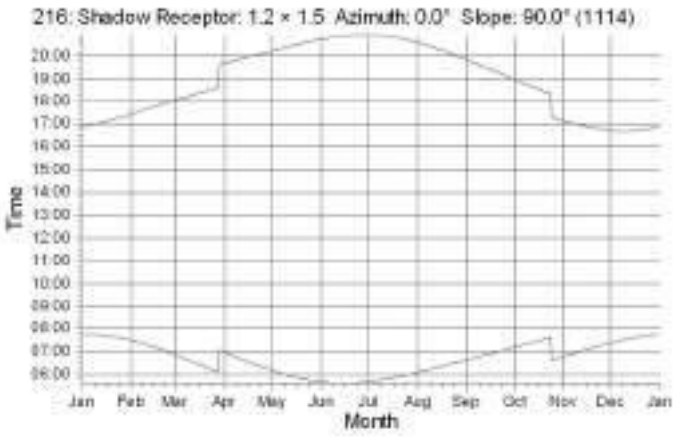












WTGs

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SHADOW - Calendar, graphical

Calculation: Real Case con piena operatività dell'impianto

WTGs

MO05: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

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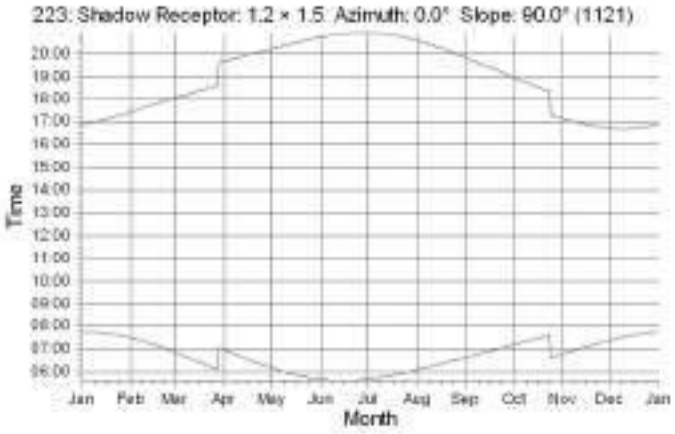
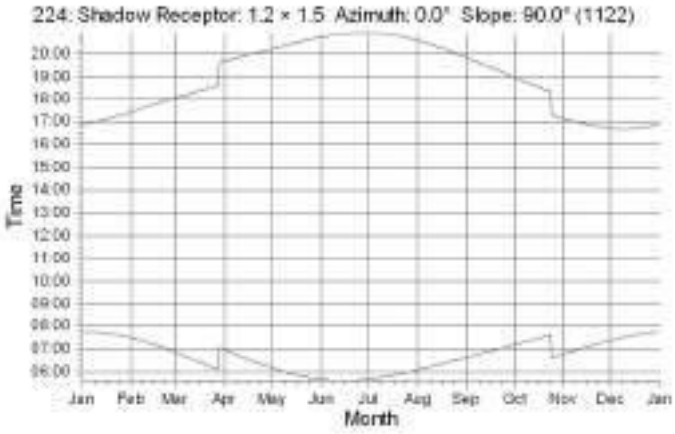
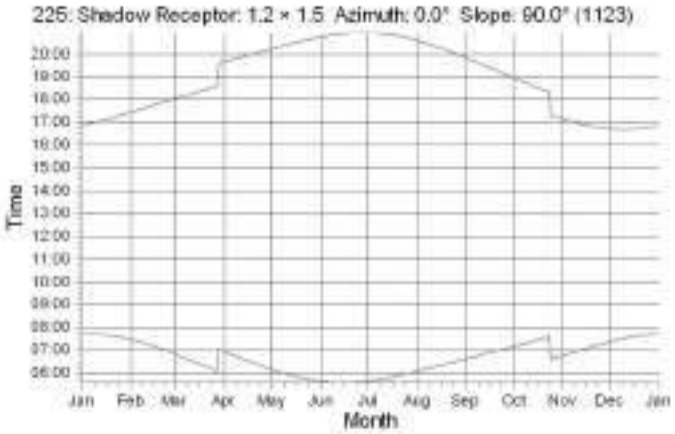
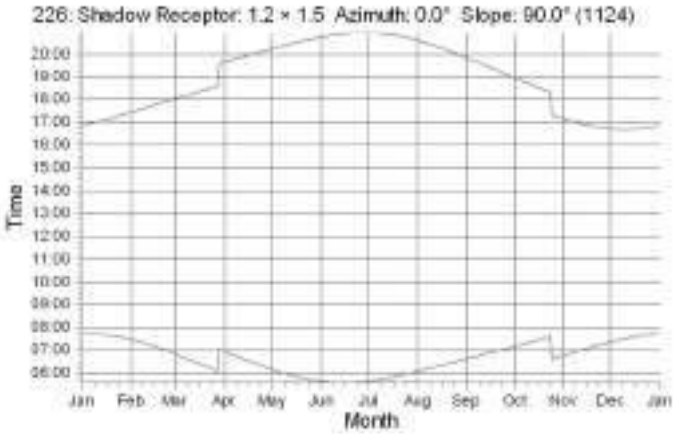
SHADOW - Calendar, graphical

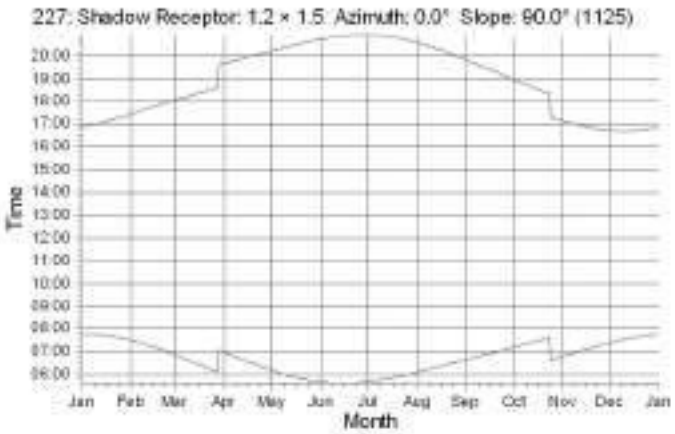
Calculation: Real Case con piena operatività dell'impianto

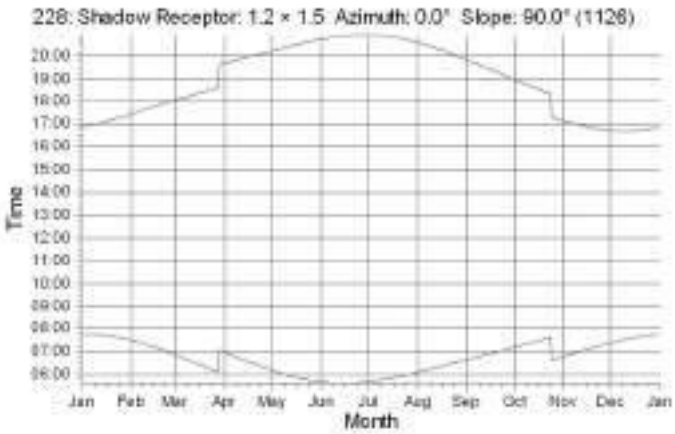












WTGs

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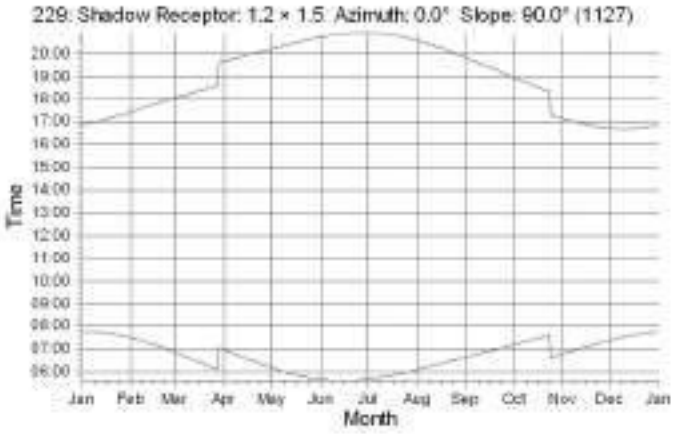
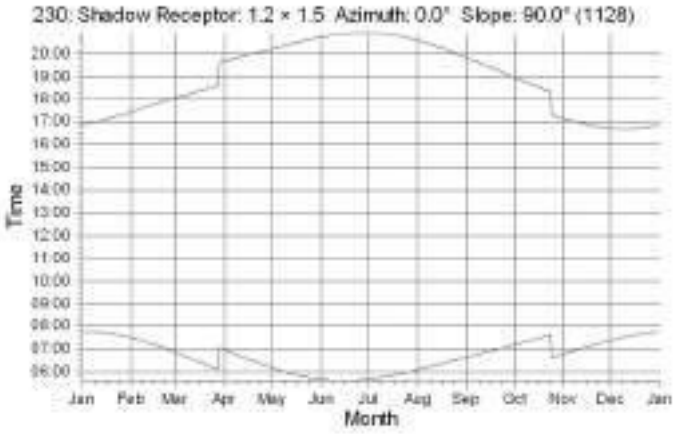
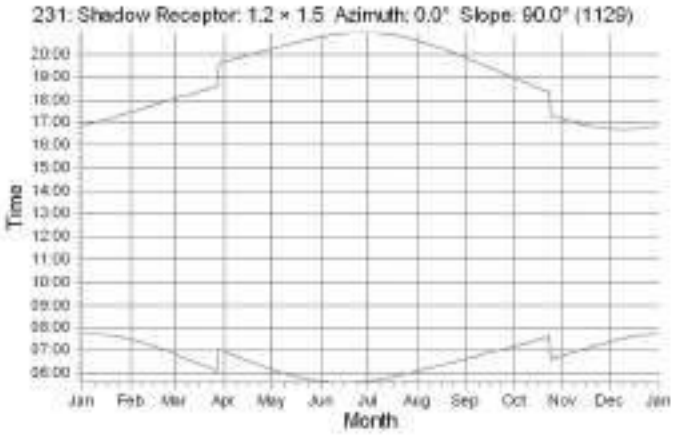
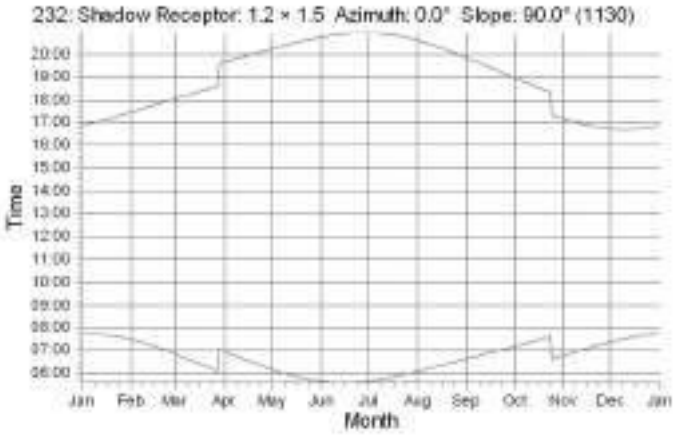
SHADOW - Calendar, graphical

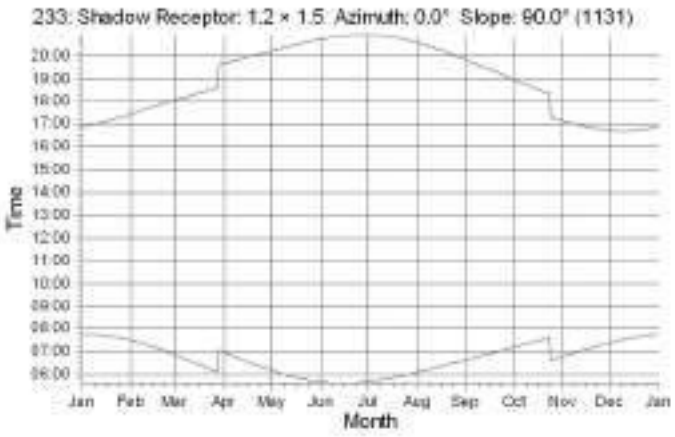
Calculation: Real Case con piena operatività dell'impianto

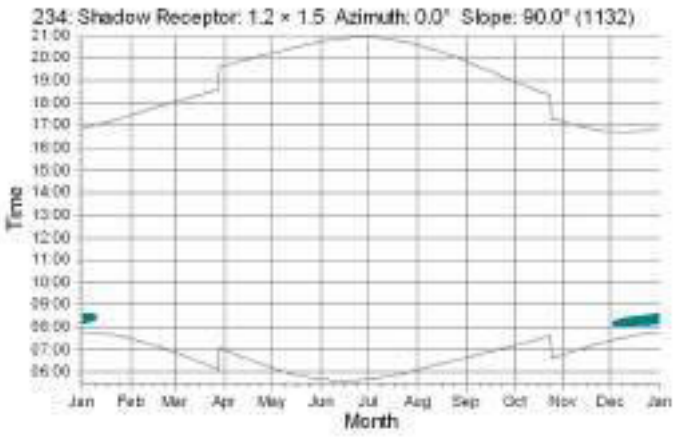












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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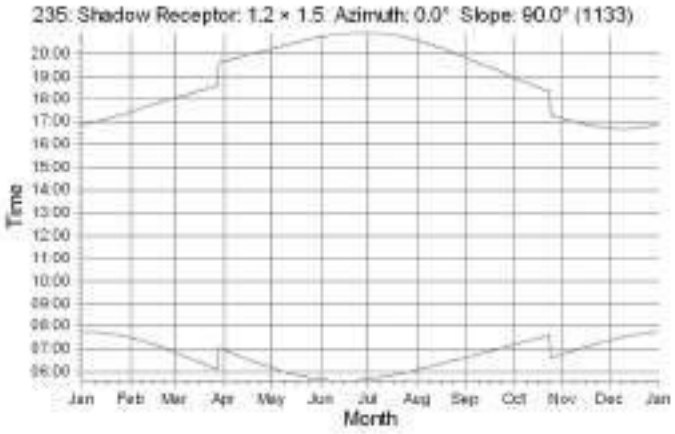
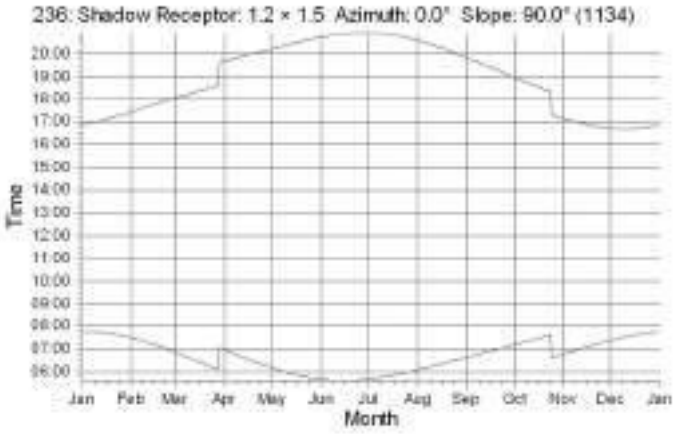
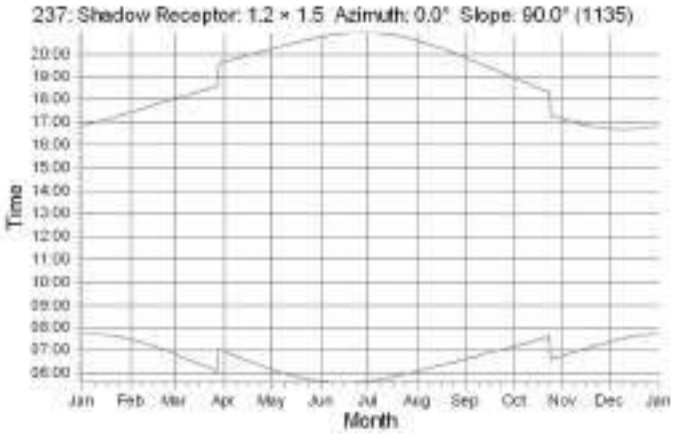
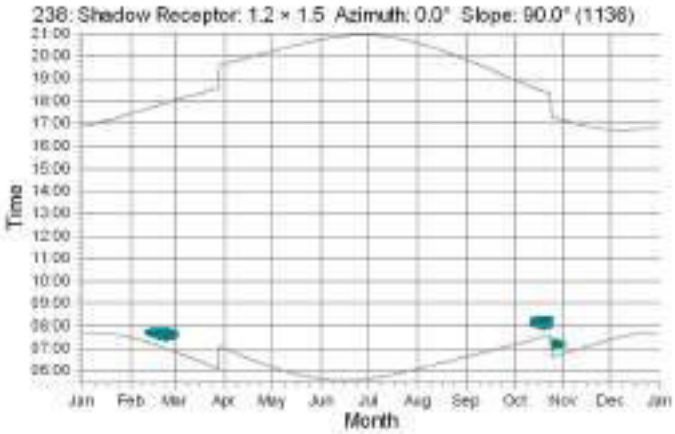
SHADOW - Calendar, graphical

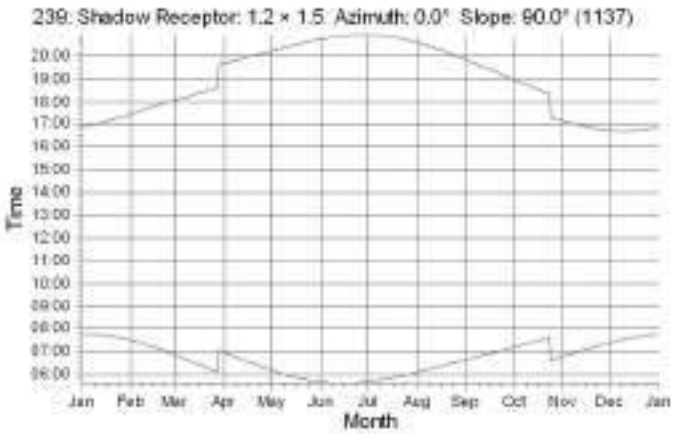
Calculation: Real Case con piena operatività dell'impianto

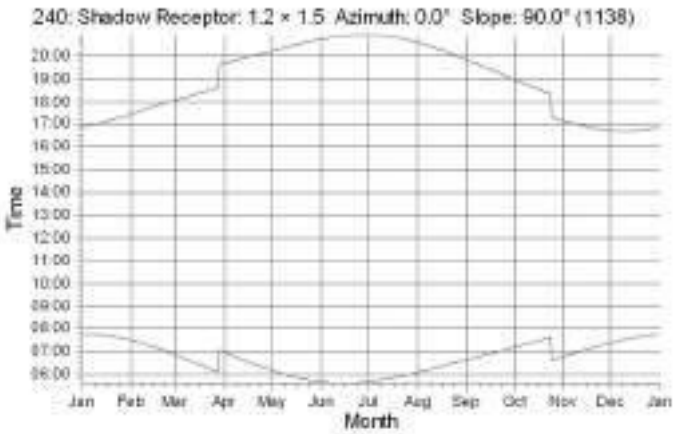












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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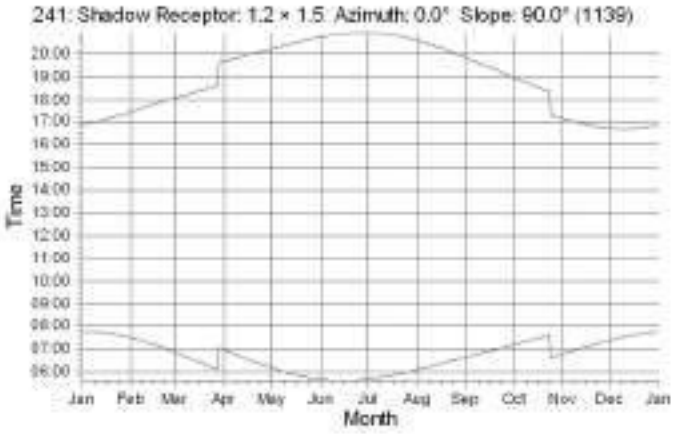
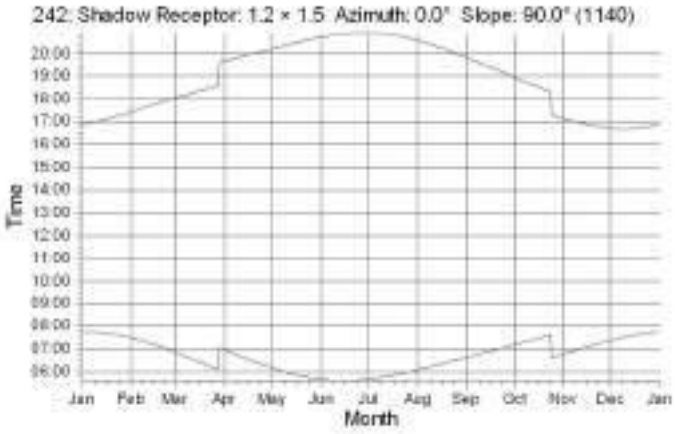
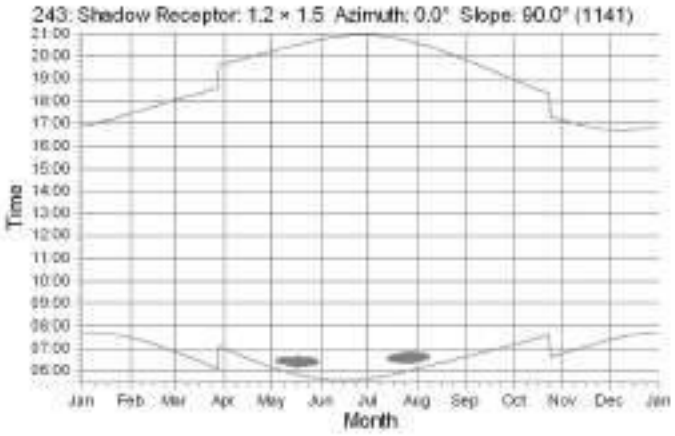
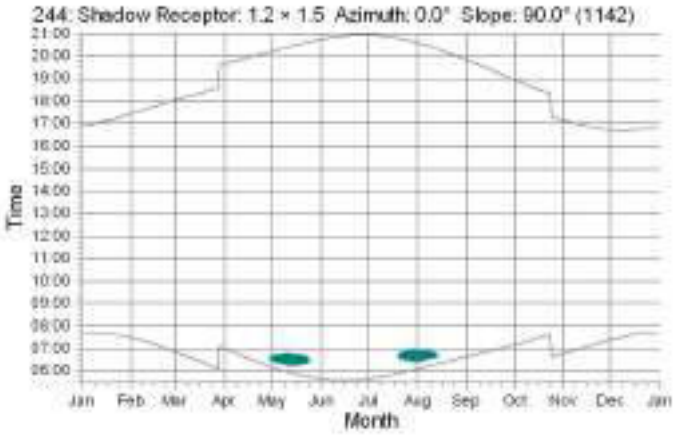
SHADOW - Calendar, graphical

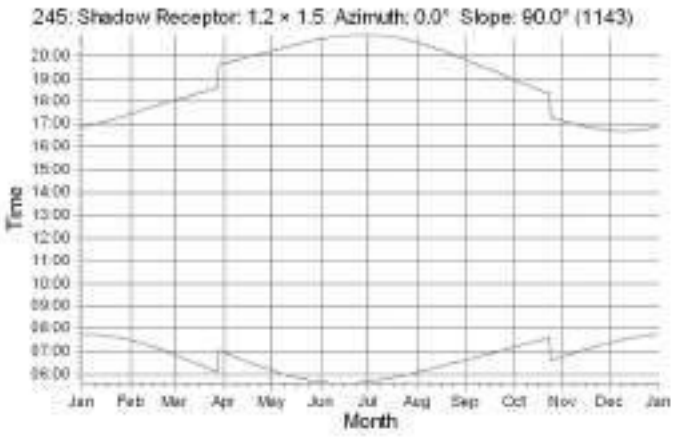
Calculation: Real Case con piena operatività dell'impianto

