

19_20_EO_ENE_AU_RE_18_01	MAGGIO 2022	STUDIO EVOLUZIONE OMBRA (SHADOW FLICKERING)	Ing. Pietro Rodia	Arch. Paola Pastore	Ing. Leonardo Filotico
19_20_EO_ENE_AU_RE_18_00	LUGLIO 2021	STUDIO EVOLUZIONE OMBRA (SHADOW FLICKERING)	Dott. Vladimir Fresneda Bernal	Arch. Paola Pastore	Ing. Leonardo Filotico
N. ELABORATO	DATA EMISSIONE	DESCRIZIONE	ESEGUITO	CONTROLLATO	APPROVATO

OGGETTO:
Progetto dell'impianto eolico con storage denominato "Sava Maruggio"
con potenza complessiva di 182 MW da realizzare nei Comuni di Sava
(TA), Manduria (TA), Maruggio (TA) , Torricella (TA) ed Erchie (BR)

COMMITTENTE:

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TITOLO:

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INDICE

1	PREMESSA	2
2	DESCRIZIONE DELL'INTERVENTO	3
3	FENOMENO DELLO SHADOW FLICKERING	5
3.1	STANDARD INTERNAZIONALI	7
3.2	PRESENZA DI RECETTORI SENSIBILI.....	7
4	METODOLOGIA DI CALCOLO	44
4.1	SCENARIO PEGGIORE (WORST CASE)	44
4.2	SCENARIO REALE (REAL CASE BY STATISTICS).....	45
5	RISULTATI DEL MODELLO	47
5.1	SCENARIO PEGGIORE (WORST CASE)	47
5.2	SCENARIO REALE (REAL CASE BY STATISTICS).....	48
6	CONCLUSIONI	54
7	ALLEGATI	56

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

1 PREMESSA

La presente relazione ha il fine di illustrare lo studio dell'evoluzione dell'ombra di progetto per la realizzazione di un parco eolico mediante l'installazione di 22 aerogeneratori di tipo SIEMENS GAMESA "SG170 6.0MW @ 115m HH" con una potenza complessiva di 132 MW, contestualmente alla posa in opera di cavidotti sotterranei per collegare gli aerogeneratori con cavi di MT e AT alla stazione RTN Terna. Sarà, inoltre, presente un sistema di accumulo di energia elettrica dalla potenza nominale di 50 MW, per un potenza totale dell'intero progetto pari a 182 MW.

2

Tale progetto viene proposto dalla società RED ENERGY s.r.l. con sede legale a San Marzano di San Giuseppe (TA), Zona Industriale lotto n. 31.

Il progetto del parco eolico prevede la realizzazione di 22 aerogeneratori, ciascuno avente un rotore di 170 m, collegati a generatori elettrici della potenza nominale di 6,00 MW cadauno e con altezza mozzo di 115 m, misurata dal piano campagna all'asse del rotore, da realizzarsi nei comuni di Erchie, Avetrana, Manduria, Sava, Maruggio e Torricella. La connessione alla Rete di Trasmissione Nazionale avverrà in corrispondenza della Stazione Elettrica 150/380 kV di proprietà di TERNA S.p.A. esistente in agro di Erchie.

2 DESCRIZIONE DELL'INTERVENTO

Il sito di installazione ricade nel territorio amministrativo dei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR), a circa 2,80 km nord dal centro abitato del comune di Maruggio, a circa 2,15 km est dal centro abitato del comune di Torricella, a circa 5,35 km sud-ovest dal centro abitato del comune di Manduria e a circa 3,50 km sud dal centro abitato del comune di Sava.

Nel sito è prevista l'installazione di 22 aerogeneratori di tipo SIEMENS GAMESA "SG170 6.0MW @ 115m per una potenza totale pari a 132 MW, e di sistema di accumulo di energia elettrica dalla potenza di 50 MW, per una potenza totale di progetto pari a 182 MW.

Gli aerogeneratori in progetto sono così suddivisi e ubicati nel territorio di:

- n.5 aerogeneratori nel Comune di Maruggio;
- n.2 aerogeneratori nel Comune di Torricella;
- n.10 aerogeneratori nel Comune di Manduria;
- n.5 aerogeneratori nel Comune di Sava.

Di seguito sono riportate le coordinate geografiche degli aerogeneratori:

UTM WGS84 33		
Name	E	N
SM01	711579,05	4473357,93
SM02	712229,46	4473085,13
SM03	712887,45	4472498,83
SM04	715704,00	4471037,00
SM05	715650,63	4472327,21
SM06	716818,66	4470706,00
SM07	717931,93	4471587,16
SM08	717774,53	4470249,32
SM09	718906,82	4472662,05
SM10	719763,85	4471682,79
SM11	720663,71	4471515,98
SM12	718870,82	4469557,23
SM13	719730,02	4469732,74
SM14	721061,30	4469781,07
SM15	721961,00	4469769,00
SM16	722580,09	4470070,22
SM17	713208,52	4467655,56
SM18	713653,03	4468254,88
SM19	714391,04	4470575,03

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SM20	715504,74	4469626,03
SM21	716359,98	4470414,75
SM22	717163,47	4469349,56

Tabella 1: Coordinate aerogeneratori

L'impianto è facilmente accessibile tramite strade esistenti mentre, il cavidotto di collegamento tra gli aerogeneratori fino al punto di consegna sarà localizzato in piccola parte su strade di progetto e la restante parte su strade esistenti, andando a interessare il territorio comunale di Erchie, Sava, Manduria, Torricella e Maruggio.

La connessione alla Rete di Trasmissione Nazionale avverrà in corrispondenza della Stazione Elettrica 150/380 kV di proprietà di TERNI S.p.A. esistente in agro di Erchie.

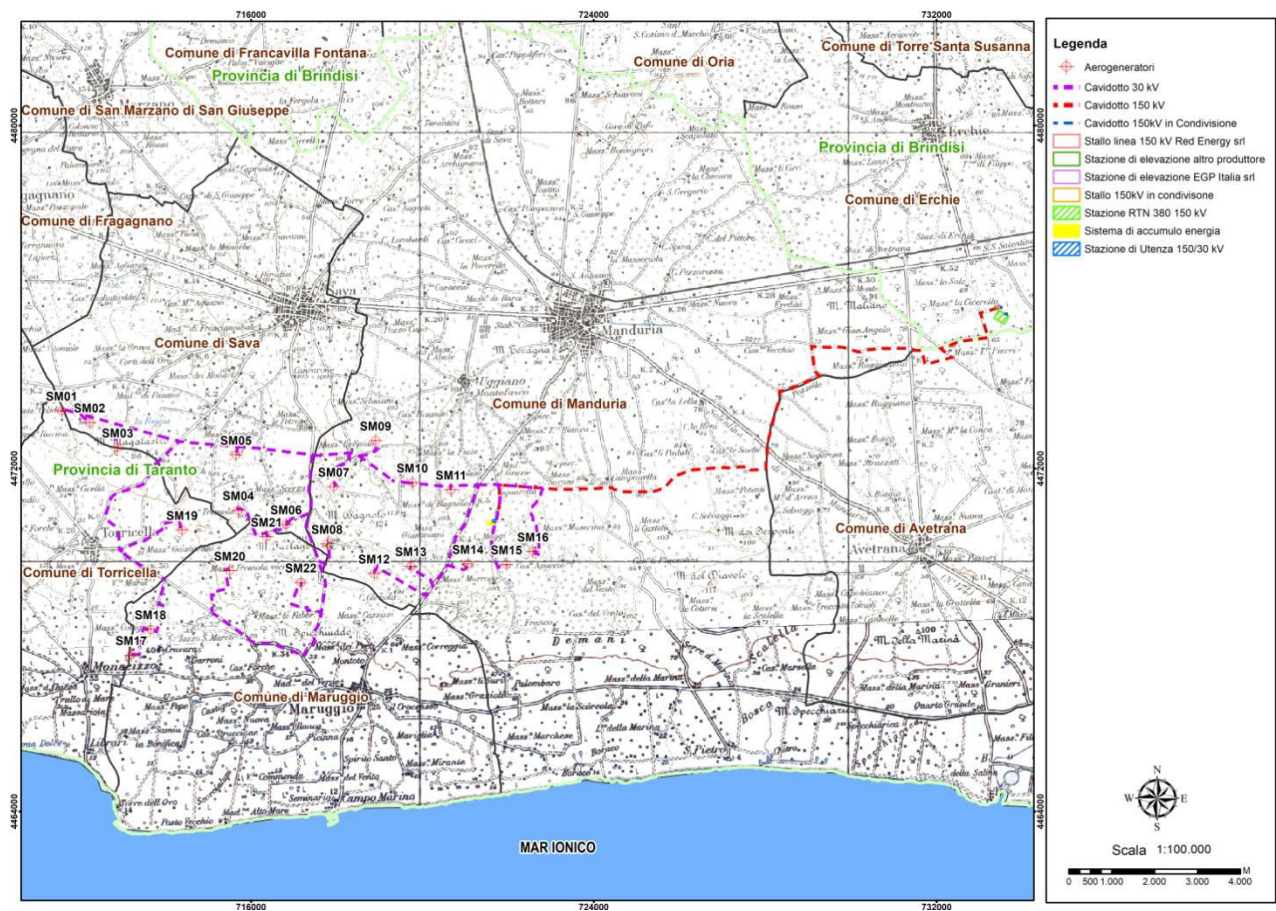


Figura 1: Inquadramento su carta IGM

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STUDIO EVOLUZIONE DELL'OMBRA



3 FENOMENO DELLO SHADOW FLICKERING

Il fenomeno detto Shadow Flickering consiste in una variazione periodica dell'intensità luminosa osservata, causata dalla proiezione su una superficie dell'ombra indotta da oggetti in movimento. Il fenomeno si verifica quando una combinazione particolare di circostanze viene a coincidere in posizioni specifiche e in tempi particolari di un giorno e di un anno.

Con particolare riferimento alle turbine eoliche, lo sfarfallio avviene quando il Sole è basso nel cielo e illumina la struttura venendosi a trovare dietro il rotore della turbina. Ciò può indurre la proiezione dell'ombra delle pale su una struttura in un fenomeno d'intermittenza, sembrando così di passare rapidamente dall'ombreggiamento alle condizioni naturali di illuminazione mentre la turbina gira. In presenza di luce solare diretta, un recettore localizzato nella zona d'ombra indotta dal rotore sarà investito da un continuo alternarsi di luce e ombra, causato dalla rotazione delle pale (Figura 2).

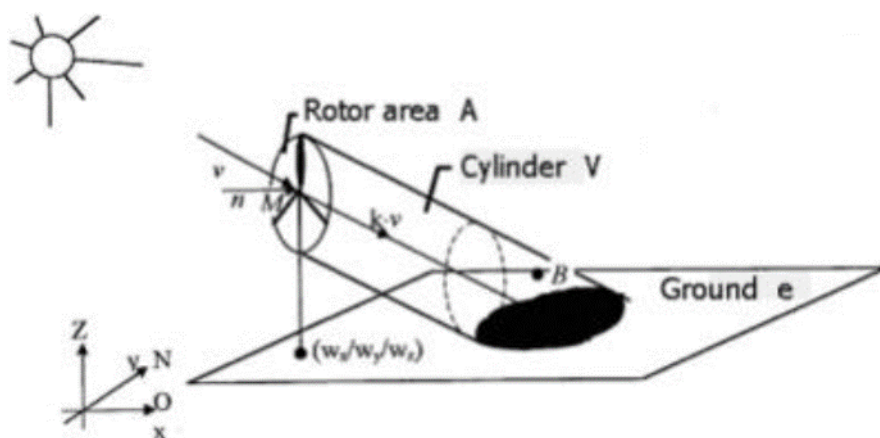


Figura 2: effetto shadow flickering

Quando un'ombra intermittente passa rapidamente da un'apertura stretta (una finestra, un lucernaio, ecc.), è definita come Flickering.

Per esempio, nel caso in cui un individuo sia all'interno di un edificio, esso può percepire l'intermittenza dell'ombra come una riduzione momentanea dell'intensità della luce naturale, e se tali alterazioni dell'intensità luminosa sono rilevanti, l'intermittenza dell'ombra può indurre un disturbo percettivo. Per quanto concerne la distanza fra una turbina eolica e un ricettore potenziale, le ombre proiettate nelle vicinanze da una turbina eolica saranno più intense e definite, in quanto una maggiore porzione del disco solare è ostruita in maniera intermittente dalla presenza della pala.

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Tale variazione alternata di intensità luminosa, nel tempo, può provocare fastidio agli occupanti delle abitazioni le cui finestre risultano esposte al fenomeno stesso.

Tale fenomeno se vissuto dal recettore per periodi di tempo non trascurabili può generare un disturbo, quando:

- Si è in presenza di cielo sereno sgombro da nubi, in assenza di nebbia e con sole alto rispetto all'orizzonte;
- La linea recettore-aerogeneratore non incontra ostacoli: in presenza di vegetazione o edifici interposti l'ombra generata da quest'ultimi annulla il fenomeno;
- L'aerogeneratore è orientato in modo che il rotore risulti perpendicolare alla linea sole- recettore;
- La posizione del sole è tale da indurre una luminosità sufficiente. Ciò si traduce, in riferimento alla latitudine di progetto, in un'altezza del sole pari ad almeno 15-20°;
- Le pale siano in movimento;
- Aerogeneratore e recettore sono vicini: all'aumentare della distanza tra aerogeneratore e recettore, le pale coprono una porzione sempre più piccola del sole, inducendo un flicker di minore entità.

6

Pertanto, in riferimento a quanto sin qui esposto, durata ed entità dello Shadow flickering sono determinate e condizionate:

- Dalla distanza tra aerogeneratore e recettore;
- Da altezza dell'hub e diametro rotore della turbina;
- Dal periodo e durata dell'esercizio della turbina e la proporzione di ore diurne durante le quali le turbine sono in funzione;
- Dalla direzione ed intensità del vento, che influenza la direzione di orientamento del rotore;
- Dall'orientamento del recettore;
- Dalla topografia dell'area di interesse;
- Da dimensione e posizione di una zona di osservazione, quali una finestra o un patio;
- Dalla presenza o meno di ostacoli lungo la linea di vista recettore-aerogeneratore-sole;
- Dalle condizioni meteorologiche, con particolare riferimento alla frequenza delle giornate con cielo sereno e poco nuvoloso (specialmente alle basse latitudini);
- Dall'altezza del sole (periodo dell'anno).

3.1 STANDARD INTERNAZIONALI

Nell'agosto 2015, World Bank ha pubblicato le Linee guida per l'ambiente, la salute e la sicurezza (EHS) per l'energia eolica, contenenti esempi di buone pratiche specifiche per il settore eolico.

La definizione adottata nelle linee guida EHS afferma che lo shadow flickering si verifica quando il sole passa dietro la turbina eolica proiettando un'ombra. Mentre le pale del rotore ruotano, le ombre passano sullo stesso punto causando l'effetto chiamato shadow flickering. Lo shadow flickering può diventare un problema quando recettori potenzialmente sensibili (ad es. Proprietà residenziali, luoghi di lavoro, spazi / strutture di apprendimento e / o di assistenza sanitaria) si trovano nelle vicinanze o hanno un orientamento specifico per l'impianto di energia eolica.

7

I punti chiave identificati nelle linee guida includono:

- I potenziali problemi di shadow flickering che sono più probabili a latitudini più elevate, dove il sole è più basso nel cielo e quindi sono ombre più lunghe che estenderanno il raggio entro il quale si verificherà un impatto potenziale.
- Se non è possibile localizzare le turbine eoliche a distanza tale da non indurre effetti sui recettori più prossimi, si raccomanda che la durata prevista degli effetti di shadow flickering sperimentata in un recettore sensibile non superi le 30 ore all'anno e i 30 minuti al giorno considerando lo scenario peggiore (Worst Case).
- Le misure di prevenzione e controllo raccomandate per evitare impatti significativi dello shadow flickering includono l'ubicazione delle turbine eoliche in modo appropriato per evitare che si verifichi il fenomeno o per rispettare i limiti posti sulla durata del verificarsi dello stesso, come indicato nel paragrafo precedente, o programmare le turbine a spegnersi quando vengono superati i limiti di shadow flickering.

3.2 PRESENZA DI RECETTORI SENSIBILI

Ai fini della previsione degli impatti indotti dagli aerogeneratori in progetto, sono stati individuati i recettori presenti nei pressi dell'impianto attraverso una ricognizione sul campo, l'analisi delle immagini satellitari fornite dall'applicativo ESRI ArcGIS e la consultazione delle ortofoto disponibili presso il Servizio Regionale Cartografico della Regione Puglia (<http://www.sit.puglia.it>).

Ai fini del presente studio sono stati considerati come recettori le abitazioni residenziali, le attività commerciali (ad esempio bar e agriturismi), localizzati all'interno dell'area di studio definita.

La figura seguente mostra la posizione degli aerogeneratori rispetto al centro urbano e ai suoi possibili ricettori.

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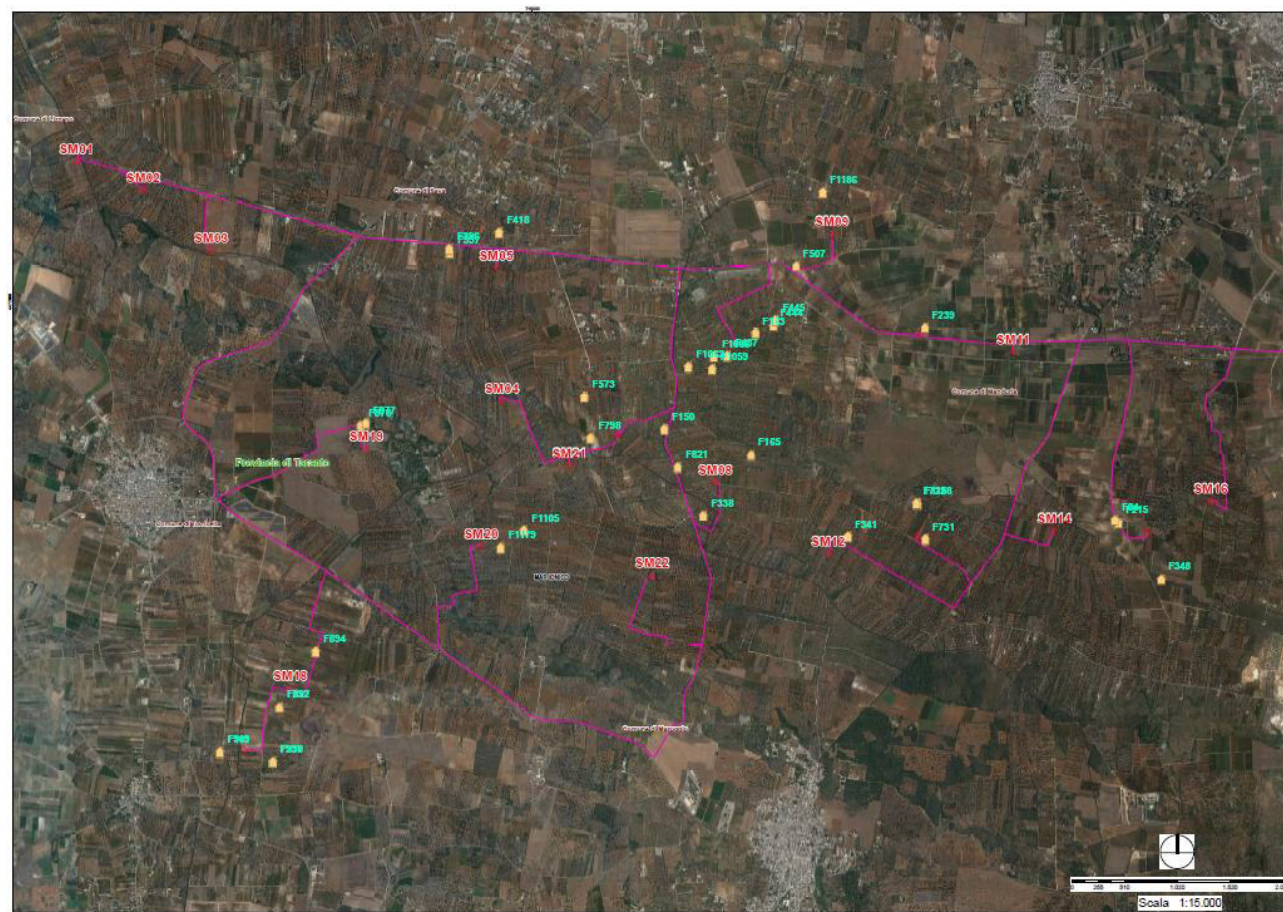


Figura 3: Inquadramento generale dei ricettori.

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Certificate No. E145



SR EN ISO 45001:2018
Certificate No. 00097

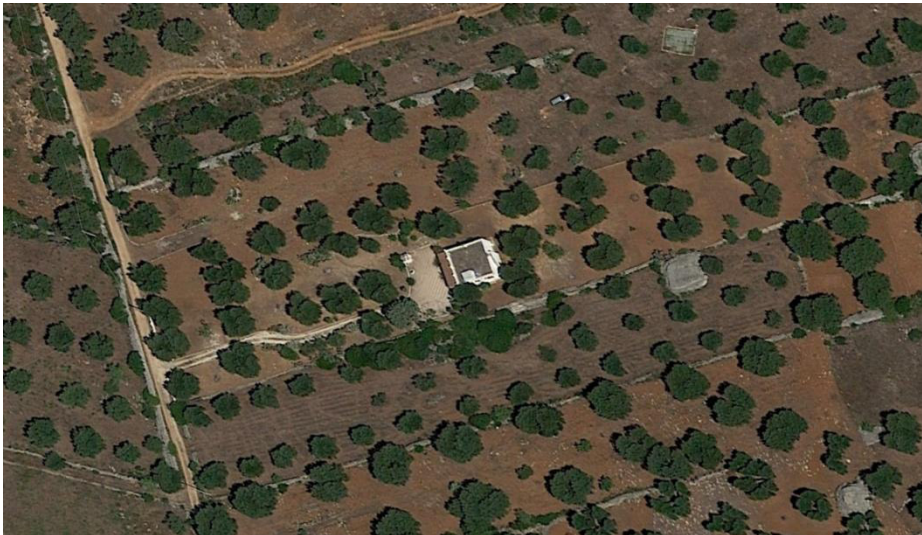
Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM07 [m]
	est [m]	nord [m]	
F1059 – SM07	717756,36	7756,36	291,65
Ortofoto			
Report fotografico			

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EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM07 [m]
	est [m]	nord [m]	
F1062 – SM07	717523,73	4471373,63	460,58
Ortofoto			
Report fotografico			

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EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM07 [m]
	est [m]	nord [m]	
F1063 – SM07	717773,41	4471472,97	195,319526
Ortofoto			
Report fotografico			

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EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM20 [m]
F1105 – SM20	715928,32	4469783,50	451,82
Ortofoto			

12

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM13 [m]
F1158 – SM13	715928,32	4469783,50	451,82
Ortofoto			

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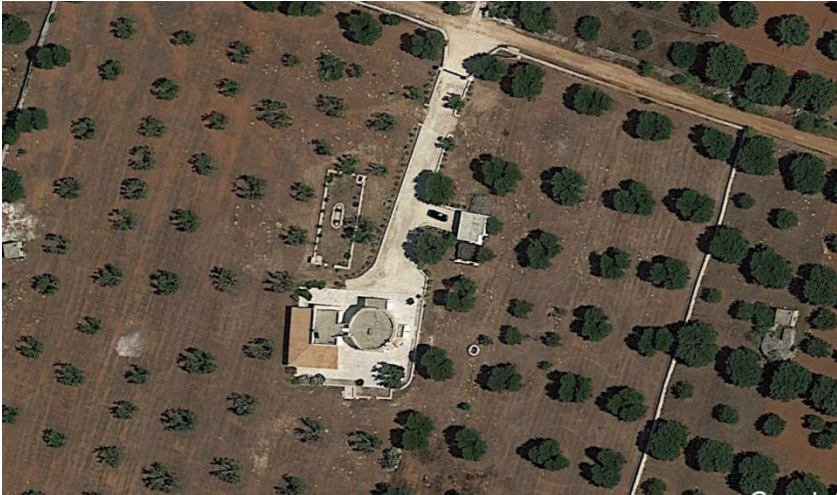
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EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM20 [m]
F1179 – SM20	715704,39	4469619,43	199,72
Ortofoto			

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EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM09 [m]
	est [m]	nord [m]	
F1186 - SM09	718819,47	4473067,71	414,87
Ortofoto			
Report fotografico			

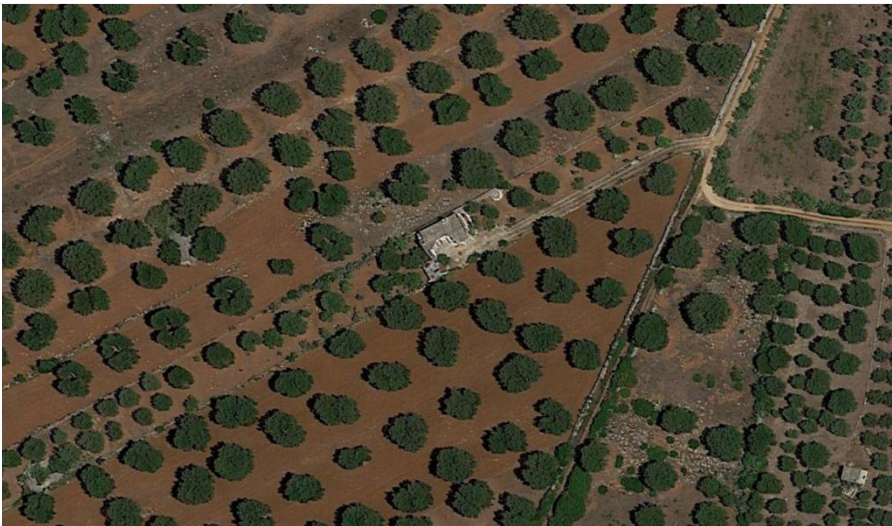
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EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM17 [m]
F119 - SM17	712979,67	4467642,10	229,20
Ortofoto			
Report fotografico			

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EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM06 [m]
	est [m]	nord [m]	
F150 – SM06	717290,22	4470767,62	475,48
Ortofoto			
Report fotografico			

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EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM06 [m]
F163 – SM06	718164,69	4471694,49	256,28
Ortofoto			

17

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM08 [m]
F165 – SM08	735430.00	4478494.00	430
Ortofoto			

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EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM15 [m]
F215 – SM15	735331.00	4478432.00	348
Ortofoto			
Report fotografico			

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EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM18 [m]
F222 – SM18	713555,87	4468072,86	206,28
Ortofoto			

19

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM17 [m]
F237 – SM17	713488,56	67546,30	300,54
Ortofoto			

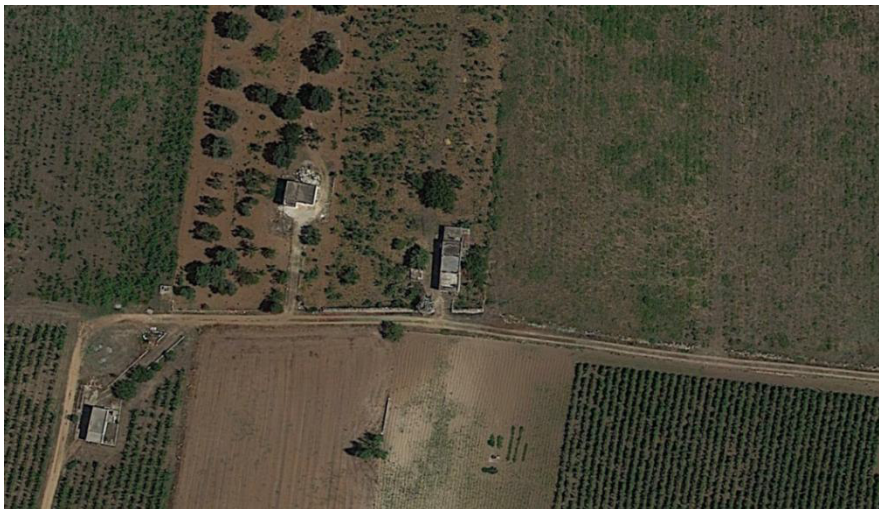
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EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM10 [m]
	est [m]	nord [m]	
F239 – SM10	719810,05	4471751,29	82,61
Ortofoto			
Report fotografico			

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EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM08 [m]
	est [m]	nord [m]	
F338 – SM08	717669,61	4469929,67	336,35
Ortofoto			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM12 [m]
	est [m] e nord [m]		
F341 – SM12	719061,99	4469725,54	254,66
Ortofoto			
Report fotografico			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM15 [m]
F348 – SM15	722103,11	4469312,27	478,22
Ortofoto			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM05 [m]
F396 – SM05	715206,00	4472516,62	483,21
Ortofoto			
Report fotografico			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM05 [m]
	est [m]	nord [m]	
F397 – SM05	715208,67	4472483,96	468,84
Ortofoto			
Report fotografico			

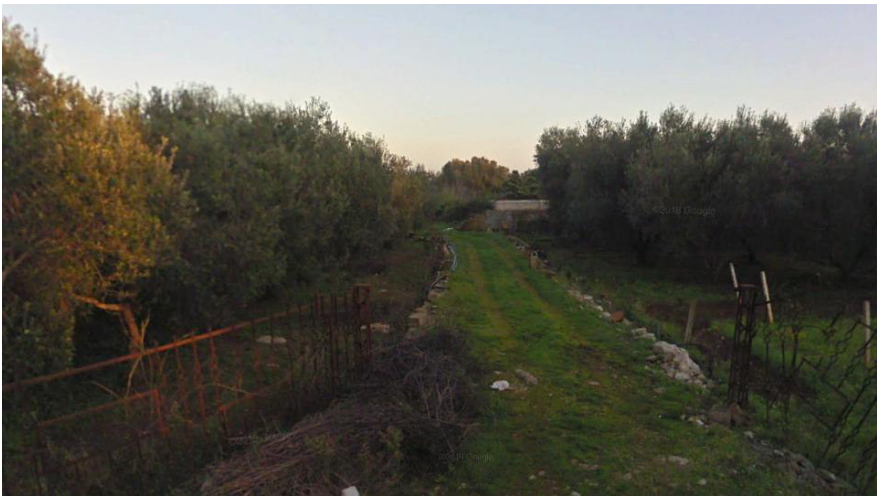
Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM05 [m]
	est [m] e nord [m]		
F418 – SM05	715688,23	4472673,15	347,92
Ortofoto			

26

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM07 [m]
F437 – SM07	715688,23	4472673,15	347,92
Ortofoto			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM07 [m]
F444 – SM07	718339,08	4471771,08	446,69
Ortofoto			
Report fotografico			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM07 [m]
F445 – SM07	718360,33	4471829,13	491,93
Ortofoto			

28

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM09 [m]
F507 – SM09	718559,49	4472349,54	467,13
Ortofoto			

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SR EN ISO 9001:2015
Certificate No. 02304



SR EN ISO 14001:2015
Certificate No. E145



SR EN ISO 45001:2018
Certificate No. 00097

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM09 [m]
F573 – SM06	716516,47	4471077,08	478,48
Ortofoto			

29

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM13 [m]
F722 – SM013	719725,09	4470052,46	319,69
Ortofoto			