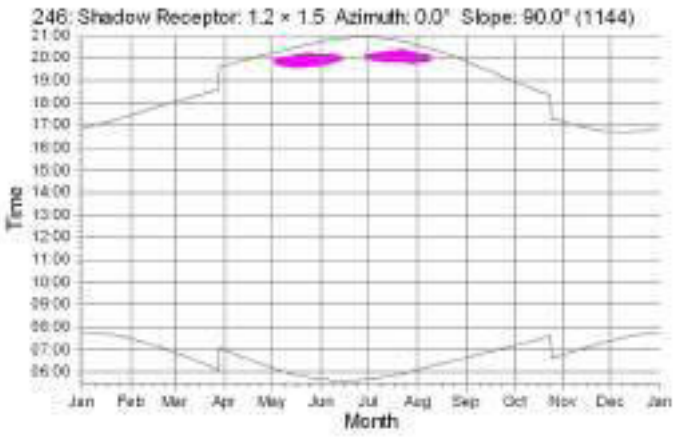












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)
MO05: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)
MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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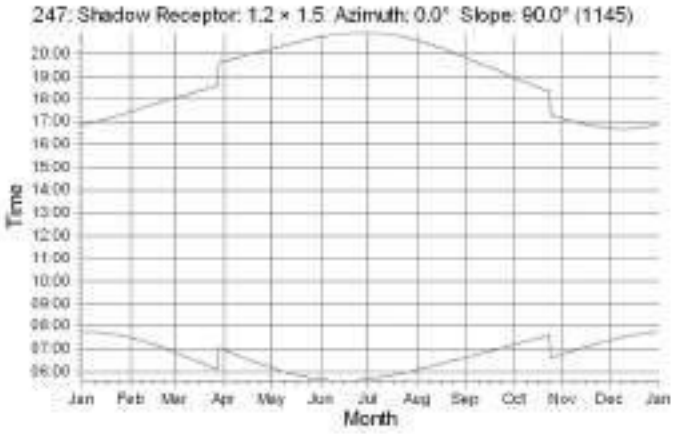
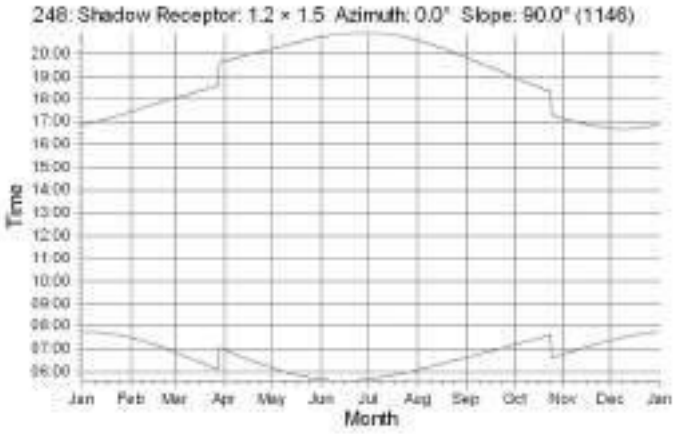
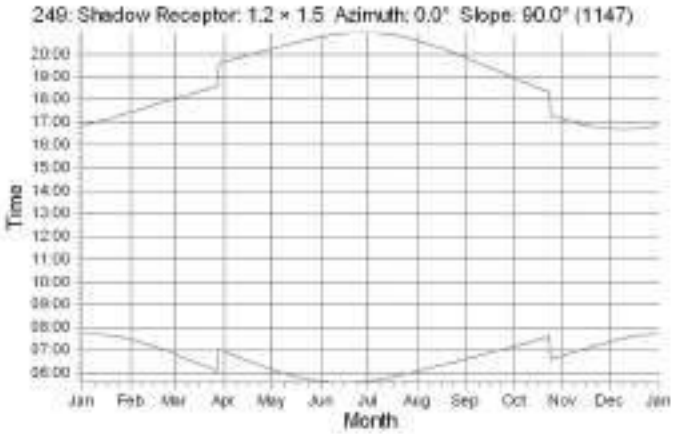
Calculated:
02/09/2023 23:38/3.6.361

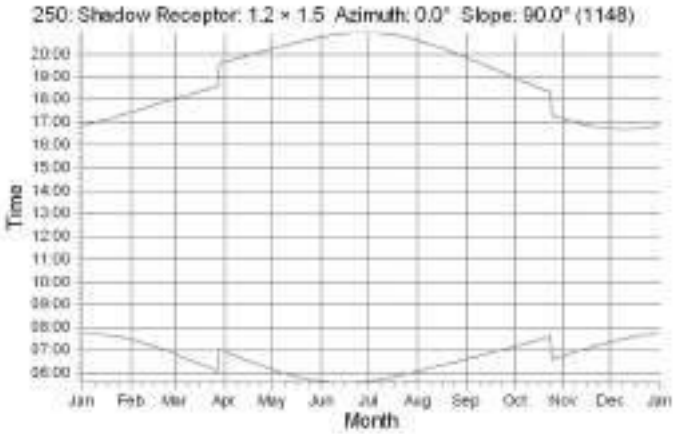
SHADOW - Calendar, graphical

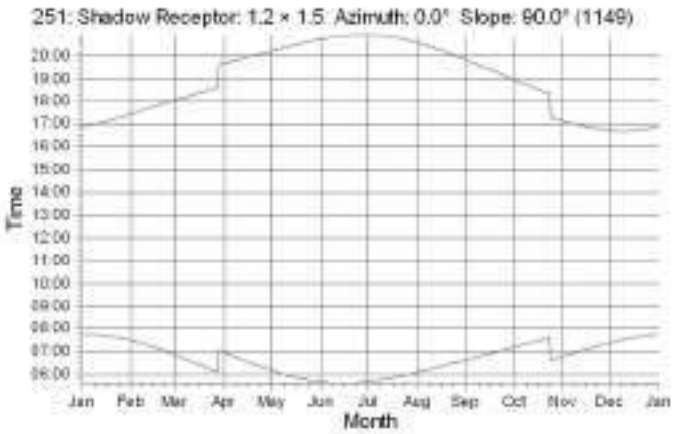
Calculation: Real Case con piena operatività dell'impianto

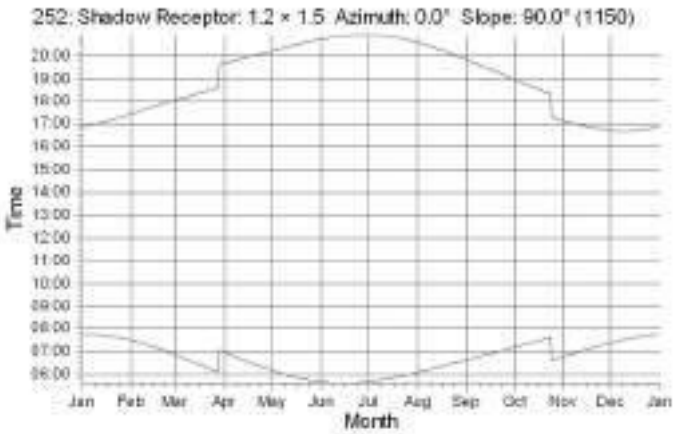












WTGs

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Calculated:
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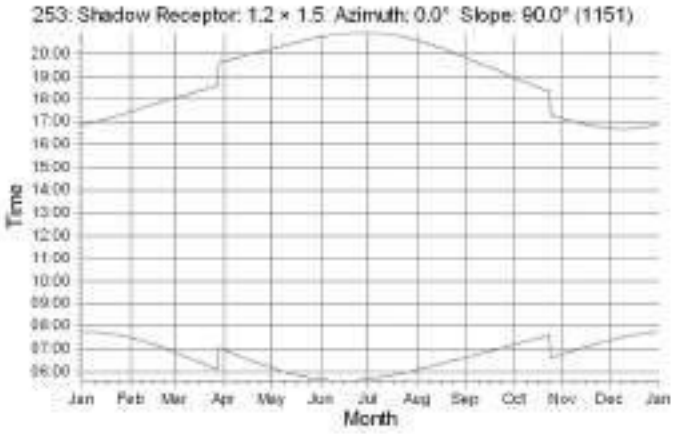
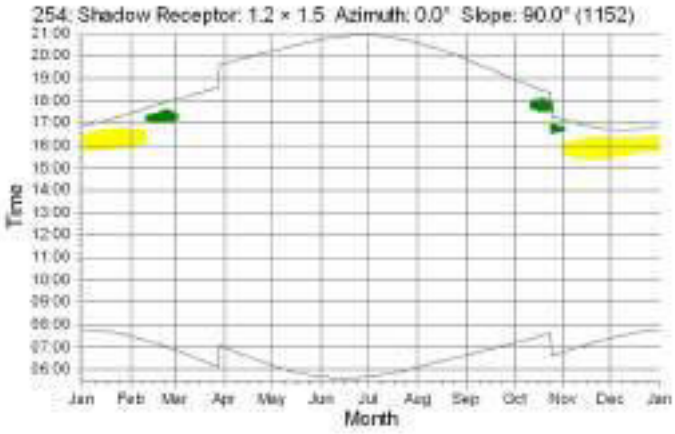
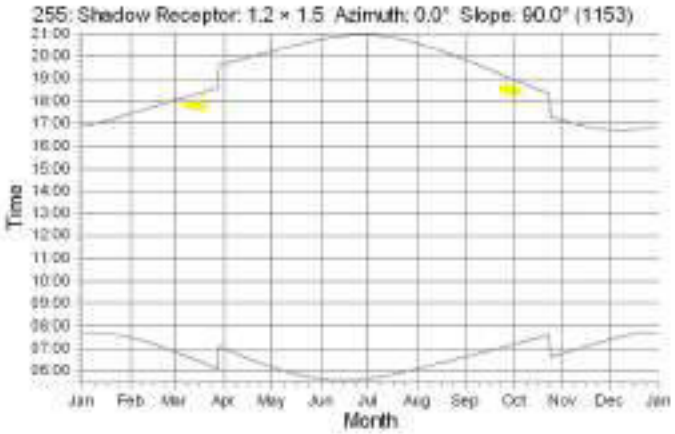
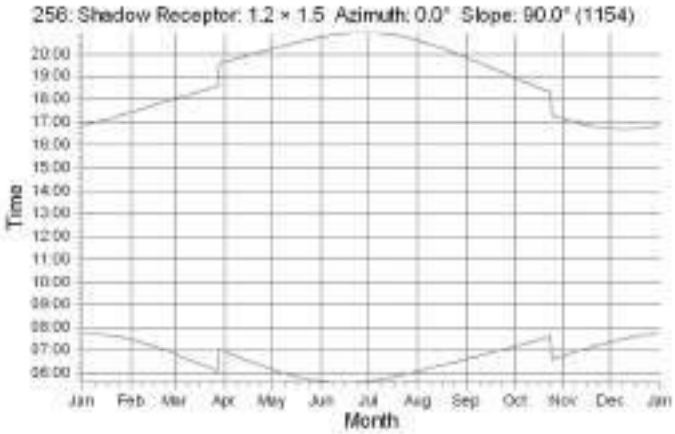
SHADOW - Calendar, graphical

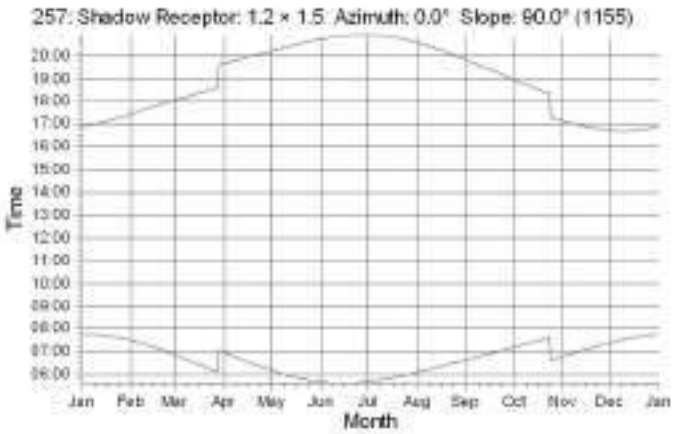
Calculation: Real Case con piena operatività dell'impianto

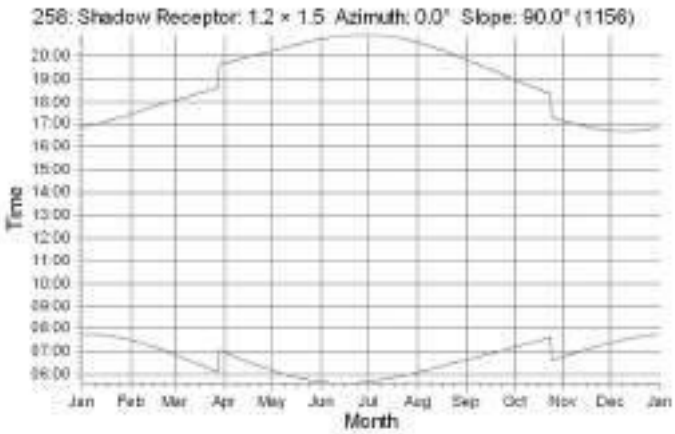












WTGs

MO01: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (1)

MO02: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (2)

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02/09/2023 23:38/3.6.361

SHADOW - Calendar, graphical

Calculation: Real Case con piena operatività dell'impianto

WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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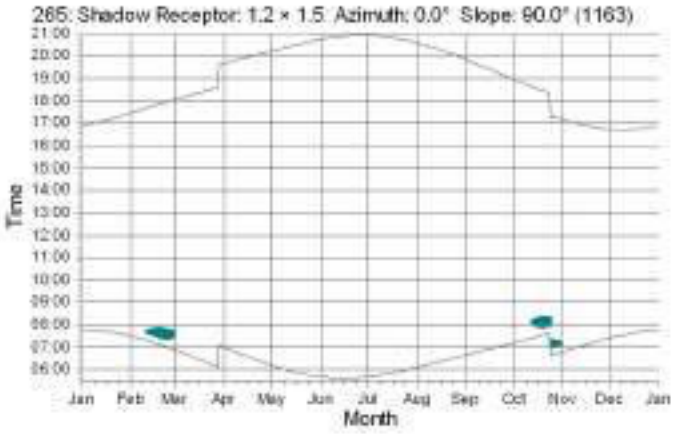
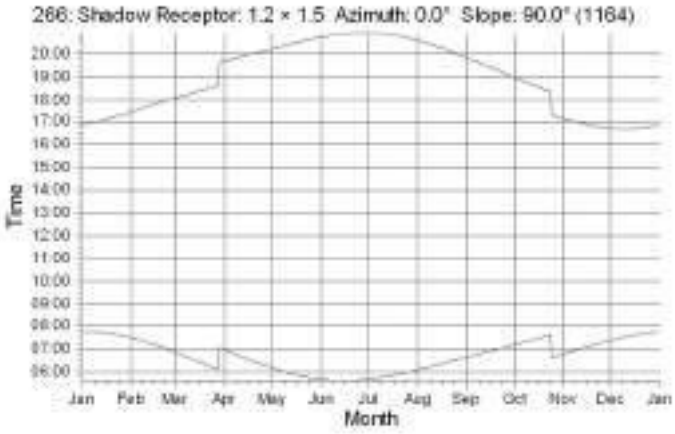
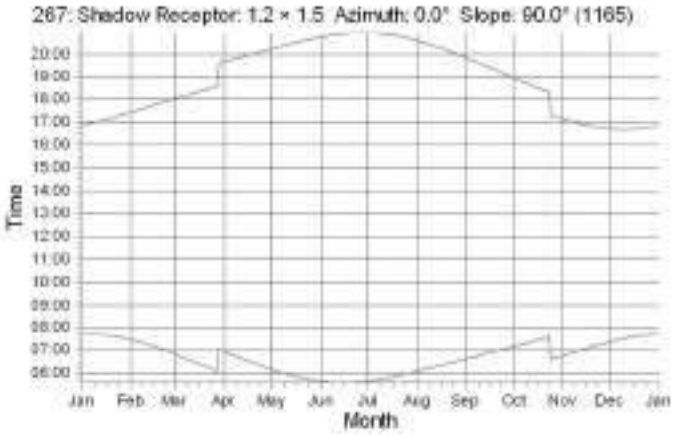
02/09/2023 23:38/3.6.361

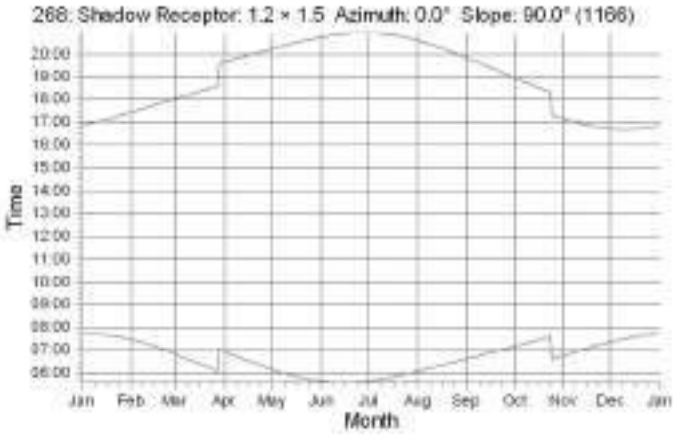
SHADOW - Calendar, graphical

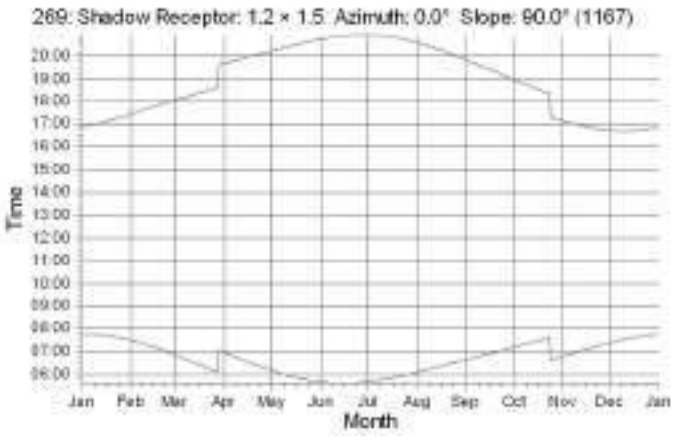
Calculation: Real Case con piena operatività dell'impianto

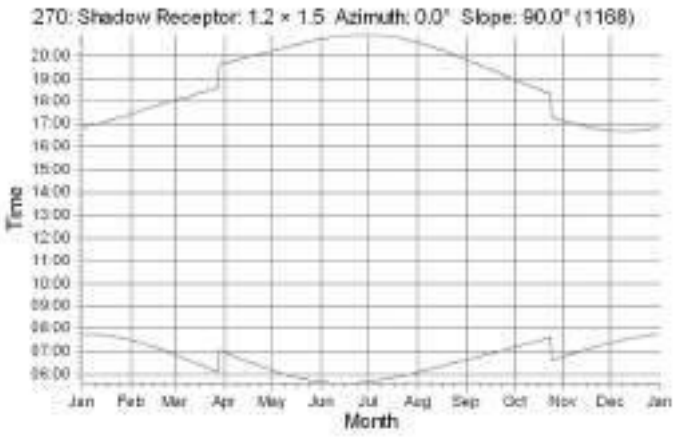












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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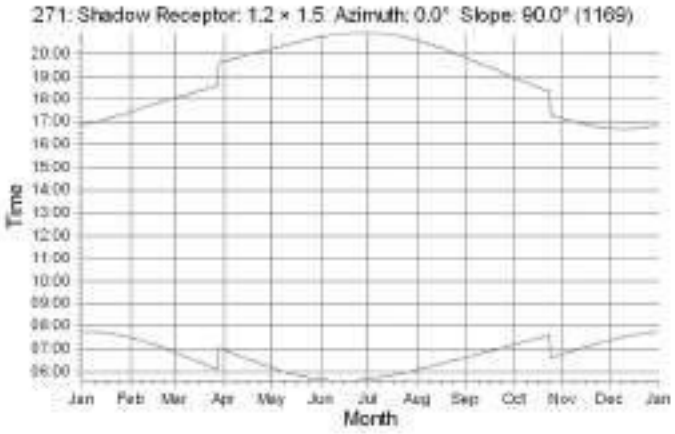
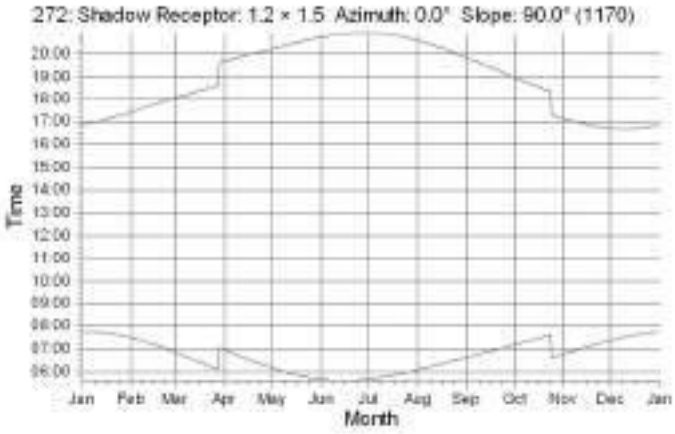
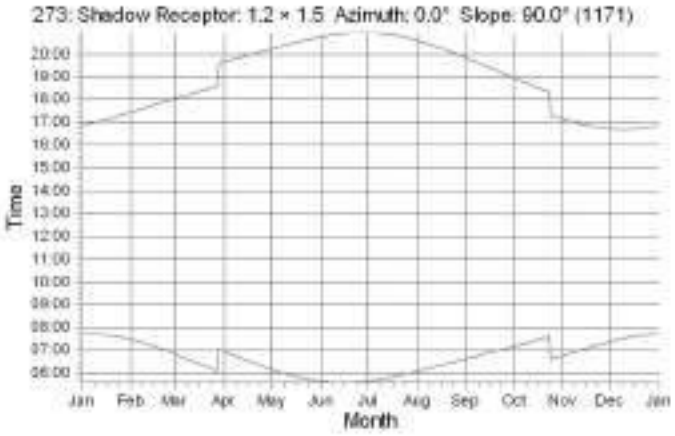
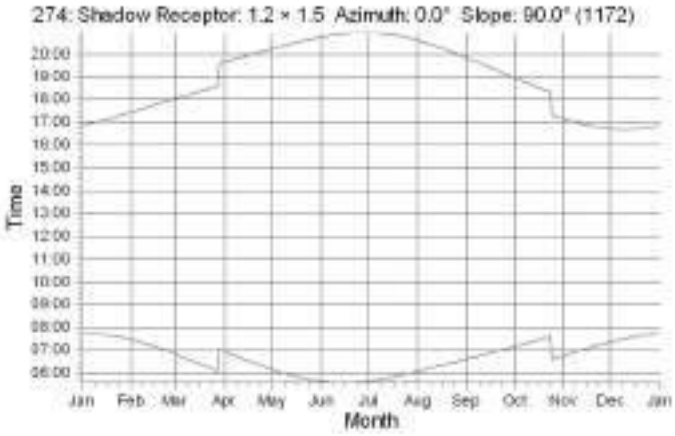
SHADOW - Calendar, graphical

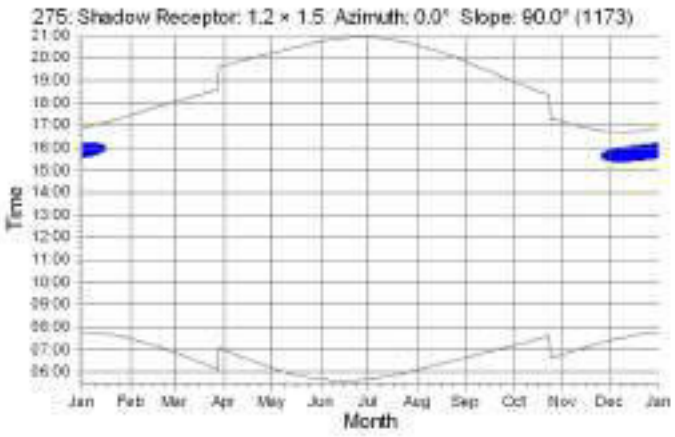
Calculation: Real Case con piena operatività dell'impianto

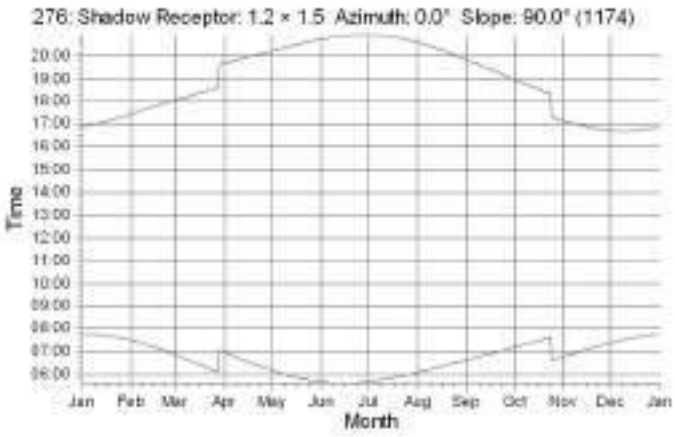












WTGs

MO03: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)

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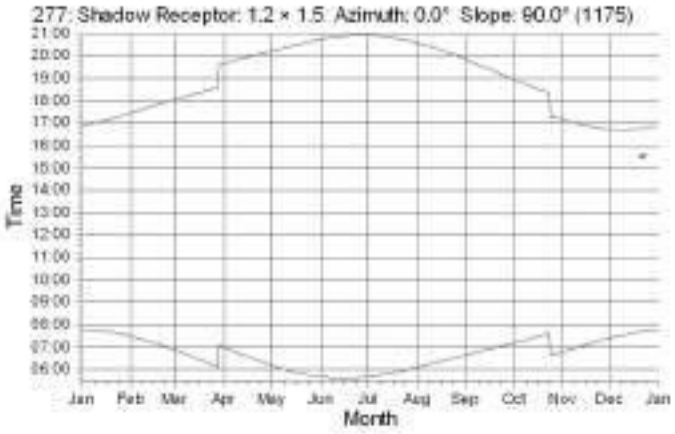
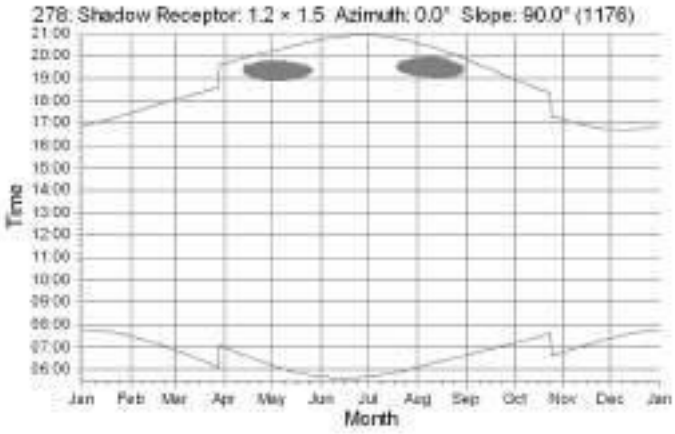
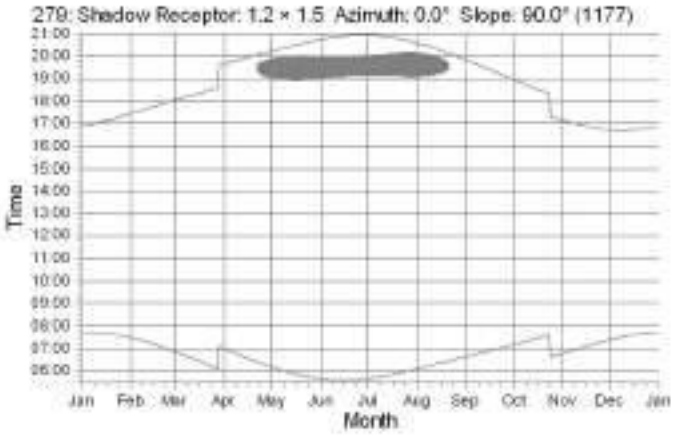
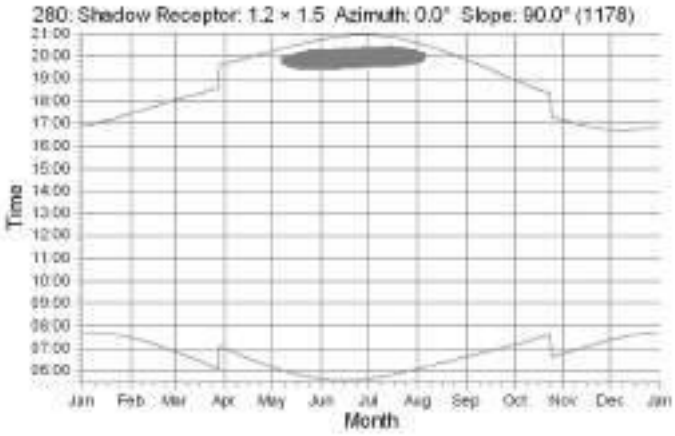
SHADOW - Calendar, graphical

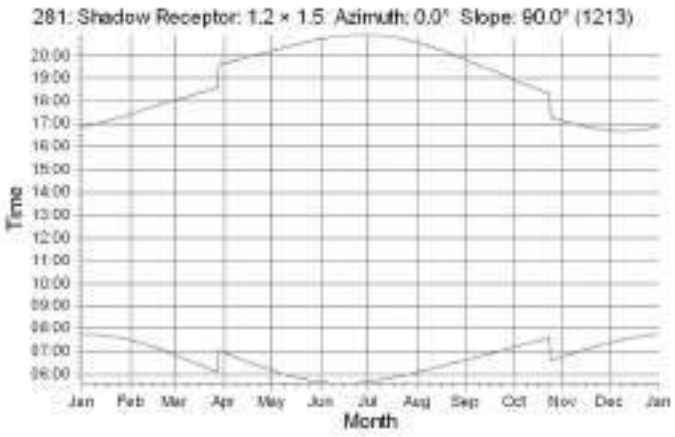
Calculation: Real Case con piena operatività dell'impianto

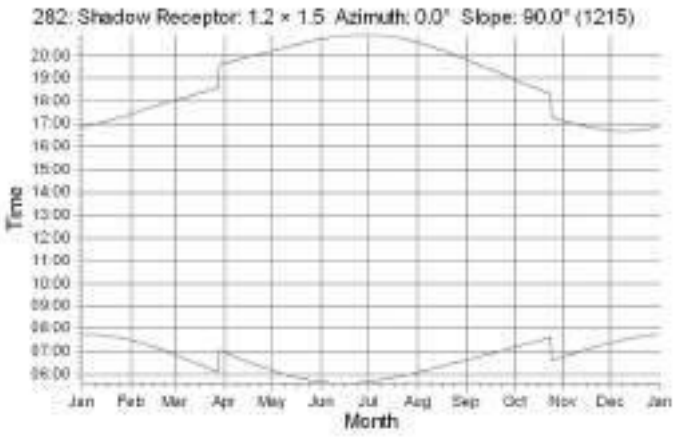












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

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Calculated:
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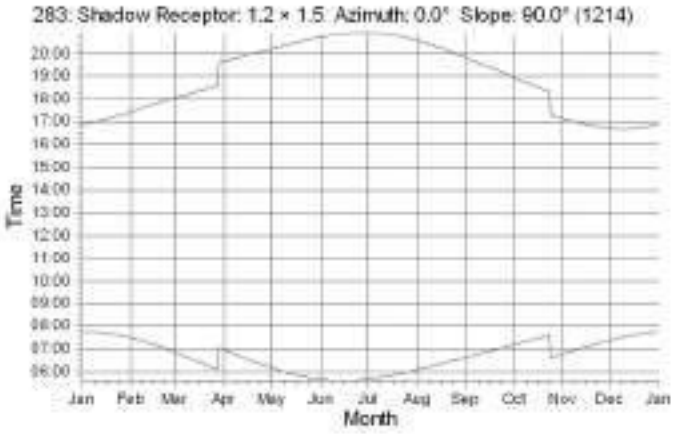
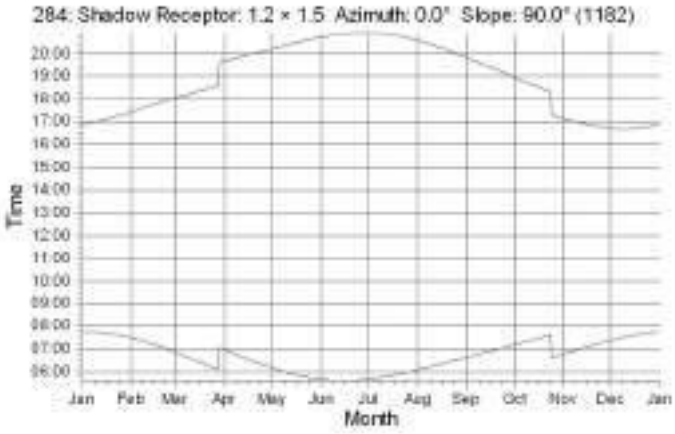
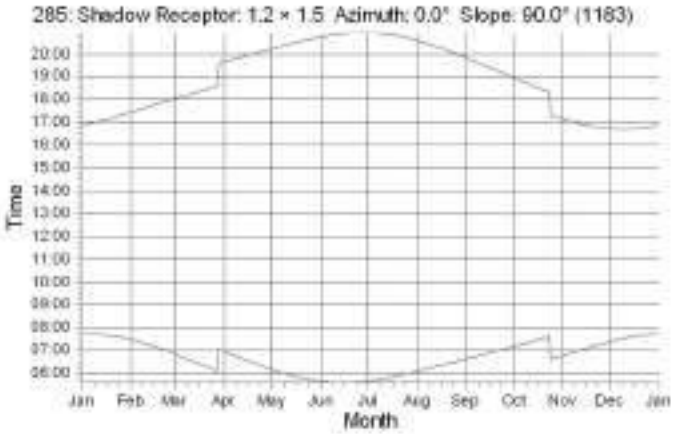
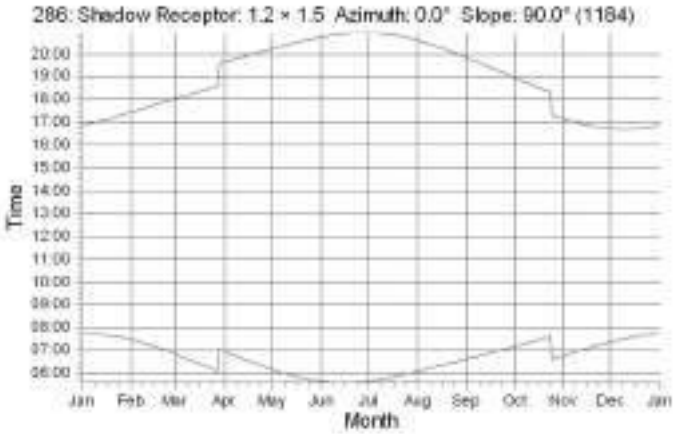
SHADOW - Calendar, graphical

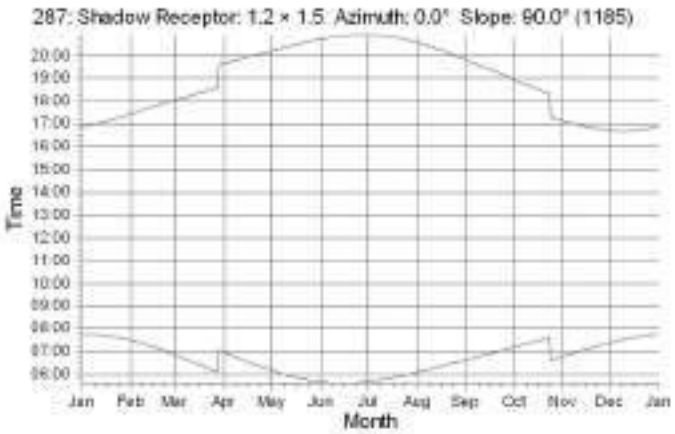
Calculation: Real Case con piena operatività dell'impianto

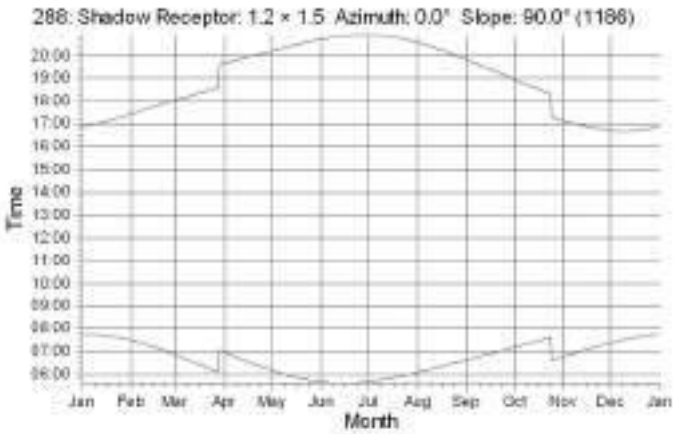












WTGs

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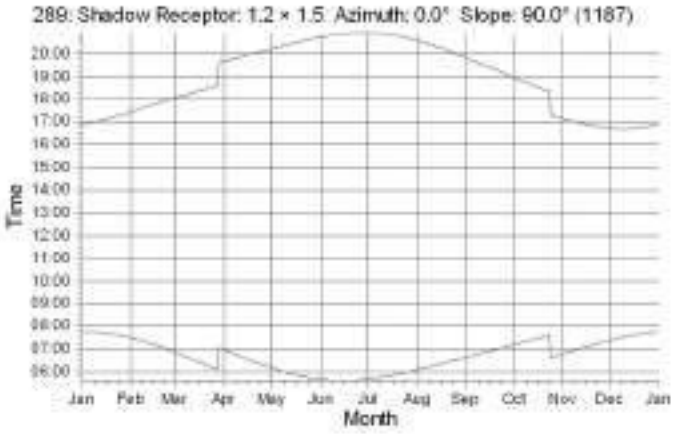
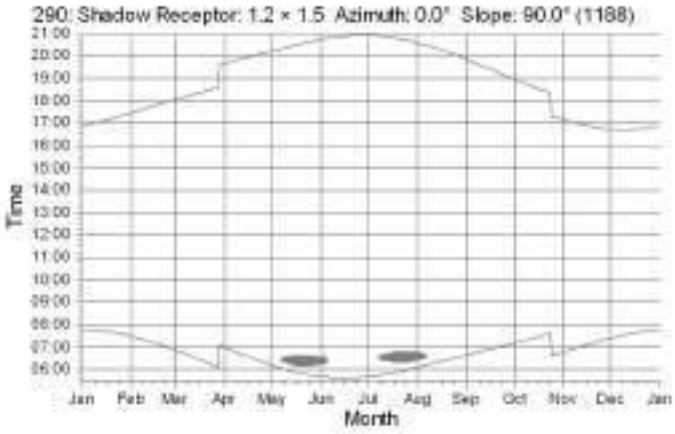
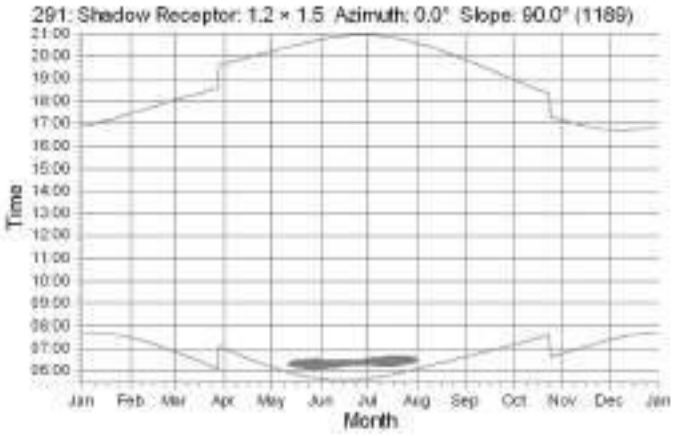
Calculated:
02/09/2023 23:38/3.6.361

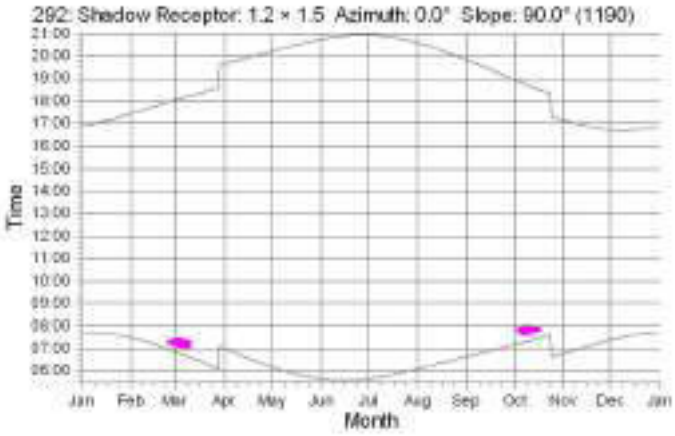
SHADOW - Calendar, graphical

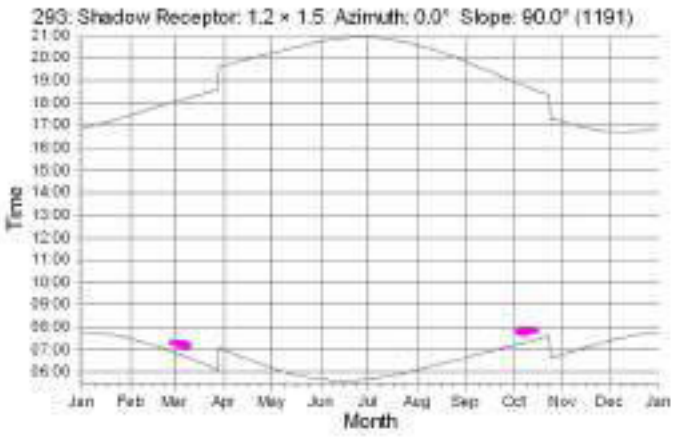
Calculation: Real Case con piena operatività dell'impianto

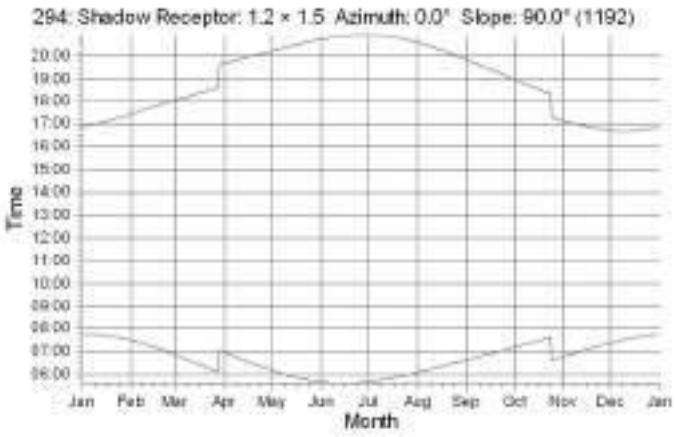












WTGs

MO04: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

MO05: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

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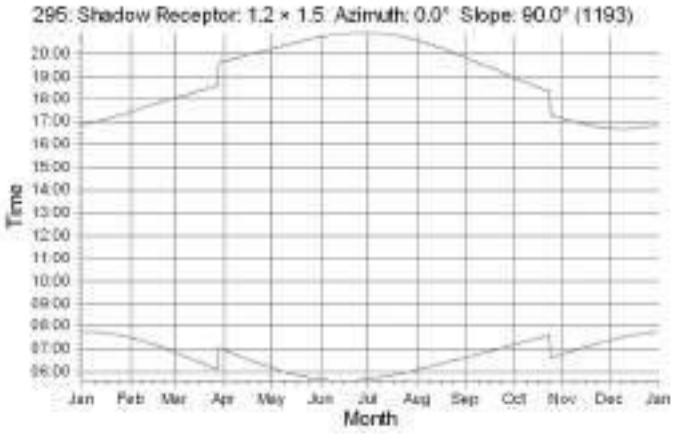
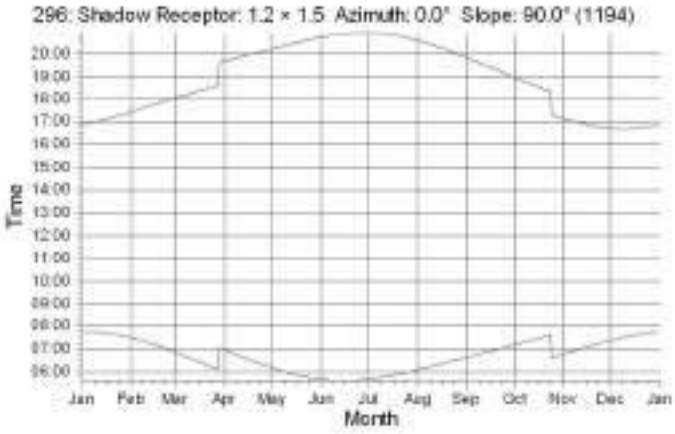
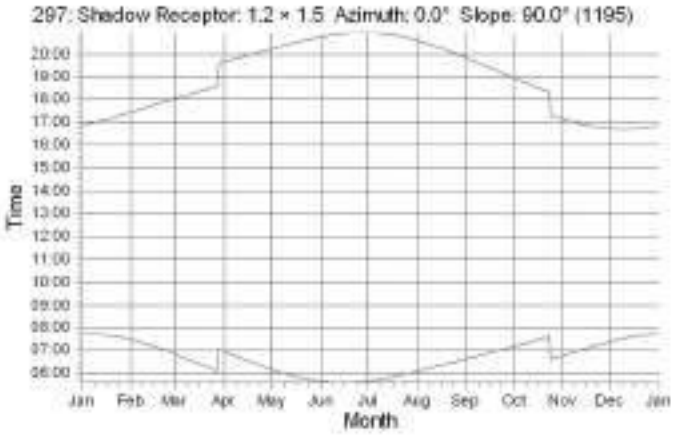
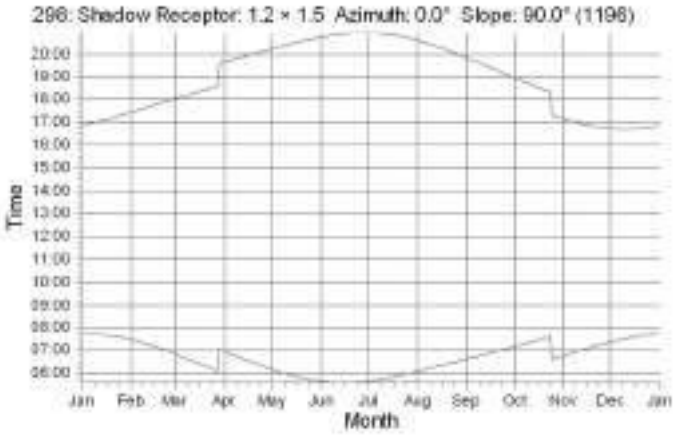
SHADOW - Calendar, graphical

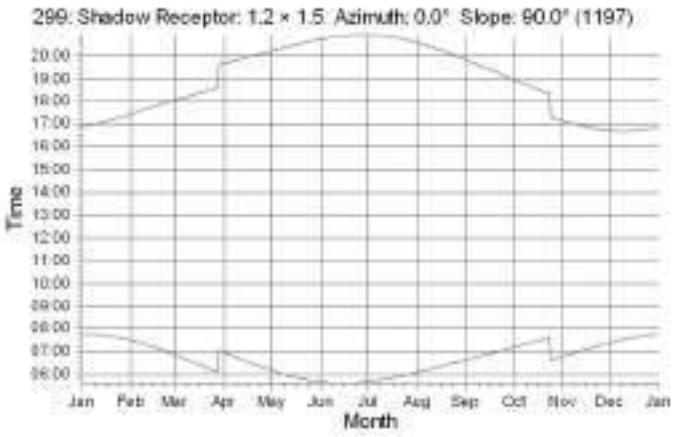
Calculation: Real Case con piena operatività dell'impianto

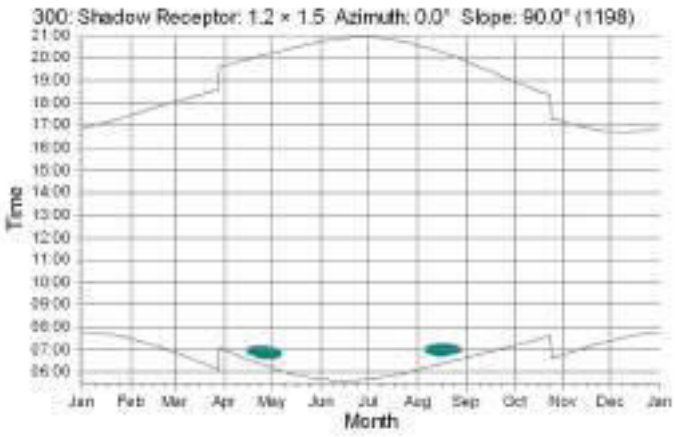












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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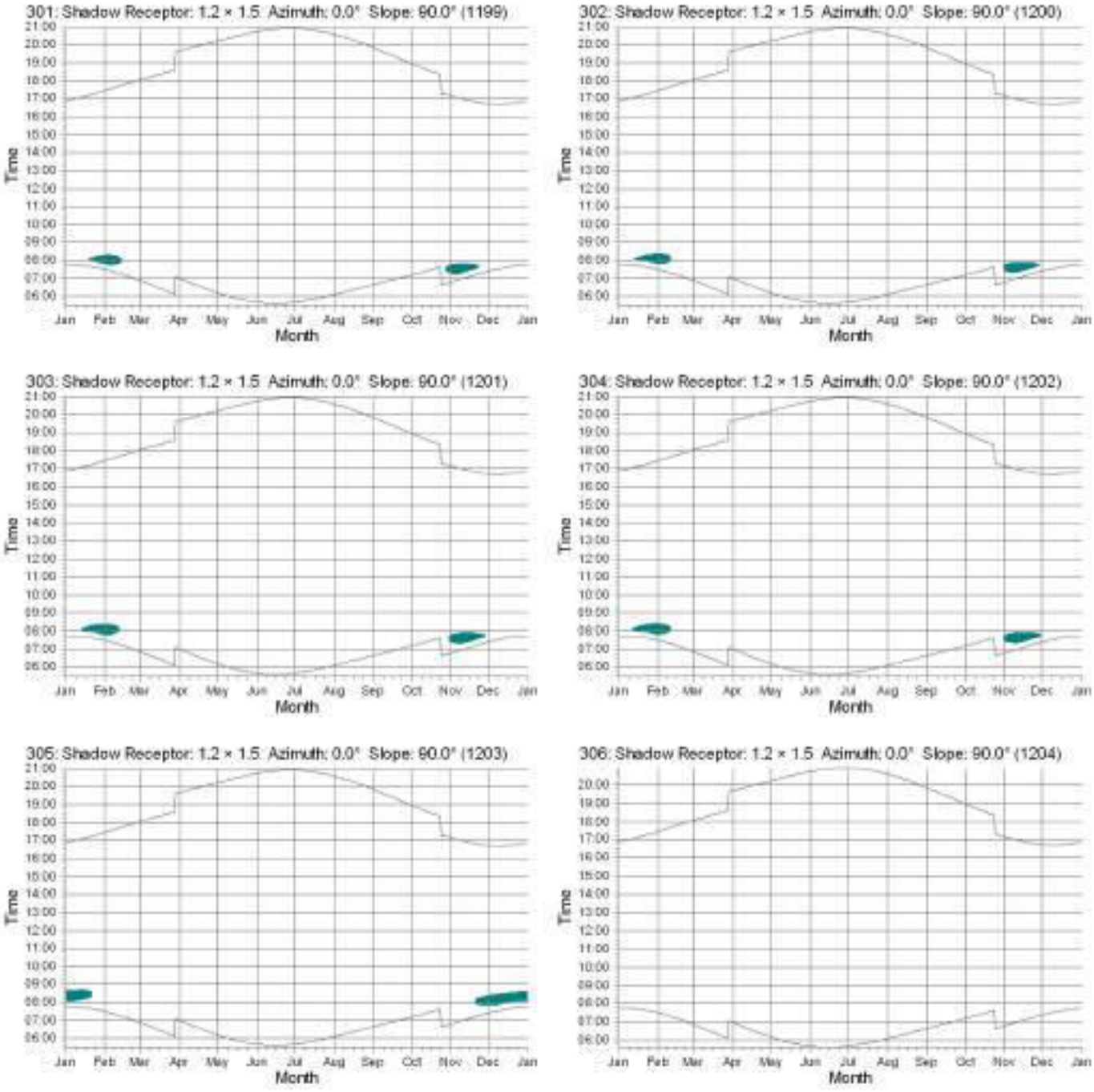
SHADOW - Calendar, graphical