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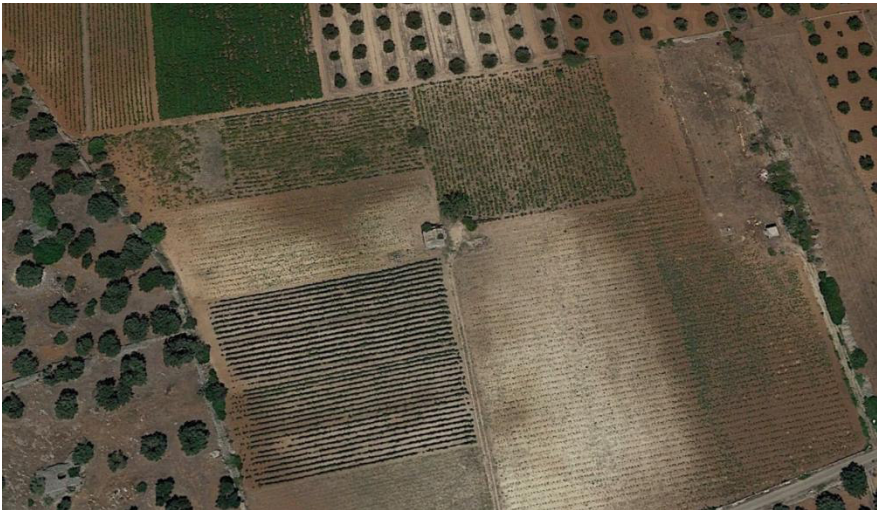
Direttore Tecnico: ING. LEONARDO FILOTICO
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Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM13 [m]
F731 – SM013	719813,90	4469698,02	90,76
Ortofoto			

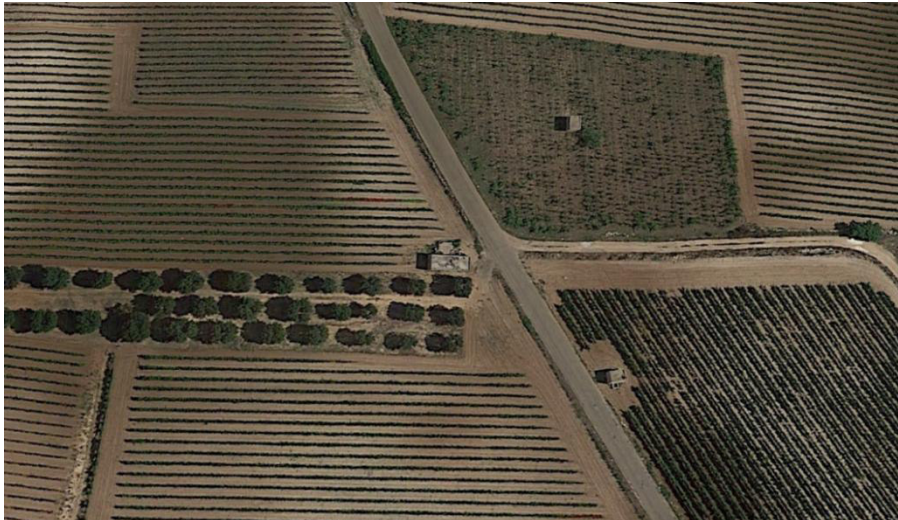
Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM06 [m]
F798 – SM06	716575,67	4470684,17	243,91
Ortofoto			
Report fotografico			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM08 [m]
	est [m]	nord [m]	
F821 – SM08	717422,82	4470394,65	380,47
Ortofoto			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84) est [m] e nord [m]		DISTANZA RICETTORE DA SM15 [m]
F84 – SM15	721652,63	4469887,62	330,32
Ortofoto			
Report fotografico			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM19 [m]
	est [m]	nord [m]	
F877 – SM19	714391,80	4470827,30	252,23
Ortofoto			

34

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM19 [m]
	est [m]	nord [m]	
F878 – SM19	714347,33	4470802,67	231,76
Ortofoto			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM18 [m]
	est [m] e nord [m]		
F894 – SM18	713907,36	4468609,28	436,15
Ortofoto			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM18 [m]
	est [m]	nord [m]	
F897 – SM18	713557,76	4468073,45	204,88
Ortofoto			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

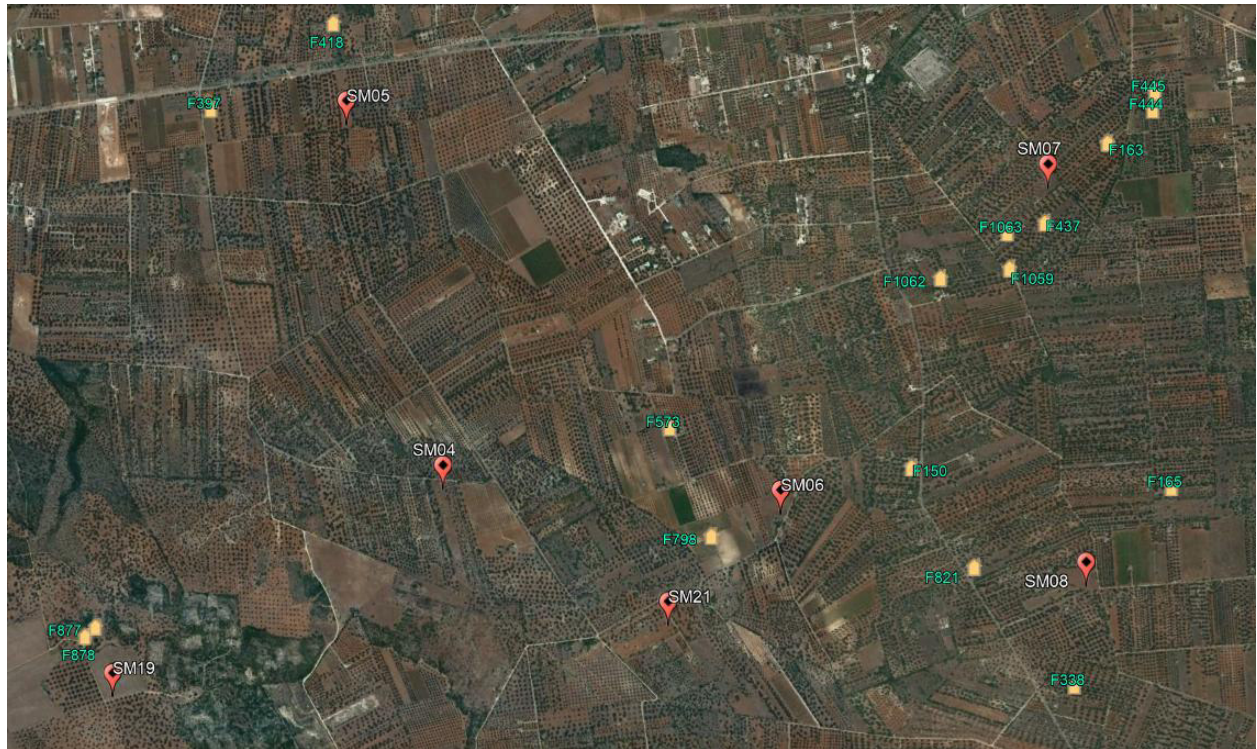
EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM17 [m]
	est [m]	nord [m]	
F901 – SM17	712980,31	4467641,87	228,57
Ortofoto			
Report fotografico			

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

EDIFICIO	COORDINATE (UTM 33 WGS84)		DISTANZA RICETTORE DA SM17 [m]
	est [m]	nord [m]	
F930 – SM17	713494,62	4467544,88	306,71
Ortofoto			

Nelle seguenti figure si riporta i ricettori su ortofoto, per un'immediata rappresentazione grafica.

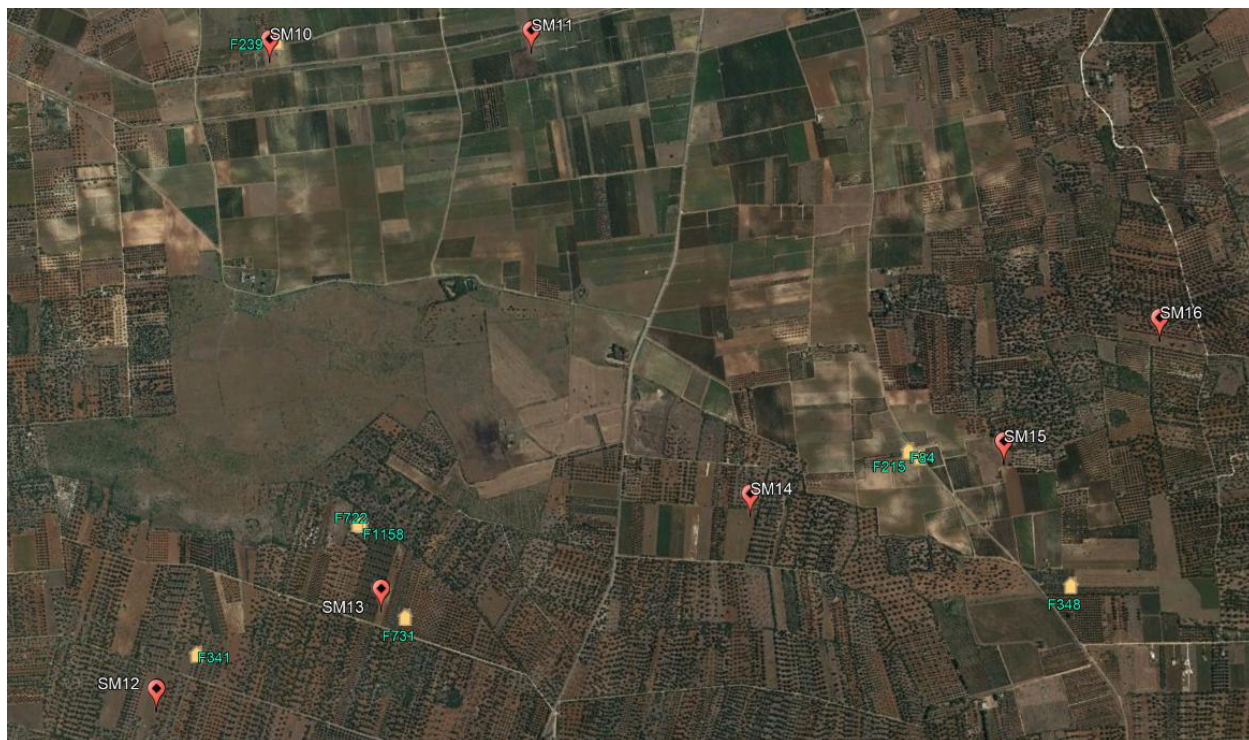
Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).



39

Figura 4: Posizionamento su ortofoto degli aerogeneratori SM04, SM05, SM06, SM07, SM08, SM21, SM19 e dei ricettori a loro più prossimi

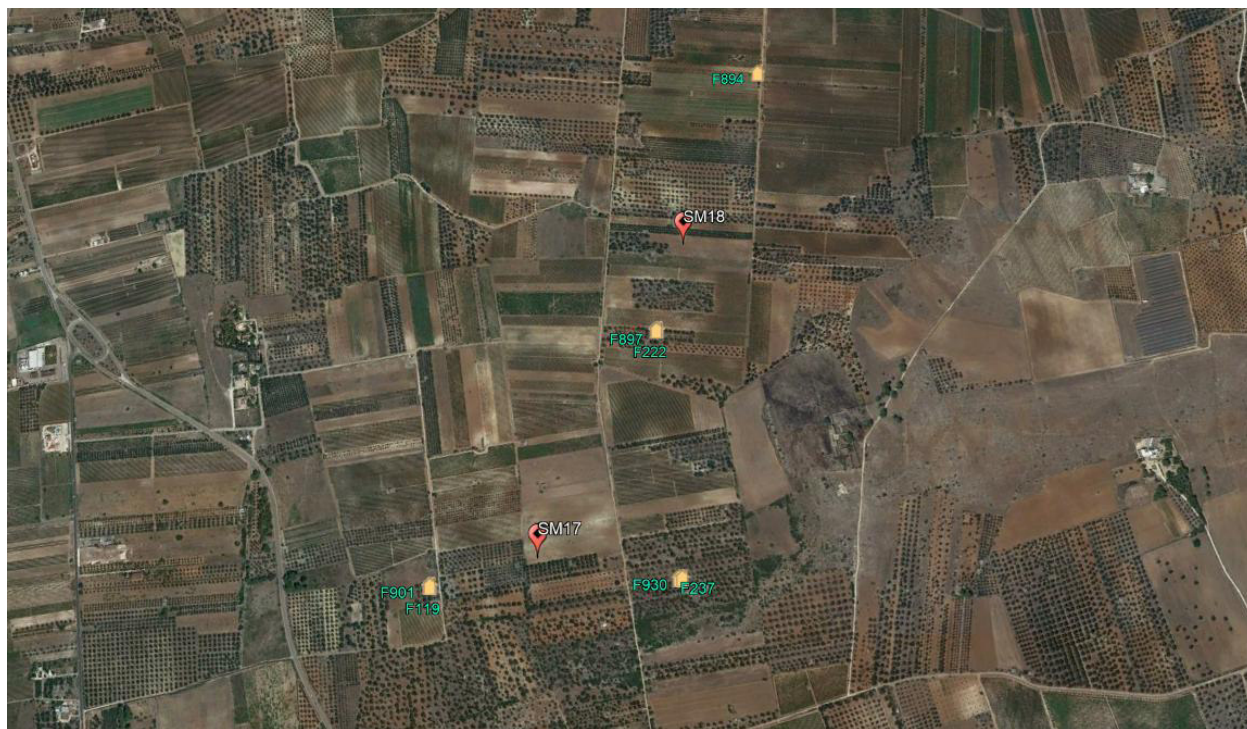
Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).



40

Figura 5: Posizionamento su ortofoto degli aerogeneratori SM10, SM11, SM12, SM13, SM14, SM15, SM16 e dei ricettori a loro più prossimi.

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).



41

Figura 6: Posizionamento su ortofoto degli aerogeneratori SM17, SM18 e dei ricettori a loro più prossimi.

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42

Figura 7: Posizionamento su ortofoto degli aerogeneratori SM20 e dei ricettori a loro più prossimi

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).



43

Figura 8: Posizionamento su ortofoto degli aerogeneratori SM09 e dei ricettori a loro più prossimi.

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STUDIO EVOLUZIONE DELL'OMBRA



4 METODOLOGIA DI CALCOLO

L'analisi, è stato fatto al fine di verificare la sussistenza del fenomeno dello shadow flickering sono state effettuate delle simulazioni mediante l'ausilio del software WindPro 3.4 ©, ampiamente utilizzato a livello globale nel settore eolico. Il pacchetto software include il modulo Shadow Flicker (SHADOW) per la valutazione dell'evoluzione dell'ombra e del flickering. La modellizzazione si ha svolto effettuando il calcolo nella ipotesi di "condizioni sfavorevoli" (worst case).

La probabilità e la durata del fenomeno di shadow flickering dipendono da una serie di fattori, tra cui:

- l'altimetria della zona simulata;
- la disposizione geografica degli aerogeneratori, il modello e le caratteristiche dimensionali;
- la disposizione geografica dei "recettori sensibili".

In generale, lo shadow flickering si verifica in condizioni di cielo sereno, quando il sole è basso all'orizzonte. Quando il Sole diventa troppo basso all'orizzonte e la distanza diventa troppo lunga, l'ombra si disperde prima di raggiungere l'eventuale recettore.

Sulla base di questi dati il software calcola il numero di ore annue di esposizione allo shadow flickering per ciascun nodo del grigliato che copre l'intera area, nonché il numero di ore di esposizione per gli ambienti abitativi, esposizione che si manifesta attraverso le finestre delle diverse abitazioni.

La valutazione dei possibili impatti è stata eseguita considerando due scenari:

- Scenario peggiore (Worst Case): ovvero la condizione più sfavorevole possibile, quando il sole splende sempre durante le ore diurne e la turbina eolica è sempre in rotazione;
- Scenario reale (Real Case): tenendo conto delle ore medie mensili di sole (Centralina di Brindisi) e delle statistiche del vento derivanti dai dati raccolti in sito in seguito alla campagna di misura del vento della durata di 12 mesi, gestita mediante LIDAR modello Leosphere Windcube (RIINA, 2017-2018).

4.1 SCENARIO PEGGIORE (WORST CASE)

I calcoli si basano su uno scenario peggiore modellato senza parametri che caratterizzano le impostazioni e le condizioni locali (es. il sole splende sempre durante le ore diurne), nonché le caratteristiche specifiche del progetto.

Per l'esecuzione della simulazione sono stati impostati i seguenti parametri:

- il sole è presente per l'intera giornata, dall'alba al tramonto (ossia si è in condizioni di assenza di copertura nuvolosa);

- il piano di rotazione delle pale è sempre perpendicolare alla direttrice sole/aerogeneratore (l'aerogeneratore "insegue" il sole);
- l'aerogeneratore è sempre operativo;
- per le simulazioni, è stata inoltre selezionata per i recettori la modalità "green house", ovvero il recettore è modellato con caratteristiche di una "serra". Con questa configurazione il recettore non è orientato in una particolare direzione, ma è omnidirezionale

4.2 SCENARIO REALE (REAL CASE BY STATISTICS)

Per questo scenario, i calcoli si basano su una situazione più realistica in cui la probabilità di avere sole pieno si basa su un set di dati di archivio e si presume che il rotore sia in funzione solo per un limitato intervallo di tempo desunto da dati statistici relativi alla ventosità (% di calme di vento oppure venti molto forti che impediscono un corretto funzionamento delle turbine).

Per l'esecuzione della simulazione sono stati utilizzati i seguenti parametri:

- modello digitale del terreno per caratterizzare l'orografia (con una dimensione di cella pari a 10 m);
- la posizione degli aerogeneratori, il modello e le caratteristiche dimensionali;
- definizione di recettori, posizione geografica e caratteristiche dimensionali (finestra, patio, area esterna);
- probabilità mensili di presenza di sole forniti dalla centralina di Brindisi;
- piano di rotazione delle pale è sempre perpendicolare alla linea sole-recettore;
- non sono presenti alberi o altri ostacoli di natura antropica che riducano o annullino i possibili effetti sui recettori.

Si riporta di seguito il numero di ore medie solari determinati dalla centralina di Brindisi (banca dati di WindPro 3.4).

Tabella 2 | Ore medie solari - Centralina di Brindisi (banca dati di WindPro 3.4)

Gen	Feb	Mar	Apr	Mag	Giu	Lug	Ago	Set	Ott	Nov	Dic
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Anche per questo scenario è stata selezionata la modalità "green house" per i recettori e si è trascurata la presenza degli alberi e di altri ostacoli che potenzialmente sono presenti lungo le strade o attorno alle proprietà che "intercettano" l'ombra degli aerogeneratori riducendo quindi il potenziale impatto derivante dal fenomeno di shadow flickering.

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

Sebbene il modello sia stato impostato con alcuni parametri locali (prevalentemente meteo), la stima a cui si perviene risulta cautelativa, sovrastimando il fenomeno di shadow flickering, principalmente per i seguenti motivi:

- L'occorrenza della copertura nuvolosa ha il potenziale per ridurre significativamente il numero di ore durante le quali l'osservatore sta vivendo lo shadow flickering;
- La presenza di nebbia e alta umidità può ridurre la visibilità e conseguentemente gli effetti dello shadow flickering sull'osservatore;
- La presenza di aerosol nell'atmosfera ha la capacità di influenzare la durata dello shadow flickering poiché la lunghezza dell'ombra proiettata da un aerogeneratore dipende dal grado di diffusione della luce solare diretta, che è strettamente dipendente dalla quantità di disperdente tra osservatore e rotore;
- L'analisi non ha considerato la presenza di vegetazione o altre barriere fisiche attorno a un recettore in grado di proteggere (totalmente o parzialmente) la vista dell'aerogeneratore.

5 RISULTATI DEL MODELLO

Come precedentemente descritto, sono stati modellati due scenari utilizzando il modulo Shadow Flickering di WindPro per identificare i recettori potenzialmente interessati dal fenomeno. Le seguenti sezioni riportano i risultati ottenuti per ogni scenario modellato.

All'interno delle due tabelle di seguito riportate, si evidenziano i ricettori sensibili che risultano effettivamente unità abitate e/o abitabili (i restanti casi analizzati risultano unità collabenti, depositi, magazzini, o unità inabitate), per i quali verranno verificati i parametri limite come esposti nei capitoli precedenti.

5.1 SCENARIO PEGGIORE (WORST CASE)

Lo scenario peggiore è stato modellato senza parametri che caratterizzano le condizioni locali e le ore di funzionamento specifiche del progetto, in linea con quelli che sono le indicazioni delle Linee Guida Internazionali proposte da International Finance Corporation (2015).

Nella seguente tabella, sono riportate le ore totali annue per ogni ricettori sensibile individuato, soggetto al fenomeno dello shadow flicker generato dalla co-presenza di tutti aerogeneratori in progetto, nell'ipotesi di scenario peggiore (Worst case).

Tabella 3 | Risultati ore di ombreggiamento | Scenario peggiore (Worst case)

Fabbricati	Foglio	Particella	E	N	Comune	Classe	WTG	Distanza	hours/year
F239	103,000000	228,000000	719810,058358	4471751,297172	Manduria	F/2	SM10	82,615060	1288:03
F731	116,000000	249,000000	719813,904600	4469698,025500	Manduria	F/2	SM13	90,767705	337:22
F437	100,000000	181,000000	717902,416500	4471478,025900	Manduria	F/2	SM07	113,031958	23:49
F1063	100,000000	167,000000	717773,419500	4471472,970000	Manduria	A/7	SM07	195,319526	27:23
F1179	2,000000	375,000000	715704,398761	4469619,437840	Maruggio	F/2	SM20	199,728328	279:38
F897	7,000000	283,000000	713557,761000	4468073,456700	Maruggio	F/2	SM18	204,880649	88:52
F222	7,000000	283,000000	713555,877563	4468072,869642	Maruggio	F/2	SM18	206,280548	89:02
F901	18,000000	691,000000	712980,314100	4467641,873500	Torricella	F/2	SM17	228,579823	178:08:
F119	18,000000	691,000000	712979,676000	4467642,109700	Torricella	F/2	SM17	229,202709	177:43
F878	9,000000	583,000000	714347,331700	4470802,673300	Torricella	F/2	SM19	231,764286	337:48
F798	46,000000	384,000000	716575,677000	4470684,178300	Sava	F/2	SM06	243,919565	375:52
F877	9,000000	586,000000	714391,806000	4470827,308100	Torricella	F/2	SM19	252,239259	273:10
F341	115,000000	285,000000	719061,997500	4469725,542300	Manduria	F/2	SM12	254,665331	434:01
F163	100,000000	162,000000	718164,696790	4471694,499809	Manduria	F/2	SM07	256,280066	347:18
F215	120,000000	222,000000	721687,570592	4469860,201983	Manduria	A/4	SM15	288,179387	333:57
F1059	100,000000	177,000000	717756,367500	4471354,198700	Manduria	F/2	SM07	291,651100	33:29
F237	12,000000	1102,000000	713488,561108	4467546,303339	Maruggio	F/2	SM17	300,548986	00:00
F930	12,000000	1102,000000	713494,629500	4467544,886700	Maruggio	F/2	SM17	306,717547	00:00

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

F1158	116,000000	162,000000	719737,647785	4470046,629270	Manduria	F/2	SM13	313,922883	162:36
F722	116,000000	57,000000	719725,096100	4470052,460200	Manduria	F/2	SM13	319,697855	151:40
F84	105,000000	239,000000	721652,639292	4469887,627429	Manduria	F/2	SM15	330,324108	288:31
F338	6,000000	407,000000	717669,615300	4469929,679100	Maruggio	F/2	SM08	336,359201	35:50
F418	40,000000	375,000000	715688,230100	4472673,159400	Sava	F/2	SM05	347,922663	83:36
F821	101,000000	167,000000	717422,828200	4470394,656500	Manduria	C/2 - F/2	SM08	380,478371	190:26
F1186	80,000000	282,000000	718819,479500	4473067,710500	Manduria	A/7	SM09	414,874295	01:36
F894	7,000000	276,000000	713907,367800	4468609,280700	Maruggio	F/2	SM18	436,150695	131:31
F165	102,000000	629,000000	718124,115338	4470517,942236	Manduria	F/2	SM08	440,788157	197:06
F444	102,000000	650,000000	718339,085000	4471771,085300	Manduria	F/2	SM07	446,690458	146:09
F1105	2,000000	376,000000	715928,322372	4469783,504030	Maruggio	F/2	SM20	451,825738	136:36
F1062	100,000000	185,000000	717523,733400	4471373,634900	Manduria	F/2	SM07	460,582983	36:22
F507	90,000000	165,000000	718559,492300	4472349,544700	Manduria	F/2	SM09	467,138516	19:39
F397	40,000000	360,000000	715208,678300	4472483,960600	Sava	A/4	SM05	468,848212	114:02
F150	46,000000	360,000000	717290,224552	4470767,621274	Sava	A/4	SM06	475,486201	156:49
F348	121,000000	233,000000	722103,111100	4469312,275700	Manduria	F/2	SM15	478,223726	00:00
F573	46,000000	376,000000	716516,470000	4471077,088800	Sava	A/4	SM06	478,486598	148:09
F396	40,000000	360,000000	715206,001100	4472516,627800	Sava	A/4	SM05	483,213874	113:59
F445	102,000000	649,000000	718360,339200	4471829,138500	Manduria	F/2	SM07	491,936082	138:31

5.2 SCENARIO REALE (REAL CASE BY STATISTICS)

Per questo scenario, i calcoli si basano su una situazione più realistica in cui la probabilità di avere sole pieno si basa su un set di dati di archivio e si presume che il rotore sia in funzione solo per un limitato intervallo di tempo desunto da dati statistici relativi alla ventosità (% di calme di vento oppure venti molto forti che impediscono un corretto funzionamento delle turbine).

Le seguenti mappe presentano la distribuzione dello shadow flickering tenendo conto dei riferimenti IFC e della proposta più conservativa presente nelle linee guida tedesche pari a 8 ore/anno.

Nella seguente tabella, sono riportate le ore totali annue per ogni ricettori sensibile individuato, soggetto al fenomeno dello shadow flicker generato dalla co-presenza di tutti aerogeneratori in progetto, nell'ipotesi di scenario reale (Real Case by Statistics).

Tabella 4 | Risultati ore di ombreggiamento | Scenario reale (Real case by statistics)

Fabbricati	Foglio	Particella	E	N	Comune	Classe	WTG	Distanza	hours/year
F239	103,000000	228,000000	719810,058358	4471751,297172	Manduria	F/2	SM10	82,615060	358:54
F731	116,000000	249,000000	719813,904600	4469698,025500	Manduria	F/2	SM13	90,767705	113:59
F437	100,000000	181,000000	717902,416500	4471478,025900	Manduria	F/2	SM07	113,031958	4:26
F1063	100,000000	167,000000	717773,419500	4471472,970000	Manduria	A/7	SM07	195,319526	5:01
F1179	2,000000	375,000000	715704,398761	4469619,437840	Maruggio	F/2	SM20	199,728328	81:12

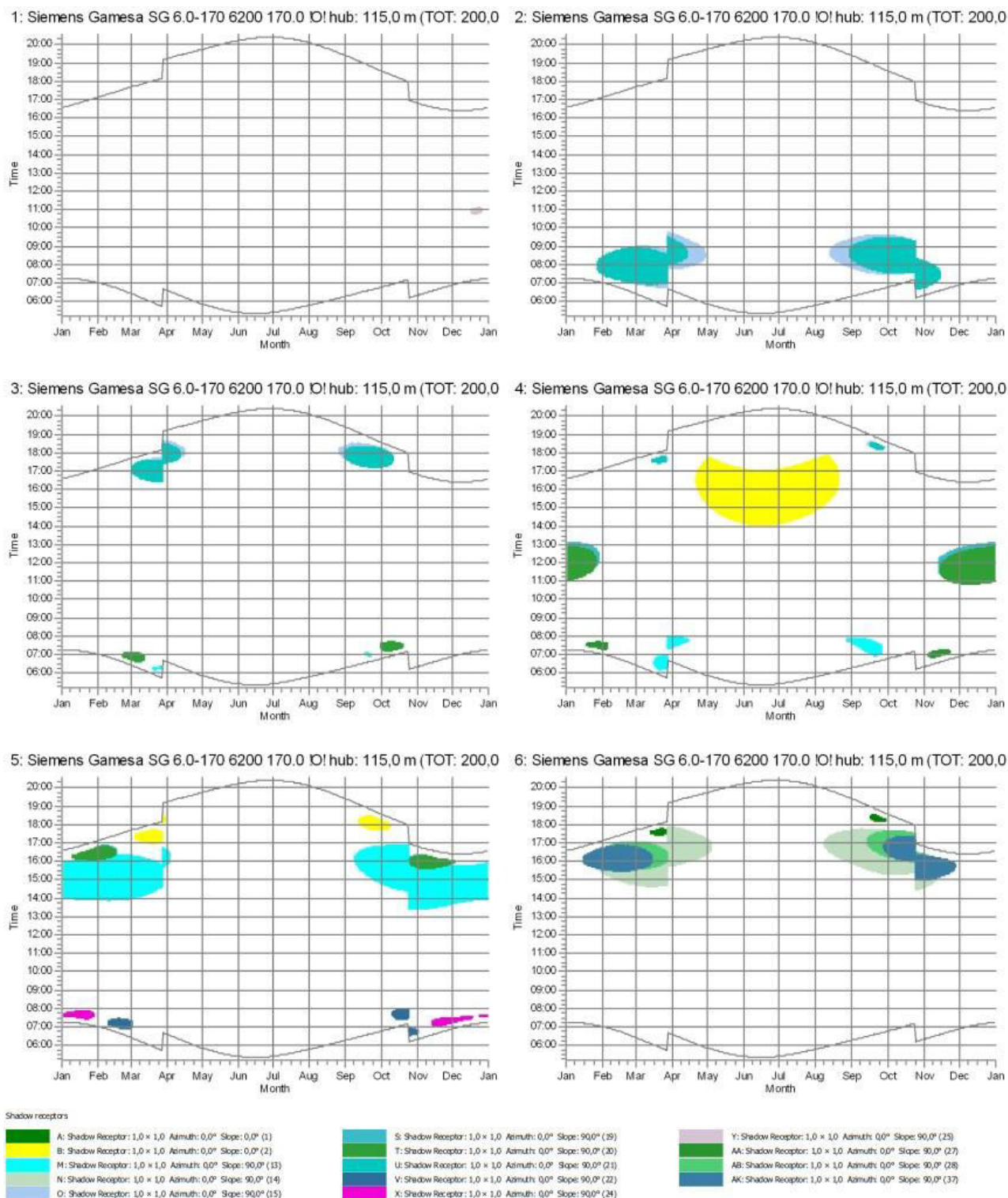
Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

F897	7,000000	283,000000	713557,761000	4468073,456700	Maruggio	F/2	SM18	204,880649	17:22
F222	7,000000	283,000000	713555,877563	4468072,869642	Maruggio	F/2	SM18	206,280548	17:26
F901	18,000000	691,000000	712980,314100	4467641,873500	Torricella	F/2	SM17	228,579823	49:33
F119	18,000000	691,000000	712979,676000	4467642,109700	Torricella	F/2	SM17	229,202709	49:26
F878	9,000000	583,000000	714347,331700	4470802,673300	Torricella	F/2	SM19	231,764286	86:37
F798	46,000000	384,000000	716575,677000	4470684,178300	Sava	F/2	SM06	243,919565	37:13
F877	9,000000	586,000000	714391,806000	4470827,308100	Torricella	F/2	SM19	252,239259	67:52
F341	115,000000	285,000000	719061,997500	4469725,542300	Manduria	F/2	SM12	254,665331	91:07
F163	100,000000	162,000000	718164,696790	4471694,499809	Manduria	F/2	SM07	256,280066	80:10
F215	120,000000	222,000000	721687,570592	4469860,201983	Manduria	A/4	SM15	288,179387	87:41
F1059	100,000000	177,000000	717756,367500	4471354,198700	Manduria	F/2	SM07	291,651100	6:17
F237	12,000000	1102,000000	713488,561108	4467546,303339	Maruggio	F/2	SM17	300,548986	0:00
F930	12,000000	1102,000000	713494,629500	4467544,886700	Maruggio	F/2	SM17	306,717547	0:00
F1158	116,000000	162,000000	719737,647785	4470046,629270	Manduria	F/2	SM13	313,922883	37:57
F722	116,000000	57,000000	719725,096100	4470052,460200	Manduria	F/2	SM13	319,697855	35:20
F84	105,000000	239,000000	721652,639292	4469887,627429	Manduria	F/2	SM15	330,324108	73:22
F338	6,000000	407,000000	717669,615300	4469929,679100	Maruggio	F/2	SM08	336,359201	7:24
F418	40,000000	375,000000	715688,230100	4472673,159400	Sava	F/2	SM05	347,922663	19:36
F821	101,000000	167,000000	717422,828200	4470394,656500	Manduria	C/2 - F/2	SM08	380,478371	48:18
F1186	80,000000	282,000000	718819,479500	4473067,710500	Manduria	A/7	SM09	414,874295	0:23
F894	7,000000	276,000000	713907,367800	4468609,280700	Maruggio	F/2	SM18	436,150695	26:55
F165	102,000000	629,000000	718124,115338	4470517,942236	Manduria	F/2	SM08	440,788157	39:04
F444	102,000000	650,000000	718339,085000	4471771,085300	Manduria	F/2	SM07	446,690458	31:30
F1105	2,000000	376,000000	715928,322372	4469783,504030	Maruggio	F/2	SM20	451,825738	29:59
F1062	100,000000	185,000000	717523,733400	4471373,634900	Manduria	F/2	SM07	460,582983	6:43
F507	90,000000	165,000000	718559,492300	4472349,544700	Manduria	F/2	SM09	467,138516	4:32
F397	40,000000	360,000000	715208,678300	4472483,960600	Sava	A/4	SM05	468,848212	28:35
F150	46,000000	360,000000	717290,224552	4470767,621274	Sava	A/4	SM06	475,486201	37:56
F348	121,000000	233,000000	722103,111100	4469312,275700	Manduria	F/2	SM15	478,223726	0:00
F573	46,000000	376,000000	716516,470000	4471077,088800	Sava	A/4	SM06	478,486598	36:20
F396	40,000000	360,000000	715206,001100	4472516,627800	Sava	A/4	SM05	483,213874	28:22
F445	102,000000	649,000000	718360,339200	4471829,138500	Manduria	F/2	SM07	491,936082	28:46

Per l'individuazione dei ricettori sensibili su mappa e la determinazione dell'andamento planimetrico delle ombre generate dalla presenza degli aerogeneratori in progetto (Real case by statistics), si rimanda agli elaborati planimetrici di progetto denominati "N8M3C18_DocumentazioneSpecialistica_26_01" e "N8M3C18_DocumentazioneSpecialistica_26_02".