Calculation: Real Case con piena operatività dell'impianto



WTGs

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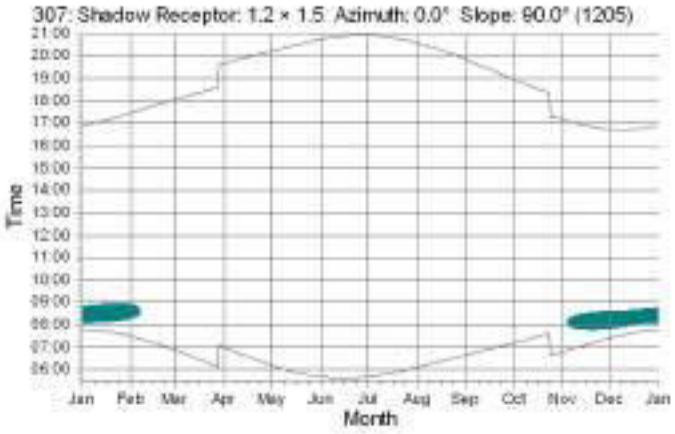
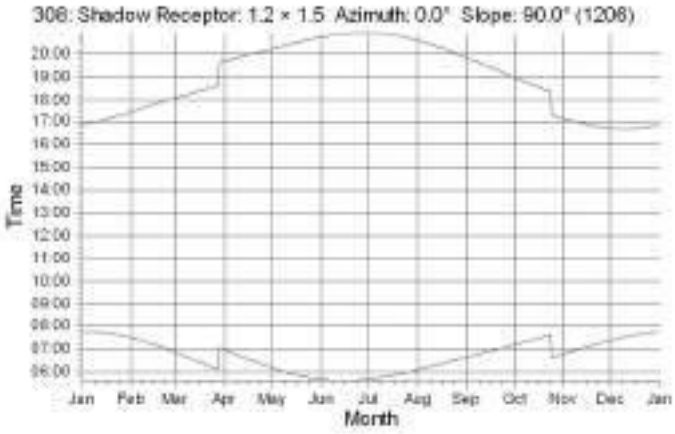
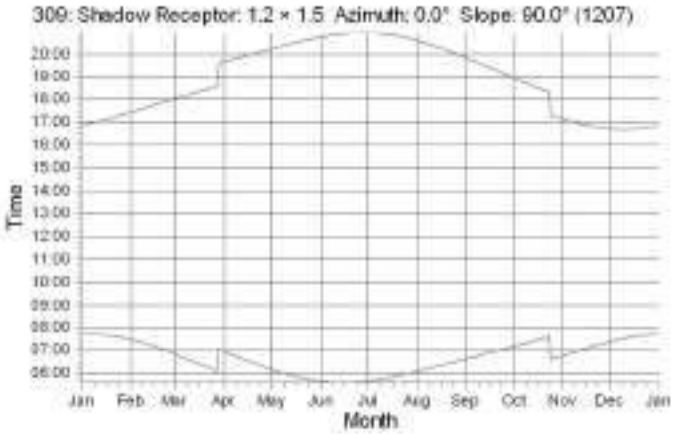
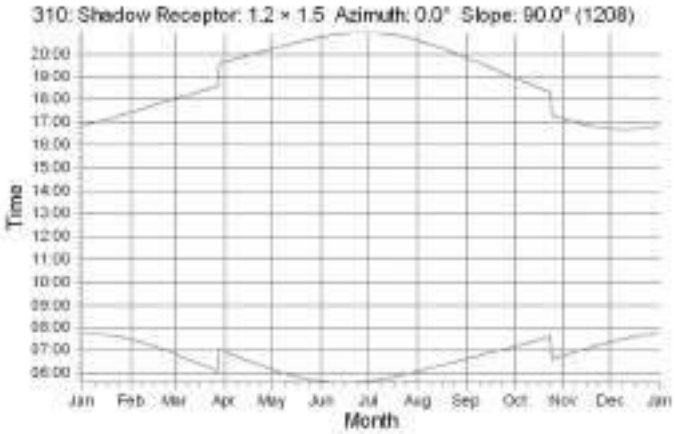
SHADOW - Calendar, graphical

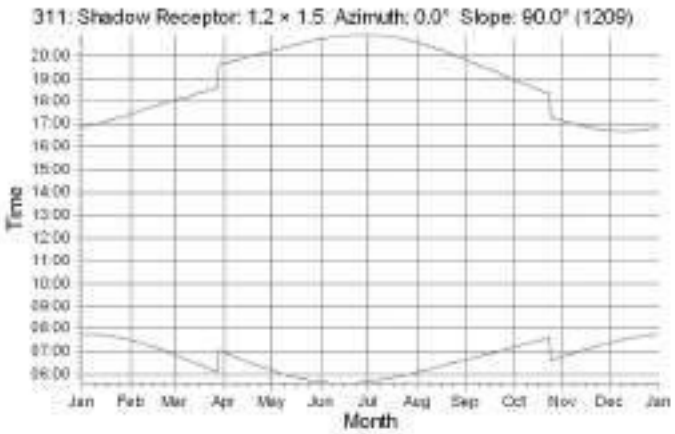
Calculation: Real Case con piena operatività dell'impianto

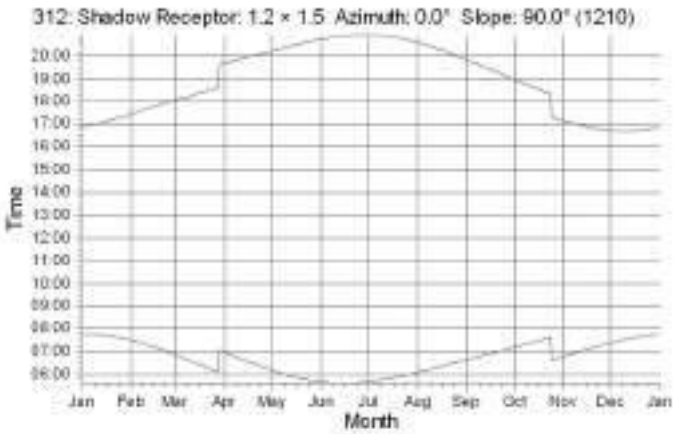












WTGs

MO06: VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

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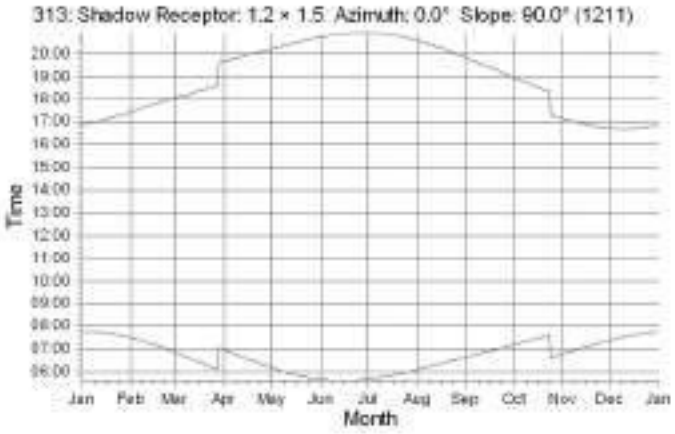
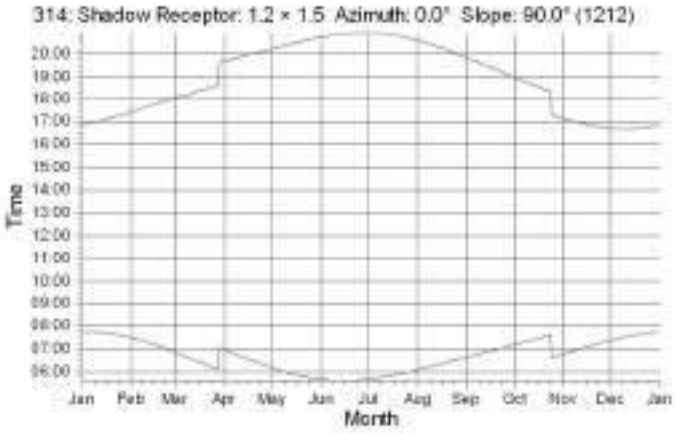
SHADOW - Calendar, graphical

Calculation: Real Case con piena operatività dell'impianto





WTGs

Allegato 8

Calendar Time per WTG

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO01 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (1)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March		April		May		June	
1	07:44	07:29		06:51	17:11-17:25/14	06:58	07:17-07:35/18	06:11	19:18-19:27/9	05:40	06:02-06:24/22
	16:51	17:27		18:03		19:39		20:13		20:44	
2	07:44	07:28		06:50	17:15-17:20/5	06:57	07:16-07:36/20	06:09		05:40	06:02-06:25/23
	16:52	17:28		18:04		19:40		20:14		20:45	
3	07:44	07:27		06:48		06:55	07:14-07:36/22	06:08		05:39	06:01-06:26/25
	16:53	17:30		18:05		19:41		20:15		20:46	
4	07:44	07:26		06:46		06:53	07:12-07:35/23	06:07		05:39	06:01-06:27/26
	16:54	17:31		18:07		19:42		20:16		20:46	
5	07:44	07:25		06:45		06:52	07:10-07:35/25	06:05		05:38	06:01-06:28/27
	16:55	17:32		18:08		19:44		20:17		20:47	
6	07:44	07:24		06:43		06:50	07:09-07:35/26	06:04		05:38	06:00-06:28/28
	16:56	17:34		18:09		19:45	19:22-19:23/1	20:18		20:48	
7	07:44	07:22		06:41		06:48	07:08-07:34/26	06:03		05:38	06:00-06:29/29
	16:57	17:35		18:10		19:46	19:18-19:24/6	20:20		20:48	
8	07:44	07:21		06:40		06:46	07:08-07:32/24	06:02		05:37	06:00-06:30/30
	16:58	17:36		18:11		19:47	19:15-19:25/10	20:21		20:49	
9	07:43	07:20		06:38		06:45	07:09-07:32/23	06:00		05:37	06:00-06:30/30
	16:59	17:37		18:13		19:48	19:14-19:26/12	20:22		20:50	
10	07:43	07:19	17:13-17:15/2	06:36		06:43	07:10-07:30/20	05:59		05:37	06:00-06:31/31
	17:00	17:39		18:14		19:49	19:12-19:27/15	20:23		20:50	
11	07:43	07:18	17:11-17:17/6	06:35		06:41	07:10-07:28/18	05:58		05:37	06:00-06:32/32
	17:01	17:40		18:15		19:50	19:10-19:28/18	20:24		20:51	
12	07:43	07:16	17:09-17:18/9	06:33		06:40	07:13-07:26/13	05:57		05:37	05:59-06:31/32
	17:02	17:41		18:16		19:51	19:10-19:30/20	20:25		20:51	
13	07:42	07:15	17:08-17:20/12	06:31		06:38	07:16-07:22/6	05:56		05:37	05:59-06:32/33
	17:03	17:43		18:17		19:53	19:08-19:30/22	20:26		20:52	
14	07:42	07:14	17:06-17:20/14	06:30		06:36	19:07-19:31/24	05:55		05:36	05:59-06:32/33
	17:05	17:44		18:18		19:54		20:27		20:52	
15	07:42	07:12	17:06-17:22/16	06:28		06:35	19:07-19:33/26	05:54		05:36	05:59-06:33/34
	17:06	17:45		18:20		19:55		20:28		20:53	
16	07:41	07:11	17:05-17:24/19	06:26		06:33	19:07-19:33/26	05:53		05:36	05:59-06:33/34
	17:07	17:47		18:21		19:56		20:29		20:53	
17	07:41	07:09	17:04-17:25/21	06:24		06:32	19:07-19:35/28	05:52		05:36	05:59-06:33/34
	17:08	17:48		18:22		19:57		20:30		20:53	
18	07:40	07:08	17:04-17:27/23	06:23		06:30	19:06-19:36/30	05:51		05:37	06:00-06:34/34
	17:09	17:49		18:23		19:58		20:31		20:54	
19	07:40	07:07	17:04-17:27/23	06:21		06:28	19:07-19:37/30	05:50		05:37	06:00-06:35/35
	17:10	17:50		18:24		19:59		20:32		20:54	
20	07:39	07:05	17:04-17:29/25	06:19		06:27	19:07-19:38/31	05:49		05:37	06:00-06:35/35
	17:12	17:52		18:25		20:01		20:33		20:54	
21	07:38	07:04	17:04-17:30/26	06:18		06:25	19:06-19:38/32	05:48		05:37	06:00-06:35/35
	17:13	17:53		18:27		20:02		20:34		20:55	
22	07:38	07:02	17:04-17:32/28	06:16		06:24	19:07-19:40/33	05:47		05:37	06:00-06:35/35
	17:14	17:54		18:28		20:03		20:35		20:55	
23	07:37	07:01	17:04-17:33/29	06:14		06:22	19:08-19:40/32	05:46		05:37	06:01-06:36/35
	17:15	17:55		18:29		20:04		20:36		20:55	
24	07:36	06:59	17:05-17:33/28	06:12		06:21	19:08-19:39/31	05:45		05:38	06:01-06:36/35
	17:17	17:57		18:30		20:05		20:37		20:55	
25	07:35	06:58	17:05-17:32/27	06:11		06:19	19:09-19:38/29	05:45		05:38	06:01-06:35/34
	17:18	17:58		18:31		20:06		20:38		20:55	
26	07:35	06:56	17:06-17:30/24	06:09		06:18	19:09-19:37/28	05:44		05:38	06:02-06:36/34
	17:19	17:59		18:32		20:07		20:39		20:55	
27	07:34	06:54	17:07-17:29/22	06:07	06:26-06:29/3	06:16	19:11-19:36/25	05:43	06:10-06:13/3	05:39	06:02-06:36/34
	17:20	18:00		18:33		20:08		20:40		20:55	
28	07:33	06:53	17:09-17:27/18	06:05	06:24-06:31/7	06:15	19:11-19:34/23	05:42	06:05-06:17/12	05:39	06:02-06:35/33
	17:22	18:02		18:35		20:10		20:41		20:55	
29	07:32			07:04	07:23-07:34/11	06:13	19:13-19:33/20	05:42	06:04-06:20/16	05:39	06:03-06:36/33
	17:23			19:36		20:11		20:42		20:55	
30	07:31			07:02	07:21-07:34/13	06:12	19:15-19:31/16	05:41	06:03-06:21/18	05:40	06:03-06:36/33
	17:24			19:37		20:12		20:42		20:55	
31	07:30			07:00	07:19-07:35/16			05:41	06:03-06:23/20		
	17:26			19:38				20:43			
Potential sun hours	293	295		369		400		452		457	
Sum of minutes with flicker	0	372		69		832		78		948	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO01 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (1)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October		November		December
1	05:40	06:04-06:36/32	06:05		06:38	07:10-07:28/18	07:10		06:46	16:44-16:45/1	07:23
	20:55		20:35		19:50	19:09-19:27/18	18:57		17:09		16:43
2	05:41	06:04-06:35/31	06:06		06:39	07:09-07:29/20	07:11		06:48		07:24
	20:55		20:34		19:48	19:10-19:25/15	18:56		17:07		16:42
3	05:41	06:05-06:36/31	06:07		06:40	07:07-07:30/23	07:12		06:49		07:25
	20:55		20:33		19:47	19:11-19:23/12	18:54		17:06		16:42
4	05:42	06:05-06:35/30	06:09		06:41	07:06-07:30/24	07:13		06:50		07:26
	20:55		20:31		19:45	19:12-19:22/10	18:52		17:05		16:42
5	05:43	06:06-06:35/29	06:10		06:42	07:05-07:31/26	07:15		06:51		07:27
	20:54		20:30		19:43	19:14-19:20/6	18:50		17:04		16:42
6	05:43	06:06-06:34/28	06:11		06:43	07:05-07:31/26	07:16		06:53		07:28
	20:54		20:29		19:41	19:17-19:18/1	18:49		17:02		16:41
7	05:44	06:07-06:34/27	06:12		06:45	07:06-07:31/25	07:17		06:54		07:29
	20:54		20:28		19:40		18:47		17:01		16:41
8	05:44	06:08-06:34/26	06:13		06:46	07:07-07:30/23	07:18		06:55		07:30
	20:54		20:26		19:38		18:45		17:00		16:41
9	05:45	06:08-06:33/25	06:14		06:47	07:08-07:30/22	07:19		06:56		07:31
	20:53		20:25		19:36		18:44		16:59		16:41
10	05:46	06:09-06:33/24	06:15		06:48	07:09-07:29/20	07:20		06:58		07:32
	20:53		20:24		19:34		18:42		16:58		16:41
11	05:47	06:10-06:32/22	06:16		06:49	07:10-07:28/18	07:21		06:59		07:33
	20:52		20:22		19:33		18:40		16:57		16:41
12	05:47	06:11-06:32/21	06:17	19:25-19:36/11	06:50	07:11-07:27/16	07:22	17:46-17:56/10	07:00		07:34
	20:52		20:21		19:31		18:39		16:56		16:41
13	05:48	06:11-06:30/19	06:18	19:22-19:39/17	06:51	07:12-07:26/14	07:24	17:43-17:59/16	07:01		07:34
	20:51		20:20		19:29		18:37		16:55		16:42
14	05:49	06:12-06:29/17	06:19	19:20-19:41/21	06:52	07:13-07:24/11	07:25	17:41-18:01/20	07:03		07:35
	20:51		20:18		19:27		18:35		16:54		16:42
15	05:50	06:13-06:27/14	06:20	19:19-19:42/23	06:53	07:14-07:22/8	07:26	17:39-18:02/23	07:04		07:36
	20:50		20:17		19:26		18:34		16:53		16:42
16	05:50	06:16-06:25/9	06:21	19:17-19:43/26	06:54	07:15-07:19/4	07:27	17:38-18:03/25	07:05		07:37
	20:49		20:15		19:24		18:32		16:52		16:42
17	05:51		06:22	19:16-19:44/28	06:55		07:28	17:36-18:03/27	07:06		07:37
	20:49		20:14		19:22		18:31		16:51		16:42
18	05:52		06:23	19:15-19:44/29	06:56		07:29	17:36-18:05/29	07:08		07:38
	20:48		20:12		19:20		18:29		16:50		16:43
19	05:53		06:24	19:14-19:45/31	06:57		07:31	17:35-18:04/29	07:09		07:39
	20:47		20:11		19:19		18:27		16:50		16:43
20	05:54		06:25	19:13-19:45/32	06:58		07:32	17:35-18:02/27	07:10		07:39
	20:47		20:09		19:17		18:26		16:49		16:43
21	05:55		06:26	19:12-19:44/32	06:59		07:33	17:34-18:00/26	07:11		07:40
	20:46		20:08		19:15		18:24		16:48		16:44
22	05:56		06:28	19:11-19:43/32	07:00		07:34	17:35-17:59/24	07:13		07:40
	20:45		20:06		19:13		18:23		16:47		16:44
23	05:57		06:29	19:10-19:41/31	07:01		07:35	17:34-17:58/24	07:14		07:41
	20:44		20:05		19:11		18:21		16:47		16:45
24	05:58		06:30	19:10-19:40/30	07:03		07:37	17:34-17:56/22	07:15		07:41
	20:43		20:03		19:10		18:20		16:46		16:45
25	05:59		06:31	19:09-19:38/29	07:04		06:38	16:34-16:54/20	07:16		07:42
	20:42		20:01		19:08		17:18		16:45		16:46
26	05:59		06:32	19:09-19:37/28	07:05		06:39	16:35-16:53/18	07:17		07:42
	20:41		20:00		19:06		17:17		16:45		16:47
27	06:00		06:33	19:09-19:35/26	07:06		06:40	16:36-16:51/15	07:18		07:42
	20:40		19:58		19:04		17:15		16:44		16:47
28	06:01		06:34	19:08-19:33/25	07:07		06:42	16:36-16:50/14	07:20		07:43
	20:39		19:57		19:03		17:14		16:44		16:48
29	06:02		06:35	19:08-19:32/24	07:08		06:43	16:38-16:49/11	07:21		07:43
	20:38		19:55		19:01		17:13		16:43		16:49
30	06:03		06:36	07:16-07:24/8	07:09		06:44	16:39-16:47/8	07:22		07:43
	20:37		19:53	19:08-19:30/22	18:59		17:11		16:43		16:50
31	06:04		06:37	07:13-07:27/14			06:45	16:40-16:46/6			07:43
	20:36		19:52	19:09-19:28/19			17:10				16:50
Potential sun hours	463		431		376		344		295		283
Sum of minutes with flicker	385		538		360		394		1		0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO02 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (2)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June
1	07:44 15:47-16:25/38 16:51 08:12-09:20/68	07:29 15:58-16:41/43 17:27	06:51 18:03	06:58 19:39	06:11 06:30-06:56/26 20:13 18:46-19:49/63	05:40 18:53-19:51/58 20:44
2	07:44 15:47-16:26/39 16:52 08:12-09:20/68	07:28 15:59-16:41/42 17:28	06:50 18:04	06:57 19:40	06:09 06:29-06:56/27 20:14 18:46-19:50/64	05:40 18:54-19:51/57 20:45
3	07:44 15:48-16:26/38 16:53 08:13-09:20/67	07:27 16:00-16:39/39 17:30	06:48 18:05	06:55 19:41	06:08 06:28-06:56/28 20:15 18:46-19:52/66	05:39 18:54-19:51/57 20:45
4	07:44 15:48-16:28/40 16:54 08:14-09:21/67	07:26 16:01-16:39/38 17:31	06:46 18:06	06:53 19:42	06:07 06:27-06:56/29 20:16 18:45-19:52/67	05:39 18:55-19:51/56 20:46
5	07:44 15:48-16:29/41 08:31-09:21/50 16:55 08:15-08:30/15	07:25 16:02-16:38/36 17:32	06:45 18:08	06:52 19:44	06:05 06:27-06:54/27 20:17 18:45-19:53/68	05:38 18:56-19:51/55 20:47
6	07:44 15:49-16:30/41 08:31-09:21/50 16:56 08:17-08:29/12	07:24 16:04-16:37/33 17:33	06:43 18:09	06:50 19:45	06:04 06:27-06:54/27 20:18 18:45-19:54/69	05:38 18:56-19:50/54 20:48
7	07:44 15:48-16:30/42 08:31-09:21/50 16:57 08:18-08:29/11	07:22 16:06-16:36/30 17:35	06:41 17:48-17:49/1 18:10	06:48 19:46	06:03 06:28-06:54/26 20:20 18:46-19:54/68	05:38 18:57-19:50/53 20:48
8	07:44 15:48-16:31/43 08:32-09:21/49 16:58 08:19-08:27/8	07:21 16:07-16:33/26 17:36	06:40 17:45-17:50/5 18:11	06:46 19:47	06:01 06:29-06:53/24 20:21 18:46-19:54/68	05:37 18:57-19:50/53 20:49
9	07:43 15:49-16:33/44 08:33-09:22/49 16:59 08:22-08:26/4	07:20 16:10-16:31/21 17:37	06:38 17:43-17:51/8 18:13	06:45 19:48	06:00 06:29-06:52/23 20:22 18:46-19:55/69	05:37 18:58-19:50/52 20:50
10	07:43 15:49-16:34/45 17:00 08:34-09:22/48	07:19 16:14-16:28/14 17:39	06:36 17:43-17:53/10 18:14	06:43 19:49	05:59 06:30-06:52/22 20:23 18:45-19:54/69	05:37 18:59-19:51/52 20:50
11	07:43 15:49-16:35/46 17:01 08:34-09:21/47	07:17 17:40	06:35 17:42-17:53/11 18:15	06:41 19:50	05:58 06:31-06:49/18 20:24 18:46-19:54/68	05:37 18:58-19:50/52 20:51
12	07:43 15:49-16:36/47 17:02 08:35-09:22/47	07:16 17:41	06:33 17:41-17:54/13 18:16	06:40 19:51	05:57 06:32-06:48/16 20:25 18:46-19:54/68	05:37 18:59-19:50/51 20:51
13	07:42 15:49-16:37/48 17:03 08:35-09:21/46	07:15 17:43	06:31 17:40-17:55/15 18:17	06:38 19:12-19:30/18 19:53	05:56 06:34-06:46/12 20:26 18:46-19:54/68	05:37 18:59-19:50/51 20:52
14	07:42 15:50-16:38/48 17:04 08:37-09:22/45	07:14 17:44	06:30 17:41-17:57/16 18:18	06:36 19:07-19:31/24 19:54	05:55 06:37-06:43/6 20:27 18:46-19:54/68	05:36 19:00-19:50/50 20:52
15	07:42 15:49-16:39/50 17:06 08:38-09:22/44	07:12 17:45	06:28 17:40-17:58/18 18:20	06:35 19:05-19:33/28 19:55	05:54 18:47-19:54/67 20:28	05:36 19:00-19:50/50 20:53
16	07:41 15:50-16:40/50 17:07 08:38-09:21/43	07:11 17:47	06:26 17:40-17:59/19 18:21	06:33 19:02-19:33/31 19:56	05:53 18:47-19:54/67 20:29	05:36 19:00-19:50/50 20:53
17	07:41 15:50-16:40/50 17:08 08:39-09:20/41	07:09 17:48	06:24 17:41-18:00/19 18:22	06:32 19:00-19:35/35 19:57	05:52 18:47-19:53/66 20:30	05:36 19:01-19:50/49 20:53
18	07:40 15:51-16:41/50 17:09 08:41-09:21/40	07:08 17:49	06:23 17:42-18:00/18 18:23	06:30 18:58-19:36/38 19:58	05:51 18:47-19:53/66 20:31	05:36 19:01-19:50/49 20:54
19	07:39 15:51-16:41/50 17:10 08:41-09:20/39	07:07 17:50	06:21 17:43-17:58/15 18:24	06:28 18:57-19:37/40 19:59	05:50 18:48-19:54/66 20:32	05:37 19:02-19:51/49 20:54
20	07:39 15:51-16:41/50 17:12 08:42-09:19/37	07:05 17:52	06:19 17:45-17:55/10 18:25	06:27 18:55-19:38/43 20:00	05:49 18:49-19:54/65 20:33	05:37 19:02-19:51/49 20:54
21	07:38 15:52-16:42/50 17:13 08:44-09:19/35	07:04 17:53	06:18 18:27	06:25 06:45-06:48/3 20:02 18:53-19:38/45	05:48 18:49-19:53/64 20:34	05:37 19:02-19:51/49 20:55
22	07:38 15:52-16:42/50 17:14 08:45-09:18/33	07:02 17:54	06:16 18:28	06:24 06:43-06:50/7 20:03 18:52-19:40/48	05:47 18:49-19:53/64 20:35	05:37 19:02-19:51/49 20:55
23	07:37 15:52-16:42/50 17:15 08:47-09:16/29	07:01 17:55	06:14 18:29	06:22 06:42-06:53/11 20:04 18:52-19:41/49	05:46 18:49-19:52/63 20:36	05:37 19:02-19:51/49 20:55
24	07:36 15:52-16:42/50 17:17 08:48-09:15/27	06:59 17:57	06:12 18:30	06:21 06:40-06:53/13 20:05 18:50-19:42/52	05:45 18:50-19:53/63 20:37	05:38 19:03-19:52/49 20:55
25	07:35 15:53-16:42/49 17:18 08:51-09:14/23	06:58 17:58	06:11 18:31	06:19 06:39-06:55/16 20:06 18:50-19:43/53	05:45 18:50-19:52/62 20:38	05:38 19:03-19:52/49 20:55
26	07:35 15:54-16:43/49 17:19 08:54-09:12/18	06:56 17:59	06:09 18:32	06:18 06:37-06:55/18 20:07 18:49-19:44/55	05:44 18:50-19:52/62 20:39	05:38 19:02-19:52/50 20:55
27	07:34 15:55-16:43/48 17:20 08:57-09:08/11	06:54 18:00	06:07 18:33	06:16 06:36-06:56/20 20:08 18:48-19:45/57	05:43 18:51-19:52/61 20:40	05:39 19:03-19:53/50 20:55
28	07:33 15:55-16:43/48 17:22	06:53 18:02	06:05 18:34	06:15 06:34-06:55/21 20:09 18:47-19:46/59	05:42 18:51-19:52/61 20:41	05:39 19:03-19:53/50 20:55
29	07:32 15:56-16:42/46 17:23		07:04 19:36	06:13 06:33-06:56/23 20:11 18:47-19:47/60	05:42 18:52-19:52/60 20:41	05:39 19:03-19:54/51 20:55
30	07:31 15:57-16:42/45 17:24		07:02 19:37	06:12 06:32-06:56/24 20:12 18:47-19:49/62	05:41 18:52-19:51/59 20:42	05:40 19:03-19:54/51 20:55
31	07:30 15:57-16:42/45 17:26		07:00 19:38		05:41 18:53-19:52/59 20:43	
Potential sun hours	293	295	369	400	452	457
Sum of minutes with flicker	2651	322	178	953	2329	1544

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO02 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (2)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November	December
1	05:40 19:03-19:55/52 20:55	06:05 06:42-06:59/17 20:35 18:56-20:04/68	06:38 19:50	07:10 18:20-18:35/15 18:57	06:46 15:43-15:59/16 17:09	07:23 15:31-16:17/46 16:43 08:16-09:03/47
2	05:41 19:03-19:55/52 20:55	06:06 06:41-07:01/20 20:34 18:56-20:04/68	06:39 19:48	07:11 18:20-18:33/13 18:56	06:48 15:39-16:01/22 17:07	07:24 15:31-16:16/45 16:42 08:16-09:04/48
3	05:41 19:03-19:55/52 20:55	06:07 06:40-07:02/22 20:33 18:56-20:04/68	06:40 19:47	07:12 18:20-18:31/11 18:54	06:49 15:37-16:03/26 17:06	07:25 15:32-16:16/44 08:16-09:05/49 16:42 08:07-08:09/2
4	05:42 19:03-19:55/52 20:55	06:08 06:39-07:02/23 20:31 18:56-20:04/68	06:41 19:45	07:13 18:21-18:29/8 18:52	06:50 15:36-16:06/30 17:05	07:26 15:32-16:15/43 08:17-09:06/49 16:42 08:04-08:12/8
5	05:42 19:03-19:56/53 20:54	06:10 06:38-07:03/25 20:30 18:55-20:04/69	06:42 19:43	07:15 18:21-18:27/6 18:50	06:51 15:34-16:07/33 17:04	07:27 15:34-16:16/42 08:17-09:07/50 16:42 08:03-08:14/11
6	05:43 19:02-19:56/54 20:54	06:11 06:37-07:04/27 20:29 18:55-20:04/69	06:43 19:41	07:16 18:22-18:25/3 18:49	06:53 15:32-16:08/36 17:02	07:28 15:35-16:16/41 08:18-09:07/49 16:41 08:03-08:15/12
7	05:44 19:02-19:57/55 20:54	06:12 06:37-07:04/27 20:28 18:55-20:03/68	06:44 19:40	07:17 18:47	06:54 15:32-16:10/38 17:01	07:29 15:35-16:16/41 08:18-09:08/50 16:41 08:03-08:17/14
8	05:44 19:03-19:58/55 20:53	06:13 06:36-07:04/28 20:26 18:55-20:03/68	06:46 19:38	07:18 18:45	06:55 15:30-16:10/40 17:00	07:30 15:35-16:15/40 16:41 08:02-09:09/67
9	05:45 19:02-19:58/56 20:53	06:14 06:36-07:04/28 20:25 18:55-20:01/66	06:47 19:36	07:19 18:44	06:56 15:29-16:11/42 16:59	07:31 15:36-16:15/39 16:41 08:02-09:08/66
10	05:46 19:02-19:58/56 20:53	06:15 06:37-07:04/27 20:24 18:55-20:00/65	06:48 19:34	07:20 18:42	06:58 15:29-16:12/43 16:58	07:32 15:36-16:15/39 16:41 08:01-09:09/68
11	05:46 19:02-19:59/57 20:52	06:16 06:38-07:04/26 20:22 18:55-19:59/64	06:49 19:33	07:21 18:40	06:59 15:28-16:13/45 16:57	07:33 15:37-16:15/38 16:41 08:02-09:10/68
12	05:47 19:01-19:59/58 20:52	06:17 06:39-07:04/25 20:21 18:55-19:57/62	06:50 19:31	07:22 18:39	07:00 15:27-16:13/46 16:56	07:34 15:38-16:15/37 16:41 08:02-09:10/68
13	05:48 19:01-20:00/59 20:51	06:18 06:40-07:04/24 20:20 18:55-19:56/61	06:51 19:29	07:24 18:37	07:01 15:28-16:14/46 16:55	07:34 15:39-16:15/36 16:41 08:02-09:11/69
14	05:49 19:01-20:00/59 20:51	06:19 06:41-07:03/22 20:18 18:55-19:55/60	06:52 19:27	07:25 18:35	07:03 15:27-16:15/48 16:54	07:35 15:40-16:16/36 16:42 08:03-09:12/69
15	05:50 19:01-20:01/60 20:50	06:20 06:42-07:03/21 20:17 18:55-19:53/58	06:53 19:26	07:26 18:34	07:04 15:27-16:15/48 16:53 08:29-08:40/11	07:36 15:40-16:15/35 16:42 08:02-09:11/69
16	05:50 19:01-20:02/61 20:49	06:21 06:43-07:02/19 20:15 18:55-19:52/57	06:54 19:24	07:27 18:32	07:05 15:27-16:16/49 16:52 08:27-08:45/18	07:37 15:41-16:16/35 16:42 08:03-09:12/69
17	05:51 19:00-20:01/61 20:49	06:22 06:44-07:01/17 20:14 18:55-19:50/55	06:55 19:22	07:28 18:31	07:06 15:27-16:16/49 16:51 08:24-08:47/23	07:37 15:41-16:16/35 16:42 08:04-09:13/69
18	05:52 19:00-20:02/62 20:48	06:23 06:45-07:00/15 20:12 18:56-19:49/53	06:56 19:20	07:29 18:29	07:08 15:26-16:16/50 16:50 08:22-08:49/27	07:38 15:41-16:16/35 16:43 08:03-09:13/70
19	05:53 19:00-20:02/62 20:47	06:24 06:46-06:59/13 20:11 18:56-19:47/51	06:57 19:19	07:31 18:27	07:09 15:27-16:17/50 16:49 08:22-08:51/29	07:39 15:42-16:17/35 16:43 08:04-09:14/70
20	05:54 19:00-20:03/63 20:47	06:25 06:47-06:57/10 20:09 18:57-19:46/49	06:58 19:17	07:32 18:26	07:10 15:27-16:17/50 16:49 08:20-08:53/33	07:39 15:42-16:16/34 16:43 08:05-09:14/69
21	05:55 18:59-20:03/64 20:46	06:26 06:48-06:55/7 20:08 18:57-19:44/47	06:59 19:15	07:33 18:24	07:11 15:27-16:17/50 16:48 08:19-08:54/35	07:40 15:43-16:17/34 16:44 08:05-09:15/70
22	05:56 18:59-20:04/65 20:45	06:27 06:49-06:51/2 20:06 18:58-19:43/45	07:00 19:13	07:34 18:23	07:13 15:27-16:17/50 16:47 08:18-08:55/37	07:40 15:43-16:17/34 16:44 08:06-09:15/69
23	05:57 18:59-20:04/65 20:44	06:29 18:59-19:41/42 20:05	07:01 18:31-18:38/7 19:11	07:35 18:21	07:14 15:28-16:18/50 16:47 08:18-08:57/39	07:41 15:44-16:18/34 16:45 08:06-09:16/70
24	05:58 18:59-20:04/65 20:43	06:30 19:00-19:40/40 20:03	07:03 18:27-18:41/14 19:10	07:37 18:20	07:15 15:28-16:18/50 16:46 08:18-08:58/40	07:41 15:44-16:18/34 16:45 08:06-09:16/70
25	05:58 18:58-20:04/66 20:42	06:31 19:01-19:38/37 20:01	07:04 18:25-18:42/17 19:08	06:38 17:18	07:16 15:28-16:18/50 16:45 08:17-08:58/41	07:42 15:45-16:20/35 16:46 08:07-09:17/70
26	05:59 18:58-20:04/66 20:41	06:32 19:02-19:37/35 20:00	07:05 18:24-18:43/19 19:06	06:39 17:17	07:17 15:28-16:18/50 16:45 08:16-08:59/43	07:42 15:45-16:20/35 16:47 08:08-09:17/69
27	06:00 18:58-20:04/66 20:40	06:33 19:04-19:35/31 19:58	07:06 18:22-18:41/19 19:04	06:40 17:15	07:18 15:30-16:19/49 16:44 08:17-09:01/44	07:42 15:46-16:20/34 16:47 08:08-09:17/69
28	06:01 18:58-20:04/66 20:39	06:34 19:06-19:33/27 19:57	07:07 18:21-18:39/18 19:03	06:41 17:14	07:20 15:30-16:18/48 16:44 08:17-09:02/45	07:43 15:46-16:21/35 16:48 08:09-09:17/68
29	06:02 18:57-20:04/67 20:38	06:35 19:08-19:32/24 19:55	07:08 18:20-18:37/17 19:01	06:43 17:13	07:21 15:30-16:18/48 16:43 08:16-09:02/46	07:43 15:47-16:22/35 16:49 08:10-09:19/69
30	06:03 06:46-06:55/9 20:37 18:57-20:04/67	06:36 19:12-19:30/18 19:53	07:09 18:21-18:36/15 18:59	06:44 17:11	07:22 15:31-16:17/46 16:43 08:16-09:03/47	07:43 15:47-16:23/36 16:50 08:10-09:19/69
31	06:04 06:44-06:58/14 20:36 18:57-20:05/68	06:37 19:52		06:45 17:10		07:43 15:47-16:24/37 16:50 08:11-09:19/68
Potential sun hours	463	431	376	344	295	283
Sum of minutes with flicker	1887	2038	126	56	1856	3200