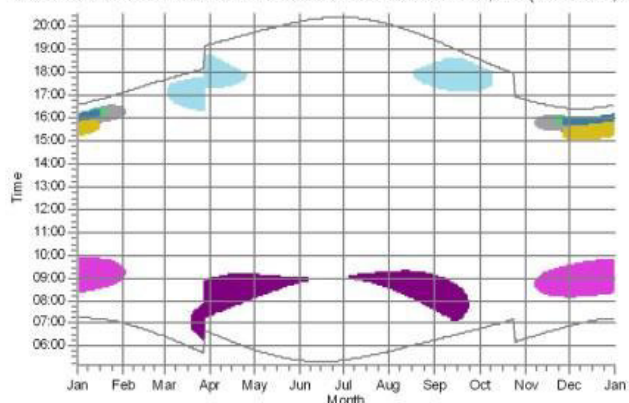
Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

Si riporta di seguito, i diagrammi per singola WTG analizzati nel caso di scenario reale (Real case by Statistics).

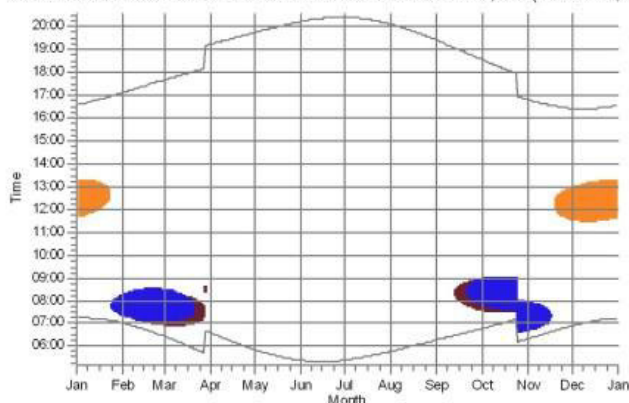


Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

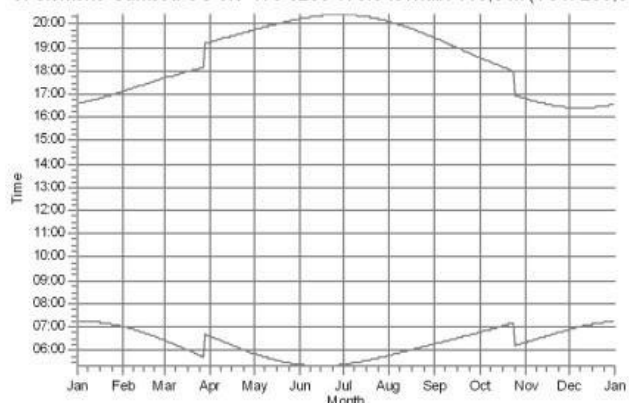
7: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0



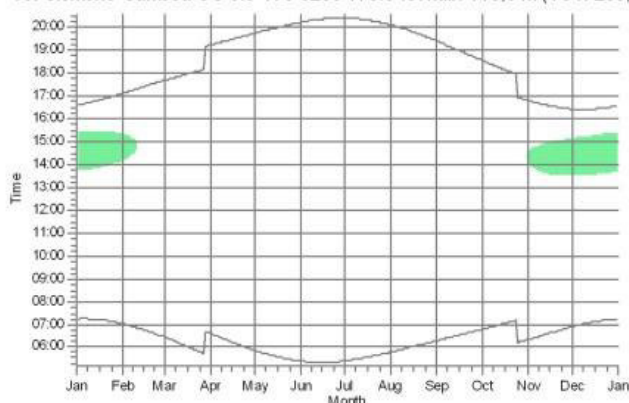
8: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0



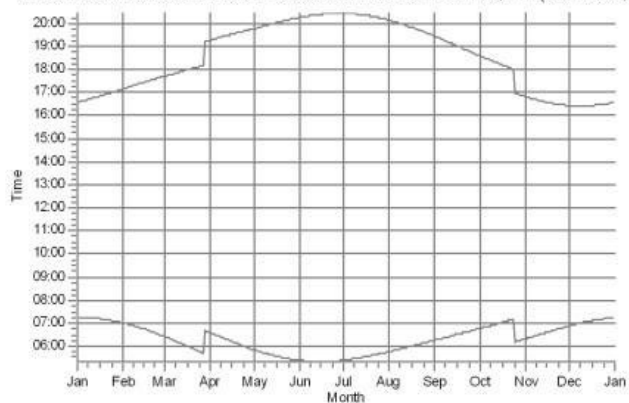
9: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0



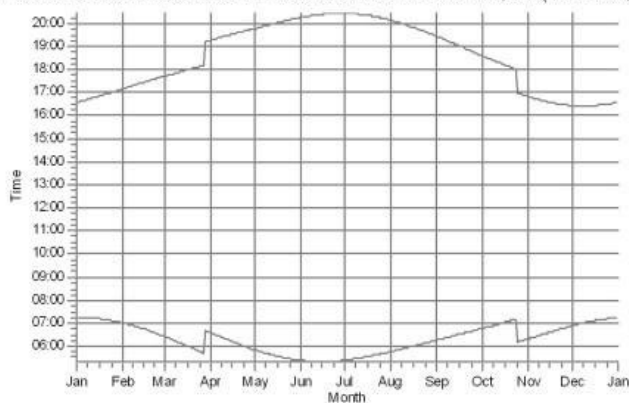
10: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0



11: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0



12: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0



Shadow receptors

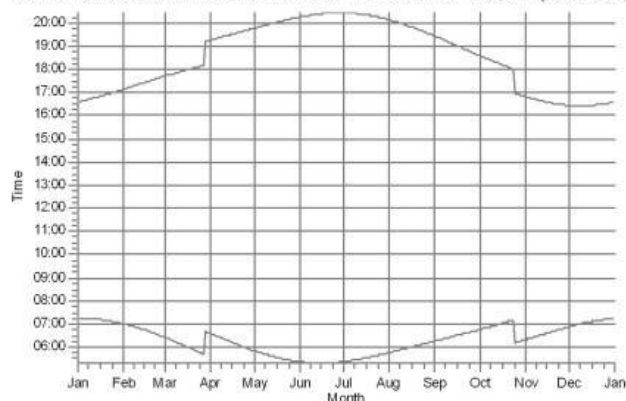
C: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (3)
D: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (4)
K: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (11)
N: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (14)
P: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (16)

W: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (23)
Z: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (26)
AB: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (28)
AD: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (30)
AP: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (32)

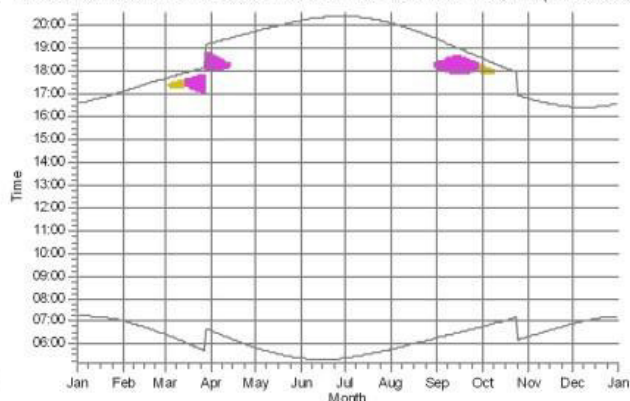
AG: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (33)
AI: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (35)
AJ: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (36)
AK: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (37)

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

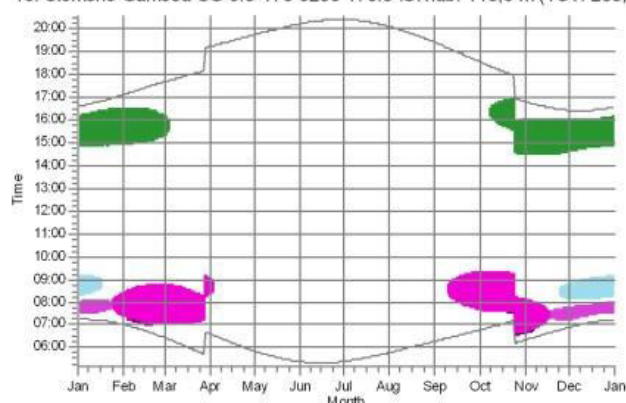
13: Siemens Gamesa SG 6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0



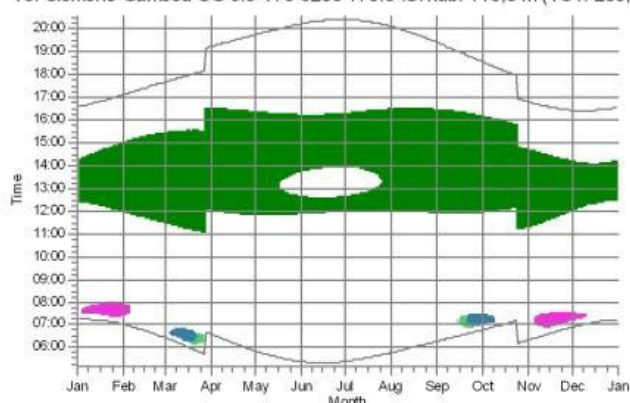
14: Siemens Gamesa SG 6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0



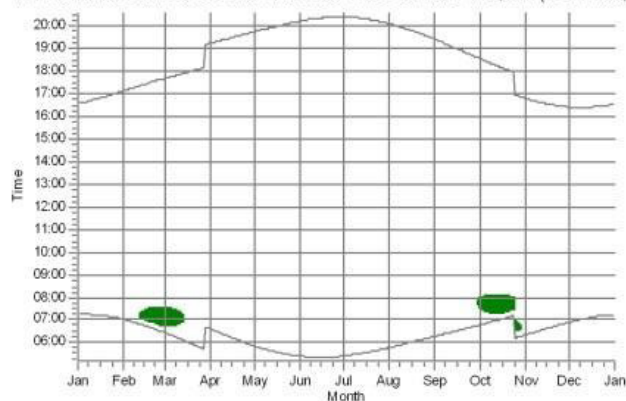
15: Siemens Gamesa SG 6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0



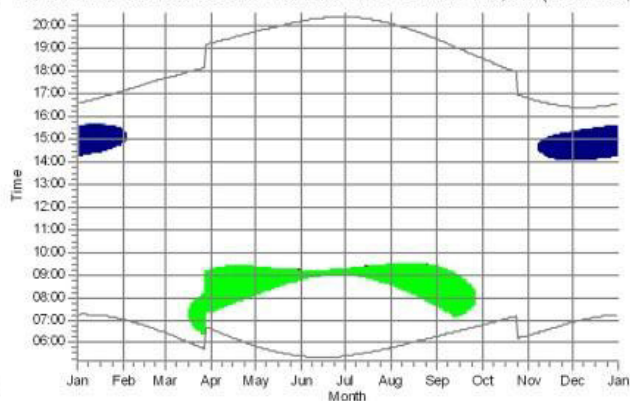
16: Siemens Gamesa SG 6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0



17: Siemens Gamesa SG 6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0



18: Siemens Gamesa SG 6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0



Shadow receptors

A: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (1)
F: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (6)
G: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (7)
H: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (8)
I: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (9)

K: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (11)
N: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (14)
X: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (24)
AA: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (27)
AB: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (28)

AD: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (30)
AE: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (31)
AG: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (33)
AI: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (35)
AK: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (37)

PROJETTO engineering s.r.l.
società d'ingegneria

STUDIO EVOLUZIONE DELL'OMBRA

Direttore Tecnico: ING. LEONARDO FILOTICO
Cap. Soc. 119.000,00 € Codice Fiscale: 02658050733
Partita Iva : 02658050733
Sede Legale: Via del Mille 5, 74024 Manduria - Taranto
Sede Operativa: Z.I. Lotto 31, 74020 San Marzano di San Giuseppe - Taranto
Tel 099 9574694 fax 099 2222834 mob. 3491735914



SR EN ISO 9001:2015
Certificate No. 0204



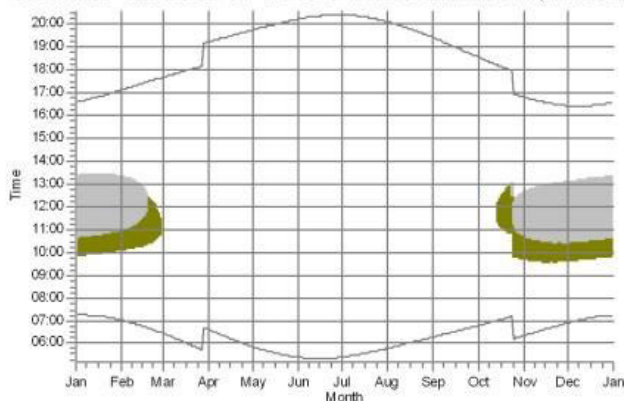
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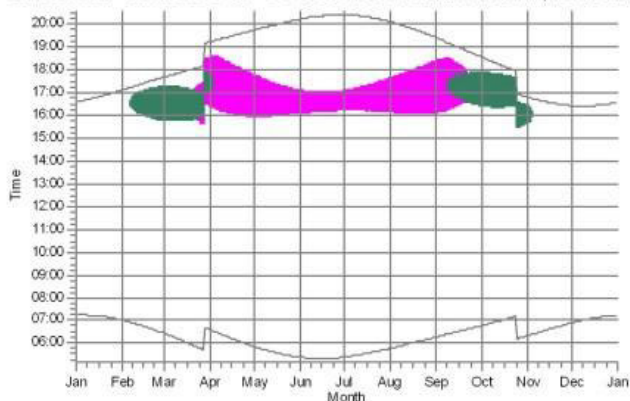
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Certificate No. 0097

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

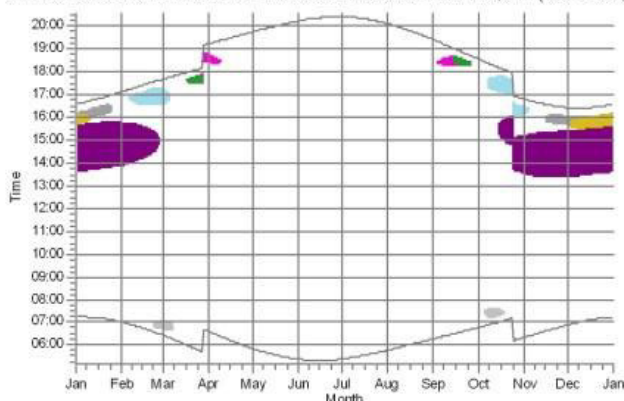
19: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0 m)



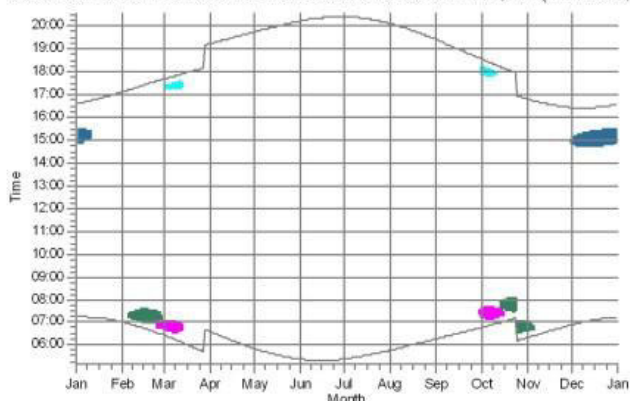
20: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0 m)



21: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0 m)



22: Siemens Gamesa SG 6.0-170 6200 170.0 IO! hub: 115,0 m (TOT: 200,0 m)



Shadow receptors

C: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (3)
D: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (4)
E: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 0,0° (5)
J: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (10)
K: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (11)

L: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (12)
M: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (13)
P: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (16)
V: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (22)
X: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (24)

AA: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (27)
AC: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (29)
AD: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (30)
AG: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (33)

PROJETTO engineering s.r.l.
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6 CONCLUSIONI

Il presente elaborato si riferisce alla valutazione attraverso un approccio modellistico del potenziale impatto derivante dall'insorgenza del fenomeno denominato Shadow Flickering (evoluzione dell'ombra, letteralmente ombreggiamento intermittente) che si potrebbe manifestare a seguito dell'entrata in esercizio dell'impianto eolico proposto da Red Energy Srl denominato "Sava Maruggio", costituito da 22 aerogeneratori.

La valutazione, effettuata attraverso il Modulo Shadow del Programma WindPro 3.4, è stata svolta attraverso la predisposizione di due scenari denominati Scenario Peggior (Worst Case) e Scenario Reale (Real Case) (maggiormente rappresentativo delle condizioni locali meteo e di ventosità dell'area oggetto del Progetto).

Il contesto normativo italiano non prevede una normativa di riferimento o linee guida sul tema specifico dello Shadow Flickering. Al fine di valutare in maniera oggettiva i risultati del modello sono stati considerati i seguenti due riferimenti (che non rappresentano un valore limite prescrittivo):

- International Finance Corporation (EHS Guidelines 2015) che raccomandano, per lo scenario Worst Case una durata degli effetti di shadow flickering non superiore alle 30 ore/anno e ai 30 minuti/giorno;
- Al fine di valutare in maniera ancor più conservativa i risultati, la valutazione dei risultati dello Scenario Real Case è stata condotta tenendo in considerazione anche le linee guida tedesche che riportano un limite pari a 8 ore/anno, applicato al Caso Reale.

Stante queste considerazioni, analizzando i risultati emerge come nello scenario peggiore (Worst Case) n. 4 recettori delle n. 6 unità abitabili presentano valori al di sopra dei livelli di orientamento internazionale di 30 ore/anno, e di 30 minuti/giorno.

Nello scenario reale invece solo n. 2 recettori risultano al di sopra dei livelli di orientamento internazionale di 30 ore/anno per gli effetti degli aerogeneratori esistenti nell'area e si evince che nessuno di questi recettori è impattato dall'impianto in progetto. Altresì, con riferimento al riferimento più conservativo tedesco (8 ore/anno) si riscontrano possibili valori superiori per n. 4 ricettori (**F397, F150, F573 e F396**).

Tuttavia, si sottolinea come l'analisi condotta non ha tenuto conto della presenza di "zone di esclusione" naturali o artificiali che hanno la facoltà di inibire (parzialmente o totalmente) il fenomeno dello Shadow Flicker sui ricettori individuati (es.: presenza di alberature, tendaggi, infissi, ecc.) poiché il calcolo si è basato esclusivamente sui dati di orografia e geografici del sito in esame.

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

Tuttavia alla luce di quanto descritto, **al fine di minimizzare gli impatti sui pochi recettori risultati potenzialmente interessati dallo shadow flicker, si potranno effettuare, ove richiesto dai recettori stessi, ed in caso di conferma puntuale della presenza del fenomeno oltre le soglie proposte, le seguenti attività di mitigazione sulla base della raccolta di eventuali segnalazioni:**

- **Inserimento di barriere visive (naturali):** progettare interventi specifici e poco invasivi (come la piantumazione di apposita vegetazione folta e ombreggiante, ecc.) che possono coprire la vista delle turbine eoliche dalle finestre delle case vicine e perciò prevenire, o annullare, lo Shadow Flicker.
- **Inserimento di barriere visive (strutturali):** nel caso in cui lo screening visivo naturale sui potenziali recettori sensibili risulta insufficiente, si valuterà la possibilità di implementare lo screening architettonico / strutturale tramite l'installazione di persiane, tende da sole o recinzioni sui recettori interessati eliminando ulteriormente l'effetto dello sfarfallio dell'ombra.

Progetto dell'impianto eolico con storage denominato "Sava Maruggio" della potenza complessiva di 182 MW da realizzare nei Comuni di Sava (TA), Manduria (TA), Maruggio (TA), Torricella (TA) ed Erchie (BR).

7 ALLEGATI

Sono parte integrante della presente relazione i seguenti allegati:

- Tabulati di calcolo Scenario peggiore (Worst Case) di WindPro 3.4;
- Tabulati di calcolo Scenario reale (Real Case by Statistics) di WindPro 3.4.



Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: A - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (1)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May		June	
1	07:13	12:29 (16)	07:00	12:02 (16)	06:25	06:46 (17)	06:36	12:06 (16)	05:51	11:54 (16)	05:23
2	07:13	12:28 (16)	07:00	12:01 (16)	06:24	06:47 (17)	06:34	12:05 (16)	05:50	11:54 (16)	05:22
3	07:13	12:28 (16)	06:59	12:00 (16)	06:22	06:47 (17)	06:32	12:05 (16)	05:48	11:53 (16)	05:22
4	07:13	12:27 (16)	06:58	11:59 (16)	06:21	06:47 (17)	06:31	12:04 (16)	05:47	11:54 (16)	05:21
5	07:13	12:27 (16)	06:57	11:58 (16)	06:19	06:47 (17)	06:29	12:03 (16)	05:46	11:54 (16)	05:21
6	07:13	12:26 (16)	06:55	11:57 (16)	06:18	06:47 (17)	06:28	12:03 (16)	05:45	11:54 (16)	05:21
7	07:13	12:26 (16)	06:54	11:56 (16)	06:16	06:49 (17)	06:26	12:02 (16)	05:43	11:54 (16)	05:21
8	07:13	12:25 (16)	06:53	11:55 (16)	06:15	06:49 (17)	06:24	12:02 (16)	05:42	11:54 (16)	05:20
9	07:13	12:25 (16)	06:52	11:54 (16)	06:13	06:51 (17)	06:23	12:01 (16)	05:41	11:54 (16)	05:20
10	07:13	12:23 (16)	06:51	11:52 (16)	06:11	06:52 (17)	06:21	12:01 (16)	05:40	11:54 (16)	05:20
11	07:13	12:23 (16)	06:50	11:51 (16)	06:10	06:53 (17)	06:20	12:00 (16)	05:39	11:54 (16)	05:20
12	07:13	12:22 (16)	06:49	11:50 (16)	06:08	06:56 (17)	06:18	11:59 (16)	05:38	11:54 (16)	05:20
13	07:12	12:21 (16)	06:47	11:49 (16)	06:07	06:59 (17)	06:17	11:59 (16)	05:37	11:54 (16)	05:20
14	07:12	12:21 (16)	06:46	11:48 (16)	06:05	11:59 (16)	06:15	11:59 (16)	05:36	11:54 (16)	05:19
15	07:12	12:20 (16)	06:45	11:47 (16)	06:03	11:59 (16)	06:13	11:59 (16)	05:35	11:54 (16)	05:19
16	07:11	12:19 (16)	06:44	11:46 (16)	06:02	11:58 (16)	06:12	11:58 (16)	05:34	11:54 (16)	05:19
17	07:11	12:18 (16)	06:42	11:45 (16)	06:00	11:58 (16)	06:10	11:58 (16)	05:33	11:54 (16)	05:20
18	07:10	12:17 (16)	06:41	11:44 (16)	05:59	11:57 (16)	06:09	11:57 (16)	05:32	11:54 (16)	05:20
19	07:10	12:16 (16)	06:40	11:43 (16)	05:57	11:56 (16)	06:07	11:56 (16)	05:31	11:54 (16)	05:20
20	07:09	12:15 (16)	06:38	11:42 (16)	05:55	11:55 (16)	06:06	11:55 (16)	05:30	11:54 (16)	05:20
21	07:09	12:14 (16)	06:37	11:41 (16)	05:54	11:54 (16)	06:05	11:54 (16)	05:29	11:54 (16)	05:20
22	07:08	12:13 (16)	06:36	11:40 (16)	05:52	11:53 (16)	06:03	11:53 (16)	05:28	11:54 (16)	05:20
23	07:08	12:12 (16)	06:34	11:39 (16)	05:50	11:52 (16)	06:02	11:52 (16)	05:27	11:54 (16)	05:20
24	07:07	12:11 (16)	06:33	11:38 (16)	05:49	11:51 (16)	06:01	11:51 (16)	05:26	11:54 (16)	05:20
25	07:06	12:10 (16)	06:31	11:37 (16)	05:47	11:50 (16)	05:59	11:50 (16)	05:25	11:54 (16)	05:20
26	07:05	12:09 (16)	06:30	11:36 (16)	05:45	11:49 (16)	05:57	11:49 (16)	05:24	11:54 (16)	05:20
27	07:05	12:08 (16)	06:28	11:35 (16)	05:44	11:48 (16)	05:56	11:48 (16)	05:23	11:54 (16)	05:20
28	07:04	12:07 (16)	06:27	11:34 (16)	05:42	11:47 (16)	05:55	11:47 (16)	05:22	11:54 (16)	05:20
29	07:03	12:06 (16)		11:33 (16)	05:41	11:46 (16)	05:54	11:46 (16)	05:21	11:54 (16)	05:20
30	07:02	12:05 (16)		11:32 (16)	05:40	11:45 (16)	05:53	11:45 (16)	05:20	11:54 (16)	05:20
31	07:01	12:04 (16)		11:31 (16)	05:39	11:44 (16)	05:52	11:44 (16)	05:19	11:54 (16)	05:20
Potential sun hours	299		298		370		398		446		450
Total, worst case	4202		6222		8300		7954		7295		5031

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: A - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (1)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

July		August		September		October		November		December	
1	05:23	12:04 (16)	05:47	12:04 (16)	06:17	11:59 (16)	06:46	07:36 (17)	06:19	11:22 (16)	06:53
	20:24	16:16 (16)	20:06	16:25 (16)	19:24	16:25 (16)	18:34	16:07 (16)	16:48	14:38 (16)	16:25
2	05:24	12:04 (16)	05:48	12:04 (16)	06:17	11:59 (16)	06:47	07:33 (17)	06:20	11:23 (16)	06:54
	20:24	16:16 (16)	20:05	16:25 (16)	19:22	16:25 (16)	18:32	16:07 (16)	16:47	14:37 (16)	16:24
3	05:24	12:05 (16)	05:49	12:04 (16)	06:18	11:59 (16)	06:48	07:30 (17)	06:21	11:25 (16)	06:55
	20:24	16:16 (16)	20:04	16:26 (16)	19:20	16:24 (16)	18:31	16:06 (16)	16:46	14:36 (16)	16:24
4	05:25	12:04 (16)	05:49	12:04 (16)	06:19	11:59 (16)	06:49	07:28 (17)	06:22	11:26 (16)	06:56
	20:24	16:16 (16)	20:03	16:26 (16)	19:19	16:24 (16)	18:29	16:05 (16)	16:45	14:35 (16)	16:24
5	05:25	12:05 (16)	05:50	12:03 (16)	06:20	11:59 (16)	06:50	07:26 (17)	06:23	11:27 (16)	06:57
	20:24	16:17 (16)	20:01	16:26 (16)	19:17	16:24 (16)	18:27	16:04 (16)	16:44	14:34 (16)	16:24
6	05:26	12:04 (16)	05:51	12:03 (16)	06:21	11:59 (16)	06:51	07:25 (17)	06:25	11:28 (16)	06:58
	20:23	16:17 (16)	20:00	16:27 (16)	19:16	16:23 (16)	18:26	16:03 (16)	16:43	14:32 (16)	16:24
7	05:27	12:05 (16)	05:52	12:03 (16)	06:22	11:59 (16)	06:52	07:23 (17)	06:26	11:29 (16)	06:59
	20:23	16:17 (16)	19:59	16:27 (16)	19:14	16:23 (16)	18:24	16:02 (16)	16:41	14:31 (16)	16:24
8	05:27	12:04 (16)	05:53	12:03 (16)	06:23	11:59 (16)	06:53	07:23 (17)	06:27	11:31 (16)	07:00
	20:23	16:17 (16)	19:58	16:27 (16)	19:12	16:23 (16)	18:23	16:02 (16)	16:40	14:31 (16)	16:24
9	05:28	12:05 (16)	05:54	12:03 (16)	06:24	11:58 (16)	06:54	07:22 (17)	06:28	11:32 (16)	07:01
	20:22	16:18 (16)	19:57	16:27 (16)	19:11	16:21 (16)	18:21	16:01 (16)	16:39	14:29 (16)	16:24
10	05:28	12:05 (16)	05:55	12:03 (16)	06:25	11:58 (16)	06:55	07:21 (17)	06:29	11:33 (16)	07:01
	20:22	16:19 (16)	19:55	16:27 (16)	19:09	16:21 (16)	18:20	16:00 (16)	16:38	14:28 (16)	16:24
11	05:29	12:04 (16)	05:56	12:03 (16)	06:26	11:58 (16)	06:56	07:21 (17)	06:30	11:34 (16)	07:02
	20:22	16:18 (16)	19:54	16:28 (16)	19:07	16:21 (16)	18:18	15:59 (16)	16:37	14:27 (16)	16:24
12	05:30	12:05 (16)	05:57	12:03 (16)	06:27	11:58 (16)	06:57	07:20 (17)	06:32	11:36 (16)	07:03
	20:21	16:19 (16)	19:53	16:28 (16)	19:06	16:20 (16)	18:16	15:58 (16)	16:36	14:27 (16)	16:24
13	05:31	12:05 (16)	05:58	12:03 (16)	06:28	11:58 (16)	06:58	07:20 (17)	06:33	11:38 (16)	07:04
	20:21	16:20 (16)	19:52	16:28 (16)	19:04	16:20 (16)	18:15	15:57 (16)	16:36	14:25 (16)	16:24
14	05:31	12:05 (16)	05:59	12:02 (16)	06:29	11:58 (16)	06:59	07:19 (17)	06:34	11:39 (16)	07:05
	20:20	16:20 (16)	19:50	16:27 (16)	19:02	16:19 (16)	18:13	15:56 (16)	16:35	14:24 (16)	16:24
15	05:32	12:05 (16)	06:00	12:02 (16)	06:30	11:59 (16)	07:00	07:20 (17)	06:35	11:40 (16)	07:05
	20:20	16:20 (16)	19:49	16:27 (16)	19:01	16:19 (16)	18:12	15:55 (16)	16:34	14:23 (16)	16:24
16	05:33	12:05 (16)	06:01	12:02 (16)	06:31	11:59 (16)	07:01	07:21 (17)	06:36	11:42 (16)	07:06
	20:19	16:21 (16)	19:47	16:27 (16)	18:59	16:18 (16)	18:10	15:54 (16)	16:33	14:22 (16)	16:25
17	05:34	12:05 (16)	06:02	12:01 (16)	06:32	11:59 (16)	07:02	07:22 (17)	06:37	11:43 (16)	07:07
	20:18	16:21 (16)	19:46	16:27 (16)	18:57	16:18 (16)	18:09	15:53 (16)	16:32	14:21 (16)	16:25
18	05:34	12:05 (16)	06:03	12:01 (16)	06:33	11:59 (16)	07:03	07:23 (17)	06:39	11:45 (16)	07:07
	20:18	16:22 (16)	19:45	16:27 (16)	18:56	16:18 (16)	18:07	15:52 (16)	16:31	14:20 (16)	16:25
19	05:35	12:05 (16)	06:04	12:01 (16)	06:34	11:59 (16)	07:04	07:25 (17)	06:40	11:46 (16)	07:08
	20:17	16:21 (16)	19:43	16:27 (16)	18:54	16:18 (16)	18:06	15:52 (16)	16:31	14:19 (16)	16:26
20	05:36	12:05 (16)	06:05	12:01 (16)	06:35	11:59 (16)	07:05	07:26 (17)	06:41	11:48 (16)	07:09
	20:16	16:22 (16)	19:42	16:27 (16)	18:52	16:18 (16)	18:04	15:51 (16)	16:30	14:18 (16)	16:26
21	05:37	12:05 (16)	06:06	12:01 (16)	06:36	11:59 (16)	07:06	07:27 (17)	06:42	11:50 (16)	07:09
	20:16	16:22 (16)	19:40	16:27 (16)	18:51	16:18 (16)	18:03	15:50 (16)	16:29	14:17 (16)	16:27
22	05:38	12:05 (16)	06:07	12:01 (16)	06:37	11:59 (16)	07:07	07:28 (17)	06:43	11:51 (16)	07:10
	20:15	16:23 (16)	19:39	16:27 (16)	18:49	16:18 (16)	18:02	15:48 (16)	16:29	14:16 (16)	16:27
23	05:39	12:05 (16)	06:08	12:01 (16)	06:38	12:00 (16)	07:09	07:29 (17)	06:44	11:52 (16)	07:10
	20:14	16:23 (16)	19:37	16:27 (16)	18:47	16:18 (16)	18:00	15:47 (16)	16:28	14:15 (16)	16:28
24	05:39	12:04 (16)	06:09	12:01 (16)	06:39	11:59 (16)	07:10	07:30 (17)	06:45	11:54 (16)	07:11
	20:13	16:23 (16)	19:36	16:27 (16)	18:46	16:18 (16)	17:59	15:46 (16)	16:28	14:14 (16)	16:28
25	05:40	12:04 (16)	06:10	12:01 (16)	06:40	11:59 (16)	06:11	06:32 (17)	06:46	11:56 (16)	07:11
	20:12	16:23 (16)	19:34	16:27 (16)	18:44	16:18 (16)	17:57	15:45 (16)	16:27	14:13 (16)	16:29
26	05:41	12:05 (16)	06:11	12:01 (16)	06:41	11:59 (16)	06:12	06:33 (17)	06:48	11:58 (16)	07:11
	20:12	16:24 (16)	19:33	16:27 (16)	18:42	16:18 (16)	17:56	14:45 (16)	16:27	14:12 (16)	16:29
27	05:42	12:05 (16)	06:12	12:00 (16)	06:42	11:59 (16)	06:13	06:34 (17)	06:49	11:59 (16)	07:12
	20:11	16:24 (16)	19:31	16:26 (16)	18:41	16:18 (16)	17:55	14:43 (16)	16:26	14:11 (16)	16:30
28	05:43	12:05 (16)	06:13	12:00 (16)	06:43	12:00 (16)	06:14	06:35 (17)	06:50	12:01 (16)	07:12
	20:10	16:25 (16)	19:30	16:26 (16)	18:39	16:16 (16)	17:53	14:42 (16)	16:26	14:10 (16)	16:31
29	05:44	12:05 (16)	06:14	11:59 (16)	06:44	12:00 (16)	06:15	06:36 (17)	06:51	12:02 (16)	07:12
	20:09	16:25 (16)	19:28	16:25 (16)	18:37	16:15 (16)	17:52	14:41 (16)	16:25	14:09 (16)	16:31
30	05:45	12:05 (16)	06:15	11:59 (16)	06:45	07:42 (17)	06:16	11:20 (16)	06:52	12:03 (16)	07:13
	20:08	16:25 (16)	19:27	16:25 (16)	18:36	16:08 (16)	16:51	14:41 (16)	16:25	14:08 (16)	16:32
31	05:46	12:05 (16)	06:16	11:59 (16)			06:18	11:21 (16)			07:13
	20:07	16:26 (16)	19:25	16:25 (16)			16:50	14:39 (16)			16:33
Potential sun hours	457		427		375		346		300		290
Total, worst case	6266		8209		7906		7918		4829		3151