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO03 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April		May	June
1	07:44	15:27-16:16/49	07:29		06:51		06:58	07:17-07:50/33	06:11	05:40
	16:51	08:07-08:22/15	17:27		18:03		19:39		20:13	20:44
2	07:44	15:28-16:17/49	07:28	07:49-07:52/3	06:50		06:57	07:16-07:50/34	06:09	05:40
	16:52	08:07-08:23/16	17:28		18:04		19:40		20:14	20:45
3	07:44	15:29-16:17/48	07:27	07:47-07:53/6	06:48		06:55	07:14-07:50/36	06:08	05:39
	16:53	08:07-08:23/16	17:30		18:05		19:41		20:15	20:45
4	07:44	15:30-16:17/47	07:26	07:46-07:54/8	06:46		06:53	07:12-07:49/37	06:07	05:39
	16:54	08:07-08:24/17	17:31		18:07		19:42		20:16	20:46
5	07:44	15:31-16:18/47	07:25	07:45-07:55/10	06:45		06:52	07:10-07:48/38	06:05	05:38
	16:55	08:07-08:25/18	17:32		18:08		19:44		20:17	20:47
6	07:44	15:32-16:18/46	07:24	07:44-07:56/12	06:43		06:50	07:09-07:49/40	06:04	05:38
	16:56	08:07-08:25/18	17:34		18:09		19:45		20:18	20:48
7	07:44	15:33-16:17/44	07:22	07:43-07:57/14	06:41		06:48	07:07-07:48/41	06:03	05:38
	16:57	08:06-08:25/19	17:35		18:10		19:46		20:19	20:48
8	07:44	15:34-16:18/44	07:21	07:41-07:57/16	06:40		06:46	07:05-07:46/41	06:02	05:37
	16:58	08:06-08:26/20	17:36		18:11		19:47		20:21	20:49
9	07:43	15:36-16:18/42	07:20	07:40-07:58/18	06:38		06:45	07:04-07:46/42	06:00	05:37
	16:59	08:06-08:26/20	17:37		18:13		19:48		20:22	20:49
10	07:43	15:38-16:19/41	07:19	07:39-07:58/19	06:36		06:43	07:02-07:45/43	05:59	05:37
	17:00	08:06-08:27/21	17:39		18:14		19:49		20:23	20:50
11	07:43	15:39-16:18/39	07:17	07:38-07:59/21	06:35		06:41	07:02-07:44/42	05:58	05:37
	17:01	08:05-08:27/22	17:40		18:15		19:50		20:24	20:51
12	07:43	15:42-16:18/36	07:16	07:36-07:58/22	06:33		06:40	07:02-07:43/41	05:57	05:37
	17:02	08:05-08:27/22	17:41		18:16		19:51		20:25	20:51
13	07:42	15:44-16:17/33	07:15	07:35-07:58/23	06:31		06:38	07:02-07:42/40	05:56	05:37
	17:03	08:04-08:27/23	17:43		18:17		19:53		20:26	20:52
14	07:42	15:47-16:18/31	07:14	07:34-07:58/24	06:30		06:36	07:03-07:41/38	05:55	05:37
	17:05	08:04-08:28/24	17:44		18:18		19:54		20:27	20:52
15	07:41	15:48-16:17/29	07:12	07:33-07:56/23	06:28		06:35	07:02-07:39/37	05:54	05:36
	17:06	08:03-08:28/25	17:45		18:20		19:55		20:28	20:53
16	07:41	08:03-08:28/25	07:11	07:35-07:56/21	06:26		06:33	07:02-07:36/34	05:53	05:36
	17:07	15:50-16:17/27	17:47		18:21		19:56		20:29	20:53
17	07:41	08:02-08:28/26	07:09	07:35-07:54/19	06:24		06:32	07:03-07:36/33	05:52	05:37
	17:08	15:51-16:16/25	17:48		18:22		19:57		20:30	20:53
18	07:40	08:02-08:28/26	07:08	07:37-07:53/16	06:23		06:30	07:04-07:34/30	05:51	05:37
	17:09	15:53-16:16/23	17:49		18:23		19:58		20:31	20:54
19	07:39	08:01-08:28/27	07:07	07:39-07:50/11	06:21	06:40-06:41/1	06:28	07:05-07:33/28	05:50	05:37
	17:10	15:54-16:14/20	17:50		18:24		19:59		20:32	20:54
20	07:39	08:00-08:27/27	07:05		06:19	06:38-06:44/6	06:27	07:06-07:31/25	05:49	05:37
	17:12	15:56-16:12/16	17:52		18:25		20:00		20:33	20:54
21	07:38	08:00-08:27/27	07:04		06:18	06:37-06:47/10	06:25	07:08-07:30/22	05:48	05:37
	17:13	16:00-16:11/11	17:53		18:27		20:02		20:34	20:55
22	07:38	07:59-08:27/28	07:02		06:16	06:35-06:47/12	06:24	07:09-07:27/18	05:47	05:37
	17:14		17:54		18:28		20:03		20:35	20:55
23	07:37	08:00-08:26/26	07:01		06:14	06:33-06:48/15	06:22	07:12-07:24/12	05:46	05:37
	17:15		17:55		18:29		20:04		20:36	20:55
24	07:36	08:01-08:25/24	06:59		06:12	06:31-06:48/17	06:21		05:45	05:38
	17:17		17:57		18:30		20:05		20:37	20:55
25	07:35	08:01-08:24/23	06:58		06:11	06:30-06:49/19	06:19		05:45	05:38
	17:18		17:58		18:31		20:06		20:38	20:55
26	07:34	08:03-08:25/22	06:56		06:09	06:28-06:49/21	06:18		05:44	05:38
	17:19		17:59		18:32		20:07		20:39	20:55
27	07:34	08:05-08:24/19	06:54		06:07	06:26-06:49/23	06:16		05:43	05:39
	17:20		18:00		18:33		20:08		20:40	20:55
28	07:33	08:06-08:22/16	06:53		06:05	06:24-06:48/24	06:15		05:43	05:39
	17:22		18:02		18:34		20:09		20:41	20:55
29	07:32	08:08-08:21/13			07:04	07:23-07:50/27	06:13		05:42	05:39
	17:23				19:36		20:11		20:41	20:55
30	07:31	08:12-08:17/5			07:02	07:21-07:50/29	06:12		05:41	05:40
	17:24				19:37		20:12		20:42	20:55
31	07:30				07:00	07:19-07:50/31			05:41	
	17:26				19:38				20:43	
Potential sun hours	293		295		369		400		452	457
Sum of minutes with flicker	1377		286		235		785		0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO03 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August		September		October		November		December	
1	05:40	06:05		06:38	07:02-07:44/42	07:10		06:46	07:09-07:28/19	07:23	15:21-16:00/39
	20:55	20:35		19:50		18:57		17:09		16:43	07:47-08:09/22
2	05:41	06:06		06:39	07:01-07:44/43	07:11		06:48	07:10-07:27/17	07:24	15:20-16:01/41
	20:55	20:34		19:48		18:56		17:07		16:42	07:48-08:09/21
3	05:41	06:08		06:40	07:02-07:44/42	07:12		06:49	07:11-07:27/16	07:25	15:19-16:01/42
	20:55	20:33		19:47		18:54		17:06		16:42	07:49-08:09/20
4	05:42	06:09		06:41	07:03-07:44/41	07:13		06:50	07:13-07:27/14	07:26	15:18-16:02/44
	20:55	20:31		19:45		18:52		17:05		16:42	07:51-08:11/20
5	05:43	06:10		06:42	07:04-07:45/41	07:15		06:51	07:14-07:26/12	07:27	15:18-16:03/45
	20:54	20:30		19:43		18:50		17:04		16:42	07:52-08:11/19
6	05:43	06:11		06:43	07:05-07:45/40	07:16		06:53	07:15-07:25/10	07:28	15:17-16:03/46
	20:54	20:29		19:41		18:49		17:02		16:42	07:53-08:11/18
7	05:44	06:12		06:45	07:06-07:44/38	07:17		06:54	07:17-07:25/8	07:29	15:17-16:04/47
	20:54	20:28		19:40		18:47		17:01		16:41	07:54-08:12/18
8	05:44	06:13		06:46	07:07-07:44/37	07:18		06:55	07:18-07:23/5	07:30	15:17-16:04/47
	20:53	20:26		19:38		18:45		17:00		16:41	07:55-08:12/17
9	05:45	06:14		06:47	07:08-07:44/36	07:19		06:56	07:19-07:22/3	07:31	15:17-16:05/48
	20:53	20:25		19:36		18:44		16:59		16:41	07:55-08:11/16
10	05:46	06:15		06:48	07:09-07:43/34	07:20		06:58		07:32	15:17-16:06/49
	20:53	20:24		19:34		18:42		16:58		16:41	07:56-08:12/16
11	05:47	06:16		06:49	07:10-07:43/33	07:21		06:59		07:33	15:17-16:06/49
	20:52	20:22		19:33		18:40		16:57		16:41	07:57-08:12/15
12	05:47	06:17		06:50	07:11-07:42/31	07:22		07:00	07:43-07:49/6	07:34	15:17-16:07/50
	20:52	20:21		19:31		18:39		16:56		16:41	07:58-08:13/15
13	05:48	06:18		06:51	07:12-07:41/29	07:24		07:01	07:40-07:53/13	07:34	15:18-16:08/50
	20:51	20:20		19:29		18:37		16:55		16:42	07:59-08:13/14
14	05:49	06:19		06:52	07:13-07:40/27	07:25		07:03	07:38-07:54/16	07:35	15:17-16:08/51
	20:51	20:18		19:27		18:35		16:54		16:42	08:00-08:14/14
15	05:50	06:20		06:53	07:14-07:39/25	07:26		07:04	07:37-07:56/19	07:36	15:18-16:08/50
	20:50	20:17		19:26		18:34		16:53		16:42	08:00-08:13/13
16	05:50	06:21		06:54	07:15-07:38/23	07:27		07:05	07:36-07:58/22	07:37	15:18-16:09/51
	20:49	20:15		19:24		18:32		16:52		16:42	08:01-08:14/13
17	05:51	06:22		06:55	07:16-07:37/21	07:28		07:06	07:35-07:58/23	07:37	15:19-16:10/51
	20:49	20:14		19:22		18:31		16:51		16:42	08:02-08:15/13
18	05:52	06:23		06:56	07:17-07:37/20	07:29		07:08	07:35-07:59/24	07:38	15:19-16:10/51
	20:48	20:12		19:20		18:29		16:50		16:43	08:02-08:15/13
19	05:53	06:24		06:57	07:18-07:36/18	07:31		07:09	07:35-08:01/26	07:39	15:19-16:11/52
	20:47	20:11		19:19		18:27		16:50		16:43	08:03-08:15/12
20	05:54	06:25	07:16-07:30/14	06:58	07:19-07:35/16	07:32		07:10	07:34-08:02/28	07:39	15:19-16:11/52
	20:46	20:09		19:17		18:26		16:49		16:44	08:03-08:15/12
21	05:55	06:26	07:13-07:32/19	06:59	07:20-07:33/13	07:33		07:11	07:35-08:02/27	07:40	15:20-16:12/52
	20:46	20:08		19:15		18:24		16:48	15:35-15:46/11	16:44	08:04-08:16/12
22	05:56	06:28	07:11-07:34/23	07:00	07:21-07:31/10	07:34	08:13-08:18/5	07:13	07:36-08:03/27	07:40	15:20-16:12/52
	20:45	20:06		19:13		18:23		16:47	15:32-15:48/16	16:44	08:04-08:16/12
23	05:57	06:29	07:09-07:35/26	07:01	07:22-07:29/7	07:35	08:09-08:22/13	07:14	07:38-08:05/27	07:41	15:21-16:13/52
	20:44	20:05		19:11		18:21		16:47	15:32-15:51/19	16:45	08:05-08:17/12
24	05:58	06:30	07:08-07:36/28	07:03	07:23-07:26/3	07:37	08:06-08:23/17	07:15	07:39-08:05/26	07:41	15:21-16:13/52
	20:43	20:03		19:10		18:20		16:46	15:30-15:53/23	16:46	08:05-08:17/12
25	05:59	06:31	07:06-07:37/31	07:04		06:38	07:04-07:24/20	07:16	07:40-08:06/26	07:42	15:23-16:14/51
	20:42	20:01		19:08		17:18		16:45	15:29-15:54/25	16:46	08:06-08:18/12
26	06:00	06:32	07:05-07:38/33	07:05		06:39	07:04-07:26/22	07:17	07:41-08:06/25	07:42	15:23-16:14/51
	20:41	20:00		19:06		17:17		16:45	15:28-15:55/27	16:47	08:06-08:19/13
27	06:00	06:33	07:04-07:39/35	07:06		06:40	07:03-07:26/23	07:18	15:28-15:57/29	07:42	15:23-16:14/51
	20:40	19:58		19:04		17:15		16:44	07:43-08:08/25	16:47	08:06-08:19/13
28	06:01	06:34	07:03-07:40/37	07:07		06:41	07:03-07:27/24	07:20	15:27-15:58/31	07:43	15:24-16:14/50
	20:39	19:57		19:03		17:14		16:44	07:44-08:08/24	16:48	08:06-08:19/13
29	06:02	06:35	07:02-07:41/39	07:08		06:43	07:05-07:28/23	07:21	15:25-15:58/33	07:43	15:25-16:16/51
	20:38	19:55		19:01		17:13		16:43	07:45-08:08/23	16:49	08:07-08:21/14
30	06:03	06:36	07:02-07:42/40	07:09		06:44	07:06-07:28/22	07:22	15:23-15:59/36	07:43	15:26-16:16/50
	20:37	19:53		18:59		17:11		16:43	07:46-08:08/22	16:50	08:07-08:21/14
31	06:04	06:37	07:02-07:43/41			06:45	07:07-07:27/20			07:43	15:26-16:16/50
	20:36	19:52				17:10				16:50	08:07-08:21/14
Potential sun hours	463	431		376		344		295		283	
Sum of minutes with flicker	0	366		670		189		783		1979	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO04 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February		March		April		May		June	
1	07:44	07:29		06:51	16:46-17:41/55	06:58	17:58-19:07/69	06:11	18:54-19:49/55	05:40	06:02-06:30/28
	16:51	17:27		18:03		19:39		20:13		20:44	19:02-20:18/76
2	07:44	07:28		06:50	16:45-17:42/57	06:57	17:59-19:07/68	06:09	18:55-19:50/55	05:40	06:02-06:30/28
	16:52	17:28		18:04		19:40		20:14		20:45	19:03-20:19/76
3	07:44	07:27		06:48	16:44-17:43/59	06:55	18:00-19:07/67	06:08	18:55-19:52/57	05:39	06:03-06:29/26
	16:53	17:30		18:05		19:41		20:15		20:45	19:03-20:19/76
4	07:44	07:26		06:46	16:44-17:45/61	06:53	18:01-19:06/65	06:07	18:54-19:52/58	05:39	06:02-06:29/27
	16:54	17:31		18:06		19:42		20:16	06:27-06:31/4	20:46	19:04-20:20/76
5	07:44	07:25		06:45	16:43-17:46/63	06:51	18:02-19:04/62	06:05	18:54-19:53/59	05:38	06:03-06:29/26
	16:55	17:32		18:08		19:43		20:17	06:25-06:32/7	20:47	19:04-20:20/76
6	07:44	07:23		06:43	16:42-17:46/64	06:50	18:05-19:04/59	06:04	18:55-19:54/59	05:38	06:03-06:29/26
	16:56	17:33		18:09		19:45		20:18	06:24-06:34/10	20:48	19:04-20:20/76
7	07:44	07:22		06:41	16:42-17:48/66	06:48	18:06-19:03/57	06:03	06:23-06:35/12	05:38	06:03-06:28/25
	16:57	17:35		18:10		19:46		20:19	18:55-19:56/61	20:48	19:05-20:20/75
8	07:43	07:21		06:40	16:41-17:49/68	06:46	18:08-19:01/53	06:01	06:22-06:36/14	05:37	06:04-06:28/24
	16:58	17:36		18:11		19:47		20:21	18:55-19:57/62	20:49	19:05-20:21/76
9	07:43	07:20		06:38	16:41-17:50/69	06:45	18:13-19:00/47	06:00	06:21-06:36/15	05:37	06:04-06:28/24
	16:59	17:37		18:12		19:48		20:22	18:56-19:58/62	20:49	19:06-20:21/75
10	07:43	07:19		06:36	16:41-17:52/71	06:43	18:24-18:58/34	05:59	06:20-06:37/17	05:37	06:05-06:28/23
	17:00	17:39		18:14		19:49		20:23	18:55-19:58/63	20:50	19:07-20:22/75
11	07:43	07:17		06:35	16:41-17:53/72	06:41	18:25-18:56/31	05:58	06:18-06:36/18	05:37	06:05-06:28/23 20:22-20:24/2
	17:01	17:40		18:15	06:54-07:01/7	19:50		20:24	18:56-19:59/63	20:51	19:06-20:21/75
12	07:43	07:16		06:33	16:41-17:53/72	06:40	18:28-18:55/27	05:57	06:17-06:37/20	05:37	06:05-06:27/22 20:22-20:25/3
	17:02	17:41		18:16	06:52-07:03/11	19:51		20:25	18:56-20:00/64	20:51	19:07-20:21/74
13	07:42	07:15		06:31	16:40-17:54/74	06:38	18:30-18:52/22	05:56	06:16-06:37/21	05:37	06:05-06:27/22
	17:03	17:43		18:17	06:50-07:05/15	19:53		20:26	18:57-20:01/64	20:52	19:07-20:25/78
14	07:42	07:13		06:30	16:41-17:55/74	06:36	19:16-19:30/14	05:55	06:15-06:37/22	05:36	06:05-06:27/22
	17:04	17:44		18:18	06:49-07:07/18	19:54	18:32-18:48/16	20:27	18:57-20:02/65	20:52	19:08-20:26/78
15	07:41	07:12		06:28	16:41-17:56/75	06:35	19:13-19:33/20	05:54	06:14-06:36/22	05:36	06:06-06:26/20
	17:06	17:45		18:20	06:47-07:07/20	19:55		20:28	18:57-20:03/66	20:52	19:08-20:26/78
16	07:41	07:11		06:26	16:41-17:59/78	06:33	19:10-19:33/23	05:53	06:13-06:36/23	05:36	06:06-06:26/20
	17:07	17:46		18:21	06:45-07:07/22	19:56		20:29	18:57-20:04/67	20:53	19:08-20:26/78
17	07:40	07:09		06:24	16:41-18:00/79	06:32	19:08-19:35/27	05:52	06:12-06:37/25	05:36	06:07-06:27/20
	17:08	17:48		18:22	06:43-07:07/24	19:57		20:30	18:57-20:05/68	20:53	19:09-20:27/78
18	07:40	07:08		06:23	16:43-18:02/79	06:30	19:06-19:35/29	05:51	06:12-06:37/25	05:37	06:07-06:27/20
	17:09	17:49		18:23	06:42-07:08/26	19:58		20:31	18:57-20:06/69	20:54	19:09-20:27/78
19	07:39	07:06	17:05-17:22/17	06:21	16:43-18:03/80	06:28	19:04-19:37/33	05:50	06:11-06:36/25	05:37	06:07-06:27/20
	17:10	17:50		18:24	06:40-07:08/28	19:59		20:32	18:58-20:08/70	20:54	19:10-20:28/78
20	07:39	07:05	17:01-17:26/25	06:19	16:44-18:04/80	06:27	19:03-19:38/35	05:49	06:10-06:36/26	05:37	06:08-06:27/19
	17:12	17:52		18:25	06:38-07:07/29	20:00		20:33	18:58-20:08/70	20:54	19:10-20:28/78
21	07:38	07:04	16:58-17:29/31	06:17	16:44-18:05/81	06:25	19:01-19:38/37	05:48	06:09-06:35/26	05:37	06:08-06:27/19
	17:13	17:53		18:26	06:38-07:07/29	20:02		20:34	18:58-20:09/71	20:54	19:10-20:28/78
22	07:37	07:02	16:56-17:31/35	06:16	16:46-18:07/81	06:24	19:00-19:40/40	05:47	06:08-06:35/27	05:37	06:08-06:27/19
	17:14	17:54		18:28	06:39-07:07/28	20:03		20:35	18:58-20:10/72	20:55	19:10-20:28/78
23	07:37	07:01	16:54-17:33/39	06:14	16:47-18:07/80	06:22	18:59-19:40/41	05:46	06:08-06:35/27	05:37	06:08-06:28/20
	17:15	17:55		18:29	06:39-07:06/27	20:04		20:36	18:58-20:10/72	20:55	19:10-20:28/78
24	07:36	06:59	16:53-17:35/42	06:12	16:48-18:08/80	06:21	18:58-19:42/44	05:45	06:07-06:34/27	05:38	06:08-06:28/20
	17:17	17:57		18:30	06:39-07:04/25	20:05		20:37	18:59-20:12/73	20:55	19:11-20:29/78
25	07:35	06:57	16:51-17:36/45	06:10	16:50-18:08/78	06:19	18:58-19:43/45	05:45	06:06-06:34/28	05:38	06:08-06:28/20
	17:18	17:58		18:31	06:39-07:03/24	20:06		20:38	18:59-20:13/74	20:55	19:11-20:29/78
26	07:34	06:56	16:49-17:36/47	06:09	16:52-18:09/77	06:18	18:57-19:44/47	05:44	06:06-06:34/28	05:38	06:09-06:29/20
	17:19	17:59		18:32	06:41-07:02/21	20:07		20:39	18:59-20:13/74	20:55	19:10-20:28/78
27	07:34	06:54	16:48-17:38/50	06:07	16:53-18:09/76	06:16	18:56-19:45/49	05:43	06:05-06:33/28	05:39	06:09-06:29/20
	17:20	18:00		18:33	06:42-07:00/18	20:08		20:40	19:00-20:15/75	20:55	19:11-20:29/78
28	07:33	06:53	16:47-17:39/52	06:05	16:53-18:09/76	06:15	18:55-19:46/51	05:42	06:04-06:32/28	05:39	06:08-06:29/21
	17:22	18:02		18:34	06:44-06:56/12	20:09		20:41	19:00-20:15/75	20:55	19:11-20:29/78
29	07:32			07:04	17:54-19:08/74	06:13	18:55-19:47/52	05:42	06:04-06:32/28	05:39	06:09-06:31/22
	17:23			19:36		20:11		20:41	19:01-20:16/75	20:55	19:11-20:29/78
30	07:31			07:02	17:56-19:09/73	06:12	18:55-19:49/54	05:41	06:03-06:31/28	05:40	06:09-06:31/22
	17:24			19:37		20:12		20:42	19:01-20:17/76	20:55	19:11-20:29/78
31	07:30			07:00	17:57-19:08/71			05:41	06:03-06:31/28		
	17:26			19:38				20:43	19:02-20:18/76		
Potential sun hours	293	295		369		400		452		457	
Sum of minutes with flicker	0	383		2627		1318		2679		2983	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO04 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November	December
1	05:40 06:09-06:32/23 20:27-20:29/2	06:05 06:28-06:47/19	06:38 18:24-18:55/31	07:10 17:20-18:33/73	06:46	07:23
	20:55 19:11-20:26/75	20:35 19:07-20:10/63	19:50	18:57 07:31-07:44/13	17:09	16:43
2	05:41 06:09-06:32/23 20:27-20:29/2	06:06 06:29-06:47/18	06:39 18:22-18:56/34	07:11 17:20-18:32/72	06:48	07:24
	20:55 19:11-20:26/75	20:34 19:06-20:09/63	19:48	18:56 07:32-07:41/9	17:07	16:42
3	05:41 06:09-06:33/24	06:07 06:30-06:46/16	06:40 18:10-18:57/47	07:12 17:19-18:30/71	06:49	07:25
	20:55 19:11-20:26/75	20:33 19:06-20:08/62	19:46	18:54	17:06	16:42
4	05:42 06:09-06:33/24	06:08 06:31-06:46/15	06:41 18:05-18:58/53	07:13 17:19-18:29/70	06:50	07:26
	20:55 19:11-20:26/75	20:31 19:05-20:07/62	19:45	18:52	17:05	16:42
5	05:42 06:09-06:34/25	06:10 06:32-06:45/13	06:42 18:02-18:59/57	07:15 17:18-18:27/69	06:51	07:27
	20:54 19:11-20:27/76	20:30 19:05-20:06/61	19:43	18:50	17:04	16:42
6	05:43 06:10-06:35/25	06:11 06:33-06:44/11	06:43 18:00-18:59/59	07:16 17:18-18:25/67	06:53	07:28
	20:54 19:10-20:26/76	20:29 19:04-20:05/61	19:41	18:49	17:02	16:41
7	05:44 06:09-06:35/26	06:12 19:04-20:04/60	06:44 17:58-18:59/61	07:17 17:17-18:23/66	06:54	07:29
	20:54 19:11-20:26/75	20:28 06:34-06:43/9	19:40	18:47	17:01	16:41
8	05:44 06:09-06:36/27	06:13 19:04-20:02/58	06:46 17:56-19:00/64	07:18 17:17-18:21/64	06:55	07:30
	20:53 19:11-20:27/76	20:26 06:35-06:42/7	19:38	18:45	17:00	16:41
9	05:45 06:09-06:35/26	06:14 19:04-20:01/57	06:47 17:54-19:00/66	07:19 17:18-18:20/62	06:56	07:31
	20:53 19:10-20:26/76	20:25 06:36-06:39/3	19:36	18:44	16:59	16:41
10	05:46 06:09-06:37/28	06:15 19:03-20:00/57	06:48 17:53-19:00/67	07:20 17:18-18:19/61	06:58	07:32
	20:53 19:10-20:27/77	20:24	19:34	18:42	16:58	16:41
11	05:47 06:10-06:38/28	06:16 19:03-19:59/56	06:49 17:51-19:01/70	07:21 17:18-18:17/59	06:59	07:33
	20:52 19:10-20:27/77	20:22	19:33	18:40	16:57	16:41
12	05:47 06:11-06:39/28	06:17 19:03-19:57/54	06:50 17:50-19:00/70	07:22 17:19-18:14/55	07:00	07:33
	20:52 19:10-20:25/75	20:21	19:31	18:39	16:56	16:41
13	05:48 06:11-06:39/28	06:18 19:03-19:56/53	06:51 17:48-19:00/72	07:24 17:19-18:13/54	07:01	07:34 15:29-15:33/4
	20:51 19:10-20:25/75	20:20	19:29	18:37	16:55	16:41
14	05:49 06:12-06:41/29	06:19 19:03-19:55/52	06:52 17:46-19:00/74	07:25 17:20-18:12/52	07:03	07:35 15:27-15:34/7
	20:50 19:10-20:25/75	20:18	19:27	18:35	16:54	16:42
15	05:50 06:13-06:41/28	06:20 19:03-19:53/50	06:53 17:44-18:59/75	07:26 17:21-18:10/49	07:04	07:36 15:27-15:36/9
	20:50 19:10-20:25/75	20:17	19:26 07:35-07:46/11	18:34	16:53	16:42
16	05:50 06:14-06:42/28	06:21 19:03-19:52/49	06:54 17:42-18:59/77	07:27 17:22-18:08/46	07:05	07:37 15:27-15:38/11
	20:49 19:10-20:24/74	20:15	19:24 07:32-07:48/16	18:32	16:52	16:42
17	05:51 06:15-06:43/28	06:22 19:03-19:50/47	06:55 17:41-18:58/77	07:28 17:23-18:07/44	07:06	07:37 15:27-15:39/12
	20:49 19:09-20:23/74	20:14	19:22 07:30-07:50/20	18:30	16:51	16:42
18	05:52 06:15-06:43/28	06:23 19:04-19:49/45	06:56 17:39-18:57/78	07:29 17:24-18:05/41	07:08	07:38 15:26-15:39/13
	20:48 19:09-20:22/73	20:12	19:20 07:28-07:51/23	18:29	16:50	16:43
19	05:53 06:16-06:43/27	06:24 19:04-19:47/43	06:57 17:36-18:56/80	07:31 17:26-18:04/38	07:09	07:39 15:27-15:40/13
	20:47 19:09-20:22/73	20:11	19:18 07:26-07:51/25	18:27	16:49	16:43
20	05:54 06:17-06:44/27	06:25 19:04-19:46/42	06:58 17:34-18:54/80	07:32 17:27-18:01/34	07:10	07:39 15:27-15:40/13
	20:46 19:09-20:21/72	20:09	19:17 07:25-07:52/27	18:26	16:49	16:43
21	05:55 06:18-06:45/27	06:26 19:05-19:44/39	06:59 17:32-18:52/80	07:33 17:29-17:58/29	07:11	07:40 15:27-15:42/15
	20:46 19:09-20:21/72	20:08	19:15 07:24-07:52/28	18:24	16:48	16:44
22	05:56 06:19-06:46/27	06:27 19:06-19:43/37	07:00 17:30-18:50/80	07:34 17:32-17:55/23	07:12	07:40 15:27-15:42/15
	20:45 19:09-20:20/71	20:06	19:13 07:23-07:52/29	18:23	16:47	16:44
23	05:57 06:20-06:46/26	06:29 19:07-19:41/34	07:01 17:28-18:49/81	07:35 17:37-17:51/14	07:14	07:41 15:29-15:42/13
	20:44 19:09-20:19/70	20:05	19:11 07:23-07:52/29	18:21	16:47	16:45
24	05:58 06:21-06:47/26	06:30 19:07-19:40/33	07:02 17:27-18:47/80	07:37	07:15	07:41 15:29-15:42/13
	20:43 19:09-20:18/69	20:03	19:10 07:23-07:51/28	18:20	16:46	16:45
25	05:58 06:22-06:47/25	06:31 19:09-19:38/29	07:04 17:26-18:45/79	06:38	07:16	07:42 15:29-15:42/13
	20:42 19:08-20:17/69	20:01	19:08 07:24-07:51/27	17:18	16:45	16:46
26	05:59 06:22-06:47/25	06:32 19:10-19:37/27	07:05 17:24-18:43/79	06:39	07:17	07:42 15:31-15:43/12
	20:41 19:08-20:16/68	20:00	19:06 07:25-07:50/25	17:17	16:45	16:47
27	06:00 06:23-06:47/24	06:33 19:12-19:35/23	07:06 17:23-18:41/78	06:40	07:18	07:42 15:31-15:43/12
	20:40 19:08-20:15/67	19:58	19:04 07:26-07:49/23	17:15	16:44	16:47
28	06:01 06:24-06:47/23	06:34 19:14-19:33/19	07:07 17:22-18:38/76	06:41	07:19	07:43 15:32-15:42/10
	20:39 19:08-20:14/66	19:57	19:03 07:27-07:48/21	17:14	16:44	16:48
29	06:02 06:25-06:47/22	06:35 19:18-19:30/12	07:08 17:21-18:35/74	06:43	07:21	07:43 15:33-15:42/9
	20:38 19:08-20:13/65	19:55 18:33-18:49/16	19:01 07:28-07:47/19	17:13	16:43	16:49
30	06:03 06:26-06:47/21	06:36 18:29-18:52/23	07:09 17:20-18:34/74	06:44	07:22	07:43 15:36-15:42/6
	20:37 19:08-20:12/64	19:53	18:59 07:30-07:46/16	17:11	16:43	16:50
31	06:04 06:27-06:47/20	06:37 18:27-18:54/27		06:45		07:43
	20:36 19:07-20:11/64	19:52		17:10		16:50
Potential sun hours	463	431	376	344	295	283
Sum of minutes with flicker	3044	1525	2440	1235	0	200

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO05 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February		March		April		May		June	
1	07:44	08:08-08:36/28	07:29	08:01-09:05/64	06:51	07:11-07:28/17	06:59	18:44-19:17/33	06:11	19:11-19:49/38	05:40	19:33-20:12/39
	16:52		17:27		18:03		19:39		20:13		20:44	
2	07:44	08:08-08:37/29	07:28	08:01-09:05/64	06:50	07:09-07:27/18	06:57	18:48-19:19/31	06:09	19:12-19:50/38	05:40	19:34-20:12/38
	16:52		17:28		18:04		19:40		20:14		20:45	
3	07:44	08:08-08:39/31	07:27	08:00-09:04/64	06:48	07:08-07:26/18	06:55	18:51-19:20/29	06:08	19:13-19:52/39	05:39	19:35-20:13/38
	16:53		17:30		18:05		19:41		20:15		20:46	
4	07:44	08:08-08:40/32	07:26	08:00-09:05/65	06:47	07:06-07:24/18	06:53	18:53-19:20/27	06:07	19:13-19:53/40	05:39	19:35-20:12/37
	16:54		17:31		18:07		19:43		20:16		20:46	
5	07:44	08:07-08:41/34	07:25	08:00-09:05/65	06:45	07:04-07:23/19	06:52	18:57-19:21/24	06:05	19:13-19:53/40	05:39	19:35-20:12/37
	16:55		17:32		18:08		19:44		20:17		20:47	
6	07:44	08:07-08:43/36	07:24	08:01-09:05/64	06:43	07:03-07:23/20	06:50	18:58-19:21/23	06:04	19:14-19:54/40	05:38	19:36-20:13/37
	16:56		17:34		18:09		19:45		20:18		20:48	
7	07:44	08:06-08:43/37	07:22	08:01-09:05/64	06:42	07:01-07:22/21	06:48	18:58-19:20/22	06:03	19:15-19:56/41	05:38	19:36-20:12/36
	16:57		17:35		18:10		19:46		20:20		20:48	
8	07:44	08:06-08:44/38	07:21	08:02-09:05/63	06:40	07:02-07:20/18	06:47	18:59-19:18/19	06:02	19:16-19:57/41	05:38	19:36-20:12/36
	16:58		17:36		18:11		19:47		20:21		20:49	
9	07:43	08:06-08:46/40	07:20	08:01-09:05/64	06:38	07:03-07:18/15	06:45	19:01-19:16/15	06:00	19:18-19:58/40	05:37	19:37-20:12/35
	16:59		17:38		18:13		19:48		20:22		20:50	
10	07:43	08:06-08:47/41	07:19	08:02-09:05/63	06:37	07:06-07:15/9	06:43	19:03-19:13/10	05:59	19:19-19:59/40	05:37	19:37-20:12/35
	17:00		17:39		18:14		19:49		20:23		20:50	
11	07:43	08:05-08:48/43	07:18	08:03-09:04/61	06:35		06:42		05:58	19:22-20:00/38	05:37	19:38-20:13/35
	17:01		17:40		18:15		19:50		20:24		20:51	
12	07:43	08:05-08:49/44	07:16	08:02-09:03/61	06:33		06:40		05:57	19:22-20:00/38	05:37	19:38-20:13/35
	17:02		17:42		18:16		19:52		20:25		20:51	
13	07:42	08:04-08:50/46	07:15	08:03-09:03/60	06:31	17:50-17:55/5	06:38		05:56	19:23-20:01/38	05:37	19:38-20:12/34
	17:04		17:43		18:17		19:53		20:26		20:52	
14	07:42	08:04-08:51/47	07:14	08:04-09:03/59	06:30	17:48-17:57/9	06:37	19:29-19:32/3	05:55	19:23-20:02/39	05:37	19:38-20:12/34
	17:05		17:44		18:19		19:54		20:27		20:52	
15	07:42	08:04-08:53/49	07:12	08:04-09:02/58	06:28	17:46-17:58/12	06:35	19:25-19:33/8	05:54	19:24-20:03/39	05:37	19:39-20:12/33
	17:06		17:45		18:20		19:55		20:28		20:53	
16	07:41	08:03-08:53/50	07:11	08:05-09:01/56	06:26	17:44-17:59/15	06:33	19:21-19:33/12	05:53	19:25-20:04/39	05:37	19:40-20:13/33
	17:07		17:47		18:21		19:56		20:29		20:53	
17	07:41	08:02-08:54/52	07:09	08:05-09:00/55	06:25	17:43-18:01/18	06:32	19:20-19:35/15	05:52	19:27-20:06/39	05:37	19:40-20:13/33
	17:08		17:48		18:22		19:57		20:30		20:53	
18	07:40	08:03-08:56/53	07:08	08:07-08:59/52	06:23	17:42-18:02/20	06:30	19:18-19:35/17	05:51	19:28-20:07/39	05:37	19:40-20:13/33
	17:09		17:49		18:23		19:58		20:31		20:54	
19	07:40	08:02-08:56/54	07:07	08:07-08:57/50	06:21	17:40-18:03/23	06:29	19:17-19:37/20	05:50	19:29-20:08/39	05:37	19:41-20:13/32
	17:11		17:51		18:24		19:59		20:32		20:54	
20	07:39	08:02-08:57/55	07:05	08:09-08:56/47	06:19	17:39-18:04/25	06:27	19:15-19:38/23	05:49	19:31-20:08/37	05:37	19:41-20:13/32
	17:12		17:52		18:25		20:01		20:33		20:54	
21	07:38	08:02-08:58/56	07:04	08:10-08:54/44	06:18	17:39-18:06/27	06:25	19:15-19:39/24	05:48	19:31-20:09/38	05:37	19:41-20:13/32
	17:13		17:53		18:27		20:02		20:34		20:55	
22	07:38	08:01-08:59/58	07:02	08:11-08:53/42	06:16	17:39-18:07/28	06:24	19:14-19:40/26	05:47	19:31-20:10/39	05:37	19:41-20:13/32
	17:14		17:54	07:22-07:25/3	18:28		20:03		20:35		20:55	
23	07:37	08:01-08:59/58	07:01	08:13-08:50/37	06:14	17:38-18:07/29	06:22	19:13-19:41/28	05:46	19:32-20:11/39	05:38	19:42-20:14/32
	17:16		17:56	07:20-07:26/6	18:29		20:04		20:36		20:55	
24	07:36	08:01-09:00/59	06:59	08:15-08:48/33	06:12	17:38-18:08/30	06:21	19:12-19:42/30	05:46	19:32-20:12/40	05:38	19:41-20:14/33
	17:17		17:57	07:19-07:28/9	18:30		20:05		20:37		20:55	
25	07:35	08:01-09:02/61	06:58	07:17-07:28/11	06:11	17:38-18:10/32	06:19	19:12-19:43/31	05:45	19:32-20:12/40	05:38	19:41-20:14/33
	17:18		17:58	08:17-08:45/28	18:31		20:06		20:38		20:55	
26	07:35	08:01-09:02/61	06:56	07:16-07:28/12	06:09	17:38-18:11/33	06:18	19:11-19:44/33	05:44	19:32-20:13/41	05:38	19:42-20:15/33
	17:19		17:59	08:21-08:42/21	18:32		20:07		20:39		20:55	
27	07:34	08:01-09:03/62	06:55	07:14-07:28/14	06:07	17:38-18:12/34	06:16	19:12-19:45/33	05:43	19:32-20:13/41	05:39	19:42-20:15/33
	17:21		18:01	08:26-08:36/10	18:33		20:08		20:40		20:55	
28	07:33	08:01-09:03/62	06:53	07:12-07:27/15	06:05	17:39-18:13/34	06:15	19:12-19:47/35	05:43	19:32-20:12/40	05:39	19:41-20:15/34
	17:22		18:02		18:35		20:10		20:41		20:55	
29	07:32	08:01-09:04/63			07:04	18:40-19:15/35	06:14	19:11-19:47/36	05:42	19:33-20:13/40	05:40	19:42-20:16/34
	17:23				19:36		20:11		20:42		20:55	
30	07:31	08:01-09:04/63			07:02	18:41-19:15/34	06:12	19:12-19:49/37	05:41	19:33-20:12/39	05:40	19:42-20:16/34
	17:25				19:37		20:12		20:42		20:55	
31	07:30	08:01-09:04/63			07:00	18:42-19:16/34			05:41	19:34-20:13/39		
	17:26				19:38				20:43			
Potential sun hours	293		295		369		400		452		457	
Sum of minutes with flicker		1505		1484		650		644		1218		1032

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Licensed user:
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Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO05 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November	December
1	05:41 19:42-20:17/35 20:55	06:06 19:32-20:10/38 20:35	06:38 19:50	07:10 18:33-18:35/2 18:57	06:46 07:32-08:34/62 17:09	07:23 07:47-08:30/43 16:43
2	05:41 19:42-20:16/34 20:55	06:07 19:30-20:09/39 20:34	06:39 19:02-19:12/10 19:48	07:11 18:56	06:48 07:31-08:34/63 17:08	07:24 07:48-08:29/41 16:43
3	05:42 19:42-20:17/35 20:55	06:08 19:28-20:08/40 20:33	06:40 18:59-19:14/15 19:47	07:12 07:46-07:51/5 18:54	06:49 07:30-08:34/64 17:06	07:25 07:49-08:29/40 16:42
4	05:42 19:42-20:17/35 20:55	06:09 19:27-20:07/40 20:32	06:41 18:57-19:16/19 19:45	07:14 07:42-07:54/12 18:52	06:50 07:31-08:35/64 17:05	07:26 07:51-08:29/38 16:42
5	05:43 19:42-20:18/36 20:54	06:10 19:26-20:06/40 20:30	06:43 18:55-19:17/22 19:43	07:15 07:39-07:56/17 18:51	06:51 07:31-08:35/64 17:04	07:27 07:52-08:29/37 16:42
6	05:43 19:42-20:19/37 20:54	06:11 19:25-20:05/40 20:29	06:44 18:54-19:17/23 19:41	07:16 07:38-07:57/19 18:49	06:53 07:30-08:35/65 17:03	07:28 07:53-08:29/36 16:42
7	05:44 19:42-20:19/37 20:54	06:12 19:23-20:04/41 20:28	06:45 18:53-19:17/24 19:40	07:17 07:38-07:58/20 18:47	06:54 07:31-08:36/65 17:01	07:29 07:54-08:28/34 16:42
8	05:45 19:42-20:19/37 20:53	06:13 19:23-20:02/39 20:26	06:46 18:48-19:16/28 19:38	07:18 07:39-07:59/20 18:45	06:55 07:31-08:35/64 17:00	07:30 07:55-08:28/33 16:41
9	05:45 19:42-20:20/38 20:53	06:14 19:22-20:01/39 20:25	06:47 18:46-19:14/28 19:36	07:19 07:40-07:59/19 18:44	06:56 07:31-08:35/64 16:59	07:31 07:56-08:27/31 16:41
10	05:46 19:41-20:20/39 20:53	06:15 19:21-20:00/39 20:24	06:48 18:41-19:12/31 19:35	07:20 07:41-07:59/18 18:42	06:58 07:32-08:36/64 16:58	07:32 07:57-08:26/29 16:41
11	05:47 19:42-20:20/38 20:52	06:16 19:20-19:59/39 20:22	06:49 18:37-19:10/33 19:33	07:21 07:42-08:00/18 18:40	06:59 07:31-08:35/64 16:57	07:33 07:58-08:26/28 16:41
12	05:47 19:42-20:21/39 20:52	06:17 19:20-19:57/37 20:21	06:50 18:34-19:09/35 19:31	07:23 07:43-08:00/17 18:39	07:00 07:31-08:35/64 16:56	07:34 08:00-08:26/26 16:42
13	05:48 19:41-20:20/39 20:51	06:18 19:19-19:56/37 20:20	06:51 18:32-19:07/35 19:29	07:24 07:45-08:01/16 18:37	07:02 07:33-08:35/62 16:55	07:34 08:01-08:26/25 16:42
14	05:49 19:41-20:21/40 20:51	06:19 19:19-19:55/36 20:18	06:52 18:31-19:05/34 19:27	07:25 07:46-08:01/15 18:35	07:03 07:33-08:35/62 16:54	07:35 08:02-08:26/24 16:42
15	05:50 19:41-20:21/40 20:50	06:20 19:19-19:53/34 20:17	06:53 18:29-19:03/34 19:26	07:26 07:47-08:00/13 18:34 08:56-09:11/15	07:04 07:33-08:35/62 16:53	07:36 08:03-08:25/22 16:42
16	05:51 19:42-20:22/40 20:49	06:21 19:18-19:52/34 20:15	06:54 18:28-19:01/33 19:24	07:27 07:48-08:00/12 18:32 08:51-09:15/24	07:05 07:34-08:35/61 16:52	07:37 08:04-08:25/21 16:42
17	05:51 19:42-20:22/40 20:49	06:22 19:18-19:50/32 20:14	06:55 18:27-19:00/33 19:22	07:28 07:49-07:59/10 18:31 08:48-09:18/30	07:06 07:34-08:35/61 16:51	07:37 08:05-08:25/20 16:43
18	05:52 19:41-20:22/41 20:48	06:23 19:18-19:49/31 20:12	06:56 18:26-18:58/32 19:20	07:30 08:46-09:21/35 18:29 07:51-07:59/8	07:08 07:35-08:34/59 16:50	07:38 08:06-08:25/19 16:43
19	05:53 19:41-20:22/41 20:47	06:24 19:18-19:47/29 20:11	06:57 18:25-18:56/31 19:19	07:31 08:44-09:23/39 18:28 07:52-07:57/5	07:09 07:36-08:34/58 16:50	07:39 08:07-08:25/18 16:43
20	05:54 19:41-20:21/40 20:47	06:26 19:18-19:46/28 20:09	06:58 18:25-18:54/29 19:17	07:32 08:42-09:24/42 18:26 07:53-07:55/2	07:10 07:37-08:34/57 16:49	07:39 08:07-08:25/18 16:44
21	05:55 19:42-20:21/39 20:46	06:27 19:18-19:44/26 20:08	06:59 18:24-18:52/28 19:15	07:33 08:40-09:25/45 18:24	07:11 07:37-08:33/56 16:48	07:40 08:08-08:26/18 16:44
22	05:56 19:42-20:20/38 20:45	06:28 19:19-19:43/24 20:06	07:01 18:24-18:50/26 19:13	07:34 08:39-09:27/48 18:23	07:13 07:39-08:34/55 16:47	07:40 08:08-08:26/18 16:45
23	05:57 19:42-20:19/37 20:44	06:29 19:19-19:41/22 20:05	07:02 18:24-18:49/25 19:12	07:35 08:37-09:28/51 18:21	07:14 07:39-08:33/54 16:47	07:41 08:09-08:27/18 16:45
24	05:58 19:41-20:19/38 20:43	06:30 19:20-19:40/20 20:03	07:03 18:24-18:47/23 19:10	07:37 08:36-09:29/53 18:20	07:15 07:40-08:33/53 16:46	07:41 08:09-08:27/18 16:46
25	05:59 19:39-20:18/39 20:42	06:31 19:21-19:38/17 20:02	07:04 18:24-18:45/21 19:08	06:38 07:35-08:29/54 17:18	07:16 07:40-08:32/52 16:46	07:42 08:10-08:29/19 16:46
26	06:00 19:38-20:17/39 20:41	06:32 19:22-19:37/15 20:00	07:05 18:24-18:43/19 19:06	06:39 07:35-08:31/56 17:17	07:17 07:41-08:32/51 16:45	07:42 08:10-08:29/19 16:47
27	06:01 19:36-20:15/39 20:40	06:33 19:24-19:35/11 19:58	07:06 18:25-18:41/16 19:04	06:40 07:34-08:31/57 17:16	07:18 07:43-08:32/49 16:45	07:42 08:09-08:30/21 16:48
28	06:02 19:35-20:14/39 20:39	06:34 19:26-19:33/7 19:57	07:07 18:26-18:39/13 19:03	06:42 07:33-08:32/59 17:14	07:20 07:44-08:31/47 16:44	07:43 08:09-08:31/22 16:48
29	06:03 19:34-20:13/39 20:38	06:35 19:30-19:32/2 19:55	07:08 18:28-18:38/10 19:01	06:43 07:33-08:33/60 17:13	07:21 07:45-08:31/46 16:44	07:43 08:10-08:33/23 16:49
30	06:04 19:34-20:12/38 20:37	06:36 19:53	07:09 18:30-18:37/7 18:59	06:44 07:32-08:33/61 17:11	07:22 07:46-08:30/44 16:43	07:43 08:09-08:34/25 16:50
31	06:05 19:33-20:11/38 20:36	06:37 19:52		06:45 07:31-08:33/62 17:10		07:43 08:09-08:35/26 16:51
Potential sun hours	463	431	376	344	295	283
Sum of minutes with flicker	1184	876	717	1039	1756	810

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO06 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June
1	07:44 08:07-09:03/56 16:52	07:29 07:50-08:52/62 17:27 16:11-16:58/47	06:51 07:14-07:45/31 18:03	06:59 07:29-07:42/13 19:39 18:11-19:10/59	06:11 06:31-07:02/31 20:13 18:12-19:34/82	05:40 06:03-07:26/83 20:44 18:32-19:25/53
2	07:44 08:07-09:04/57 16:52	07:28 07:49-08:51/62 17:28 16:12-16:58/46	06:50 07:15-07:41/26 18:04	06:57 07:32-07:38/6 19:40 18:11-19:13/62	06:09 06:29-07:01/32 20:14 18:12-19:34/82	05:40 06:02-07:26/84 20:45 18:33-19:25/52
3	07:44 08:07-09:04/57 16:53	07:27 07:48-08:50/62 17:30 16:12-16:58/46	06:48 07:17-07:37/20 18:06	06:55 18:10-19:14/64 19:41	06:08 06:28-07:00/32 20:15 18:14-19:34/80	05:39 06:02-07:27/85 20:46 18:34-19:25/51
4	07:44 08:07-09:04/57 16:54	07:26 07:47-08:47/60 17:31 16:11-16:58/47	06:47 07:18-07:35/17 18:07	06:53 18:08-19:15/67 19:43	06:07 06:27-07:03/36 20:16 18:16-19:34/78	05:39 06:02-07:27/85 20:46 18:34-19:24/50
5	07:44 08:07-09:05/58 16:55	07:25 07:45-08:45/60 17:32 16:12-16:58/46	06:45 07:20-07:32/12 18:08	06:52 18:08-19:17/69 19:44	06:06 06:26-07:06/40 20:17 18:17-19:33/76	05:39 06:02-07:27/85 20:47 18:35-19:24/49
6	07:44 08:07-09:05/58 16:56 16:22-16:30/8	07:24 08:20-08:43/23 16:13-16:58/45 17:34 07:46-08:19/33	06:43 07:03-07:04/1 18:09	06:50 18:07-19:18/71 19:45	06:04 06:24-07:08/44 20:19 18:19-19:33/74	05:38 06:03-07:28/85 20:48 18:36-19:24/48
7	07:44 08:07-09:05/58 16:57 16:20-16:31/11	07:23 07:47-08:18/31 08:23-08:40/17 17:35 16:13-16:58/45	06:42 07:01-07:07/6 18:10	06:48 18:06-19:19/73 19:46	06:03 06:23-07:10/47 20:20 18:20-19:33/73	05:38 06:03-07:27/84 20:48 18:36-19:23/47
8	07:44 08:06-09:05/59 16:58 16:18-16:31/13	07:21 07:48-08:17/29 08:27-08:36/9 17:36 16:14-16:57/43	06:40 06:59-07:08/9 18:12	06:47 18:06-19:20/74 19:47	06:02 06:22-07:11/49 20:21 18:20-19:33/73	05:38 06:03-07:28/85 20:49 18:37-19:23/46
9	07:44 08:06-09:05/59 16:59 16:18-16:33/15	07:20 07:48-08:15/27 17:38 16:14-16:56/42	06:38 06:58-07:10/12 18:13	06:45 18:05-19:21/76 19:48	06:01 06:21-07:13/52 20:22 18:20-19:33/73	05:37 06:04-07:28/84 20:50 18:38-19:23/45
10	07:43 08:06-09:06/60 17:00 16:17-16:34/17	07:19 07:49-08:14/25 16:15-16:56/41 17:39 07:39-07:45/6	06:37 06:56-07:11/15 18:14	06:43 18:04-19:22/78 19:49	05:59 06:20-07:14/54 20:23 18:21-19:33/72	05:37 06:04-07:28/84 20:50 18:38-19:23/45
11	07:43 08:05-09:05/60 17:01 16:16-16:35/19	07:18 07:51-08:12/21 16:17-16:55/38 17:40 07:38-07:47/9	06:35 06:54-07:11/17 18:15	06:42 18:05-19:24/79 19:51	05:58 06:19-07:16/57 20:24 18:21-19:33/72	05:37 06:04-07:29/85 20:51 18:39-19:23/44
12	07:43 08:05-09:05/60 17:02 16:15-16:36/21	07:16 07:52-08:08/16 16:17-16:54/37 17:42 07:36-07:48/12	06:33 06:52-07:11/19 18:16	06:40 18:04-19:24/80 19:52	05:57 06:18-07:17/59 20:25 18:21-19:33/72	05:37 06:04-07:29/85 20:51 18:40-19:23/43
13	07:42 08:05-09:06/61 17:04 16:15-16:38/23	07:15 07:55-08:06/11 16:19-16:53/34 17:43 07:35-07:50/15	06:32 06:51-07:11/20 18:17	06:38 18:03-19:25/82 19:53	05:56 06:17-07:18/61 20:26 18:21-19:32/71	05:37 06:04-07:29/85 20:52 18:40-19:23/43
14	07:42 08:04-09:05/61 17:05 16:14-16:38/24	07:14 07:34-07:52/18 17:44 16:20-16:52/32	06:30 06:49-07:11/22 18:19	06:37 18:04-19:26/82 19:54	05:55 06:16-07:19/63 20:27 18:21-19:31/70	05:37 06:04-07:30/86 20:52 18:41-19:23/42
15	07:42 08:04-09:05/61 17:06 16:14-16:40/26	07:12 07:32-07:52/20 17:45 16:21-16:50/29	06:28 06:47-07:10/23 18:20	06:35 18:03-19:27/84 19:55	05:54 06:15-07:19/64 20:28 18:22-19:32/70	05:37 06:04-07:30/86 20:53 18:41-19:23/42
16	07:41 08:03-09:04/61 17:07 16:13-16:41/28	07:11 07:31-07:53/22 17:47 16:24-16:48/24	06:26 06:45-07:10/25 18:21	06:33 06:53-07:00/7 19:56 18:03-19:28/85	05:53 06:14-07:20/66 20:29 18:23-19:32/69	05:37 06:03-07:30/87 20:53 18:42-19:23/41
17	07:41 08:03-09:04/61 17:08 16:12-16:42/30	07:10 07:29-07:53/24 17:48 16:26-16:45/19	06:25 06:44-07:09/25 18:22	06:32 06:51-07:02/11 19:57 18:04-19:29/85	05:52 06:13-07:21/68 20:30 18:23-19:31/68	05:37 06:03-07:30/87 20:54 18:42-19:23/41
18	07:40 08:02-09:03/61 17:09 16:13-16:44/31	07:08 07:28-07:54/26 17:49 16:30-16:42/12	06:23 06:42-07:08/26 18:23	06:30 06:49-07:03/14 19:58 18:03-19:29/86	05:51 06:12-07:21/69 20:31 18:23-19:31/68	05:37 06:03-07:30/87 20:54 18:42-19:23/41
19	07:40 08:01-09:02/61 17:11 16:12-16:45/33	07:07 07:27-07:54/27 17:51	06:21 06:40-07:07/27 18:24	06:29 06:48-07:04/16 20:00 18:04-19:31/87	05:50 06:11-07:21/70 20:32 18:24-19:30/66	05:37 06:03-07:30/87 20:54 18:43-19:23/40
20	07:39 08:01-09:02/61 17:12 16:12-16:47/35	07:05 07:25-07:54/29 17:52	06:19 06:39-07:06/27 18:26	06:27 06:46-07:04/18 20:01 18:04-19:31/87	05:49 06:10-07:22/72 20:33 18:24-19:30/66	05:37 06:03-07:30/87 20:55 18:43-19:23/40
21	07:38 08:00-09:01/61 17:13 16:12-16:48/36	07:04 07:24-07:54/30 17:53	06:18 06:37-07:03/26 18:27	06:26 06:45-07:05/20 20:02 18:05-19:32/87	05:48 06:09-07:22/73 20:34 18:25-19:29/64	05:37 06:03-07:30/87 20:55 18:43-19:22/39
22	07:38 07:59-09:00/61 17:14 16:11-16:49/38	07:02 07:22-07:53/31 17:54	06:16 06:35-07:01/26 18:28 17:39-17:50/11	06:24 06:43-07:05/22 20:03 18:04-19:32/88	05:47 06:09-07:23/74 20:35 18:25-19:29/64	05:37 06:04-07:31/87 20:55 18:43-19:22/39
23	07:37 07:58-08:58/60 17:16 16:11-16:50/39	07:01 07:20-07:53/33 17:56	06:14 06:33-06:59/26 18:29 17:32-17:56/24	06:22 06:42-07:06/24 20:04 18:05-19:33/88	05:46 06:08-07:24/76 20:36 18:26-19:29/63	05:38 06:04-07:31/87 20:55 18:44-19:24/40
24	07:36 07:58-08:58/60 17:17 16:11-16:51/40	06:59 07:19-07:52/33 17:57	06:12 06:31-06:55/24 18:30 17:28-17:59/31	06:21 06:40-07:05/25 20:05 18:05-19:33/88	05:46 06:07-07:24/77 20:37 18:27-19:29/62	05:38 06:04-07:31/87 20:55 18:44-19:24/40
25	07:36 07:57-08:56/59 17:18 16:11-16:53/42	06:58 07:17-07:51/34 17:58	06:11 06:30-06:54/24 18:31 17:26-18:02/36	06:19 06:39-07:06/27 20:06 18:06-19:33/87	05:45 06:06-07:24/78 20:38 18:27-19:28/61	05:38 06:04-07:31/87 20:55 18:43-19:24/41
26	07:35 07:56-08:55/59 17:19 16:11-16:55/44	06:56 07:16-07:51/35 17:59	06:09 06:28-06:53/25 18:32 17:23-18:04/41	06:18 06:38-07:06/28 20:07 18:07-19:33/86	05:44 06:06-07:25/79 20:39 18:28-19:28/60	05:38 06:05-07:32/87 20:55 18:44-19:25/41
27	07:34 07:55-08:55/60 17:21 16:11-16:56/45	06:55 07:14-07:49/35 18:01	06:07 06:26-06:51/25 18:34 17:20-18:05/45	06:16 06:36-07:05/29 20:09 18:08-19:34/86	05:43 06:05-07:25/80 20:40 18:29-19:27/58	05:39 06:06-07:32/86 20:56 18:44-19:25/41
28	07:33 07:54-08:54/60 17:22 16:11-16:57/46	06:53 07:14-07:48/34 18:02	06:06 06:24-06:48/24 18:35 17:18-18:06/48	06:15 06:35-07:05/30 20:10 18:09-19:34/85	05:43 06:05-07:26/81 20:41 18:29-19:27/58	05:39 06:07-07:33/86 20:56 18:43-19:25/42
29	07:32 07:53-08:54/61 17:23 16:11-16:57/46		07:04 07:25-07:48/23 19:36 18:17-19:08/51	06:14 06:33-07:03/30 20:11 18:09-19:34/85	05:42 06:04-07:25/81 20:42 18:30-19:27/57	05:40 06:07-07:32/85 20:56 18:44-19:26/42
30	07:31 07:52-08:53/61 17:25 16:11-16:57/46		07:02 07:26-07:46/20 19:37 18:15-19:09/54	06:12 06:32-07:03/31 20:12 18:11-19:34/83	05:41 06:04-07:25/81 20:42 18:30-19:26/56	05:40 06:07-07:32/85 20:55 18:43-19:26/43
31	07:30 07:51-08:53/62 17:26 16:11-16:58/47		07:00 07:27-07:44/17 19:38 18:13-19:10/57		05:41 06:03-07:26/83 20:43 18:31-19:26/55	
Potential sun hours	293	295	369	400	452	457
Sum of minutes with flicker	2654	1694	1038	2744	4042	3881

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm) Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

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Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO06 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VIGNA DI VALLE]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3.98	4.87	5.46	6.60	8.30	9.30	10.54	9.73	7.82	6.08	4.48	3.95