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: B - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (2)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March		April		May		June		
1	07:13 16:34	07:00 17:08	06:25 17:41		06:36 19:14		05:51 19:45	140	15:16 (4) 20:13	170	14:13 (4) 17:03 (4)
2	07:13 16:35	06:59 17:09	06:24 17:42		06:34 19:15		05:50 19:46	147	15:12 (4) 20:14	171	14:12 (4) 17:03 (4)
3	07:13 16:36	06:58 17:10	06:22 17:43		06:32 19:16		05:48 19:47	152	15:07 (4) 20:15	171	14:11 (4) 17:02 (4)
4	07:13 16:36	06:58 17:11	06:21 17:44		06:31 19:17		05:47 19:48	153	15:04 (4) 20:15	170	14:11 (4) 17:01 (4)
5	07:13 16:37	06:56 17:12	06:19 17:45	5	17:19 (5) 19:18		05:46 19:49	155	15:01 (4) 20:16	171	14:10 (4) 17:01 (4)
6	07:13 16:38	06:55 17:14	06:18 17:46	10	17:15 (5) 19:19		05:45 19:50	156	14:58 (4) 20:17	171	14:09 (4) 17:00 (4)
7	07:13 16:39	06:54 17:15	06:16 17:47	14	17:13 (5) 19:20		05:44 19:51	158	14:55 (4) 20:17	171	14:09 (4) 17:00 (4)
8	07:13 16:40	06:53 17:16	06:15 17:48	17	17:12 (5) 19:21		05:42 19:52	159	14:52 (4) 20:18	170	14:09 (4) 16:59 (4)
9	07:13 16:41	06:52 17:17	06:13 17:50	20	17:09 (5) 19:22		05:41 19:53	160	14:50 (4) 20:19	171	14:08 (4) 16:59 (4)
10	07:13 16:42	06:51 17:18	06:11 17:51	23	17:07 (5) 19:23		05:40 19:54	161	14:47 (4) 20:19	171	14:08 (4) 16:59 (4)
11	07:13 16:43	06:50 17:20	06:10 17:52	25	17:05 (5) 19:24		05:39 19:55	162	14:45 (4) 20:20	171	14:08 (4) 16:59 (4)
12	07:13 16:44	06:49 17:21	06:08 17:53	27	17:05 (5) 19:25		05:38 19:56	162	14:43 (4) 20:20	171	14:07 (4) 16:58 (4)
13	07:12 16:45	06:47 17:22	06:07 17:54	29	17:04 (5) 19:26		05:37 19:57	164	14:40 (4) 20:21	171	14:07 (4) 16:58 (4)
14	07:12 16:46	06:46 17:23	06:05 17:55	31	17:04 (5) 19:27		05:36 19:58	164	14:38 (4) 20:21	170	14:07 (4) 16:57 (4)
15	07:12 16:48	06:45 17:24	06:03 17:56	32	17:03 (5) 19:28		05:35 19:59	165	14:36 (4) 20:21	171	14:06 (4) 16:57 (4)
16	07:11 16:49	06:44 17:26	06:02 17:57	34	17:02 (5) 19:29		05:34 20:00	165	14:34 (4) 20:22	171	14:06 (4) 16:57 (4)
17	07:11 16:50	06:42 17:27	06:00 17:58	36	17:02 (5) 19:30		05:33 20:00	166	14:32 (4) 20:22	171	14:07 (4) 16:58 (4)
18	07:10 16:51	06:41 17:28	05:59 17:59	37	17:01 (5) 19:31		05:32 20:01	167	14:30 (4) 20:23	171	14:07 (4) 16:58 (4)
19	07:10 16:52	06:40 17:29	05:57 18:00	38	17:01 (5) 19:32		05:31 20:02	167	14:29 (4) 20:23	171	14:07 (4) 16:58 (4)
20	07:09 16:53	06:38 17:30	05:55 18:01	39	17:02 (5) 19:33		05:31 20:03	168	14:27 (4) 20:23	171	14:07 (4) 16:58 (4)
21	07:09 16:54	06:37 17:32	05:54 18:02	39	17:01 (5) 19:34		05:30 20:04	168	14:25 (4) 20:23	171	14:07 (4) 16:58 (4)
22	07:08 16:55	06:36 17:33	05:52 18:03	38	17:01 (5) 19:35	16	05:29 20:05	169	14:23 (4) 20:24	171	14:07 (4) 16:58 (4)
23	07:08 16:57	06:34 17:34	05:50 18:04	37	17:02 (5) 19:36	50	05:28 20:06	169	14:23 (4) 20:24	171	14:08 (4) 16:59 (4)
24	07:07 16:58	06:33 17:35	05:49 18:05	34	17:03 (5) 19:37	69	05:27 20:07	169	14:21 (4) 20:24	171	14:08 (4) 16:59 (4)
25	07:06 16:59	06:31 17:36	05:47 18:06	33	17:03 (5) 19:38	83	05:27 20:08	170	14:19 (4) 20:24	171	14:08 (4) 16:59 (4)
26	07:05 17:00	06:30 17:37	05:45 18:08	31	06:16 (3) 19:39	95	05:26 20:09	169	14:19 (4) 20:24	171	14:09 (4) 17:00 (4)
27	07:05 17:01	06:28 17:38	05:44 18:09	26	17:06 (5) 19:40	107	05:25 20:09	170	14:17 (4) 20:24	171	14:09 (4) 17:00 (4)
28	07:04 17:03	06:27 17:40	05:42 18:10	23	17:07 (5) 19:42	116	05:25 20:10	170	14:17 (4) 20:24	171	14:09 (4) 17:00 (4)
29	07:03 17:04		06:41 19:11	17	18:10 (5) 19:43	124	05:24 20:11	170	14:15 (4) 20:24	170	14:11 (4) 17:01 (4)
30	07:02 17:05		06:39 19:12	8	18:14 (5) 19:44	133	05:24 20:12	170	14:15 (4) 20:24	171	14:11 (4) 17:02 (4)
31	07:01 17:06		06:37 19:13				05:23 20:13	171	14:13 (4) 17:04 (4)		
Potential sun hours	299	298	370		398		446		450		
Total, worst case			703		793		5055		5125		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: B - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (2)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

July		August		September		October		November		December	
1	05:23	14:12 (4)	05:47	14:54 (4)	06:17	06:46	17:43 (5)	06:19	06:53		
	20:24	17:03 (4)	20:06	17:36 (4)	19:24	18:34	18:11 (5)	16:48	16:25		
2	05:24	14:12 (4)	05:48	14:55 (4)	06:17	06:47	17:44 (5)	06:20	06:54		
	20:24	17:03 (4)	20:05	17:37 (4)	19:22	18:32	18:10 (5)	16:47	16:25		
3	05:24	14:13 (4)	05:49	14:58 (4)	06:18	06:48	17:44 (5)	06:21	06:55		
	20:24	17:04 (4)	20:04	17:38 (4)	19:20	18:31	18:08 (5)	16:46	16:24		
4	05:25	14:13 (4)	05:50	15:00 (4)	06:19	06:49	17:45 (5)	06:22	06:56		
	20:24	17:04 (4)	20:03	17:40 (4)	19:19	18:29	18:06 (5)	16:45	16:24		
5	05:25	14:15 (4)	05:50	15:03 (4)	06:20	06:50	17:46 (5)	06:23	06:57		
	20:23	17:06 (4)	20:01	17:41 (4)	19:17	18:28	18:05 (5)	16:44	16:24		
6	05:26	14:15 (4)	05:51	15:06 (4)	06:21	06:51	17:47 (5)	06:25	06:58		
	20:23	17:06 (4)	20:00	17:43 (4)	19:16	18:26	18:03 (5)	16:43	16:24		
7	05:27	14:16 (4)	05:52	15:09 (4)	06:22	06:52	17:49 (5)	06:26	06:59		
	20:23	17:07 (4)	19:59	17:44 (4)	19:14	18:24	18:01 (5)	16:42	16:24		
8	05:27	14:18 (4)	05:53	15:12 (4)	06:23	06:53	17:52 (5)	06:27	07:00		
	20:23	17:08 (4)	19:58	17:46 (4)	19:12	18:23	18:01 (5)	16:40	16:24		
9	05:28	14:18 (4)	05:54	15:15 (4)	06:24	06:54	17:57 (5)	06:28	07:00		
	20:22	17:08 (4)	19:57	17:47 (4)	19:11	18:21	17:59 (5)	16:39	16:24		
10	05:29	14:19 (4)	05:55	15:18 (4)	06:25	06:55		06:29	07:01		
	20:22	17:10 (4)	19:55	17:49 (4)	19:09	18:20		16:38	16:24		
11	05:29	14:20 (4)	05:56	15:22 (4)	06:26	06:56		06:30	07:02		
	20:22	17:10 (4)	19:54	17:47 (4)	19:07	18:18		16:37	16:24		
12	05:30	14:21 (4)	05:57	15:25 (4)	06:27	06:57		06:32	07:03		
	20:21	17:11 (4)	19:53	17:43 (4)	19:06	18:16		16:37	16:24		
13	05:31	14:22 (4)	05:58	15:29 (4)	06:28	18:06 (5)	06:58	06:33	07:04		
	20:21	17:13 (4)	19:51	17:40 (4)	19:04	18:12 (5)	18:15	16:36	16:24		
14	05:31	14:24 (4)	05:59	15:32 (4)	06:29	18:01 (5)	06:59	06:34	07:05		
	20:20	17:14 (4)	19:50	17:35 (4)	19:02	18:17 (5)	18:13	16:35	16:24		
15	05:32	14:24 (4)	06:00	15:37 (4)	06:30	17:58 (5)	07:00	06:35	07:05		
	20:20	17:14 (4)	19:49	17:31 (4)	19:01	18:20 (5)	18:12	16:34	16:25		
16	05:33	14:26 (4)	06:01	15:42 (4)	06:31	17:55 (5)	07:01	06:36	07:06		
	20:19	17:16 (4)	19:47	17:26 (4)	18:59	18:21 (5)	18:10	16:33	16:25		
17	05:34	14:27 (4)	06:02	15:48 (4)	06:32	07:05 (3)	07:02	06:37	07:07		
	20:18	17:17 (4)	19:46	17:21 (4)	18:57	18:23 (5)	18:09	16:32	16:25		
18	05:34	14:29 (4)	06:03	15:54 (4)	06:33	17:52 (5)	07:03	06:38	07:07		
	20:18	17:18 (4)	19:45	17:15 (4)	18:56	18:24 (5)	18:07	16:32	16:25		
19	05:35	14:30 (4)	06:04	16:02 (4)	06:34	17:50 (5)	07:04	06:40	07:08		
	20:17	17:19 (4)	19:43	17:08 (4)	18:54	18:24 (5)	18:06	16:31	16:26		
20	05:36	14:31 (4)	06:05	16:12 (4)	06:35	17:49 (5)	07:05	06:41	07:09		
	20:16	17:20 (4)	19:42	16:58 (4)	18:52	18:25 (5)	18:04	16:30	16:26		
21	05:37	14:33 (4)	06:06		06:36	17:48 (5)	07:06	06:42	07:09		
	20:16	17:22 (4)	19:40		18:51	18:25 (5)	18:03	16:29	16:27		
22	05:38	14:35 (4)	06:07		06:37	17:47 (5)	07:07	06:43	07:10		
	20:15	17:23 (4)	19:39		18:49	18:26 (5)	18:02	16:29	16:27		
23	05:39	14:37 (4)	06:08		06:38	17:46 (5)	07:09	06:44	07:10		
	20:14	17:24 (4)	19:37		18:47	18:26 (5)	18:00	16:28	16:28		
24	05:39	14:37 (4)	06:09		06:39	17:44 (5)	07:10	06:45	07:11		
	20:13	17:25 (4)	19:36		18:46	18:23 (5)	17:59	16:28	16:28		
25	05:40	14:39 (4)	06:10		06:40	17:44 (5)	06:11	06:46	07:11		
	20:12	17:26 (4)	19:34		18:44	18:21 (5)	16:57	16:27	16:29		
26	05:41	14:41 (4)	06:11		06:41	17:44 (5)	06:12	06:47	07:11		
	20:12	17:28 (4)	19:33		18:42	18:20 (5)	16:56	16:27	16:29		
27	05:42	14:43 (4)	06:12		06:42	17:43 (5)	06:13	06:49	07:12		
	20:11	17:29 (4)	19:31		18:41	18:18 (5)	16:55	16:26	16:30		
28	05:43	14:45 (4)	06:13		06:43	17:43 (5)	06:14	06:50	07:12		
	20:10	17:31 (4)	19:30		18:39	18:16 (5)	16:53	16:26	16:31		
29	05:44	14:47 (4)	06:14		06:44	17:43 (5)	06:15	06:51	07:12		
	20:09	17:32 (4)	19:28		18:37	18:15 (5)	16:52	16:25	16:31		
30	05:45	14:50 (4)	06:15		06:45	17:43 (5)	06:16	06:52	07:13		
	20:08	17:34 (4)	19:27		18:36	18:13 (5)	16:51	16:25	16:32		
31	05:46	14:52 (4)	06:16				06:18		07:13		
	20:07	17:35 (4)	19:25				16:50		16:33		
Potential sun hours	457		427		375		346		300		290
Total, worst case	5236		2612		561		157				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: C - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (3)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January		February		March		April		May		June		July		August		September		October		November		December		
1	07:13	15:50 (7)	07:01	06:25	06:36	05:51	05:23	05:23	05:47	06:17	06:46	06:19											06:53	15:37 (7)	
2	16:34	18	16:08 (21)	17:08	17:41	19:14	19:45	20:13	20:24	20:06	19:24	18:34	16:48										16:25	23	16:00 (21)
	07:13	15:51 (7)	07:00	06:24	06:34	05:50	05:22	05:24	05:48	06:18	06:47	06:20	06:54										06:54		15:37 (7)
3	16:35	18	16:09 (21)	17:09	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:32	16:47										16:25	23	16:00 (21)
	07:13	15:51 (7)	06:59	06:22	06:32	05:48	05:22	05:24	05:49	06:19	06:48	06:21	06:55										06:55		15:37 (7)
4	16:36	19	16:10 (21)	17:10	17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46										16:24	22	15:59 (21)
	07:14	15:52 (7)	06:58	06:21	06:31	05:47	05:22	05:25	05:50	06:19	06:49	06:22	06:56										06:56		15:38 (7)
5	16:37	19	16:11 (21)	17:11	17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45										16:24	21	15:59 (21)
	07:14	15:52 (7)	06:57	06:19	06:29	05:46	05:21	05:25	05:51	06:20	06:50	06:23	06:57										06:57		15:38 (7)
6	16:37	20	16:12 (21)	17:12	17:45	19:18	19:49	20:16	20:24	20:01	19:17	18:28	16:44										16:24	21	15:59 (21)
	07:14	15:53 (7)	06:56	06:18	06:28	05:45	05:21	05:26	05:51	06:21	06:51	06:25	06:58										06:58		15:39 (7)
7	16:38	20	16:13 (21)	17:14	17:46	19:19	19:50	20:17	20:23	20:00	19:16	18:26	16:43										16:24	20	15:59 (21)
	07:14	15:53 (7)	06:54	06:16	06:26	05:44	05:21	05:27	05:52	06:22	06:52	06:26	06:59										06:59		15:39 (7)
8	16:39	21	16:14 (21)	17:15	17:47	19:20	19:51	20:18	20:23	19:59	19:14	18:24	16:42										16:24	20	15:59 (21)
	07:13	15:54 (7)	06:53	06:15	06:24	05:42	05:20	05:27	05:53	06:23	06:53	06:27	07:00										07:00		15:40 (7)
9	16:40	21	16:15 (21)	17:16	17:49	19:21	19:52	20:18	20:23	19:58	19:12	18:23	16:41										16:24	19	15:59 (21)
	07:13	15:54 (7)	06:52	06:13	06:23	05:41	05:20	05:28	05:54	06:24	06:54	06:28	07:01										07:01		15:40 (7)
10	16:41	22	16:16 (21)	17:17	17:50	19:22	19:53	20:19	20:22	19:57	19:11	18:21	16:39										16:24	19	15:59 (21)
	07:13	15:55 (7)	06:51	06:12	06:21	05:40	05:20	05:29	05:55	06:25	06:55	06:29	07:01										07:01		15:41 (7)
11	16:42	22	16:17 (21)	17:19	17:51	19:23	19:54	20:19	20:22	19:55	19:09	18:20	16:38										16:24	18	15:59 (21)
	07:13	15:55 (7)	06:50	06:10	06:20	05:39	05:20	05:29	05:56	06:26	06:56	06:30	07:02										07:02		15:42 (7)
12	16:43	23	16:18 (21)	17:20	17:52	19:24	19:55	20:20	20:22	19:54	19:07	18:18	16:38										16:24	17	15:59 (21)
	07:13	15:56 (7)	06:49	06:08	06:18	05:38	05:20	05:30	05:57	06:27	06:57	06:32	07:03										07:03		15:41 (7)
13	16:44	23	16:19 (21)	17:21	17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:16	16:37										16:24	17	15:58 (21)
	07:12	15:56 (7)	06:48	06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33	07:04										07:04		15:42 (7)
14	16:45	25	16:21 (21)	17:22	17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36										16:24	17	15:59 (21)
	07:12	15:56 (7)	06:46	06:05	06:15	05:36	05:20	05:31	05:59	06:29	06:59	06:34	07:05										07:05		15:43 (7)
15	16:46	25	16:21 (21)	17:23	17:55	19:27	19:58	20:21	20:20	19:50	19:02	18:13	16:35										16:24	16	15:59 (21)
	07:12	15:57 (7)	06:45	06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35	07:05										07:05		15:44 (7)
16	16:48	26	16:23 (21)	17:25	17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34										16:25	16	16:00 (21)
	07:11	15:58 (7)	06:44	06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36	8	15:45 (7)	07:06	15:43 (7)									
17	16:49	25	16:23 (21)	17:26	17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:10	16:33										16:25	16	15:59 (21)
	07:11	15:59 (7)	06:42	06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:37	14	15:42 (7)	07:07	15:44 (7)									
18	16:50	26	16:25 (21)	17:27	17:58	19:30	20:01	20:22	20:19	19:46	18:57	18:09	16:32										16:25	16	16:00 (21)
	07:10	15:59 (7)	06:41	05:59	06:09	05:32	05:20	05:34	06:03	06:33	07:03	06:39	15:40 (7)	07:07	15:45 (7)										
19	16:51	27	16:26 (21)	17:28	17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:07	16:32										16:25	15	16:00 (21)
	07:10	16:01 (7)	06:40	05:57	06:08	05:31	05:20	05:35	06:04	06:34	07:04	06:40	18	15:58 (7)	07:08	15:45 (7)									
20	16:52	26	16:27 (7)	17:29	18:00	19:32	20:02	20:23	20:17	19:43	18:54	18:06	16:31										16:26	15	16:00 (21)
	07:09	16:01 (7)	06:38	05:55	06:06	05:31	05:20	05:36	06:05	06:35	07:05	06:41	20	15:59 (7)	07:09	15:46 (7)									
21	16:53	26	16:27 (7)	17:30	18:01	19:33	20:03	20:23	20:17	19:42	18:52	18:04	16:30										16:26	15	16:01 (21)
	07:09	16:02 (7)	06:37	05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:06	06:42	22	16:01 (7)	07:09	15:46 (7)									
22	16:54	24	16:26 (7)	17:32	18:02	19:34	20:04	20:24	20:16	19:40	18:51	18:03	16:29										16:27	15	16:01 (21)
	07:08	16:04 (7)	06:36	05:52	06:03	05:29	05:20	05:38	06:07	06:37	07:08	06:43	24	16:02 (7)	07:10	15:47 (7)									
23	16:56	22	16:26 (7)	17:33	18:03	19:35	20:05	20:24	20:15	19:39	18:49	18:02	16:29										16:27	15	16:02 (21)
	07:08	16:05 (7)	06:34	05:50	06:02	05:28	05:21	05:39	06:08	06:38	07:09	06:44	26	16:03 (7)	07:10	15:47 (7)									
24	16:57	20	16:25 (7)	17:34	18:04	19:36	20:06	20:24	20:14	19:38	18:47	18:00	16:28										16:28	15	16:02 (21)
	07:07	16:06 (7)	06:33	05:49	06:00	05:27	05:21	05:39	06:09	06:39	07:10	06:45	26	16:03 (7)	07:11	15:48 (7)									
25	16:58	18	16:24 (7)	17:35	18:06	19:38	20:07	20:24	20:13	19:36	18:46	17:59	16:28										16:28	15	16:03 (21)
	07:06	16:09 (7)	06:31	05:47	05:59	05:27	05:21	05:40	06:10	06:40	07:11	06:47	27	16:03 (21)	07:11	15:48 (7)									
26	16:59	14	16:23 (7)	17:36	18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:57	16:27										16:29	15	16:03 (21)
	07:06	16:12 (7)	06:30	05:46	05:58	05:26	05:21	05:41	06:11	06:41	07:12	06:48	26	16:03 (21)	07:12	15:48 (7)									
27	17:00	8	16:20 (7)	17:37	18:08	19:40	20:09	20:24	20:12	19:33	18:42	16:56	16:27										16:30	16	16:04 (21)
	07:05		06:28	05:44	05:56	05:25	05:22	05:42	06:12	06:42	07:13	06:49	26	16:03 (21)	07:12	15:49 (7)									
28	17:01		17:39	18:09	19:41	20:10	20:24	20:11	19:32	18:41	16:55	16:26	25	16:02 (21)	07:12	15:50 (7)									
	07:04		06:27	05:42	05:55	05:25	05:22	05:43	06:13	06:43	07:14	06:50	24	16:01 (21)	07:13	15:50 (7)									
29	17:03		17:40	18:10	19:42	20:10	20:24	20:10	19:30	18:39	16:53	16:26	24	16:01 (21)	07:13	15:50 (7)									
	07:03		06:41	05:53	05:24	05:23	05:44	06:14	06:44	07:14	06:51	16:25	24	16:01 (21)	07:13	15:50 (7)									
30	17:04		19:11	19:43	20:11	20:24	20:09	19:28	18:37	16:52	16:25	24	16:01 (21)	07:13	15:50 (7)										
	07:02		06:39	05:52	05:24	05:23	05:45	06:15	06:45	07:15	06:52	15:37 (7)	07:13	15:50 (7)											

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: D - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (4)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January		February		March		April		May		June		July		August		September		October		November		December	
1	07:13	15:37 (7)	07:01	06:25	06:36	05:51	05:23	05:23	05:47	06:17	06:46	06:19											06:53	15:27 (7)
2	16:34	31 16:08 (21)	17:08	17:41	19:14	19:45	20:13	20:24	20:06	19:24	18:34	16:48										16:25	32 15:59 (21)	
	07:13	15:38 (7)	07:00	06:24	06:34	05:50	05:22	05:24	05:48	06:18	06:47	06:20										06:54	15:26 (7)	
3	16:35	31 16:09 (21)	17:09	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:32	16:47										16:25	34 16:00 (21)	
	07:13	15:38 (7)	06:59	06:22	06:32	05:48	05:22	05:24	05:49	06:19	06:48	06:21										06:55	15:26 (7)	
4	16:36	32 16:10 (21)	17:10	17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46										16:24	33 15:59 (21)	
	07:14	15:39 (7)	06:58	06:21	06:31	05:47	05:22	05:25	05:50	06:19	06:49	06:22										06:56	15:26 (7)	
5	16:37	32 16:11 (21)	17:11	17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45										16:24	33 15:59 (21)	
	07:14	15:40 (7)	06:57	06:19	06:29	05:46	05:21	05:25	05:51	06:20	06:50	06:23										06:57	15:26 (7)	
6	16:37	32 16:12 (21)	17:12	17:45	19:18	19:49	20:16	20:24	20:01	19:17	18:28	16:44										16:24	33 15:59 (21)	
	07:14	15:41 (7)	06:56	06:18	06:28	05:45	05:21	05:26	05:51	06:21	06:51	06:25										06:58	15:27 (7)	
7	16:38	32 16:13 (21)	17:14	17:46	19:19	19:50	20:17	20:23	20:00	19:16	18:26	16:43										16:24	32 15:59 (21)	
	07:14	15:41 (7)	06:54	06:16	06:26	05:44	05:21	05:27	05:52	06:22	06:52	06:26										06:59	15:27 (7)	
8	16:39	33 16:14 (21)	17:15	17:47	19:20	19:51	20:18	20:23	19:59	19:14	18:24	16:42										16:24	32 15:59 (21)	
	07:13	15:42 (7)	06:53	06:15	06:24	05:42	05:20	05:27	05:53	06:23	06:53	06:27										07:00	15:27 (7)	
9	16:40	33 16:15 (21)	17:16	17:49	19:21	19:52	20:18	20:23	19:58	19:12	18:23	16:41										16:24	32 15:59 (21)	
	07:13	15:43 (7)	06:52	06:13	06:23	05:41	05:20	05:28	05:54	06:24	06:54	06:28										07:01	15:28 (7)	
10	16:41	33 16:16 (21)	17:17	17:50	19:22	19:53	20:19	20:22	19:57	19:11	18:21	16:39										16:24	31 15:59 (21)	
	07:13	15:44 (7)	06:51	06:12	06:21	05:40	05:20	05:29	05:55	06:25	06:55	06:29										07:01	15:28 (7)	
11	16:42	33 16:17 (21)	17:19	17:51	19:23	19:54	20:19	20:22	19:55	19:09	18:20	16:38										16:24	31 15:59 (21)	
	07:13	15:45 (7)	06:50	06:10	06:20	05:39	05:20	05:29	05:56	06:26	06:56	06:30										07:02	15:28 (7)	
12	16:43	32 16:17 (21)	17:20	17:52	19:24	19:55	20:20	20:22	19:54	19:07	18:18	16:38										16:24	31 15:59 (21)	
	07:13	15:46 (7)	06:49	06:08	06:18	05:38	05:20	05:30	05:57	06:27	06:57	06:32										07:03	15:28 (7)	
13	16:44	31 16:17 (21)	17:21	17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:16	16:37										16:24	30 15:58 (21)	
	07:12	15:47 (7)	06:48	06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33										07:04	15:29 (7)	
14	16:45	29 16:16 (21)	17:22	17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36										16:24	30 15:59 (21)	
	07:12	15:48 (7)	06:46	06:05	06:15	05:36	05:20	05:31	05:59	06:29	06:59	06:34										07:05	15:29 (7)	
15	16:46	26 16:14 (21)	17:23	17:55	19:27	19:58	20:21	20:20	19:50	19:02	18:13	16:35										16:24	30 15:59 (21)	
	07:12	15:49 (7)	06:45	06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35										07:05	15:30 (7)	
16	16:48	23 16:12 (7)	17:25	17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34										16:25	30 16:00 (21)	
	07:11	15:50 (7)	06:44	06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36										07:06	15:30 (7)	
17	16:49	21 16:11 (7)	17:26	17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:10	16:33										16:25	29 15:59 (21)	
	07:11	15:52 (7)	06:42	06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:37										07:07	15:30 (7)	
18	16:50	18 16:10 (7)	17:27	17:58	19:30	20:01	20:22	20:19	19:46	18:57	18:09	16:32										16:25	30 16:00 (21)	
	07:10	15:54 (7)	06:41	05:59	06:09	05:32	05:20	05:34	06:03	06:33	07:03	06:39										07:07	15:31 (7)	
19	16:51	15 16:09 (7)	17:28	17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:07	16:32										16:25	29 16:00 (21)	
	07:10	15:57 (7)	06:40	05:57	06:08	05:31	05:20	05:35	06:04	06:34	07:04	06:40										07:08	15:31 (7)	
20	16:52	10 16:07 (7)	17:29	18:00	19:32	20:03	20:23	20:17	19:43	18:54	18:06	16:31										16:26	29 16:00 (21)	
	07:09		06:38	05:55	06:06	05:31	05:20	05:36	06:05	06:35	07:05	06:41										07:09	15:32 (7)	
21	16:53		17:30	18:01	19:33	20:03	20:23	20:17	19:42	18:52	18:04	16:30										16:26	29 16:01 (21)	
	07:09		06:37	05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:06	06:42										07:09	15:32 (7)	
22	16:54		17:32	18:02	19:34	20:04	20:24	20:16	19:40	18:51	18:03	16:29										16:27	29 16:01 (21)	
	07:08		06:36	05:52	06:03	05:29	05:20	05:38	06:07	06:37	07:08	06:43										07:10	15:33 (7)	
23	16:56		17:33	18:03	19:35	20:05	20:24	20:15	19:39	18:49	18:02	16:29										16:27	29 16:02 (21)	
	07:08		06:34	05:50	06:02	05:28	05:21	05:39	06:08	06:38	07:09	06:44										07:10	15:33 (7)	
24	16:57		17:34	18:04	19:36	20:06	20:24	20:14	19:38	18:47	18:00	16:28	10									15:43 (7)	16:28	29 16:02 (21)
	07:07		06:33	05:49	06:00	05:27	05:21	05:39	06:09	06:39	07:10	06:45										15:31 (7)	07:11	15:34 (7)
25	16:58		17:35	18:06	19:38	20:07	20:24	20:13	19:36	18:46	17:59	16:28	15									15:46 (7)	16:28	29 16:03 (21)
	07:06		06:31	05:47	05:59	05:27	05:21	05:40	06:10	06:40	06:11	06:47										15:30 (7)	07:11	15:34 (7)
26	16:59		17:36	18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:57	16:27	18									15:48 (7)	16:29	29 16:03 (21)
	07:06		06:30	05:46	05:58	05:26	05:21	05:41	06:11	06:41	06:12	06:48										15:29 (7)	07:12	15:34 (7)
27	17:00		17:37	18:08	19:40	20:09	20:24	20:12	19:33	18:42	16:56	16:27	21									15:50 (7)	16:29	30 16:04 (21)
	07:05		06:28	05:44	05:56	05:25	05:22	05:42	06:12	06:42	06:13	06:49										15:28 (7)	07:12	15:36 (7)
28	17:01		17:39	18:09	19:41	20:10	20:24	20:11	19:32	18:41	16:55	16:26	23									15:51 (7)	16:30	29 16:05 (21)
	07:04		06:27	05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50										15:28 (7)	07:12	15:36 (7)
29	17:03		17:40	18:10	19:42	20:10	20:24	20:10	19:30	18:39	16:53	16:26	26									15:54 (21)	16:31	29 16:05 (21)
	07:03			06:41	05:53	05:24	05:23	05:44	06:14	06:44	06:15	06:51										15:27 (7)	07:13	15:36 (7)
30	17:04			19:11	19:43	20:11	20:24	20:09	19:28	18:37	16:52	16:25	29									15:56 (21)	16:31	30 16:06 (21)
	07:02			06:39	05:52	05:24	05:23	05:45	06:15	06:45	06:17	06:52										15:27 (7)	07:13	15:36 (7)
31	17:05			19:12	19:44	20:12	20:24	20:08	19:27	18:36	16:51	16:25	31									15:58 (21)	16:32	30 16:06 (21)
	07:01			06:37		05:23		05:46	06:16		06:18											16:18		15:37 (7)
Potential sun hours	299					20:13		20:07	19:25		16:50											16:33	30 16:07 (21)	
Total, worst case	527																					290		
																						173		
																						943		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: E - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (5)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January		February		March		April		May		June					
1	07:13	07:01			06:26	06:44 (22)	06:36		16:29 (20)	05:51	16:01 (20)	05:23	16:09 (20)			
	16:34	17:08			17:41	16	07:00 (22)	19:14	121	18:30 (20)	19:45	102	17:43 (20)	20:14	54	17:03 (20)
2	07:13	07:00			06:24	06:43 (22)	06:34		16:27 (20)	05:50	16:01 (20)	05:23	16:10 (20)			
	16:35	17:09			17:42	18	07:01 (22)	19:15	124	18:31 (20)	19:46	100	17:41 (20)	20:14	53	17:03 (20)
3	07:14	06:59			06:23	06:41 (22)	06:33		16:26 (20)	05:48	16:02 (20)	05:22	16:10 (20)			
	16:36	17:10			17:43	20	07:01 (22)	19:16	127	18:33 (20)	19:47	98	17:40 (20)	20:15	51	17:01 (20)
4	07:14	06:58			06:21	06:40 (22)	06:31		16:23 (20)	05:47	16:01 (20)	05:22	16:11 (20)			
	16:37	17:11			17:44	22	07:02 (22)	19:17	131	18:34 (20)	19:48	96	17:37 (20)	20:16	50	17:01 (20)
5	07:14	06:57			06:19	06:38 (22)	06:29		16:22 (20)	05:46	16:01 (20)	05:21	16:11 (20)			
	16:38	17:13			17:45	23	07:01 (22)	19:18	132	18:34 (20)	19:49	95	17:36 (20)	20:16	50	17:01 (20)
6	07:14	06:56			06:18	06:37 (22)	06:28		16:20 (20)	05:45	16:01 (20)	05:21	16:12 (20)			
	16:39	17:14			17:46	25	07:02 (22)	19:19	132	18:32 (20)	19:50	93	17:34 (20)	20:17	49	17:01 (20)
7	07:14	06:55			06:16	06:35 (22)	06:26		16:18 (20)	05:44	16:01 (20)	05:21	16:11 (20)			
	16:39	17:15			17:48	26	07:01 (22)	19:20	131	18:29 (20)	19:51	92	17:33 (20)	20:18	48	16:59 (20)
8	07:13	06:53			06:15	06:35 (22)	06:25		16:17 (20)	05:43	16:02 (20)	05:21	16:12 (20)			
	16:40	17:16			17:49	25	07:00 (22)	19:21	131	18:28 (20)	19:52	89	17:31 (20)	20:18	47	16:59 (20)
9	07:13	06:52			06:13	06:36 (22)	06:23		16:15 (20)	05:41	16:02 (20)	05:20	16:13 (20)			
	16:41	17:17			17:50	23	06:59 (22)	19:22	130	18:25 (20)	19:53	88	17:30 (20)	20:19	46	16:59 (20)
10	07:13	06:51			06:12	06:36 (22)	06:21		16:14 (20)	05:40	16:02 (20)	05:20	16:13 (20)			
	16:42	17:19			17:51	22	06:58 (22)	19:23	130	18:24 (20)	19:54	86	17:28 (20)	20:19	46	16:59 (20)
11	07:13	06:50			06:10	06:37 (22)	06:20		16:13 (20)	05:39	16:02 (20)	05:20	16:13 (20)			
	16:43	17:20			17:52	20	06:57 (22)	19:24	128	18:21 (20)	19:55	85	17:27 (20)	20:20	46	16:59 (20)
12	07:13	06:49			06:08	06:39 (22)	06:18		16:12 (20)	05:38	16:02 (20)	05:20	16:14 (20)			
	16:44	17:21			17:53	16	06:55 (22)	19:25	128	18:20 (20)	19:56	83	17:25 (20)	20:20	44	16:58 (20)
13	07:12	06:48			06:07	06:41 (22)	06:17		16:10 (20)	05:37	16:03 (20)	05:20	16:14 (20)			
	16:46	17:22			17:54	10	06:51 (22)	19:26	127	18:17 (20)	19:57	81	17:24 (20)	20:21	44	16:58 (20)
14	07:12	06:46			06:05	06:15	06:15		16:10 (20)	05:36	16:03 (20)	05:20	16:15 (20)			
	16:47	17:23			17:55		19:27	126	18:16 (20)	19:58	79	17:22 (20)	20:21	43	16:58 (20)	
15	07:12	06:45			06:04	06:14	06:14		16:08 (20)	05:35	16:03 (20)	05:20	16:15 (20)			
	16:48	17:25			17:56		19:28	125	18:13 (20)	19:59	78	17:21 (20)	20:22	43	16:58 (20)	
16	07:11	06:44			06:02	06:12	06:12		16:08 (20)	05:34	16:03 (20)	05:20	16:15 (20)			
	16:49	17:26			17:57		19:29	123	18:11 (20)	20:00	76	17:19 (20)	20:22	43	16:58 (20)	
17	07:11	06:43			06:00	06:11	06:11		16:07 (20)	05:33	16:03 (20)	05:20	16:15 (20)			
	16:50	17:27			17:58		19:30	122	18:09 (20)	20:01	75	17:18 (20)	20:22	43	16:58 (20)	
18	07:11	06:41			05:59	06:09	06:09		16:06 (20)	05:32	16:05 (20)	05:20	16:15 (20)			
	16:51	17:28			17:59		19:31	121	18:07 (20)	20:02	72	17:17 (20)	20:23	43	16:58 (20)	
19	07:10	06:40			05:57	16:21 (20)	06:08		16:05 (20)	05:32	16:05 (20)	05:20	16:15 (20)			
	16:52	17:29			18:00	29	16:50 (20)	19:32	120	18:05 (20)	20:03	71	17:16 (20)	20:23	43	16:58 (20)
20	07:10	06:38			05:55	16:12 (20)	06:06		16:05 (20)	05:31	16:05 (20)	05:20	16:16 (20)			
	16:53	17:31			18:01	45	16:57 (20)	19:33	118	18:03 (20)	20:03	69	17:14 (20)	20:23	42	16:58 (20)
21	07:09	06:37			05:54	16:05 (20)	06:05		16:04 (20)	05:30	16:05 (20)	05:20	16:16 (20)			
	16:55	17:32			18:03	57	17:02 (20)	19:34	117	18:01 (20)	20:04	68	17:13 (20)	20:24	42	16:58 (20)
22	07:08	06:36			05:52	16:01 (20)	06:03		16:04 (20)	05:29	16:06 (20)	05:20	16:17 (20)			
	16:56	17:33			18:04	66	17:07 (20)	19:36	115	17:59 (20)	20:05	67	17:13 (20)	20:24	42	16:59 (20)
23	07:08	06:34			05:51	15:56 (20)	06:02		16:04 (20)	05:28	16:06 (20)	05:21	16:17 (20)			
	16:57	17:34			18:05	75	17:11 (20)	19:37	114	17:58 (20)	20:06	65	17:11 (20)	20:24	42	16:59 (20)
24	07:07	06:33			05:49	15:52 (20)	06:00		16:03 (20)	05:28	16:06 (20)	05:21	16:16 (20)			
	16:58	17:35			18:06	81	17:13 (20)	19:38	112	17:55 (20)	20:07	64	17:10 (20)	20:24	43	16:59 (20)
25	07:06	06:31		06:50 (22)	05:47	15:49 (20)	05:59		16:03 (20)	05:27	16:07 (20)	05:21	16:16 (20)			
	16:59	17:36	3	06:53 (22)	18:07	88	17:17 (20)	19:39	111	17:54 (20)	20:08	62	17:09 (20)	20:24	43	16:59 (20)
26	07:06	06:30		06:49 (22)	05:46	15:45 (20)	05:58		16:02 (20)	05:26	16:07 (20)	05:22	16:17 (20)			
	17:00	17:37	7	06:56 (22)	18:08	94	17:19 (20)	19:40	109	17:51 (20)	20:09	61	17:08 (20)	20:24	43	17:00 (20)
27	07:05	06:29		06:47 (22)	05:44	15:42 (20)	05:56		16:02 (20)	05:26	16:07 (20)	05:22	16:17 (20)			
	17:02	17:39	11	06:58 (22)	18:09	99	17:21 (20)	19:41	108	17:50 (20)	20:10	60	17:07 (20)	20:24	43	17:00 (20)
28	07:04	06:27		06:46 (22)	05:42	15:40 (20)	05:55		16:02 (20)	05:25	16:08 (20)	05:22	16:18 (20)			
	17:03	17:40	14	07:00 (22)	18:10	104	17:24 (20)	19:42	106	17:48 (20)	20:10	58	17:06 (20)	20:24	43	17:01 (20)
29	07:03				06:41	16:37 (20)	05:54		16:02 (20)	05:24	16:08 (20)	05:23	16:17 (20)			
	17:04				19:11	108	18:25 (20)	19:43	105	17:47 (20)	20:11	57	17:05 (20)	20:24	44	17:01 (20)
30	07:02				06:39	16:34 (20)	05:52		16:01 (20)	05:24	16:09 (20)	05:23	16:17 (20)			
	17:05				19:12	113	18:27 (20)	19:44	103	17:44 (20)	20:12	56	17:05 (20)	20:24	44	17:01 (20)
31	07:02				06:37	16:32 (20)				05:23	16:09 (20)					
	17:06				19:13	117	18:29 (20)			20:13	54	17:03 (20)				
Potential sun hours	299	298			370			398		446		2380		450		1357
Total, worst case			35		1342			3627								

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: E - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (5)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July			August			September			October			November		December	
1	05:24		16:18 (20)	05:47		16:13 (20)	06:17		16:12 (20)	06:46		07:19 (22)	06:19		06:53	
2	20:24	45	17:03 (20)	20:06	83	17:36 (20)	19:24	128	18:20 (20)	18:34	14	07:33 (22)	16:49		16:25	
	05:24		16:17 (20)	05:48		16:13 (20)	06:18		16:12 (20)	06:47		07:17 (22)	06:20		06:54	
3	20:24	46	17:03 (20)	20:05	85	17:38 (20)	19:22	130	18:22 (20)	18:33	18	07:35 (22)	16:47		16:25	
	05:25		16:18 (20)	05:49		16:13 (20)	06:19		16:13 (20)	06:48		07:15 (22)	06:21		06:55	
4	20:24	46	17:04 (20)	20:04	86	17:39 (20)	19:21	130	18:23 (20)	18:31	21	07:36 (22)	16:46		16:24	
	05:25		16:17 (20)	05:50		16:11 (20)	06:20		16:14 (20)	06:49		07:14 (22)	06:22		06:56	
5	20:24	47	17:04 (20)	20:03	89	17:40 (20)	19:19	131	18:25 (20)	18:29	23	07:37 (22)	16:45		16:24	
	05:26		16:18 (20)	05:51		16:11 (20)	06:21		16:15 (20)	06:50		07:13 (22)	06:24		06:57	
6	20:24	47	17:05 (20)	20:02	90	17:41 (20)	19:17	131	18:26 (20)	18:28	24	07:37 (22)	16:44		16:24	
	05:26		16:17 (20)	05:52		16:11 (20)	06:22		16:16 (20)	06:51		07:12 (22)	06:25		06:58	
7	20:23	49	17:06 (20)	20:00	92	17:43 (20)	19:16	132	18:28 (20)	18:26	25	07:37 (22)	16:43		16:24	
	05:27		16:18 (20)	05:53		16:11 (20)	06:22		16:17 (20)	06:52		07:12 (22)	06:26		06:59	
8	20:23	49	17:07 (20)	19:59	93	17:44 (20)	19:14	132	18:29 (20)	18:24	25	07:37 (22)	16:42		16:24	
	05:27		16:18 (20)	05:54		16:11 (20)	06:23		16:18 (20)	06:53		07:13 (22)	06:27		07:00	
9	20:23	50	17:08 (20)	19:58	95	17:46 (20)	19:12	131	18:29 (20)	18:23	24	07:37 (22)	16:41		16:24	
	05:28		16:17 (20)	05:54		16:10 (20)	06:24		16:20 (20)	06:54		07:14 (22)	06:28		07:01	
10	20:23	51	17:08 (20)	19:57	97	17:47 (20)	19:11	128	18:28 (20)	18:21	23	07:37 (22)	16:40		16:24	
	05:29		16:17 (20)	05:55		16:10 (20)	06:25		16:21 (20)	06:55		07:15 (22)	06:29		07:02	
11	20:22	53	17:10 (20)	19:56	99	17:49 (20)	19:09	125	18:26 (20)	18:20	21	07:36 (22)	16:39		16:24	
	05:29		16:18 (20)	05:56		16:10 (20)	06:26		16:21 (20)	06:56		07:16 (22)	06:31		07:02	
12	20:22	53	17:11 (20)	19:54	100	17:50 (20)	19:08	122	18:23 (20)	18:18	19	07:35 (22)	16:38		16:24	
	05:30		16:17 (20)	05:57		16:10 (20)	06:27		16:23 (20)	06:57		07:17 (22)	06:32		07:03	
13	20:21	54	17:11 (20)	19:53	102	17:52 (20)	19:06	117	18:20 (20)	18:17	17	07:34 (22)	16:37		16:24	
	05:31		16:17 (20)	05:58		16:10 (20)	06:28		16:25 (20)	06:58		07:18 (22)	06:33		07:04	
14	20:21	55	17:12 (20)	19:52	103	17:53 (20)	19:04	113	18:18 (20)	18:15	15	07:33 (22)	16:36		16:24	
	05:32		16:17 (20)	05:59		16:10 (20)	06:29		16:26 (20)	06:59		07:19 (22)	06:34		07:05	
15	20:20	57	17:14 (20)	19:50	105	17:55 (20)	19:03	110	18:16 (20)	18:14	13	07:32 (22)	16:35		16:24	
	05:32		16:17 (20)	06:00		16:10 (20)	06:30		16:28 (20)	07:00		07:20 (22)	06:35		07:05	
16	20:20	58	17:15 (20)	19:49	106	17:56 (20)	19:01	105	18:13 (20)	18:12	10	07:30 (22)	16:34		16:25	
	05:33		16:16 (20)	06:01		16:09 (20)	06:31		16:31 (20)	07:01		07:21 (22)	06:36		07:06	
17	20:19	60	17:16 (20)	19:48	109	17:58 (20)	18:59	100	18:11 (20)	18:10	6	07:27 (22)	16:33		16:25	
	05:34		16:17 (20)	06:02		16:08 (20)	06:32		16:33 (20)	07:02			06:38		07:07	
18	20:19	60	17:17 (20)	19:46	110	17:58 (20)	18:58	95	18:08 (20)	18:09			16:32		16:25	
	05:35		16:17 (20)	06:03		16:08 (20)	06:33		16:35 (20)	07:03			06:39		07:08	
19	20:18	61	17:18 (20)	19:45	112	18:00 (20)	18:56	90	18:05 (20)	18:07			16:32		16:26	
	05:35		16:17 (20)	06:04		16:08 (20)	06:34		16:38 (20)	07:04			06:40		07:08	
20	20:17	63	17:20 (20)	19:43	113	18:01 (20)	18:54	83	18:01 (20)	18:06			16:31		16:26	
	05:36		16:16 (20)	06:05		16:09 (20)	06:35		16:42 (20)	07:05			06:41		07:09	
21	20:17	64	17:20 (20)	19:42	114	18:03 (20)	18:53	76	17:58 (20)	18:05			16:30		16:26	
	05:37		16:16 (20)	06:06		16:09 (20)	06:36		16:45 (20)	07:07			06:42		07:09	
22	20:16	65	17:21 (20)	19:41	115	18:04 (20)	18:51	69	17:54 (20)	18:03			16:30		16:27	
	05:38		16:16 (20)	06:07		16:09 (20)	06:37		16:49 (20)	07:08			06:43		07:10	
23	20:15	67	17:23 (20)	19:39	117	18:06 (20)	18:49	60	17:49 (20)	18:02			16:29		16:27	
	05:39		16:15 (20)	06:08		16:09 (20)	06:38		16:54 (20)	07:09			06:44		07:10	
24	20:14	69	17:24 (20)	19:38	118	18:07 (20)	18:48	50	17:44 (20)	18:00			16:28		16:28	
	05:40		16:15 (20)	06:09		16:09 (20)	06:39		17:01 (20)	07:10			06:45		07:11	
25	20:13	71	17:26 (20)	19:36	120	18:09 (20)	18:46	35	17:36 (20)	17:59			16:28		16:28	
	05:41		16:15 (20)	06:10		16:09 (20)	06:40		17:15 (20)	06:11			06:47		07:11	
26	20:13	72	17:27 (20)	19:35	121	18:10 (20)	18:44	6	17:21 (20)	16:58			16:27		16:29	
	05:41		16:14 (20)	06:11		16:10 (20)	06:41			06:12			06:48		07:12	
27	20:12	74	17:28 (20)	19:33	122	18:12 (20)	18:43			16:56			16:27		16:30	
	05:42		16:14 (20)	06:12		16:10 (20)	06:42			06:13			06:49		07:12	
28	20:11	75	17:29 (20)	19:32	124	18:14 (20)	18:41			16:55			16:26		16:30	
	05:43		16:14 (20)	06:13		16:10 (20)	06:43			06:14			06:50		07:12	
29	20:10	76	17:30 (20)	19:30	125	18:15 (20)	18:39			16:54			16:26		16:31	
	05:44		16:14 (20)	06:14		16:11 (20)	06:44			06:15			06:51		07:13	
30	20:09	78	17:32 (20)	19:29	126	18:17 (20)	18:38			16:52			16:26		16:32	
	05:45		16:13 (20)	06:15		16:10 (20)	06:45		07:23 (22)	06:17			06:52		07:13	
31	20:08	80	17:33 (20)	19:27	127	18:17 (20)	18:36	7	07:30 (22)	16:51			16:25		16:32	
	05:46		16:13 (20)	06:16		16:11 (20)				06:18					07:13	
	20:07	82	17:35 (20)	19:25	128	18:19 (20)				16:50					16:33	
Potential sun hours	457			427		375			346			300			290	
Total, worst case	1877			3326		2536			298							

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: F - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (6)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January		February		March		April		May		June		July		August		September		October		November		December		
1	07:13		14:20 (18)	07:01		14:57 (18)	06:26	06:36	05:51	05:23	05:24	05:47	06:17	06:46	06:19							06:53		14:08 (18)	
	16:34	74	15:34 (18)	17:08	22	15:19 (18)	17:41	19:14	19:45	20:14	20:24	20:06	19:24	18:34	16:49							16:25	69	15:17 (18)	
2	07:14		14:20 (18)	07:00		15:03 (18)	06:24	06:34	05:50	05:23	05:24	05:48	06:18	06:47	06:20							06:54		14:08 (18)	
	16:35	74	15:34 (18)	17:09	11	15:14 (18)	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:33	16:47							16:25	70	15:18 (18)	
3	07:14		14:21 (18)	06:59			06:23	06:33	05:49	05:22	05:25	05:49	06:19	06:48	06:21							06:55		14:08 (18)	
	16:36	73	15:34 (18)	17:10			17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46							16:25	70	15:18 (18)	
4	07:14		14:21 (18)	06:58			06:21	06:31	05:47	05:22	05:25	05:50	06:20	06:49	06:22							06:56		14:08 (18)	
	16:37	73	15:34 (18)	17:11			17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45							16:24	71	15:19 (18)	
5	07:14		14:21 (18)	06:57			06:20	06:29	05:46	05:22	05:26	05:51	06:21	06:50	06:24							06:57		14:08 (18)	
	16:38	73	15:34 (18)	17:13			17:45	19:18	19:49	20:16	20:24	20:02	19:17	18:28	16:44							16:24	72	15:20 (18)	
6	07:14		14:22 (18)	06:56			06:18	06:28	05:45	05:21	05:26	05:52	06:22	06:51	06:25							06:58		14:08 (18)	
	16:39	72	15:34 (18)	17:14			17:47	19:19	19:50	20:17	20:24	20:00	19:16	18:26	16:43							16:24	72	15:20 (18)	
7	07:14		14:23 (18)	06:55			06:16	06:26	05:44	05:21	05:27	05:53	06:23	06:52	06:26							06:59		14:08 (18)	
	16:40	72	15:35 (18)	17:15			17:48	19:20	19:51	20:18	20:23	19:59	19:14	18:25	16:42							16:24	73	15:21 (18)	
8	07:14		14:24 (18)	06:54			06:15	06:25	05:43	05:21	05:28	05:54	06:24	06:53	06:27							07:00		14:08 (18)	
	16:41	71	15:35 (18)	17:16			17:49	19:21	19:52	20:18	20:23	19:58	19:13	18:23	16:41							16:24	74	15:22 (18)	
9	07:13		14:24 (18)	06:52			06:13	06:23	05:42	05:20	05:28	05:55	06:25	06:54	06:28							14:33 (18)	07:01	14:09 (18)	
	16:42	71	15:35 (18)	17:18			17:50	19:22	19:53	20:19	20:23	19:57	19:11	18:21	16:40	13						14:46 (18)	16:24	73	15:22 (18)
10	07:13		14:25 (18)	06:51			06:12	06:22	05:40	05:20	05:29	05:56	06:25	06:55	06:29							14:28 (18)	07:02	14:09 (18)	
	16:43	71	15:36 (18)	17:19			17:51	19:23	19:54	20:19	20:22	19:56	19:09	18:20	16:39	22						14:50 (18)	16:24	74	15:23 (18)
11	07:13		14:25 (18)	06:50			06:10	06:20	05:39	05:20	05:30	05:57	06:26	06:56	06:31							14:25 (18)	07:02	14:10 (18)	
	16:44	70	15:35 (18)	17:20			17:52	19:24	19:55	20:20	20:22	19:54	19:08	18:18	16:38	29						14:54 (18)	16:24	74	15:24 (18)
12	07:13		14:27 (18)	06:49			06:09	06:18	05:38	05:20	05:30	05:58	06:27	06:57	06:32							14:22 (18)	07:03	14:10 (18)	
	16:45	68	15:35 (18)	17:21			17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:17	16:37	34						14:56 (18)	16:24	74	15:24 (18)
13	07:13		14:27 (18)	06:48			06:08	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33							14:20 (18)	07:04	14:10 (18)	
	16:46	68	15:36 (18)	17:22			17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36	38						14:58 (18)	16:24	74	15:24 (18)
14	07:12		14:28 (18)	06:46			06:05	06:15	05:36	05:20	05:32	05:59	06:29	06:59	06:34							14:18 (18)	07:05	14:10 (18)	
	16:47	67	15:35 (18)	17:24			17:55	19:27	19:58	20:21	20:20	19:50	19:03	18:14	16:35	42						15:00 (18)	16:25	75	15:25 (18)
15	07:12		14:29 (18)	06:45			06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35							14:17 (18)	07:06	14:11 (18)	
	16:48	67	15:36 (18)	17:25			17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34	45						15:02 (18)	16:25	75	15:26 (18)
16	07:11		14:30 (18)	06:44			06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36							14:16 (18)	07:06	14:11 (18)	
	16:49	65	15:35 (18)	17:26			17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:11	16:33	47						15:03 (18)	16:25	75	15:26 (18)
17	07:11		14:31 (18)	06:43			06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:38							14:14 (18)	07:07	14:11 (18)	
	16:50	64	15:35 (18)	17:27			17:58	19:30	20:01	20:23	20:19	19:46	18:58	18:09	16:33	51						15:05 (18)	16:25	75	15:26 (18)
18	07:11		14:32 (18)	06:41			05:59	06:09	05:33	05:20	05:35	06:03	06:33	07:03	06:39							14:13 (18)	07:08	14:12 (18)	
	16:51	63	15:35 (18)	17:28			17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:08	16:32	53						15:06 (18)	16:26	75	15:27 (18)
19	07:10		14:33 (18)	06:40			05:57	06:08	05:32	05:20	05:36	06:04	06:34	07:04	06:40							14:13 (18)	07:08	14:12 (18)	
	16:52	62	15:35 (18)	17:30			18:01	19:33	20:03	20:23	20:17	19:44	18:54	18:06	16:31	55						15:08 (18)	16:26	75	15:27 (18)
20	07:10		14:34 (18)	06:39			05:56	06:06	05:31	05:20	05:36	06:05	06:35	07:06	06:41							14:12 (18)	07:09	14:13 (18)	
	16:53	60	15:34 (18)	17:31			18:02	19:34	20:04	20:23	20:17	19:42	18:53	18:05	16:30	56						15:08 (18)	16:27	75	15:28 (18)
21	07:09		14:36 (18)	06:37			05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:07	06:42							14:11 (18)	07:09	14:13 (18)	
	16:55	58	15:34 (18)	17:32			18:03	19:35	20:04	20:24	20:16	19:41	18:51	18:03	16:30	58						15:09 (18)	16:27	75	15:28 (18)
22	07:08		14:37 (18)	06:36			05:52	06:03	05:29	05:21	05:38	06:07	06:37	07:08	06:43							14:10 (18)	07:10	14:14 (18)	
	16:56	56	15:33 (18)	17:33			18:04	19:36	20:05	20:24	20:15	19:39	18:49	18:02	16:29	60						15:10 (18)	16:27	75	15:29 (18)
23	07:08		14:38 (18)	06:34			05:51	06:02	05:29	05:21	05:39	06:08	06:38	07:09	06:44							14:09 (18)	07:10	14:14 (18)	
	16:57	55	15:33 (18)	17:34			18:05	19:37	20:06	20:24	20:14	19:38	18:48	18:00	16:29	62						15:11 (18)	16:28	75	15:29 (18)
24	07:07		14:39 (18)	06:33			05:49	06:01	05:28	05:21	05:40	06:09	06:39	07:10	06:46							14:10 (18)	07:11	14:15 (18)	
	16:58	53	15:32 (18)	17:35			18:06	19:38	20:07	20:24	20:14	19:36	18:46	17:59	16:28	63						15:13 (18)	16:29	75	15:30 (18)
25	07:06		14:41 (18)	06:32			05:47	05:59	05:27	05:21	05:41	06:10	06:40	06:11	06:47							14:09 (18)	07:11	14:15 (18)	
	16:59	51	15:32 (18)	17:36			18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:58	16:27	64						15:13 (18)	16:29	75	15:30 (18)
26	07:06		14:43 (18)	06:30			05:46	05:58	05:26	05:22	05:42	06:11	06:41	06:12	06:48							14:09 (18)	07:12	14:15 (18)	
	17:01	47	15:30 (18)	17:38			18:08	19:40	20:09	20:24	20:12	19:33	18:43	16:56	16:27	65						15:14 (18)	16:30	75	15:30 (18)
27	07:05		14:44 (18)	06:29			05:44	05:56	05:26	05:22	05:42	06:12	06:42	06:13	06:49							14:08 (18)	07:12	14:17 (18)	
	17:02	45	15:29 (18)	17:39			18:09	19:41	20:10	20:24	20:11	19:32	18:41	16:55	16:27	67						15:15 (18)	16:30	74	15:31 (18)
28	07:04		14:46 (18)	06:27			05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50							14:08 (18)</			