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November	December
1	05:41 06:08-07:33/85	06:06 06:28-07:26/58	06:38 18:04-19:23/79	07:10 07:31-07:50/19	06:47 07:19-07:44/25 15:45-16:26/41	07:23 07:47-08:47/60
	20:55 18:43-19:27/44	20:35 18:31-19:43/72	19:50	18:58	17:09 07:09-07:14/5	16:43 15:58-16:17/19
2	05:41 06:08-07:33/85	06:07 06:29-07:25/56	06:39 18:03-19:21/78	07:11 07:32-07:50/18	06:48 07:18-07:45/27	07:24 07:49-08:49/60
	20:55 18:43-19:27/44	20:34 18:30-19:43/73	19:48	18:56	17:08 15:44-16:26/42	16:43 16:00-16:17/17
3	05:42 06:09-07:33/84	06:08 06:30-07:23/53	06:40 18:03-19:19/76	07:13 07:33-07:49/16	06:49 07:16-07:46/30 07:55-08:05/10	07:25 07:50-08:49/59
	20:55 18:43-19:28/45	20:33 18:30-19:43/73	19:47	18:54	17:06 15:43-16:26/43	16:42 16:02-16:17/15
4	05:42 06:09-07:33/84	06:09 06:31-07:22/51	06:42 18:03-19:17/74	07:14 07:34-07:47/13	06:50 07:16-07:48/32 07:52-08:10/18	07:26 07:51-08:50/59
	20:55 18:42-19:28/46	20:32 18:30-19:43/73	19:45	18:52	17:05 15:43-16:27/44	16:42 16:03-16:16/13
5	05:43 06:09-07:33/84	06:10 06:32-07:20/48	06:43 18:03-19:16/73	07:15 07:35-07:46/11	06:52 07:50-08:13/23 15:42-16:28/46	07:27 07:52-08:51/59
	20:55 18:42-19:29/47	20:30 18:29-19:43/74	19:43	18:51	17:04 07:16-07:49/33	16:42 16:05-16:16/11
6	05:43 06:09-07:34/85	06:11 06:33-07:19/46	06:44 18:03-19:14/71	07:16 07:37-07:44/7	06:53 07:16-08:15/59	07:28 07:53-08:51/58
	20:54 18:42-19:30/48	20:29 18:29-19:43/74	19:42	18:49	17:03 15:42-16:28/46	16:42 16:08-16:16/8
7	05:44 06:09-07:33/84	06:12 06:34-07:17/43	06:45 18:03-19:13/70	07:17 07:38-07:41/3	06:54 07:17-08:18/61	07:29 07:54-08:52/58
	20:54 18:41-19:30/49	20:28 18:28-19:43/75	19:40	18:47	17:01 15:42-16:28/46	16:42 16:12-16:14/2
8	05:45 06:09-07:34/85	06:13 06:35-07:14/39	06:46 18:03-19:11/68	07:18 07:58-08:06/8	06:55 07:18-08:20/62	07:30 07:55-08:52/57
	20:54 18:41-19:31/50	20:27 18:26-19:43/77	19:38	18:46	17:00 15:42-16:28/46	16:42
9	05:45 06:09-07:34/85	06:14 06:36-07:11/35	06:47 18:04-19:09/65	07:19 07:54-08:09/15	06:57 07:20-08:22/62	07:31 07:56-08:53/57
	20:53 18:41-19:32/51	20:25 18:24-19:43/79	19:36	18:44	16:59 15:41-16:28/47	16:41
10	05:46 06:09-07:34/85	06:15 06:37-07:09/32	06:48 07:25-07:31/6	07:20 07:51-08:10/19	06:58 07:21-08:23/62	07:32 07:57-08:54/57
	20:53 18:40-19:32/52	20:24 18:22-19:43/81	19:35 18:04-19:06/62	18:42	16:58 15:42-16:29/47	16:41
11	05:47 06:10-07:34/84	06:16 06:38-07:10/32	06:49 07:21-07:34/13	07:22 07:49-08:11/22	06:59 07:22-08:24/62	07:33 07:57-08:53/56
	20:52 18:40-19:33/53	20:23 18:21-19:42/81	19:33 18:04-19:04/60	18:40	16:57 15:42-16:29/47	16:42
12	05:47 06:11-07:34/83	06:17 06:39-07:10/31	06:50 07:19-07:36/17	07:23 07:49-08:17/28	07:00 07:24-08:25/61	07:34 07:58-08:54/56
	20:52 18:40-19:34/54	20:21 18:19-19:42/83	19:31 18:05-19:02/57	18:39	16:56 15:42-16:28/46	16:42
13	05:48 06:12-07:35/83	06:18 06:40-07:11/31	06:51 07:17-07:37/20	07:24 07:48-08:20/32	07:02 07:25-08:26/61	07:35 07:59-08:55/56
	20:51 18:39-19:34/55	20:20 18:18-19:42/84	19:29 18:06-19:00/54	18:37	16:55 15:43-16:29/46	16:42
14	05:49 06:12-07:34/82	06:19 06:41-07:11/30	06:52 07:16-07:38/22	07:25 07:47-08:21/34	07:03 07:26-08:26/60	07:35 08:00-08:56/56
	20:51 18:39-19:35/56	20:18 18:17-19:41/84	19:28 18:07-18:59/52	18:36	16:54 15:43-16:29/46	16:42
15	05:50 06:13-07:34/81	06:20 06:42-07:11/29	06:53 07:15-07:38/23	07:26 07:47-08:22/35	07:04 07:28-08:28/60	07:36 08:01-08:56/55
	20:50 18:38-19:36/58	20:17 18:15-19:41/86	19:26 18:08-18:57/49	18:34	16:53 15:43-16:28/45	16:42
16	05:51 06:14-07:34/80	06:21 06:43-07:12/29	06:54 07:15-07:40/25	07:27 07:48-08:23/35	07:05 07:29-08:28/59	07:37 08:01-08:56/55
	20:50 18:38-19:36/58	20:16 18:14-19:40/86	19:24 18:09-18:55/46	18:32	16:52 15:44-16:28/44	16:42
17	05:52 06:15-07:34/79	06:22 06:45-07:12/27	06:55 07:16-07:41/25	07:28 07:50-08:24/34	07:07 07:30-08:29/59	07:38 08:02-08:57/55
	20:49 18:38-19:37/59	20:14 18:13-19:40/87	19:22 18:11-18:53/42	18:31	16:51 15:44-16:26/42	16:43
18	05:52 06:16-07:34/78	06:23 06:46-07:12/26	06:56 07:17-07:41/24	07:30 07:51-08:24/33	07:08 07:32-08:32/60	07:38 08:03-08:58/55
	20:48 18:37-19:37/60	20:13 18:12-19:39/87	19:21 18:12-18:50/38	18:29	16:51 15:45-16:25/40	16:43
19	05:53 06:16-07:33/77	06:25 06:47-07:12/25	06:57 07:18-07:42/24	07:31 07:52-08:24/32	07:09 07:33-08:33/60	07:39 08:03-08:58/55
	20:47 18:36-19:38/62	20:11 18:11-19:38/87	19:19 18:15-18:47/32	18:28	16:50 15:46-16:25/39	16:43
20	05:54 06:17-07:33/76	06:26 06:48-07:12/24	06:58 07:19-07:45/26	07:32 07:53-08:24/31	07:10 07:34-08:35/61	07:39 08:04-08:59/55
	20:47 18:36-19:38/62	20:10 18:10-19:37/87	19:17 18:18-18:43/25	18:26	16:49 15:46-16:24/38	16:44
21	05:55 06:18-07:33/75	06:27 06:49-07:11/22	07:00 07:20-07:46/26	07:33 07:55-08:25/30	07:12 07:35-08:36/61	07:40 08:04-08:59/55
	20:46 18:36-19:39/63	20:08 18:09-19:37/88	19:15 18:22-18:38/16	18:25	16:48 15:47-16:23/36	16:44
22	05:56 06:19-07:33/74	06:28 06:50-07:10/20	07:01 07:21-07:47/26	07:34 07:56-08:24/28	07:13 07:37-08:38/61	07:41 08:05-09:00/55
	20:45 18:35-19:40/65	20:06 18:08-19:36/88	19:13	18:23	16:48 15:48-16:23/35	16:45
23	05:57 06:20-07:33/73	06:29 06:51-07:09/18	07:02 07:22-07:48/26	07:36 07:57-08:24/27	07:14 07:38-08:39/61	07:41 08:05-09:00/55
	20:44 18:35-19:40/65	20:05 18:08-19:36/88	19:12	18:21	16:47 15:49-16:22/33	16:45
24	05:58 06:21-07:32/71	06:30 06:52-07:08/16	07:03 07:23-07:50/27	07:37 07:58-08:23/25	07:15 07:39-08:40/61	07:41 08:05-09:00/55
	20:43 18:35-19:41/66	20:03 18:08-19:34/86	19:10	18:20 16:58-17:13/15	16:46 15:50-16:21/31	16:46
25	05:59 06:22-07:32/70	06:31 06:53-07:06/13	07:04 07:24-07:50/26	06:38 07:00-07:23/23	07:16 07:40-08:41/61	07:42 08:06-09:01/55
	20:42 18:34-19:41/67	20:02 18:07-19:33/86	19:08	17:19 15:56-16:17/21	16:46 15:50-16:20/30	16:46
26	06:00 06:23-07:31/68	06:32 06:54-07:04/10	07:05 07:26-07:52/26	06:39 07:01-07:23/22	07:17 07:42-08:43/61	07:42 08:06-09:01/55
	20:41 18:34-19:42/68	20:00 18:06-19:32/86	19:06	17:17 15:53-16:19/26	16:45 15:52-16:20/28	16:47
27	06:01 06:24-07:31/67	06:33 06:55-07:02/7	07:06 07:27-07:52/25	06:40 07:02-07:21/19	07:19 07:43-08:44/61	07:43 08:06-09:01/55
	20:40 18:34-19:42/68	19:58 18:06-19:30/84	19:05	17:16 15:51-16:20/29	16:45 15:53-16:19/26	16:48
28	06:02 06:25-07:30/65	06:34 18:05-19:29/84	07:07 07:28-07:52/24	06:42 07:04-07:21/17	07:20 07:44-08:45/61	07:43 08:07-09:02/55
	20:39 18:32-19:42/70	19:57	19:03	17:14 15:49-16:21/32	16:44 15:54-16:19/25	16:48
29	06:03 06:26-07:29/63	06:35 18:05-19:27/82	07:08 07:29-07:52/23	06:43 07:24-07:36/12 15:48-16:23/35	07:21 07:45-08:46/61	07:43 08:07-09:02/55
	20:38 18:32-19:42/70	19:55	19:01	17:13 07:05-07:20/15	16:44 15:55-16:18/23	16:49
30	06:04 06:27-07:28/61	06:36 18:04-19:26/82	07:09 07:30-07:51/21	06:44 07:22-07:38/16 15:46-16:24/38	07:22 07:46-08:46/60	07:43 08:07-09:03/56
	20:37 18:31-19:42/71	19:53	18:59	17:12 07:06-07:18/12	16:43 15:56-16:17/21	16:50
31	06:05 06:27-07:27/60	06:37 18:04-19:24/80		06:45 07:20-07:41/21 15:45-16:24/39		07:44 08:07-09:03/56
	20:36 18:31-19:42/71	19:52		17:10 07:07-07:16/9		16:51
Potential sun hours	463	431	376	344	295	283
Sum of minutes with flicker	4193	3388	1662	956	2890	1830

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Allegato 9

Calendar Graph per WTG

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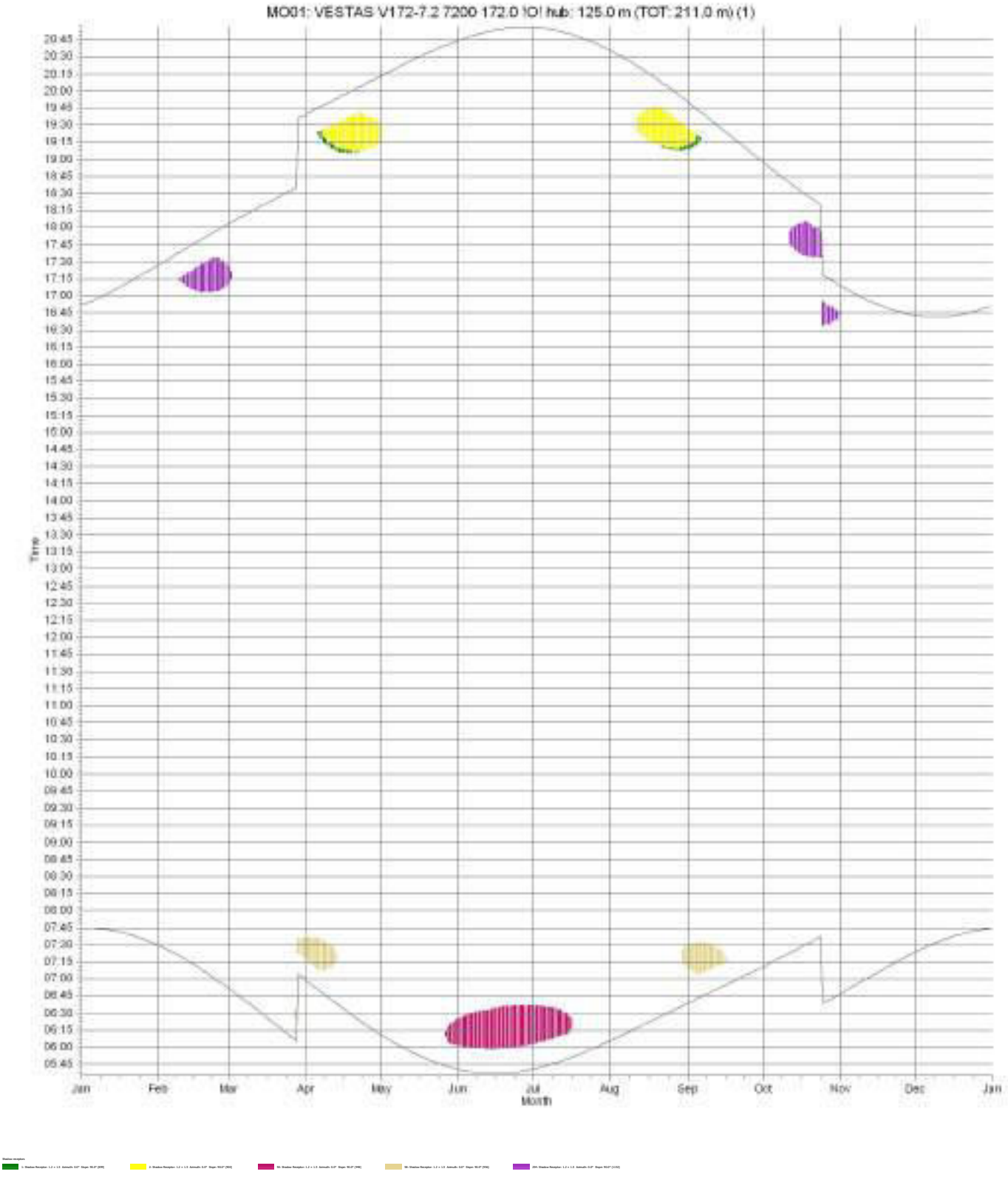
SHADOW - Calendar per WTG, graphical

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO01 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (1)



Project:
eolico-montalto

Description:
Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

Licensed user:
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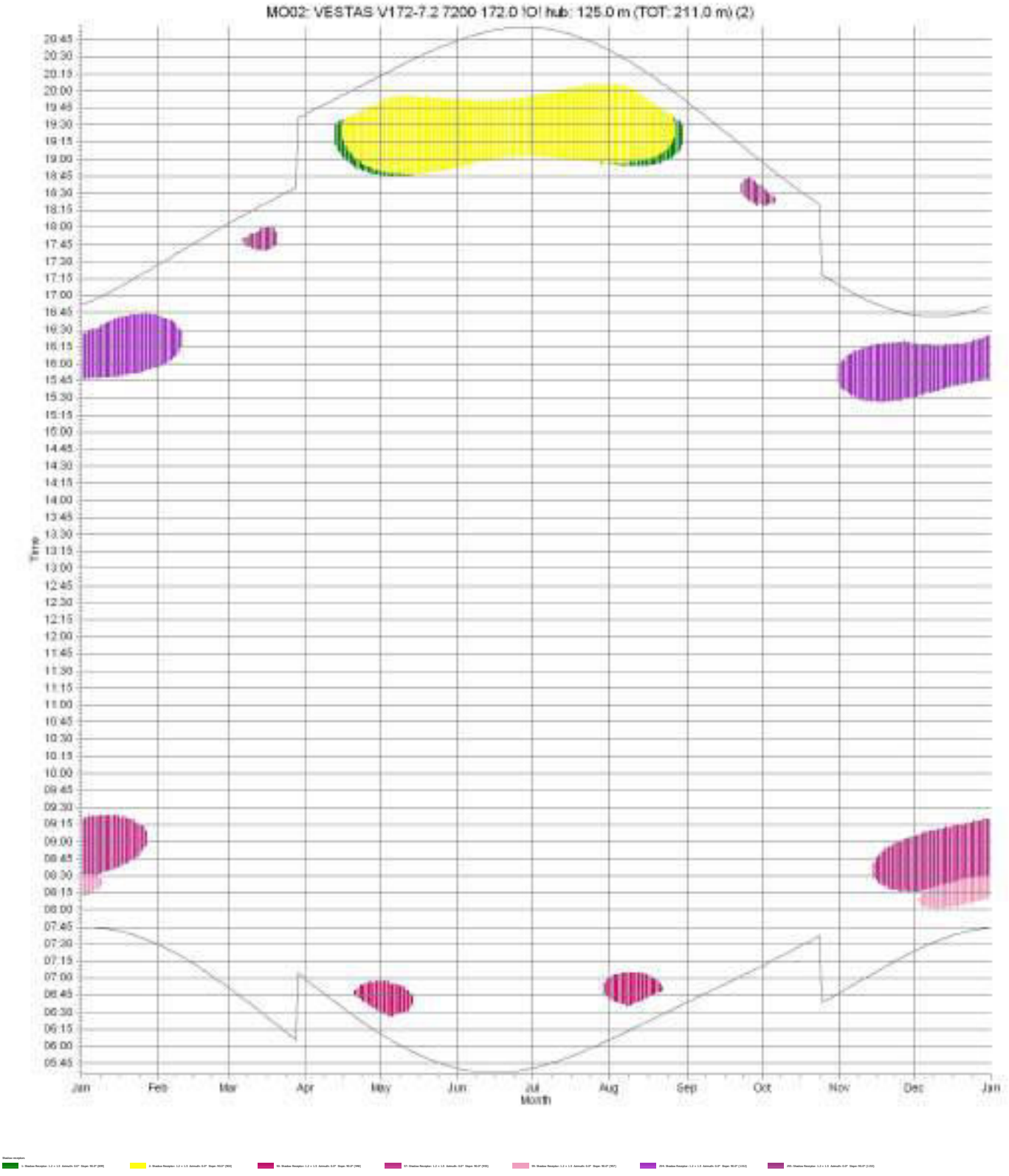
00390585281383
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG, graphical

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO02 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (2)



Project:
eolico-montalto

Description:
Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

Licensed user:
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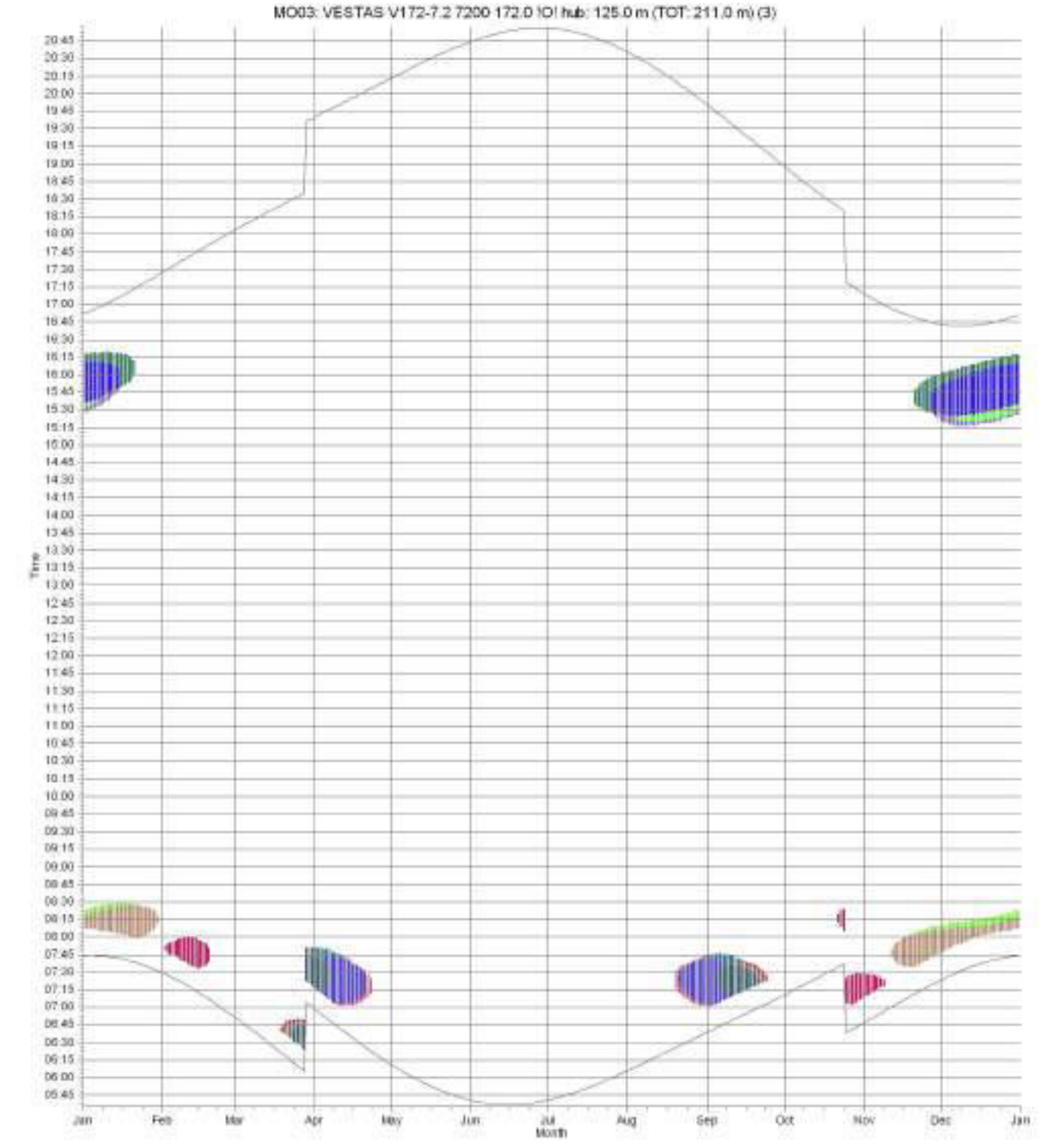
00390585281383
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG, graphical

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO03 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (3)



Project:
eolico-montalto

Description:
Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

Licensed user:
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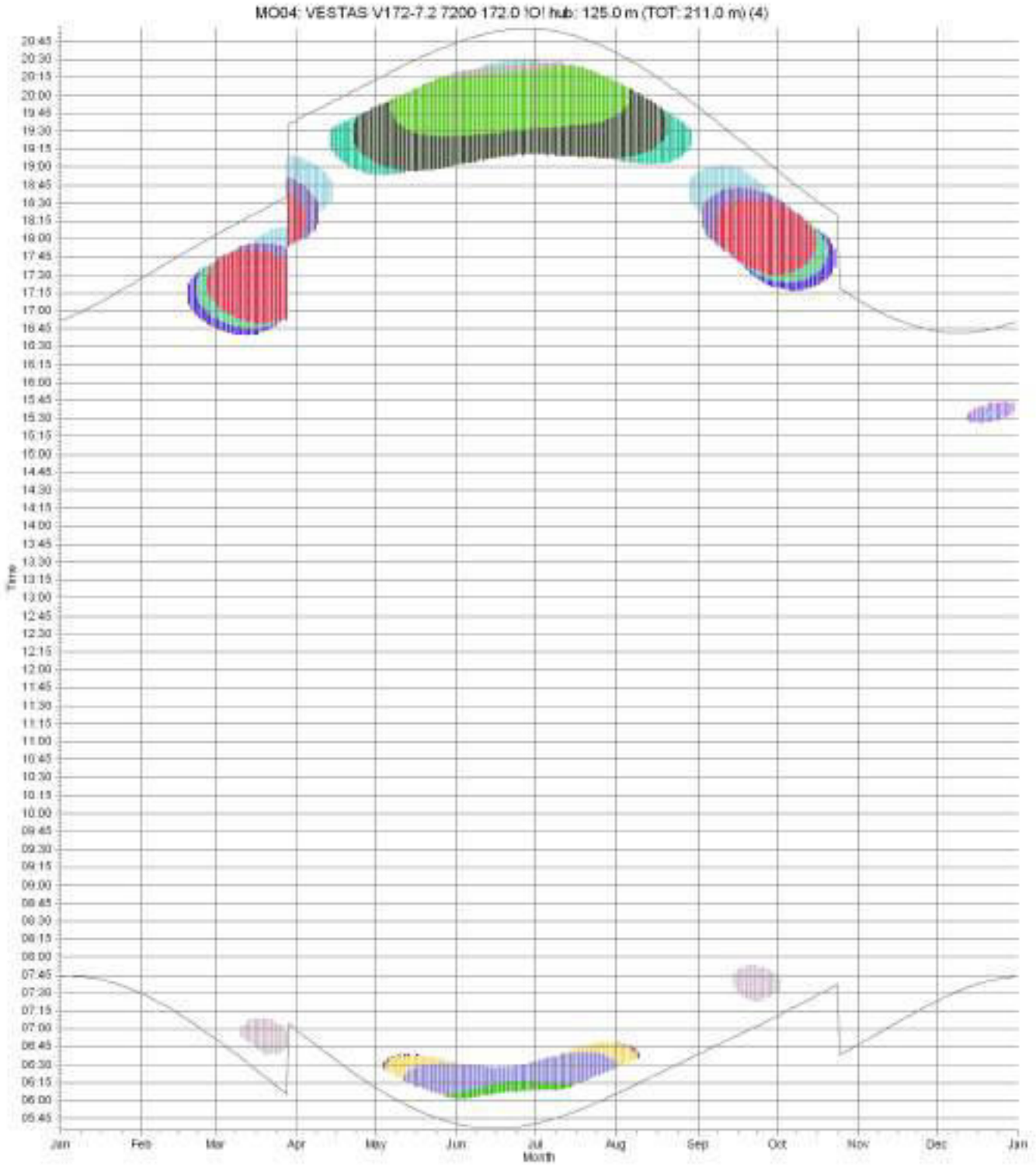
00390585281383
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG, graphical

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO04 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (4)



Project:
eolico-montalto

Description:
Impianto eolico della potenza complessiva di 43,2 MW sito nel Comune di Montalto di Castro (VT)

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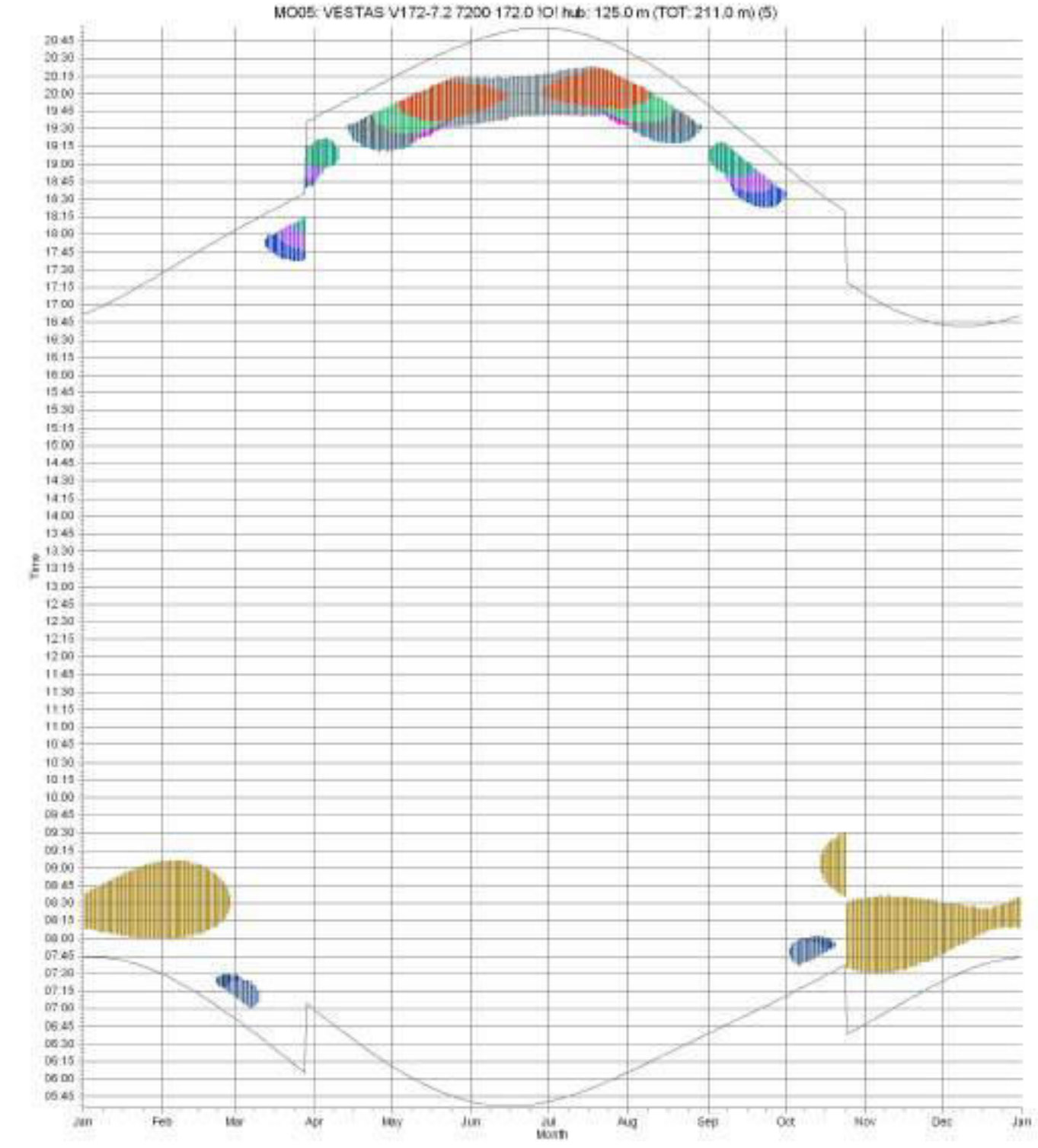
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG, graphical

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO05 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (5)



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00390585281383
Sara / s.cassini@enviarea.it
Calculated:
02/09/2023 19:38/3.6.361

SHADOW - Calendar per WTG, graphical

Calculation: Real Case con piena operatività dell'impianto **WTG:** MO06 - VESTAS V172-7.2 7200 172.0 !O! hub: 125.0 m (TOT: 211.0 m) (6)