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: G - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (7)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January		February		March		April		May		June		July		August		September		October		November		December		
1	07:13		14:19 (18)	07:01		14:57 (18)	06:26	06:36	05:51	05:23	05:24	05:47	06:17	06:46	06:19							06:53		14:07 (18)	
	16:34	74	15:33 (18)	17:08	21	15:18 (18)	17:41	19:14	19:45	20:14	20:24	20:06	19:24	18:34	16:49							16:25	70	15:17 (18)	
2	07:14		14:20 (18)	07:00		15:02 (18)	06:24	06:34	05:50	05:23	05:24	05:48	06:18	06:47	06:20							06:54		14:07 (18)	
	16:35	73	15:33 (18)	17:09	11	15:13 (18)	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:33	16:47							16:25	70	15:17 (18)	
3	07:14		14:20 (18)	06:59			06:23	06:33	05:49	05:22	05:25	05:49	06:19	06:48	06:21							06:55		14:07 (18)	
	16:36	74	15:34 (18)	17:10			17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46							16:25	71	15:18 (18)	
4	07:14		14:21 (18)	06:58			06:21	06:31	05:47	05:22	05:25	05:50	06:20	06:49	06:22							06:56		14:07 (18)	
	16:37	73	15:34 (18)	17:11			17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45							16:24	72	15:19 (18)	
5	07:14		14:21 (18)	06:57			06:20	06:29	05:46	05:22	05:26	05:51	06:21	06:50	06:24							06:57		14:07 (18)	
	16:38	72	15:33 (18)	17:13			17:45	19:18	19:49	20:16	20:24	20:02	19:17	18:28	16:44							16:24	72	15:19 (18)	
6	07:14		14:21 (18)	06:56			06:18	06:28	05:45	05:21	05:26	05:52	06:22	06:51	06:25							06:58		14:07 (18)	
	16:39	73	15:34 (18)	17:14			17:47	19:19	19:50	20:17	20:24	20:00	19:16	18:26	16:43							16:24	73	15:20 (18)	
7	07:14		14:22 (18)	06:55			06:16	06:26	05:44	05:21	05:27	05:53	06:23	06:52	06:26							06:59		14:08 (18)	
	16:40	72	15:34 (18)	17:15			17:48	19:20	19:51	20:18	20:23	19:59	19:14	18:25	16:42							16:24	72	15:20 (18)	
8	07:14		14:23 (18)	06:54			06:15	06:25	05:43	05:21	05:28	05:54	06:24	06:53	06:27							07:00		14:08 (18)	
	16:41	71	15:34 (18)	17:16			17:49	19:21	19:52	20:18	20:23	19:58	19:13	18:23	16:41							16:24	73	15:21 (18)	
9	07:13		14:24 (18)	06:52			06:13	06:23	05:42	05:20	05:28	05:55	06:25	06:54	06:28							14:32 (18)	07:01	14:08 (18)	
	16:42	71	15:35 (18)	17:18			17:50	19:22	19:53	20:19	20:23	19:57	19:11	18:21	16:40	13						14:45 (18)	16:24	74	15:22 (18)
10	07:13		14:25 (18)	06:51			06:12	06:22	05:40	05:20	05:29	05:56	06:25	06:55	06:29							14:27 (18)	07:02	14:09 (18)	
	16:43	70	15:35 (18)	17:19			17:51	19:23	19:54	20:19	20:22	19:56	19:09	18:20	16:39	23						14:50 (18)	16:24	73	15:22 (18)
11	07:13		14:25 (18)	06:50			06:10	06:20	05:39	05:20	05:30	05:57	06:26	06:56	06:31							14:25 (18)	07:02	14:09 (18)	
	16:44	70	15:35 (18)	17:20			17:52	19:24	19:55	20:20	20:22	19:54	19:08	18:18	16:38	29						14:54 (18)	16:24	74	15:23 (18)
12	07:13		14:26 (18)	06:49			06:09	06:18	05:38	05:20	05:30	05:58	06:27	06:57	06:32							14:22 (18)	07:03	14:10 (18)	
	16:45	69	15:35 (18)	17:21			17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:17	16:37	34						14:56 (18)	16:24	74	15:24 (18)
13	07:13		14:27 (18)	06:48			06:08	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33							14:20 (18)	07:04	14:09 (18)	
	16:46	68	15:35 (18)	17:22			17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36	38						14:58 (18)	16:24	75	15:24 (18)
14	07:12		14:27 (18)	06:46			06:05	06:15	05:36	05:20	05:32	05:59	06:29	06:59	06:34							14:17 (18)	07:05	14:10 (18)	
	16:47	68	15:35 (18)	17:24			17:55	19:27	19:58	20:21	20:20	19:50	19:03	18:14	16:35	42						14:59 (18)	16:25	74	15:24 (18)
15	07:12		14:29 (18)	06:45			06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35							14:17 (18)	07:06	14:10 (18)	
	16:48	66	15:35 (18)	17:25			17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34	45						15:02 (18)	16:25	75	15:25 (18)
16	07:11		14:29 (18)	06:44			06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36							14:15 (18)	07:06	14:10 (18)	
	16:49	65	15:34 (18)	17:26			17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:11	16:33	48						15:03 (18)	16:25	75	15:25 (18)
17	07:11		14:31 (18)	06:43			06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:38							14:14 (18)	07:07	14:11 (18)	
	16:50	64	15:35 (18)	17:27			17:58	19:30	20:01	20:23	20:19	19:46	18:58	18:09	16:33	50						15:04 (18)	16:25	75	15:26 (18)
18	07:11		14:31 (18)	06:41			05:59	06:09	05:33	05:20	05:35	06:03	06:33	07:03	06:39							14:12 (18)	07:08	14:12 (18)	
	16:51	63	15:34 (18)	17:28			17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:08	16:32	53						15:05 (18)	16:26	75	15:27 (18)
19	07:10		14:33 (18)	06:40			05:57	06:08	05:32	05:20	05:36	06:04	06:34	07:04	06:40							14:12 (18)	07:08	14:12 (18)	
	16:52	61	15:34 (18)	17:30			18:01	19:33	20:03	20:23	20:17	19:44	18:54	18:06	16:31	55						15:07 (18)	16:26	75	15:27 (18)
20	07:10		14:34 (18)	06:39			05:56	06:06	05:31	05:20	05:36	06:05	06:35	07:06	06:41							14:11 (18)	07:09	14:12 (18)	
	16:53	60	15:34 (18)	17:31			18:02	19:34	20:04	20:23	20:17	19:42	18:53	18:05	16:30	57						15:08 (18)	16:27	76	15:28 (18)
21	07:09		14:35 (18)	06:37			05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:07	06:42							14:10 (18)	07:09	14:12 (18)	
	16:55	59	15:34 (18)	17:32			18:03	19:35	20:04	20:24	20:16	19:41	18:51	18:03	16:30	59						15:09 (18)	16:27	76	15:28 (18)
22	07:08		14:36 (18)	06:36			05:52	06:03	05:29	05:21	05:38	06:07	06:37	07:08	06:43							14:10 (18)	07:10	14:13 (18)	
	16:56	57	15:33 (18)	17:33			18:04	19:36	20:05	20:24	20:15	19:39	18:49	18:02	16:29	60						15:10 (18)	16:27	76	15:29 (18)
23	07:08		14:37 (18)	06:34			05:51	06:02	05:29	05:21	05:39	06:08	06:38	07:09	06:44							14:09 (18)	07:10	14:13 (18)	
	16:57	55	15:32 (18)	17:34			18:05	19:37	20:06	20:24	20:14	19:38	18:48	18:00	16:29	61						15:10 (18)	16:28	76	15:29 (18)
24	07:07		14:38 (18)	06:33			05:49	06:01	05:28	05:21	05:40	06:09	06:39	07:10	06:46							14:09 (18)	07:11	14:14 (18)	
	16:58	53	15:31 (18)	17:35			18:06	19:38	20:07	20:24	20:14	19:36	18:46	17:59	16:28	63						15:12 (18)	16:29	76	15:30 (18)
25	07:06		14:41 (18)	06:32			05:47	05:59	05:27	05:21	05:41	06:10	06:40	06:11	06:47							14:09 (18)	07:11	14:15 (18)	
	16:59	50	15:31 (18)	17:36			18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:58	16:27	64						15:13 (18)	16:29	75	15:30 (18)
26	07:06		14:42 (18)	06:30			05:46	05:58	05:26	05:22	05:42	06:11	06:41	06:12	06:48							14:08 (18)	07:12	14:15 (18)	
	17:01	48	15:30 (18)	17:38			18:08	19:40	20:09	20:24	20:12	19:33	18:43	16:56	16:27	65						15:13 (18)	16:30	75	15:30 (18)
27	07:05		14:44 (18)	06:29			05:44	05:56	05:26	05:22	05:42	06:12	06:42	06:13	06:49							14:08 (18)	07:12	14:16 (18)	
	17:02	45	15:29 (18)	17:39			18:09	19:41	20:10	20:24	20:11	19:32	18:41	16:55	16:27	66						15:14 (18)	16:30	75	15:31 (18)
28	07:04		14:46 (18)	06:27			05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50							14:08 (18)</			

SHADOW - Calendar

Shadow receptor: H - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (8)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March		April		May		June	
1	07:13	07:01	06:26		06:36		07:25 (18)	05:51	08:10 (18)	05:23
	16:34	17:08	17:41		19:14	105	09:10 (18)	19:45	09:18 (18)	20:14
2	07:14	07:00	06:24		06:34		07:27 (18)	05:50	08:12 (18)	05:23
	16:35	17:09	17:42		19:15	105	09:12 (18)	19:46	09:18 (18)	20:14
3	07:14	06:59	06:23		06:33		07:28 (18)	05:49	08:13 (18)	05:22
	16:36	17:10	17:43		19:16	105	09:13 (18)	19:47	09:18 (18)	20:15
4	07:14	06:58	06:21		06:31		07:29 (18)	05:47	08:15 (18)	05:22
	16:37	17:12	17:44		19:17	104	09:13 (18)	19:48	09:18 (18)	20:16
5	07:14	06:57	06:20		06:30		07:32 (18)	05:46	08:16 (18)	05:22
	16:38	17:13	17:45		19:18	103	09:15 (18)	19:49	09:16 (18)	20:16
6	07:14	06:56	06:18		06:28		07:33 (18)	05:45	08:17 (18)	05:21
	16:39	17:14	17:47		19:19	102	09:15 (18)	19:50	09:16 (18)	20:17
7	07:14	06:55	06:17		06:26		07:35 (18)	05:44	08:19 (18)	05:21
	16:40	17:15	17:48		19:20	102	09:17 (18)	19:51	09:16 (18)	20:18
8	07:14	06:54	06:15		06:25		07:36 (18)	05:43	08:20 (18)	05:21
	16:41	17:16	17:49		19:21	101	09:17 (18)	19:52	09:16 (18)	20:18
9	07:13	06:52	06:13		06:23		07:37 (18)	05:42	08:22 (18)	05:21
	16:42	17:18	17:50		19:22	100	09:17 (18)	19:53	09:15 (18)	20:19
10	07:13	06:51	06:12		06:22		07:39 (18)	05:40	08:23 (18)	05:20
	16:43	17:19	17:51		19:23	99	09:18 (18)	19:54	09:15 (18)	20:19
11	07:13	06:50	06:10		06:20		07:40 (18)	05:39	08:25 (18)	05:20
	16:44	17:20	17:52		19:24	98	09:18 (18)	19:55	09:15 (18)	20:20
12	07:13	06:49	06:09		06:18		07:42 (18)	05:38	08:26 (18)	05:20
	16:45	17:21	17:53		19:25	97	09:19 (18)	19:56	09:14 (18)	20:20
13	07:13	06:48	06:07		06:17		07:43 (18)	05:37	08:27 (18)	05:20
	16:46	17:22	17:54		19:26	96	09:19 (18)	19:57	09:14 (18)	20:21
14	07:12	06:46	06:05		06:15		07:45 (18)	05:36	08:29 (18)	05:20
	16:47	17:24	17:55		19:27	95	09:20 (18)	19:58	09:14 (18)	20:21
15	07:12	06:45	06:04		06:14		07:46 (18)	05:35	08:30 (18)	05:20
	16:48	17:25	17:56		19:28	93	09:19 (18)	19:59	09:13 (18)	20:22
16	07:11	06:44	06:02		06:12		07:48 (18)	05:34	08:31 (18)	05:20
	16:49	17:26	17:57		19:29	92	09:20 (18)	20:00	09:13 (18)	20:22
17	07:11	06:43	06:01		06:11		07:49 (18)	05:33	08:33 (18)	05:20
	16:50	17:27	17:58		19:30	91	09:20 (18)	20:01	09:13 (18)	20:23
18	07:11	06:41	05:59	07:08 (18)	06:09		07:51 (18)	05:33	08:35 (18)	05:20
	16:51	17:28	17:59	18 07:26 (18)	19:32	89	09:20 (18)	20:02	09:13 (18)	20:23
19	07:10	06:40	05:57	06:59 (18)	06:08		07:52 (18)	05:32	08:36 (18)	05:20
	16:52	17:30	18:01	37 07:36 (18)	19:33	88	09:20 (18)	20:03	09:12 (18)	20:23
20	07:10	06:39	05:56	06:52 (18)	06:06		07:54 (18)	05:31	08:37 (18)	05:20
	16:54	17:31	18:02	49 07:41 (18)	19:34	86	09:20 (18)	20:04	09:12 (18)	20:23
21	07:09	06:37	05:54	06:47 (18)	06:05		07:55 (18)	05:30	08:38 (18)	05:20
	16:55	17:32	18:03	59 07:46 (18)	19:35	85	09:20 (18)	20:04	09:11 (18)	20:24
22	07:08	06:36	05:52	06:44 (18)	06:03		07:57 (18)	05:29	08:40 (18)	05:21
	16:56	17:33	18:04	66 07:50 (18)	19:36	83	09:20 (18)	20:05	09:11 (18)	20:24
23	07:08	06:34	05:51	06:39 (18)	06:02		07:59 (18)	05:29	08:41 (18)	05:21
	16:57	17:34	18:05	74 07:53 (18)	19:37	81	09:20 (18)	20:06	09:11 (18)	20:24
24	07:07	06:33	05:49	06:36 (18)	06:01		08:00 (18)	05:28	08:42 (18)	05:21
	16:58	17:35	18:06	79 07:55 (18)	19:38	79	09:19 (18)	20:07	09:10 (18)	20:24
25	07:06	06:32	05:47	06:33 (18)	05:59		08:01 (18)	05:27	08:43 (18)	05:21
	16:59	17:37	18:07	85 07:58 (18)	19:39	79	09:20 (18)	20:08	09:11 (18)	20:24
26	07:06	06:30	05:46	06:30 (18)	05:58		08:03 (18)	05:26	08:44 (18)	05:22
	17:01	17:38	18:08	90 08:00 (18)	19:40	77	09:20 (18)	20:09	09:10 (18)	20:24
27	07:05	06:29	05:44	06:27 (18)	05:56		08:04 (18)	05:26	08:46 (18)	05:22
	17:02	17:39	18:09	95 08:02 (18)	19:41	75	09:19 (18)	20:10	09:10 (18)	20:24
28	07:04	06:27	05:43	06:25 (18)	05:55		08:06 (18)	05:25	08:46 (18)	05:22
	17:03	17:40	18:10	99 08:04 (18)	19:42	73	09:19 (18)	20:10	09:10 (18)	20:25
29	07:03		06:41	07:23 (18)	05:54		08:08 (18)	05:25	08:48 (18)	05:23
	17:04		19:11	103 09:06 (18)	19:43	71	09:19 (18)	20:11	09:10 (18)	20:25
30	07:02		06:39	07:23 (18)	05:52		08:08 (18)	05:24	08:49 (18)	05:23
	17:05		19:12	105 09:08 (18)	19:44	70	09:18 (18)	20:12	09:09 (18)	20:24
31	07:02		06:38	07:24 (18)				05:24	08:50 (18)	
	17:07		19:13	105 09:09 (18)				20:13	09:10 (18)	
Potential sun hours	299	298	370		398			446		450
Total, worst case			1064		2724		1309			284

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	(WTG causing flicker first time)
Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: H - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (8)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

July		August		September		October		November	December
1	05:24	09:03 (18)	05:47	08:36 (18)	06:17	07:39 (18)	06:46	06:19	06:53
	20:24	09:13 (18)	20:06	09:25 (18)	19:24	09:17 (18)	18:34	16:49	16:25
2	05:24	09:04 (18)	05:48	08:35 (18)	06:18	07:37 (18)	06:47	06:20	06:54
	20:24	09:14 (18)	20:05	09:25 (18)	19:22	09:16 (18)	18:33	16:48	16:25
3	05:25	09:03 (18)	05:49	08:33 (18)	06:19	07:35 (18)	06:48	06:21	06:55
	20:24	09:14 (18)	20:04	09:26 (18)	19:21	09:15 (18)	18:31	16:46	16:25
4	05:25	09:03 (18)	05:50	08:32 (18)	06:20	07:33 (18)	06:49	06:22	06:56
	20:24	09:14 (18)	20:03	09:26 (18)	19:19	09:14 (18)	18:29	16:45	16:24
5	05:26	09:02 (18)	05:51	08:30 (18)	06:21	07:31 (18)	06:50	06:24	06:57
	20:24	09:14 (18)	20:02	09:26 (18)	19:18	09:13 (18)	18:28	16:44	16:24
6	05:26	09:02 (18)	05:52	08:28 (18)	06:22	07:29 (18)	06:51	06:25	06:58
	20:24	09:15 (18)	20:00	09:26 (18)	19:16	09:11 (18)	18:26	16:43	16:24
7	05:27	09:01 (18)	05:53	08:26 (18)	06:23	07:27 (18)	06:52	06:26	06:59
	20:23	09:15 (18)	19:59	09:26 (18)	19:14	09:10 (18)	18:25	16:42	16:24
8	05:28	09:01 (18)	05:54	08:25 (18)	06:24	07:25 (18)	06:53	06:27	07:00
	20:23	09:16 (18)	19:58	09:26 (18)	19:13	09:08 (18)	18:23	16:41	16:24
9	05:28	09:01 (18)	05:55	08:23 (18)	06:25	07:23 (18)	06:54	06:28	07:01
	20:23	09:16 (18)	19:57	09:26 (18)	19:11	09:07 (18)	18:21	16:40	16:24
10	05:29	08:59 (18)	05:56	08:22 (18)	06:26	07:20 (18)	06:55	06:29	07:02
	20:22	09:16 (18)	19:56	09:26 (18)	19:09	09:05 (18)	18:20	16:39	16:24
11	05:30	08:59 (18)	05:57	08:20 (18)	06:26	07:18 (18)	06:56	06:31	07:02
	20:22	09:17 (18)	19:54	09:27 (18)	19:08	09:03 (18)	18:18	16:38	16:24
12	05:30	08:59 (18)	05:58	08:18 (18)	06:27	07:16 (18)	06:57	06:32	07:03
	20:21	09:18 (18)	19:53	09:27 (18)	19:06	09:01 (18)	18:17	16:37	16:24
13	05:31	08:57 (18)	05:59	08:17 (18)	06:28	07:13 (18)	06:58	06:33	07:04
	20:21	09:17 (18)	19:52	09:27 (18)	19:04	08:58 (18)	18:15	16:36	16:24
14	05:32	08:57 (18)	05:59	08:15 (18)	06:29	07:13 (18)	06:59	06:34	07:05
	20:20	09:18 (18)	19:50	09:27 (18)	19:03	08:56 (18)	18:14	16:35	16:25
15	05:32	08:56 (18)	06:00	08:13 (18)	06:30	07:14 (18)	07:00	06:35	07:06
	20:20	09:19 (18)	19:49	09:27 (18)	19:01	08:54 (18)	18:12	16:34	16:25
16	05:33	08:55 (18)	06:01	08:11 (18)	06:31	07:16 (18)	07:01	06:36	07:06
	20:19	09:18 (18)	19:48	09:27 (18)	18:59	08:52 (18)	18:11	16:33	16:25
17	05:34	08:54 (18)	06:02	08:10 (18)	06:32	07:18 (18)	07:02	06:38	07:07
	20:19	09:19 (18)	19:46	09:27 (18)	18:58	08:49 (18)	18:09	16:33	16:25
18	05:35	08:53 (18)	06:03	08:08 (18)	06:33	07:20 (18)	07:03	06:39	07:08
	20:18	09:20 (18)	19:45	09:26 (18)	18:56	08:46 (18)	18:08	16:32	16:26
19	05:36	08:52 (18)	06:04	08:05 (18)	06:34	07:22 (18)	07:04	06:40	07:08
	20:17	09:20 (18)	19:44	09:25 (18)	18:54	08:43 (18)	18:06	16:31	16:26
20	05:36	08:52 (18)	06:05	08:03 (18)	06:35	07:25 (18)	07:06	06:41	07:09
	20:17	09:21 (18)	19:42	09:25 (18)	18:53	08:40 (18)	18:05	16:30	16:27
21	05:37	08:50 (18)	06:06	08:01 (18)	06:36	07:28 (18)	07:07	06:42	07:09
	20:16	09:21 (18)	19:41	09:25 (18)	18:51	08:36 (18)	18:03	16:30	16:27
22	05:38	08:49 (18)	06:07	08:00 (18)	06:37	07:31 (18)	07:08	06:43	07:10
	20:15	09:21 (18)	19:39	09:24 (18)	18:49	08:32 (18)	18:02	16:29	16:27
23	05:39	08:48 (18)	06:08	07:58 (18)	06:38	07:35 (18)	07:09	06:44	07:10
	20:14	09:22 (18)	19:38	09:24 (18)	18:48	08:27 (18)	18:00	16:29	16:28
24	05:40	08:47 (18)	06:09	07:56 (18)	06:39	07:40 (18)	07:10	06:46	07:11
	20:14	09:22 (18)	19:36	09:24 (18)	18:46	08:22 (18)	17:59	16:28	16:29
25	05:41	08:46 (18)	06:10	07:54 (18)	06:40	07:47 (18)	06:11	06:47	07:11
	20:13	09:23 (18)	19:35	09:23 (18)	18:44	08:13 (18)	16:58	16:28	16:29
26	05:42	08:45 (18)	06:11	07:52 (18)	06:41		06:12	06:48	07:12
	20:12	09:23 (18)	19:33	09:23 (18)	18:43		16:56	16:27	16:30
27	05:42	08:43 (18)	06:12	07:50 (18)	06:42		06:13	06:49	07:12
	20:11	09:23 (18)	19:32	09:22 (18)	18:41		16:55	16:27	16:30
28	05:43	08:41 (18)	06:13	07:48 (18)	06:43		06:14	06:50	07:12
	20:10	09:23 (18)	19:30	09:21 (18)	18:39		16:54	16:26	16:31
29	05:44	08:40 (18)	06:14	07:46 (18)	06:44		06:16	06:51	07:13
	20:09	09:24 (18)	19:29	09:21 (18)	18:38		16:52	16:26	16:32
30	05:45	08:39 (18)	06:15	07:44 (18)	06:45		06:17	06:52	07:13
	20:08	09:24 (18)	19:27	09:20 (18)	18:36		16:51	16:25	16:33
31	05:46	08:38 (18)	06:16	07:42 (18)			06:18		07:13
	20:07	09:25 (18)	19:25	09:19 (18)			16:50		16:33
Potential sun hours	457		427		375		346	300	290
Total, worst case	786		2308		2213				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: I - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (9)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March		April		May		June	
1	07:13	07:01	06:26		06:36		07:25 (18)	05:51	08:10 (18)	05:23
	16:34	17:08	17:41		19:14	105	09:10 (18)	19:45	09:18 (18)	20:14
2	07:14	07:00	06:24		06:34		07:27 (18)	05:50	08:12 (18)	05:23
	16:35	17:09	17:42		19:15	105	09:12 (18)	19:46	09:18 (18)	20:14
3	07:14	06:59	06:23		06:33		07:28 (18)	05:49	08:13 (18)	05:22
	16:36	17:10	17:43		19:16	105	09:13 (18)	19:47	09:17 (18)	20:15
4	07:14	06:58	06:21		06:31		07:29 (18)	05:47	08:15 (18)	05:22
	16:37	17:12	17:44		19:17	104	09:13 (18)	19:48	09:17 (18)	20:16
5	07:14	06:57	06:20		06:30		07:32 (18)	05:46	08:16 (18)	05:22
	16:38	17:13	17:45		19:18	103	09:15 (18)	19:49	09:16 (18)	20:16
6	07:14	06:56	06:18		06:28		07:33 (18)	05:45	08:17 (18)	05:21
	16:39	17:14	17:47		19:19	102	09:15 (18)	19:50	09:16 (18)	20:17
7	07:14	06:55	06:17		06:26		07:35 (18)	05:44	08:19 (18)	05:21
	16:40	17:15	17:48		19:20	101	09:16 (18)	19:51	09:16 (18)	20:18
8	07:14	06:54	06:15		06:25		07:36 (18)	05:43	08:20 (18)	05:21
	16:41	17:16	17:49		19:21	101	09:17 (18)	19:52	09:15 (18)	20:18
9	07:13	06:52	06:13		06:23		07:37 (18)	05:42	08:22 (18)	05:21
	16:42	17:18	17:50		19:22	100	09:17 (18)	19:53	09:15 (18)	20:19
10	07:13	06:51	06:12		06:22		07:39 (18)	05:40	08:23 (18)	05:20
	16:43	17:19	17:51		19:23	99	09:18 (18)	19:54	09:15 (18)	20:19
11	07:13	06:50	06:10		06:20		07:40 (18)	05:39	08:25 (18)	05:20
	16:44	17:20	17:52		19:24	98	09:18 (18)	19:55	09:14 (18)	20:20
12	07:13	06:49	06:09		06:18		07:42 (18)	05:38	08:26 (18)	05:20
	16:45	17:21	17:53		19:25	97	09:19 (18)	19:56	09:14 (18)	20:20
13	07:13	06:48	06:07		06:17		07:43 (18)	05:37	08:27 (18)	05:20
	16:46	17:22	17:54		19:26	96	09:19 (18)	19:57	09:14 (18)	20:21
14	07:12	06:46	06:05		06:15		07:45 (18)	05:36	08:29 (18)	05:20
	16:47	17:24	17:55		19:27	95	09:20 (18)	19:58	09:13 (18)	20:21
15	07:12	06:45	06:04		06:14		07:46 (18)	05:35	08:30 (18)	05:20
	16:48	17:25	17:56		19:28	93	09:19 (18)	19:59	09:13 (18)	20:22
16	07:11	06:44	06:02		06:12		07:48 (18)	05:34	08:31 (18)	05:20
	16:49	17:26	17:57		19:29	92	09:20 (18)	20:00	09:12 (18)	20:22
17	07:11	06:43	06:01		06:11		07:49 (18)	05:33	08:33 (18)	05:20
	16:50	17:27	17:58		19:30	91	09:20 (18)	20:01	09:13 (18)	20:23
18	07:11	06:41	05:59	07:06 (18)	06:09		07:51 (18)	05:33	08:35 (18)	05:20
	16:51	17:28	17:59	21 07:27 (18)	19:32	89	09:20 (18)	20:02	09:12 (18)	20:23
19	07:10	06:40	05:57	06:58 (18)	06:08		07:52 (18)	05:32	08:36 (18)	05:20
	16:52	17:30	18:01	39 07:37 (18)	19:33	88	09:20 (18)	20:03	09:12 (18)	20:23
20	07:10	06:39	05:56	06:52 (18)	06:06		07:54 (18)	05:31	08:37 (18)	05:20
	16:54	17:31	18:02	50 07:42 (18)	19:34	86	09:20 (18)	20:04	09:11 (18)	20:23
21	07:09	06:37	05:54	06:47 (18)	06:05		07:55 (18)	05:30	08:38 (18)	05:20
	16:55	17:32	18:03	59 07:46 (18)	19:35	84	09:19 (18)	20:04	09:11 (18)	20:24
22	07:08	06:36	05:52	06:43 (18)	06:03		07:57 (18)	05:29	08:40 (18)	05:21
	16:56	17:33	18:04	67 07:50 (18)	19:36	83	09:20 (18)	20:05	09:11 (18)	20:24
23	07:08	06:34	05:51	06:39 (18)	06:02		07:59 (18)	05:29	08:41 (18)	05:21
	16:57	17:34	18:05	74 07:53 (18)	19:37	81	09:20 (18)	20:06	09:11 (18)	20:24
24	07:07	06:33	05:49	06:35 (18)	06:01		08:00 (18)	05:28	08:42 (18)	05:21
	16:58	17:35	18:06	80 07:55 (18)	19:38	79	09:19 (18)	20:07	09:10 (18)	20:24
25	07:06	06:32	05:47	06:33 (18)	05:59		08:01 (18)	05:27	08:43 (18)	05:21
	16:59	17:37	18:07	86 07:59 (18)	19:39	78	09:19 (18)	20:08	09:10 (18)	20:24
26	07:06	06:30	05:46	06:30 (18)	05:58		08:03 (18)	05:26	08:44 (18)	05:22
	17:01	17:38	18:08	90 08:00 (18)	19:40	77	09:20 (18)	20:09	09:10 (18)	20:24
27	07:05	06:29	05:44	06:27 (18)	05:56		08:04 (18)	05:26	08:46 (18)	05:22
	17:02	17:39	18:09	95 08:02 (18)	19:41	75	09:19 (18)	20:10	09:10 (18)	20:24
28	07:04	06:27	05:43	06:25 (18)	05:55		08:06 (18)	05:25	08:46 (18)	05:22
	17:03	17:40	18:10	100 08:05 (18)	19:42	73	09:19 (18)	20:10	09:09 (18)	20:25
29	07:03		06:41	07:23 (18)	05:54		08:08 (18)	05:25	08:48 (18)	05:23
	17:04		19:11	103 09:06 (18)	19:43	71	09:19 (18)	20:11	09:10 (18)	20:25
30	07:02		06:39	07:23 (18)	05:52		08:08 (18)	05:24	08:49 (18)	05:23
	17:05		19:12	105 09:08 (18)	19:44	70	09:18 (18)	20:12	09:09 (18)	20:24
31	07:02		06:38	07:24 (18)				05:24	08:50 (18)	
	17:07		19:13	105 09:09 (18)				20:13	09:09 (18)	
Potential sun hours	299	298	370		398		446		450	
Total, worst case			1074		2721		1298		279	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: I - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (9)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

July		August		September		October		November		December	
1	05:24	09:03 (18)	05:47	08:36 (18)	06:17	07:39 (18)	06:46	06:19	06:53		
	20:24	9	09:12 (18)	20:06	49	09:25 (18)	19:24	98	09:17 (18)	18:34	16:25
2	05:24	09:04 (18)	05:48	08:35 (18)	06:18	07:37 (18)	06:47	06:20	06:54		
	20:24	9	09:13 (18)	20:05	50	09:25 (18)	19:22	99	09:16 (18)	18:33	16:25
3	05:25	09:03 (18)	05:49	08:33 (18)	06:19	07:35 (18)	06:48	06:21	06:55		
	20:24	10	09:13 (18)	20:04	53	09:26 (18)	19:21	100	09:15 (18)	18:31	16:25
4	05:25	09:03 (18)	05:50	08:32 (18)	06:20	07:33 (18)	06:49	06:22	06:56		
	20:24	11	09:14 (18)	20:03	54	09:26 (18)	19:19	101	09:14 (18)	18:29	16:24
5	05:26	09:02 (18)	05:51	08:30 (18)	06:21	07:31 (18)	06:50	06:24	06:57		
	20:24	12	09:14 (18)	20:02	56	09:26 (18)	19:18	102	09:13 (18)	18:28	16:24
6	05:26	09:02 (18)	05:52	08:28 (18)	06:22	07:29 (18)	06:51	06:25	06:58		
	20:24	13	09:15 (18)	20:00	57	09:25 (18)	19:16	102	09:11 (18)	18:26	16:24
7	05:27	09:01 (18)	05:53	08:26 (18)	06:23	07:27 (18)	06:52	06:26	06:59		
	20:23	13	09:14 (18)	19:59	60	09:26 (18)	19:14	103	09:10 (18)	18:25	16:24
8	05:28	09:01 (18)	05:54	08:25 (18)	06:24	07:25 (18)	06:53	06:27	07:00		
	20:23	14	09:15 (18)	19:58	61	09:26 (18)	19:13	103	09:08 (18)	18:23	16:24
9	05:28	09:01 (18)	05:55	08:23 (18)	06:25	07:23 (18)	06:54	06:28	07:01		
	20:23	15	09:16 (18)	19:57	63	09:26 (18)	19:11	104	09:07 (18)	18:21	16:24
10	05:29	08:59 (18)	05:56	08:22 (18)	06:26	07:20 (18)	06:55	06:29	07:02		
	20:22	17	09:16 (18)	19:56	64	09:26 (18)	19:09	105	09:05 (18)	18:20	16:24
11	05:30	08:59 (18)	05:57	08:20 (18)	06:26	07:18 (18)	06:56	06:31	07:02		
	20:22	18	09:17 (18)	19:54	66	09:26 (18)	19:08	105	09:03 (18)	18:18	16:24
12	05:30	08:59 (18)	05:58	08:18 (18)	06:27	07:16 (18)	06:57	06:32	07:03		
	20:21	18	09:17 (18)	19:53	68	09:26 (18)	19:06	105	09:01 (18)	18:17	16:24
13	05:31	08:57 (18)	05:59	08:17 (18)	06:28	07:13 (18)	06:58	06:33	07:04		
	20:21	20	09:17 (18)	19:52	69	09:26 (18)	19:04	106	08:59 (18)	18:15	16:24
14	05:32	08:57 (18)	05:59	08:15 (18)	06:29	07:13 (18)	06:59	06:34	07:05		
	20:20	21	09:18 (18)	19:50	72	09:27 (18)	19:03	103	08:56 (18)	18:14	16:25
15	05:32	08:56 (18)	06:00	08:13 (18)	06:30	07:14 (18)	07:00	06:35	07:06		
	20:20	22	09:18 (18)	19:49	73	09:26 (18)	19:01	100	08:54 (18)	18:12	16:25
16	05:33	08:55 (18)	06:01	08:11 (18)	06:31	07:16 (18)	07:01	06:36	07:06		
	20:19	23	09:18 (18)	19:48	75	09:26 (18)	18:59	96	08:52 (18)	18:11	16:25
17	05:34	08:54 (18)	06:02	08:10 (18)	06:32	07:18 (18)	07:02	06:38	07:07		
	20:19	25	09:19 (18)	19:46	76	09:26 (18)	18:58	91	08:49 (18)	18:09	16:25
18	05:35	08:53 (18)	06:03	08:08 (18)	06:33	07:20 (18)	07:03	06:39	07:08		
	20:18	26	09:19 (18)	19:45	78	09:26 (18)	18:56	86	08:46 (18)	18:08	16:26
19	05:36	08:52 (18)	06:04	08:05 (18)	06:34	07:22 (18)	07:04	06:40	07:08		
	20:17	28	09:20 (18)	19:44	80	09:25 (18)	18:54	81	08:43 (18)	18:06	16:26
20	05:36	08:52 (18)	06:05	08:03 (18)	06:35	07:25 (18)	07:06	06:41	07:09		
	20:17	29	09:21 (18)	19:42	82	09:25 (18)	18:53	75	08:40 (18)	18:05	16:27
21	05:37	08:50 (18)	06:06	08:01 (18)	06:36	07:28 (18)	07:07	06:42	07:09		
	20:16	30	09:20 (18)	19:41	84	09:25 (18)	18:51	69	08:37 (18)	18:03	16:27
22	05:38	08:49 (18)	06:07	08:00 (18)	06:37	07:31 (18)	07:08	06:43	07:10		
	20:15	32	09:21 (18)	19:39	84	09:24 (18)	18:49	61	08:32 (18)	18:02	16:27
23	05:39	08:48 (18)	06:08	07:58 (18)	06:38	07:35 (18)	07:09	06:44	07:10		
	20:14	33	09:21 (18)	19:38	86	09:24 (18)	18:48	53	08:28 (18)	18:00	16:28
24	05:40	08:47 (18)	06:09	07:56 (18)	06:39	07:40 (18)	07:10	06:46	07:11		
	20:14	35	09:22 (18)	19:36	87	09:23 (18)	18:46	42	08:22 (18)	17:59	16:29
25	05:41	08:46 (18)	06:10	07:54 (18)	06:40	07:46 (18)	06:11	06:47	07:11		
	20:13	37	09:23 (18)	19:35	89	09:23 (18)	18:44	28	08:14 (18)	16:58	16:29
26	05:42	08:45 (18)	06:11	07:52 (18)	06:41		06:12	06:48	07:12		
	20:12	38	09:23 (18)	19:33	90	09:22 (18)	18:43		16:56	16:27	16:30
27	05:42	08:43 (18)	06:12	07:50 (18)	06:42		06:13	06:49	07:12		
	20:11	40	09:23 (18)	19:32	92	09:22 (18)	18:41		16:55	16:27	16:30
28	05:43	08:41 (18)	06:13	07:48 (18)	06:43		06:14	06:50	07:12		
	20:10	42	09:23 (18)	19:30	93	09:21 (18)	18:39		16:54	16:26	16:31
29	05:44	08:40 (18)	06:14	07:46 (18)	06:44		06:16	06:51	07:13		
	20:09	44	09:24 (18)	19:29	94	09:20 (18)	18:38		16:52	16:26	16:32
30	05:45	08:39 (18)	06:15	07:44 (18)	06:45		06:17	06:52	07:13		
	20:08	45	09:24 (18)	19:27	96	09:20 (18)	18:36		16:51	16:25	16:33
31	05:46	08:38 (18)	06:16	07:42 (18)			06:18		07:13		
	20:07	46	09:24 (18)	19:25	97	09:19 (18)			16:50		16:33
Potential sun hours	457		427		375		346		300		290
Total, worst case		775		2298		2218					

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: J - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January			February			March		April		May		June	
1	07:13		09:53 (19)	07:01		10:08 (19)	06:26		06:36		05:51		05:23	
	16:34	168	12:41 (19)	17:08	156	12:44 (19)	17:41		19:14		19:45		20:14	
2	07:14		09:54 (19)	07:00		10:08 (19)	06:24		06:34		05:50		05:23	
	16:35	167	12:41 (19)	17:09	156	12:44 (19)	17:42		19:15		19:46		20:14	
3	07:14		09:54 (19)	06:59		10:09 (19)	06:23		06:33		05:49		05:22	
	16:36	168	12:42 (19)	17:10	154	12:43 (19)	17:43		19:16		19:47		20:15	
4	07:14		09:55 (19)	06:58		10:10 (19)	06:21		06:31		05:47		05:22	
	16:37	167	12:42 (19)	17:11	153	12:43 (19)	17:44		19:17		19:48		20:16	
5	07:14		09:55 (19)	06:57		10:10 (19)	06:20		06:29		05:46		05:21	
	16:38	167	12:42 (19)	17:13	152	12:42 (19)	17:45		19:18		19:49		20:16	
6	07:14		09:55 (19)	06:56		10:11 (19)	06:18		06:28		05:45		05:21	
	16:39	167	12:42 (19)	17:14	150	12:41 (19)	17:47		19:19		19:50		20:17	
7	07:14		09:55 (19)	06:55		10:12 (19)	06:16		06:26		05:44		05:21	
	16:39	167	12:42 (19)	17:15	149	12:41 (19)	17:48		19:20		19:51		20:18	
8	07:14		09:56 (19)	06:54		10:13 (19)	06:15		06:25		05:43		05:21	
	16:40	167	12:43 (19)	17:16	147	12:40 (19)	17:49		19:21		19:52		20:18	
9	07:13		09:57 (19)	06:52		10:14 (19)	06:13		06:23		05:41		05:20	
	16:41	167	12:44 (19)	17:17	145	12:39 (19)	17:50		19:22		19:53		20:19	
10	07:13		09:57 (19)	06:51		10:15 (19)	06:12		06:21		05:40		05:20	
	16:42	167	12:44 (19)	17:19	143	12:38 (19)	17:51		19:23		19:54		20:19	
11	07:13		09:57 (19)	06:50		10:15 (19)	06:10		06:20		05:39		05:20	
	16:43	167	12:44 (19)	17:20	141	12:36 (19)	17:52		19:24		19:55		20:20	
12	07:13		09:58 (19)	06:49		10:16 (19)	06:09		06:18		05:38		05:20	
	16:45	166	12:44 (19)	17:21	139	12:35 (19)	17:53		19:25		19:56		20:20	
13	07:13		09:59 (19)	06:48		10:17 (19)	06:07		06:17		05:37		05:20	
	16:46	166	12:45 (19)	17:22	137	12:34 (19)	17:54		19:26		19:57		20:21	
14	07:12		09:59 (19)	06:46		10:19 (19)	06:05		06:15		05:36		05:20	
	16:47	166	12:45 (19)	17:24	134	12:33 (19)	17:55		19:27		19:58		20:21	
15	07:12		09:59 (19)	06:45		10:19 (19)	06:04		06:14		05:35		05:20	
	16:48	166	12:45 (19)	17:25	131	12:30 (19)	17:56		19:28		19:59		20:22	
16	07:12		09:59 (19)	06:44		10:21 (19)	06:02		06:12		05:34		05:20	
	16:49	166	12:45 (19)	17:26	127	12:28 (19)	17:57		19:29		20:00		20:22	
17	07:11		10:00 (19)	06:43		10:22 (19)	06:00		06:11		05:33		05:20	
	16:50	166	12:46 (19)	17:27	124	12:26 (19)	17:58		19:30		20:01		20:23	
18	07:11		10:00 (19)	06:41		10:23 (19)	05:59		06:09		05:32		05:20	
	16:51	165	12:45 (19)	17:28	120	12:23 (19)	17:59		19:31		20:02		20:23	
19	07:10		10:01 (19)	06:40		10:25 (19)	05:57		06:08		05:32		05:20	
	16:52	165	12:46 (19)	17:29	116	12:21 (19)	18:00		19:33		20:03		20:23	
20	07:10		10:01 (19)	06:39		10:27 (19)	05:56		06:06		05:31		05:20	
	16:53	165	12:46 (19)	17:31	111	12:18 (19)	18:02		19:34		20:04		20:23	
21	07:09		10:03 (19)	06:37		10:28 (19)	05:54		06:05		05:30		05:20	
	16:55	164	12:47 (19)	17:32	105	12:13 (19)	18:03		19:35		20:04		20:24	
22	07:08		10:03 (19)	06:36		10:31 (19)	05:52		06:03		05:29		05:20	
	16:56	163	12:46 (19)	17:33	98	12:09 (19)	18:04		19:36		20:05		20:24	
23	07:08		10:03 (19)	06:34		10:33 (19)	05:51		06:02		05:28		05:21	
	16:57	163	12:46 (19)	17:34	90	12:03 (19)	18:05		19:37		20:06		20:24	
24	07:07		10:03 (19)	06:33		10:36 (19)	05:49		06:00		05:28		05:21	
	16:58	163	12:46 (19)	17:35	82	11:58 (19)	18:06		19:38		20:07		20:24	
25	07:06		10:04 (19)	06:32		10:39 (19)	05:47		05:59		05:27		05:21	
	16:59	162	12:46 (19)	17:36	71	11:50 (19)	18:07		19:39		20:08		20:24	
26	07:06		10:05 (19)	06:30		10:44 (19)	05:46		05:58		05:26		05:22	
	17:00	161	12:46 (19)	17:38	57	11:41 (19)	18:08		19:40		20:09		20:24	
27	07:05		10:05 (19)	06:29		10:51 (19)	05:44		05:56		05:26		05:22	
	17:02	161	12:46 (19)	17:39	37	11:28 (19)	18:09		19:41		20:10		20:25	
28	07:04		10:06 (19)	06:27			05:42		05:55		05:25		05:22	
	17:03	160	12:46 (19)	17:40			18:10		19:42		20:10		20:25	
29	07:03		10:06 (19)				06:41		05:54		05:25		05:23	
	17:04	159	12:45 (19)				19:11		19:43		20:11		20:25	
30	07:02		10:06 (19)				06:39		05:52		05:24		05:23	
	17:05	159	12:45 (19)				19:12		19:44		20:12		20:24	
31	07:02		10:07 (19)				06:38				05:23			
	17:07	157	12:44 (19)				19:13				20:13			
Potential sun hours	299			298			370		398		446		450	
Total, worst case	5102			3325										

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker
			(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: J - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October		November		December	
1	05:24	05:47	06:17	06:46		06:19		09:43 (19)	06:53
	20:24	20:06	19:24	18:34		16:49	144	12:07 (19)	16:25
2	05:24	05:48	06:18	06:47		06:20		09:43 (19)	06:54
	20:24	20:05	19:22	18:33		16:47	146	12:09 (19)	16:25
3	05:25	05:49	06:19	06:48		06:21		09:43 (19)	06:55
	20:24	20:04	19:21	18:31		16:46	147	12:10 (19)	16:25
4	05:25	05:50	06:20	06:49		06:22		09:42 (19)	06:56
	20:24	20:03	19:19	18:29		16:45	149	12:11 (19)	16:24
5	05:26	05:51	06:21	06:50		06:24		09:41 (19)	06:57
	20:24	20:02	19:17	18:28		16:44	150	12:11 (19)	16:24
6	05:26	05:52	06:22	06:51		06:25		09:40 (19)	06:58
	20:24	20:00	19:16	18:26		16:43	152	12:12 (19)	16:24
7	05:27	05:53	06:23	06:52		06:26		09:40 (19)	06:59
	20:23	19:59	19:14	18:25		16:42	154	12:14 (19)	16:24
8	05:27	05:54	06:23	06:53		06:27		09:40 (19)	07:00
	20:23	19:58	19:13	18:23		16:41	154	12:14 (19)	16:24
9	05:28	05:55	06:24	06:54		06:28		09:39 (19)	07:01
	20:23	19:57	19:11	18:21		16:40	156	12:15 (19)	16:24
10	05:29	05:55	06:25	06:55		06:29		09:38 (19)	07:02
	20:22	19:56	19:09	18:20		16:39	157	12:15 (19)	16:24
11	05:29	05:56	06:26	06:56		06:31		09:39 (19)	07:02
	20:22	19:54	19:08	18:18		16:38	157	12:16 (19)	16:24
12	05:30	05:57	06:27	06:57		06:32		09:38 (19)	07:03
	20:21	19:53	19:06	18:17		16:37	159	12:17 (19)	16:24
13	05:31	05:58	06:28	06:58		06:33		09:38 (19)	07:04
	20:21	19:52	19:04	18:15		16:36	159	12:17 (19)	16:24
14	05:32	05:59	06:29	06:59	11:32 (19)	06:34		09:37 (19)	07:05
	20:20	19:50	19:03	18:14	17	11:49 (19)	161	12:18 (19)	16:24
15	05:32	06:00	06:30	07:00	11:20 (19)	06:35		09:38 (19)	07:06
	20:20	19:49	19:01	18:12	46	12:06 (19)	161	12:19 (19)	16:25
16	05:33	06:01	06:31	07:01	11:14 (19)	06:36		09:38 (19)	07:06
	20:19	19:48	18:59	18:11	62	12:16 (19)	161	12:19 (19)	16:25
17	05:34	06:02	06:32	07:02	11:10 (19)	06:38		09:37 (19)	07:07
	20:19	19:46	18:58	18:09	75	12:25 (19)	162	12:19 (19)	16:25
18	05:35	06:03	06:33	07:03	11:06 (19)	06:39		09:37 (19)	07:08
	20:18	19:45	18:56	18:08	86	12:32 (19)	163	12:20 (19)	16:26
19	05:35	06:04	06:34	07:04	11:03 (19)	06:40		09:38 (19)	07:08
	20:17	19:44	18:54	18:06	94	12:37 (19)	163	12:21 (19)	16:26
20	05:36	06:05	06:35	07:06	11:01 (19)	06:41		09:38 (19)	07:09
	20:17	19:42	18:53	18:05	100	12:41 (19)	163	12:21 (19)	16:26
21	05:37	06:06	06:36	07:07	10:58 (19)	06:42		09:38 (19)	07:09
	20:16	19:41	18:51	18:03	107	12:45 (19)	164	12:22 (19)	16:27
22	05:38	06:07	06:37	07:08	10:56 (19)	06:43		09:37 (19)	07:10
	20:15	19:39	18:49	18:02	112	12:48 (19)	165	12:22 (19)	16:27
23	05:39	06:08	06:38	07:09	10:54 (19)	06:44		09:37 (19)	07:10
	20:14	19:38	18:48	18:00	117	12:51 (19)	165	12:22 (19)	16:28
24	05:40	06:09	06:39	07:10	10:53 (19)	06:46		09:38 (19)	07:11
	20:14	19:36	18:46	17:59	121	12:54 (19)	165	12:23 (19)	16:28
25	05:41	06:10	06:40	06:11	09:51 (19)	06:47		09:38 (19)	07:11
	20:13	19:35	18:44	16:58	126	11:57 (19)	166	12:24 (19)	16:29
26	05:41	06:11	06:41	06:12	09:50 (19)	06:48		09:38 (19)	07:12
	20:12	19:33	18:43	16:56	129	11:59 (19)	166	12:24 (19)	16:30
27	05:42	06:12	06:42	06:13	09:48 (19)	06:49		09:38 (19)	07:12
	20:11	19:32	18:41	16:55	132	12:00 (19)	166	12:24 (19)	16:30
28	05:43	06:13	06:43	06:14	09:47 (19)	06:50		09:39 (19)	07:12
	20:10	19:30	18:39	16:54	135	12:02 (19)	166	12:25 (19)	16:31
29	05:44	06:14	06:44	06:16	09:47 (19)	06:51		09:39 (19)	07:13
	20:09	19:29	18:38	16:52	137	12:04 (19)	166	12:25 (19)	16:32
30	05:45	06:15	06:45	06:17	09:46 (19)	06:52		09:39 (19)	07:13
	20:08	19:27	18:36	16:51	139	12:05 (19)	166	12:25 (19)	16:32
31	05:46	06:16		06:18	09:45 (19)				07:13
	20:07	19:25		16:50	141	12:06 (19)			16:33
Potential sun hours	457	427	375	346		300		290	
Total, worst case					1876		4773		5192

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: K - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January			February			March			April			May			June		
1	07:13		13:40 (21)	07:01		13:56 (21)	06:26		06:36		07:25 (7)	05:51		08:10 (7)	05:23		08:51 (7)	
	16:34	116	15:36 (21)	17:08	107	15:43 (21)	17:41		19:14	89	08:54 (7)	19:45	55	09:05 (7)	20:13	6	08:57 (7)	
2	07:13		13:41 (21)	07:00		13:57 (21)	06:24		06:34		07:26 (7)	05:50		08:12 (7)	05:22		08:52 (7)	
	16:35	117	15:38 (21)	17:09	106	15:43 (21)	17:42		19:15	89	08:55 (7)	19:46	53	09:05 (7)	20:14	5	08:57 (7)	
3	07:14		13:41 (21)	06:59		13:58 (21)	06:23		06:33		07:28 (7)	05:48		08:14 (7)	05:22		08:52 (7)	
	16:36	117	15:38 (21)	17:10	105	15:43 (21)	17:43		19:16	89	08:57 (7)	19:47	51	09:05 (7)	20:15	5	08:57 (7)	
4	07:14		13:41 (21)	06:58		07:17 (15)	06:21		06:31		07:30 (7)	05:47		08:14 (7)	05:22		08:53 (7)	
	16:37	117	15:38 (21)	17:11	104	15:42 (21)	17:44		19:17	87	08:57 (7)	19:48	50	09:04 (7)	20:16	4	08:57 (7)	
5	07:14		13:41 (21)	06:57		07:16 (15)	06:19		06:29		07:32 (7)	05:46		08:16 (7)	05:21		08:55 (7)	
	16:38	117	15:38 (21)	17:13	110	15:42 (21)	17:45		19:18	87	08:59 (7)	19:49	48	09:04 (7)	20:16	2	08:57 (7)	
6	07:14		13:42 (21)	06:56		07:15 (15)	06:18		06:28		07:33 (7)	05:45		08:17 (7)	05:21		08:55 (7)	
	16:38	117	15:39 (21)	17:14	111	15:42 (21)	17:46		19:19	87	09:00 (7)	19:50	46	09:03 (7)	20:17	1	08:56 (7)	
7	07:14		13:43 (21)	06:55		07:14 (15)	06:16		06:26		07:34 (7)	05:44		08:19 (7)	05:21			
	16:39	116	15:39 (21)	17:15	112	15:41 (21)	17:48		19:20	86	09:00 (7)	19:51	44	09:03 (7)	20:18			
8	07:13		13:43 (21)	06:53		07:13 (15)	06:15		06:25		07:36 (7)	05:42		08:21 (7)	05:20			
	16:40	117	15:40 (21)	17:16	114	15:41 (21)	17:49		19:21	86	09:02 (7)	19:52	42	09:03 (7)	20:18			
9	07:13		13:44 (21)	06:52		07:12 (15)	06:13		06:23		07:37 (7)	05:41		08:22 (7)	05:20			
	16:41	117	15:41 (21)	17:17	114	15:40 (21)	17:50		19:22	85	09:02 (7)	19:53	41	09:03 (7)	20:19			
10	07:13		13:44 (21)	06:51		07:11 (15)	06:12		06:21		07:39 (7)	05:40		08:23 (7)	05:20			
	16:42	117	15:41 (21)	17:19	114	15:40 (21)	17:51		19:23	84	09:03 (7)	19:54	40	09:03 (7)	20:19			
11	07:13		13:44 (21)	06:50		07:09 (15)	06:10		06:20		07:40 (7)	05:39		08:25 (7)	05:20			
	16:43	117	15:41 (21)	17:20	113	15:38 (21)	17:52		19:24	83	09:03 (7)	19:55	37	09:02 (7)	20:20			
12	07:13		13:45 (21)	06:49		07:08 (15)	06:08		06:18		07:42 (7)	05:38		08:26 (7)	05:20			
	16:44	117	15:42 (21)	17:21	113	15:37 (21)	17:53		19:25	82	09:04 (7)	19:56	36	09:02 (7)	20:20			
13	07:12		13:46 (21)	06:48		07:07 (15)	06:07		06:17		07:43 (7)	05:37		08:28 (7)	05:20			
	16:45	116	15:42 (21)	17:22	112	15:37 (21)	17:54		19:26	81	09:04 (7)	19:57	34	09:02 (7)	20:21			
14	07:12		13:46 (21)	06:46		07:06 (15)	06:05		06:15		07:45 (7)	05:36		08:29 (7)	05:20			
	16:47	116	15:42 (21)	17:23	111	15:36 (21)	17:55		19:27	80	09:05 (7)	19:58	32	09:01 (7)	20:21			
15	07:12		13:47 (21)	06:45		07:04 (15)	06:04		06:14		07:46 (7)	05:35		08:30 (7)	05:20			
	16:48	116	15:43 (21)	17:25	109	15:34 (21)	17:56		19:28	79	09:05 (7)	19:59	31	09:01 (7)	20:22			
16	07:11		13:47 (21)	06:44		07:03 (15)	06:02		06:12		07:48 (7)	05:34		08:31 (7)	05:20			
	16:49	116	15:43 (21)	17:26	108	15:33 (21)	17:57		19:29	78	09:06 (7)	20:00	29	09:00 (7)	20:22			
17	07:11		13:48 (21)	06:42		07:03 (15)	06:00		06:11		07:49 (7)	05:33		08:33 (7)	05:20			
	16:50	115	15:43 (21)	17:27	105	15:32 (21)	17:58		19:30	77	09:06 (7)	20:01	27	09:00 (7)	20:22			
18	07:11		13:48 (21)	06:41		07:03 (15)	05:59		06:09		07:51 (7)	05:32		08:35 (7)	05:20			
	16:51	115	15:43 (21)	17:28	100	15:30 (21)	17:59		19:31	75	09:06 (7)	20:02	26	09:01 (7)	20:23			
19	07:10		13:49 (21)	06:40		07:03 (15)	05:57		06:08		07:52 (7)	05:31		08:36 (7)	05:20			
	16:52	115	15:44 (21)	17:29	96	15:28 (21)	18:00		19:32	74	09:06 (7)	20:03	24	09:00 (7)	20:23			
20	07:09		13:49 (21)	06:38		07:03 (15)	05:55		06:06		07:54 (7)	05:31		08:37 (7)	05:20			
	16:53	115	15:44 (21)	17:31	91	15:26 (21)	18:01		19:33	72	09:06 (7)	20:03	23	09:00 (7)	20:23			
21	07:09		13:49 (21)	06:37		07:04 (15)	05:54	06:50 (7)	06:05		07:55 (7)	05:30		08:38 (7)	05:20			
	16:54	115	15:44 (21)	17:32	84	15:24 (21)	18:02	31	07:21 (7)	71	09:06 (7)	20:04	21	08:59 (7)	20:24			
22	07:08		13:50 (21)	06:36		07:05 (15)	05:52		06:44 (7)	06:03	07:57 (7)	05:29		08:39 (7)	05:20			
	16:56	114	15:44 (21)	17:33	77	15:22 (21)	18:04	44	07:28 (7)	69	09:06 (7)	20:05	19	08:58 (7)	20:24			
23	07:08		13:50 (21)	06:34		07:06 (15)	05:51		06:39 (7)	06:02	07:58 (7)	05:28		08:41 (7)	05:21			
	16:57	114	15:44 (21)	17:34	69	15:19 (21)	18:05	53	07:32 (7)	68	09:06 (7)	20:06	18	08:59 (7)	20:24			
24	07:07		13:51 (21)	06:33		07:08 (15)	05:49		06:34 (7)	06:00	08:00 (7)	05:28		08:42 (7)	05:21			
	16:58	113	15:44 (21)	17:35	57	15:16 (21)	18:06	62	07:36 (7)	66	09:06 (7)	20:07	16	08:58 (7)	20:24			
25	07:06		13:52 (21)	06:31		07:09 (15)	05:47		06:31 (7)	05:59	08:02 (7)	05:27		08:43 (7)	05:21			
	16:59	113	15:45 (21)	17:36	45	15:12 (21)	18:07	69	07:40 (7)	64	09:06 (7)	20:08	16	08:59 (7)	20:24			
26	07:06		13:53 (21)	06:30		07:14 (15)	05:46		06:27 (7)	05:58	08:02 (7)	05:26		08:44 (7)	05:21			
	17:00	112	15:45 (21)	17:37	24	15:06 (21)	18:08	75	07:42 (7)	63	09:05 (7)	20:09	14	08:58 (7)	20:24			
27	07:05		13:53 (21)	06:29			05:44		06:24 (7)	05:56	08:04 (7)	05:26		08:45 (7)	05:22			
	17:02	112	15:45 (21)	17:39			18:09	80	07:44 (7)	62	09:06 (7)	20:10	12	08:57 (7)	20:24			
28	07:04		13:54 (21)	06:27			05:42		06:22 (7)	05:55	08:06 (7)	05:25		08:47 (7)	05:22			
	17:03	110	15:44 (21)	17:40			18:10	85	07:47 (7)	60	09:06 (7)	20:10	11	08:58 (7)	20:24			
29	07:03		13:54 (21)				06:41		07:21 (7)	05:54	08:08 (7)	05:24		08:47 (7)	05:23			
	17:04	110	15:44 (21)				19:11	88	08:49 (7)	58	09:06 (7)	20:11	10	08:57 (7)	20:24			
30	07:02		13:55 (21)				06:39		07:22 (7)	05:52	08:09 (7)	05:24		08:49 (7)	05:23			
	17:05	109	15:44 (21)				19:12	88	08:50 (7)	56	09:05 (7)	20:12	8	08:57 (7)	20:24			
31	07:01		13:56 (21)				06:37		07:24 (7)			05:23		08:49 (7)				
	17:06	108	15:44 (21)				19:13	89	08:53 (7)			20:13	8	08:57 (7)				
Potential sun hours	299			298			370		398		446		450					
Total, worst case	3556			2511			764		2287		922		23					

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: K - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

July		August		September		October		November		December	
1	05:23	05:47	08:36 (7)	06:17	07:39 (7)	06:46	06:19	06:40 (15)	06:53	13:26 (21)	
	20:24	20:06	37 09:13 (7)	19:24	83 09:02 (7)	18:34	16:49	114 15:09 (21)	16:25	117 15:23 (21)	
2	05:24	05:48	08:35 (7)	06:18	07:37 (7)	06:47	06:20	06:41 (15)	06:54	13:27 (21)	
	20:24	20:05	38 09:13 (7)	19:22	84 09:01 (7)	18:33	16:47	114 15:09 (21)	16:25	116 15:23 (21)	
3	05:24	05:49	08:33 (7)	06:19	07:35 (7)	06:48	06:21	06:43 (15)	06:55	13:27 (21)	
	20:24	20:04	39 09:12 (7)	19:21	85 09:00 (7)	18:31	16:46	113 15:11 (21)	16:24	117 15:24 (21)	
4	05:25	05:50	08:31 (7)	06:20	07:33 (7)	06:49	06:22	06:44 (15)	06:56	13:27 (21)	
	20:24	20:03	42 09:13 (7)	19:19	86 08:59 (7)	18:29	16:45	113 15:11 (21)	16:24	117 15:24 (21)	
5	05:26	09:02 (7) 05:51	08:30 (7)	06:21	07:31 (7)	06:50	06:24	06:45 (15)	06:57	13:28 (21)	
	20:24	1 09:03 (7) 20:02	43 09:13 (7)	19:17	86 08:57 (7)	18:28	16:44	112 15:12 (21)	16:24	116 15:24 (21)	
6	05:26	09:01 (7) 05:52	08:28 (7)	06:21	07:29 (7)	06:51	06:25	06:46 (15)	06:58	13:28 (21)	
	20:23	1 09:02 (7) 20:00	45 09:13 (7)	19:16	87 08:56 (7)	18:26	16:43	109 15:12 (21)	16:24	117 15:25 (21)	
7	05:27	09:01 (7) 05:53	08:27 (7)	06:22	07:27 (7)	06:52	06:26	13:30 (21)	06:59	13:28 (21)	
	20:23	2 09:03 (7) 19:59	46 09:13 (7)	19:14	87 08:54 (7)	18:24	16:42	103 15:13 (21)	16:24	117 15:25 (21)	
8	05:27	09:01 (7) 05:53	08:25 (7)	06:23	07:25 (7)	06:53	06:27	13:29 (21)	07:00	13:29 (21)	
	20:23	3 09:04 (7) 19:58	48 09:13 (7)	19:12	88 08:53 (7)	18:23	16:41	105 15:14 (21)	16:24	117 15:26 (21)	
9	05:28	09:00 (7) 05:54	08:23 (7)	06:24	07:23 (7)	06:54	06:28	13:28 (21)	07:01	13:30 (21)	
	20:23	4 09:04 (7) 19:57	50 09:13 (7)	19:11	88 08:51 (7)	18:21	16:40	106 15:14 (21)	16:24	116 15:26 (21)	
10	05:29	09:00 (7) 05:55	08:22 (7)	06:25	07:21 (7)	06:55	06:29	13:27 (21)	07:02	13:30 (21)	
	20:22	4 09:04 (7) 19:56	52 09:14 (7)	19:09	88 08:49 (7)	18:20	16:39	107 15:14 (21)	16:24	117 15:27 (21)	
11	05:29	08:59 (7) 05:56	08:20 (7)	06:26	07:18 (7)	06:56	06:31	13:28 (21)	07:02	13:31 (21)	
	20:22	6 09:05 (7) 19:54	54 09:14 (7)	19:08	88 08:46 (7)	18:18	16:38	108 15:16 (21)	16:24	116 15:27 (21)	
12	05:30	08:58 (7) 05:57	08:19 (7)	06:27	07:15 (7)	06:57	06:32	13:27 (21)	07:03	13:30 (21)	
	20:21	7 09:05 (7) 19:53	55 09:14 (7)	19:06	89 08:44 (7)	18:17	16:37	109 15:16 (21)	16:24	117 15:27 (21)	
13	05:31	08:57 (7) 05:58	08:17 (7)	06:28	07:13 (7)	06:58	06:33	13:26 (21)	07:04	13:31 (21)	
	20:21	9 09:06 (7) 19:52	57 09:14 (7)	19:04	89 08:42 (7)	18:15	16:36	110 15:16 (21)	16:24	117 15:28 (21)	
14	05:31	08:57 (7) 05:59	08:15 (7)	06:29	07:11 (7)	06:59	06:34	13:26 (21)	07:05	13:32 (21)	
	20:20	9 09:06 (7) 19:50	59 09:14 (7)	19:03	88 08:39 (7)	18:13	16:35	110 15:16 (21)	16:24	116 15:28 (21)	
15	05:32	08:55 (7) 06:00	08:13 (7)	06:30	07:10 (7)	07:00	06:35	13:26 (21)	07:05	13:32 (21)	
	20:20	11 09:06 (7) 19:49	60 09:13 (7)	19:01	87 08:37 (7)	18:12	16:34	111 15:17 (21)	16:25	117 15:29 (21)	
16	05:33	08:55 (7) 06:01	08:11 (7)	06:31	07:12 (7)	07:01	07:43 (15)	06:36	13:26 (21)	07:06	13:32 (21)
	20:19	12 09:07 (7) 19:48	61 09:12 (7)	18:59	82 08:34 (7)	18:10	33 15:40 (21)	16:33	15:18 (21)	16:25	117 15:29 (21)
17	05:34	08:54 (7) 06:02	08:09 (7)	06:32	07:15 (7)	07:02	07:40 (15)	06:37	13:25 (21)	07:07	13:33 (21)
	20:19	13 09:07 (7) 19:46	63 09:12 (7)	18:58	76 08:31 (7)	18:09	51 15:45 (21)	16:32	15:18 (21)	16:25	117 15:30 (21)
18	05:35	08:53 (7) 06:03	08:07 (7)	06:33	07:17 (7)	07:03	07:39 (15)	06:39	13:25 (21)	07:07	13:34 (21)
	20:18	15 09:08 (7) 19:45	65 09:12 (7)	18:56	71 08:28 (7)	18:07	62 15:49 (21)	16:32	15:18 (21)	16:26	117 15:31 (21)
19	05:35	08:53 (7) 06:04	08:05 (7)	06:34	07:20 (7)	07:04	07:37 (15)	06:40	13:25 (21)	07:08	13:34 (21)
	20:17	16 09:09 (7) 19:43	67 09:12 (7)	18:54	64 08:24 (7)	18:06	72 15:52 (21)	16:31	15:19 (21)	16:26	116 15:30 (21)
20	05:36	08:51 (7) 06:05	08:03 (7)	06:35	07:24 (7)	07:05	07:36 (15)	06:41	13:25 (21)	07:09	13:35 (21)
	20:17	17 09:08 (7) 19:42	68 09:11 (7)	18:52	56 08:20 (7)	18:05	80 15:54 (21)	16:30	15:19 (21)	16:26	116 15:31 (21)
21	05:37	08:50 (7) 06:06	08:02 (7)	06:36	07:28 (7)	07:07	07:34 (15)	06:42	13:25 (21)	07:09	13:35 (21)
	20:16	19 09:09 (7) 19:41	69 09:11 (7)	18:51	47 08:15 (7)	18:03	87 15:56 (21)	16:30	15:20 (21)	16:27	116 15:31 (21)
22	05:38	08:49 (7) 06:07	08:00 (7)	06:37	07:33 (7)	07:08	07:34 (15)	06:43	13:25 (21)	07:10	13:36 (21)
	20:15	20 09:09 (7) 19:39	71 09:11 (7)	18:49	36 08:09 (7)	18:02	91 15:57 (21)	16:29	15:20 (21)	16:27	116 15:32 (21)
23	05:39	08:48 (7) 06:08	07:58 (7)	06:38	07:43 (7)	07:09	07:33 (15)	06:44	13:25 (21)	07:10	13:36 (21)
	20:14	22 09:10 (7) 19:38	72 09:10 (7)	18:47	15 07:58 (7)	18:00	98 15:59 (21)	16:28	15:20 (21)	16:28	116 15:32 (21)
24	05:40	08:47 (7) 06:09	07:56 (7)	06:39		07:10	07:33 (15)	06:45	13:25 (21)	07:11	13:37 (21)
	20:13	23 09:10 (7) 19:36	74 09:10 (7)	18:46		17:59	102 16:01 (21)	16:28	15:20 (21)	16:28	116 15:33 (21)
25	05:40	08:45 (7) 06:10	07:54 (7)	06:40		06:11	06:33 (15)	06:47	13:26 (21)	07:11	13:37 (21)
	20:13	25 09:10 (7) 19:35	75 09:09 (7)	18:44		16:58	106 15:02 (21)	16:27	15:21 (21)	16:29	116 15:33 (21)
26	05:41	08:44 (7) 06:11	07:52 (7)	06:41		06:12	06:33 (15)	06:48	13:26 (21)	07:12	13:37 (21)
	20:12	26 09:10 (7) 19:33	76 09:08 (7)	18:42		16:56	108 15:03 (21)	16:27	15:22 (21)	16:29	117 15:34 (21)
27	05:42	08:43 (7) 06:12	07:50 (7)	06:42		06:13	06:34 (15)	06:49	13:26 (21)	07:12	13:38 (21)
	20:11	28 09:11 (7) 19:32	78 09:08 (7)	18:41		16:55	110 15:04 (21)	16:26	15:22 (21)	16:30	117 15:35 (21)
28	05:43	08:41 (7) 06:13	07:48 (7)	06:43		06:14	06:35 (15)	06:50	13:26 (21)	07:12	13:38 (21)
	20:10	30 09:11 (7) 19:30	79 09:07 (7)	18:39		16:54	112 15:05 (21)	16:26	15:22 (21)	16:31	117 15:35 (21)
29	05:44	08:40 (7) 06:14	07:45 (7)	06:44		06:15	06:37 (15)	06:51	13:26 (21)	07:13	13:39 (21)
	20:09	32 09:12 (7) 19:28	80 09:05 (7)	18:37		16:52	113 15:07 (21)	16:26	15:22 (21)	16:32	116 15:35 (21)
30	05:45	08:39 (7) 06:15	07:43 (7)	06:45		06:17	06:38 (15)	06:52	13:26 (21)	07:13	13:39 (21)
	20:08	33 09:12 (7) 19:27	81 09:04 (7)	18:36		16:51	112 15:07 (21)	16:25	15:23 (21)	16:32	117 15:36 (21)
31	05:46	08:38 (7) 06:16	07:41 (7)			06:18	06:39 (15)			07:13	13:39 (21)
	20:07	34 09:12 (7) 19:25	82 09:03 (7)			16:50	114 15:08 (21)			16:33	117 15:36 (21)
Potential sun hours	457	427	375	346	300	290					
Total, worst case	422	1886	1750	1451	3366	3614					

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: L - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January			February			March			April			May			June		
1	07:13		10:42 (19)	07:01		11:03 (19)	06:26		06:44 (21)	06:36		05:51		05:23			
	16:34	156	13:18 (19)	17:08	134	13:17 (19)	17:41	16	07:00 (21)	19:14		19:45		20:14			
2	07:14		10:42 (19)	07:00		11:04 (19)	06:24		06:43 (21)	06:34		05:50		05:23			
	16:35	157	13:19 (19)	17:09	132	13:16 (19)	17:42	17	07:00 (21)	19:15		19:46		20:14			
3	07:14		10:43 (19)	06:59		11:05 (19)	06:23		06:41 (21)	06:33		05:49		05:22			
	16:36	156	13:19 (19)	17:10	130	13:15 (19)	17:43	18	06:59 (21)	19:16		19:47		20:15			
4	07:14		10:43 (19)	06:58		11:07 (19)	06:21		06:41 (21)	06:31		05:47		05:22			
	16:37	156	13:19 (19)	17:11	127	13:14 (19)	17:44	18	06:59 (21)	19:17		19:48		20:16			
5	07:14		10:44 (19)	06:57		11:08 (19)	06:20		06:41 (21)	06:29		05:46		05:21			
	16:38	156	13:20 (19)	17:13	125	13:13 (19)	17:45	17	06:58 (21)	19:18		19:49		20:16			
6	07:14		10:43 (19)	06:56		11:10 (19)	06:18		06:43 (21)	06:28		05:45		05:21			
	16:39	156	13:19 (19)	17:14	122	13:12 (19)	17:47	14	06:57 (21)	19:19		19:50		20:17			
7	07:14		10:44 (19)	06:55		11:12 (19)	06:16		06:45 (21)	06:26		05:44		05:21			
	16:39	156	13:20 (19)	17:15	119	13:11 (19)	17:48	9	06:54 (21)	19:20		19:51		20:18			
8	07:14		10:45 (19)	06:54		11:14 (19)	06:15			06:25		05:43		05:21			
	16:40	155	13:20 (19)	17:16	115	13:09 (19)	17:49			19:21		19:52		20:18			
9	07:13		10:46 (19)	06:52		11:16 (19)	06:13			06:23		05:41		05:20			
	16:41	155	13:21 (19)	17:17	112	13:08 (19)	17:50			19:22		19:53		20:19			
10	07:13		10:47 (19)	06:51		11:18 (19)	06:12			06:21		05:40		05:20			
	16:42	154	13:21 (19)	17:19	108	13:06 (19)	17:51			19:23		19:54		20:19			
11	07:13		10:46 (19)	06:50		11:20 (19)	06:10			06:20		05:39		05:20			
	16:43	155	13:21 (19)	17:20	103	13:03 (19)	17:52			19:24		19:55		20:20			
12	07:13		10:47 (19)	06:49		11:23 (19)	06:09			06:18		05:38		05:20			
	16:45	154	13:21 (19)	17:21	98	13:01 (19)	17:53			19:25		19:56		20:20			
13	07:13		10:48 (19)	06:48		11:27 (19)	06:07			06:17		05:37		05:20			
	16:46	154	13:22 (19)	17:22	91	12:58 (19)	17:54			19:26		19:57		20:21			
14	07:12		10:48 (19)	06:46		11:31 (19)	06:05			06:15		05:36		05:20			
	16:47	153	13:21 (19)	17:24	84	12:55 (19)	17:55			19:27		19:58		20:21			
15	07:12		10:49 (19)	06:45		11:35 (19)	06:04			06:14		05:35		05:20			
	16:48	153	13:22 (19)	17:25	75	12:50 (19)	17:56			19:28		19:59		20:22			
16	07:12		10:49 (19)	06:44		11:41 (19)	06:02			06:12		05:34		05:20			
	16:49	152	13:21 (19)	17:26	64	12:45 (19)	17:57			19:29		20:00		20:22			
17	07:11		10:51 (19)	06:43		11:50 (19)	06:00			06:11		05:33		05:20			
	16:50	151	13:22 (19)	17:27	48	12:38 (19)	17:58			19:30		20:01		20:23			
18	07:11		10:51 (19)	06:41		12:09 (19)	05:59			06:09		05:32		05:20			
	16:51	150	13:21 (19)	17:28	11	12:20 (19)	17:59			19:31		20:02		20:23			
19	07:10		10:52 (19)	06:40			05:57			06:08		05:32		05:20			
	16:52	150	13:22 (19)	17:29			18:00			19:33		20:03		20:23			
20	07:10		10:52 (19)	06:39			05:56			06:06		05:31		05:20			
	16:53	149	13:21 (19)	17:31			18:02			19:34		20:04		20:23			
21	07:09		10:54 (19)	06:37			05:54			06:05		05:30		05:20			
	16:55	148	13:22 (19)	17:32			18:03			19:35		20:04		20:24			
22	07:08		10:54 (19)	06:36			05:52			06:03		05:29		05:20			
	16:56	147	13:21 (19)	17:33			18:04			19:36		20:05		20:24			
23	07:08		10:55 (19)	06:34			05:51			06:02		05:28		05:21			
	16:57	146	13:21 (19)	17:34			18:05			19:37		20:06		20:24			
24	07:07		10:55 (19)	06:33		06:52 (21)	05:49			06:00		05:28		05:21			
	16:58	146	13:21 (19)	17:35	4	06:56 (21)	18:06			19:38		20:07		20:24			
25	07:06		10:57 (19)	06:32		06:50 (21)	05:47			05:59		05:27		05:21			
	16:59	144	13:21 (19)	17:36	8	06:58 (21)	18:07			19:39		20:08		20:24			
26	07:06		10:57 (19)	06:30		06:49 (21)	05:46			05:58		05:26		05:22			
	17:00	143	13:20 (19)	17:38	10	06:59 (21)	18:08			19:40		20:09		20:24			
27	07:05		10:58 (19)	06:29		06:47 (21)	05:44			05:56		05:26		05:22			
	17:02	142	13:20 (19)	17:39	12	06:59 (21)	18:09			19:41		20:10		20:25			
28	07:04		10:59 (19)	06:27		06:46 (21)	05:42			05:55		05:25		05:22			
	17:03	140	13:19 (19)	17:40	14	07:00 (21)	18:10			19:42		20:10		20:25			
29	07:03		11:00 (19)				06:41			05:54		05:24		05:23			
	17:04	139	13:19 (19)				19:11			19:43		20:11		20:25			
30	07:02		11:01 (19)				06:39			05:52		05:24		05:23			
	17:05	137	13:18 (19)				19:12			19:44		20:12		20:24			
31	07:02		11:02 (19)				06:38					05:23					
	17:07	135	13:17 (19)				19:13					20:13					
Potential sun hours	299			298			370			398		446		450			
Total, worst case	4645			1846			109										

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: L - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October		November		December	
1	05:24	05:47	06:17	06:46		06:19		10:47 (19)	06:53
	20:24	20:06	19:24	18:34		16:49	108	12:35 (19)	16:25
2	05:24	05:48	06:18	06:47		06:20		10:45 (19)	06:54
	20:24	20:05	19:22	18:33		16:47	113	12:38 (19)	16:25
3	05:25	05:49	06:19	06:48		06:21		10:43 (19)	06:55
	20:24	20:04	19:21	18:31		16:46	116	12:39 (19)	16:25
4	05:25	05:50	06:20	06:49		06:22		10:41 (19)	06:56
	20:24	20:03	19:19	18:29		16:45	120	12:41 (19)	16:24
5	05:26	05:51	06:21	06:50		06:24		10:40 (19)	06:57
	20:24	20:02	19:17	18:28		16:44	122	12:42 (19)	16:24
6	05:26	05:52	06:22	06:51		06:25		10:38 (19)	06:58
	20:24	20:00	19:16	18:26	6	07:23 (21)	125	12:43 (19)	16:24
7	05:27	05:53	06:23	06:52		07:20 (21)		10:37 (19)	06:59
	20:23	19:59	19:14	18:25	11	07:31 (21)	128	12:45 (19)	16:24
8	05:27	05:54	06:23	06:53		07:18 (21)		10:36 (19)	07:00
	20:23	19:58	19:13	18:23	15	07:33 (21)	130	12:46 (19)	16:24
9	05:28	05:55	06:24	06:54		07:16 (21)		10:35 (19)	07:01
	20:23	19:57	19:11	18:21	17	07:33 (21)	132	12:47 (19)	16:24
10	05:29	05:55	06:25	06:55		07:15 (21)		10:34 (19)	07:02
	20:22	19:56	19:09	18:20	19	07:34 (21)	134	12:48 (19)	16:24
11	05:29	05:56	06:26	06:56		07:16 (21)		10:34 (19)	07:02
	20:22	19:54	19:08	18:18	18	07:34 (21)	135	12:49 (19)	16:24
12	05:30	05:57	06:27	06:57		07:17 (21)		10:33 (19)	07:03
	20:21	19:53	19:06	18:17	17	07:34 (21)	137	12:50 (19)	16:24
13	05:31	05:58	06:28	06:58		07:18 (21)		10:32 (19)	07:04
	20:21	19:52	19:04	18:15	15	07:33 (21)	139	12:51 (19)	16:24
14	05:32	05:59	06:29	06:59		07:19 (21)		10:31 (19)	07:05
	20:20	19:50	19:03	18:14	14	07:33 (21)	140	12:51 (19)	16:24
15	05:32	06:00	06:30	07:00		07:20 (21)		10:31 (19)	07:06
	20:20	19:49	19:01	18:12	12	07:32 (21)	142	12:53 (19)	16:25
16	05:33	06:01	06:31	07:01		07:21 (21)		10:30 (19)	07:06
	20:19	19:48	18:59	18:11	9	07:30 (21)	143	12:53 (19)	16:25
17	05:34	06:02	06:32	07:02		07:23 (21)		10:30 (19)	07:07
	20:19	19:46	18:58	18:09	7	07:30 (21)	144	12:54 (19)	16:25
18	05:35	06:03	06:33	07:03		07:24 (21)		10:29 (19)	07:08
	20:18	19:45	18:56	18:08	3	07:27 (21)	145	12:54 (19)	16:26
19	05:35	06:04	06:34	07:04		06:40		10:30 (19)	07:08
	20:17	19:44	18:54	18:06		16:31	146	12:56 (19)	16:26
20	05:36	06:05	06:35	07:06		06:41		10:29 (19)	07:09
	20:17	19:42	18:53	18:05		16:30	147	12:56 (19)	16:26
21	05:37	06:06	06:36	07:07		06:42		10:29 (19)	07:09
	20:16	19:41	18:51	18:03		16:30	148	12:57 (19)	16:27
22	05:38	06:07	06:37	07:08		06:43		10:28 (19)	07:10
	20:15	19:39	18:49	18:02		16:29	149	12:57 (19)	16:27
23	05:39	06:08	06:38	07:09		06:44		10:28 (19)	07:10
	20:14	19:38	18:48	18:00		16:28	150	12:58 (19)	16:28
24	05:40	06:09	06:39	07:10		12:31 (19)		10:29 (19)	07:11
	20:14	19:36	18:46	17:59	27	12:58 (19)	150	12:59 (19)	16:28
25	05:41	06:10	06:40	06:11		11:17 (19)		10:29 (19)	07:11
	20:13	19:35	18:44	16:58	53	12:10 (19)	151	13:00 (19)	16:29
26	05:41	06:11	06:41	06:12		11:09 (19)		10:29 (19)	07:12
	20:12	19:33	18:43	16:56	67	12:16 (19)	151	13:00 (19)	16:30
27	05:42	06:12	06:42	06:13		11:03 (19)		10:28 (19)	07:12
	20:11	19:32	18:41	16:55	78	12:21 (19)	153	13:01 (19)	16:30
28	05:43	06:13	06:43	06:14		10:59 (19)		10:28 (19)	07:12
	20:10	19:30	18:39	16:54	85	12:24 (19)	153	13:01 (19)	16:31
29	05:44	06:14	06:44	06:16		10:56 (19)		10:28 (19)	07:13
	20:09	19:29	18:38	16:52	92	12:28 (19)	154	13:02 (19)	16:32
30	05:45	06:15	06:45	06:17		10:52 (19)		10:28 (19)	07:13
	20:08	19:27	18:36	16:51	99	12:31 (19)	154	13:02 (19)	16:32
31	05:46	06:16		06:18		10:49 (19)			07:13
	20:07	19:25		16:50	104	12:33 (19)			16:33
Potential sun hours	457	427	375	346		300		290	
Total, worst case					768		4159		4863

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: M - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May		June	
1	07:13	14:00 (5)	07:00	13:57 (5)	06:25	14:01 (5)	06:36	07:25 (4)	05:51	05:23	
	16:34	15:51 (5)	17:08	16:15 (5)	17:41	16:17 (5)	19:14	16:32 (5)	19:45	20:13	
2	07:13	14:01 (5)	07:00	13:57 (5)	06:24	14:02 (5)	06:34	07:26 (4)	05:50	05:22	
	16:35	15:52 (5)	17:09	16:16 (5)	17:42	16:17 (5)	19:15	16:27 (5)	19:46	20:14	
3	07:13	14:01 (5)	06:59	13:56 (5)	06:22	14:02 (5)	06:32	07:29 (4)	05:48	05:22	
	16:36	15:53 (5)	17:10	16:16 (5)	17:43	17:22 (22)	19:16	16:21 (5)	19:47	20:15	
4	07:13	14:01 (5)	06:58	13:56 (5)	06:21	14:04 (5)	06:31	07:30 (4)	05:47	05:22	
	16:37	15:53 (5)	17:11	16:17 (5)	17:44	17:23 (22)	19:17	07:55 (4)	19:48	20:15	
5	07:13	14:01 (5)	06:57	13:56 (5)	06:19	14:04 (5)	06:29	07:31 (4)	05:46	05:21	
	16:37	15:54 (5)	17:12	16:17 (5)	17:45	17:24 (22)	19:18	07:54 (4)	19:49	20:16	
6	07:13	14:01 (5)	06:55	13:56 (5)	06:18	14:05 (5)	06:28	07:33 (4)	05:45	05:21	
	16:38	15:55 (5)	17:14	16:18 (5)	17:46	17:25 (22)	19:19	07:54 (4)	19:50	20:17	
7	07:13	14:01 (5)	06:54	13:56 (5)	06:16	14:06 (5)	06:26	07:34 (4)	05:44	05:21	
	16:39	15:56 (5)	17:15	16:18 (5)	17:47	17:27 (22)	19:20	07:52 (4)	19:51	20:17	
8	07:13	14:01 (5)	06:53	13:56 (5)	06:15	14:07 (5)	06:24	07:36 (4)	05:42	05:20	
	16:40	15:57 (5)	17:16	16:19 (5)	17:48	17:27 (22)	19:21	07:54 (4)	19:52	20:18	
9	07:13	14:01 (5)	06:52	13:56 (5)	06:13	14:09 (5)	06:23	07:37 (4)	05:41	05:20	
	16:41	15:58 (5)	17:17	16:19 (5)	17:50	17:29 (22)	19:22	07:52 (4)	19:53	20:19	
10	07:13	14:01 (5)	06:51	13:55 (5)	06:12	14:09 (5)	06:21	07:39 (4)	05:40	05:20	
	16:42	15:58 (5)	17:19	16:19 (5)	17:51	17:30 (22)	19:23	07:52 (4)	19:54	20:19	
11	07:13	14:01 (5)	06:50	13:56 (5)	06:10	14:10 (5)	06:20	07:40 (4)	05:39	05:20	
	16:43	15:59 (5)	17:20	16:19 (5)	17:52	17:30 (22)	19:24	07:51 (4)	19:55	20:20	
12	07:13	14:01 (5)	06:49	13:56 (5)	06:08	14:12 (5)	06:18	07:41 (4)	05:38	05:20	
	16:44	16:01 (5)	17:21	16:20 (5)	17:53	17:32 (22)	19:25	07:49 (4)	19:56	20:20	
13	07:12	14:00 (5)	06:47	13:56 (5)	06:07	14:13 (5)	06:17	07:43 (4)	05:37	05:20	
	16:45	16:01 (5)	17:22	16:20 (5)	17:54	17:29 (22)	19:26	07:49 (4)	19:57	20:21	
14	07:12	14:00 (5)	06:46	13:56 (5)	06:05	14:15 (5)	06:15	07:44 (4)	05:36	05:20	
	16:46	16:02 (5)	17:23	16:19 (5)	17:55	16:07 (5)	19:27	07:47 (4)	19:58	20:21	
15	07:12	14:01 (5)	06:45	13:56 (5)	06:03	14:16 (5)	06:14	07:46 (4)	05:35	05:20	
	16:48	16:03 (5)	17:25	16:20 (5)	17:56	16:05 (5)	19:28	07:47 (4)	19:59	20:22	
16	07:11	14:00 (5)	06:44	13:56 (5)	06:02	14:17 (5)	06:12		05:34	05:20	
	16:49	16:04 (5)	17:26	16:20 (5)	17:57	16:04 (5)	19:29		20:00	20:22	
17	07:11	14:00 (5)	06:42	13:56 (5)	06:00	06:31 (4)	06:10		05:33	05:20	
	16:50	16:05 (5)	17:27	16:19 (5)	17:58	16:03 (5)	19:30		20:01	20:22	
18	07:10	14:00 (5)	06:41	13:56 (5)	05:59	06:22 (4)	06:09		05:32	05:20	
	16:51	16:05 (5)	17:28	16:20 (5)	17:59	16:02 (5)	19:31		20:01	20:23	
19	07:10	14:00 (5)	06:40	13:57 (5)	05:57	06:18 (4)	06:08		05:31	05:20	
	16:52	16:07 (5)	17:29	16:20 (5)	18:00	16:00 (5)	19:32		20:02	20:23	
20	07:09	14:00 (5)	06:38	13:57 (5)	05:55	06:16 (4)	06:06		05:31	05:20	
	16:53	16:07 (5)	17:30	16:19 (5)	18:01	15:59 (5)	19:33		20:03	20:23	
21	07:09	13:59 (5)	06:37	13:57 (5)	05:54	06:12 (3)	06:05		05:30	05:20	
	16:54	16:08 (5)	17:32	16:20 (5)	18:02	15:57 (5)	19:34		20:04	20:23	
22	07:08	13:59 (5)	06:36	13:58 (5)	05:52	06:10 (4)	06:03		05:29	05:20	
	16:56	16:09 (5)	17:33	16:20 (5)	18:03	15:55 (5)	19:35		20:05	20:24	
23	07:08	13:59 (5)	06:34	13:58 (5)	05:50	06:12 (4)	06:02		05:28	05:21	
	16:57	16:10 (5)	17:34	16:19 (5)	18:04	15:54 (5)	19:36		20:06	20:24	
24	07:07	13:58 (5)	06:33	13:59 (5)	05:49	06:13 (4)	06:00		05:27	05:21	
	16:58	16:10 (5)	17:35	16:19 (5)	18:05	15:52 (5)	19:37		20:07	20:24	
25	07:06	13:58 (5)	06:31	13:59 (5)	05:47	06:14 (4)	05:59		05:27	05:21	
	16:59	16:11 (5)	17:36	16:18 (5)	18:07	15:50 (5)	19:38		20:08	20:24	
26	07:05	13:59 (5)	06:30	14:00 (5)	05:45	06:16 (4)	05:58		05:26	05:21	
	17:00	16:12 (5)	17:37	16:18 (5)	18:08	15:48 (5)	19:39		20:09	20:24	
27	07:05	13:58 (5)	06:28	14:00 (5)	05:44	06:17 (4)	05:56		05:25	05:22	
	17:01	16:13 (5)	17:38	16:18 (5)	18:09	15:46 (5)	19:41		20:09	20:24	
28	07:04	13:58 (5)	06:27	14:01 (5)	05:42	06:19 (4)	05:55		05:25	05:22	
	17:03	16:13 (5)	17:40	16:18 (5)	18:10	15:43 (5)	19:42		20:10	20:24	
29	07:03	13:57 (5)			06:41	07:21 (4)	05:53		05:24	05:23	
	17:04	16:14 (5)			19:11	16:42 (5)	19:43		20:11	20:24	
30	07:02	13:57 (5)			06:39	07:22 (4)	05:52		05:24	05:23	
	17:05	16:14 (5)			19:12	16:38 (5)	19:44		20:12	20:24	
31	07:01	13:57 (5)			06:37	07:24 (4)			05:23		
	17:06	16:15 (5)			19:13	16:36 (5)			20:13		
Potential sun hours	299		298		370		398		446	450	
Total, worst case	3839		3965		3736		335				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: M - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:23 20:24	05:47 20:06	06:17 19:24	07:39 (4) 18:34	14:51 (5) 16:48	13:25 (5) 16:25
2	05:24 20:24	05:48 20:05	06:18 19:22	07:37 (4) 18:32	14:49 (5) 16:47	13:25 (5) 16:25
3	05:24 20:24	05:49 20:04	06:18 19:20	07:35 (4) 18:31	14:48 (5) 16:46	13:26 (5) 16:24
4	05:25 20:24	05:50 20:03	06:19 19:19	07:33 (4) 18:29	14:46 (5) 16:45	13:26 (5) 16:24
5	05:25 20:24	05:51 20:01	06:20 19:17	07:31 (4) 18:28	14:44 (5) 16:44	13:26 (5) 16:24
6	05:26 20:23	05:51 20:00	06:21 19:16	07:29 (4) 18:26	14:43 (5) 16:43	13:26 (5) 16:24
7	05:27 20:23	05:52 19:59	06:22 19:14	07:27 (4) 18:24	14:42 (5) 16:42	13:26 (5) 16:24
8	05:27 20:23	05:53 19:58	06:23 19:12	07:25 (4) 18:23	14:41 (5) 16:41	13:27 (5) 16:24
9	05:28 20:22	05:54 19:57	06:24 19:11	07:22 (4) 18:21	14:39 (5) 16:39	13:27 (5) 16:24
10	05:29 20:22	05:55 19:55	06:25 19:09	07:20 (4) 18:20	14:38 (5) 16:38	13:28 (5) 16:24
11	05:29 20:22	05:56 19:54	06:26 19:07	07:18 (4) 18:18	14:36 (5) 16:38	13:28 (5) 16:24
12	05:30 20:21	05:57 19:53	06:27 19:06	07:16 (4) 18:16	14:35 (5) 16:37	13:29 (5) 16:24
13	05:31 20:21	05:58 19:52	06:28 19:04	07:13 (4) 18:15	14:34 (5) 16:36	13:29 (5) 16:24
14	05:31 20:20	05:59 19:50	06:29 19:02	07:11 (4) 18:13	14:33 (5) 16:35	13:30 (5) 16:24
15	05:32 20:20	06:00 19:49	06:30 19:01	07:09 (4) 18:12	14:32 (5) 16:34	13:30 (5) 16:25
16	05:33 20:19	06:01 19:47	06:31 18:59	07:07 (4) 18:10	14:31 (5) 16:33	13:32 (5) 16:25
17	05:34 20:18	06:02 19:46	06:32 18:57	07:05 (4) 18:09	14:30 (5) 16:32	13:32 (5) 16:25
18	05:34 20:18	06:03 19:45	06:33 18:56	07:03 (4) 18:07	14:29 (5) 16:32	13:32 (5) 16:25
19	05:35 20:17	06:04 19:43	06:34 18:54	07:01 (4) 18:06	14:29 (5) 16:31	13:33 (5) 16:26
20	05:36 20:16	06:05 19:42	06:35 18:52	06:59 (4) 18:04	14:28 (5) 16:30	13:34 (5) 16:26
21	05:37 20:16	06:06 19:40	06:36 18:51	06:56 (4) 18:03	14:28 (5) 16:29	13:35 (5) 16:27
22	05:38 20:15	06:07 19:39	06:37 18:49	06:57 (3) 18:02	14:27 (5) 16:29	13:36 (5) 16:27
23	05:39 20:14	06:08 19:37	06:38 18:47	06:59 (4) 18:00	14:26 (5) 16:28	13:36 (5) 16:28
24	05:39 20:13	06:09 19:36	06:39 18:46	07:02 (4) 17:59	14:26 (5) 16:28	13:37 (5) 16:28
25	05:40 20:12	06:10 19:34	06:40 18:44	07:03 (4) 16:57	13:26 (5) 16:27	13:37 (5) 16:29
26	05:41 20:12	06:11 19:33	06:41 18:42	07:08 (4) 16:56	13:26 (5) 16:27	13:39 (5) 16:29
27	05:42 20:11	06:12 19:31	06:42 18:41	14:59 (5) 16:55	13:26 (5) 16:26	13:40 (5) 16:30
28	05:43 20:10	06:13 19:30	06:43 18:41	14:57 (5) 16:54	13:25 (5) 16:26	13:40 (5) 16:31
29	05:44 20:09	06:14 19:28	06:44 18:37	14:55 (5) 16:52	13:25 (5) 16:25	13:41 (5) 16:31
30	05:45 20:08	06:15 19:27	06:45 18:36	14:53 (5) 16:51	13:26 (5) 16:25	13:42 (5) 16:32
31	05:46 20:07	06:16 19:25	06:46 18:36	14:51 (5) 16:50	13:25 (5) 16:25	13:42 (5) 16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case		18	2422	4306	3995	3425

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: N - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January			February			March			April			May			June	
1	07:13	15:53 (7)	07:01	15:26 (6)	06:25	14:46 (6)	06:36	15:47 (6)	05:51	16:29 (6)	05:23					
	16:34	15	16:08 (7)	17:08	51	16:17 (6)	17:41	130	16:56 (6)	19:14	123	17:50 (6)	19:45	38	17:07 (6)	20:13
2	07:13	15:54 (7)	07:00	15:23 (6)	06:24	14:46 (6)	06:34	121	15:48 (6)	05:50					16:32 (6)	05:22
	16:35	15	16:09 (7)	17:09	57	16:20 (6)	17:42	131	16:57 (6)	19:15	121	17:49 (6)	19:46	32	17:04 (6)	20:14
3	07:13	15:54 (7)	06:59	15:21 (6)	06:22	14:45 (6)	06:32		15:49 (6)	05:48					16:37 (6)	05:22
	16:36	16	16:10 (7)	17:10	62	16:23 (6)	17:43	132	16:57 (6)	19:16	120	17:49 (6)	19:47	24	17:01 (6)	20:15
4	07:14	15:55 (7)	06:58	15:18 (6)	06:21	14:45 (6)	06:31		15:49 (6)	05:47					16:42 (6)	05:22
	16:37	16	16:11 (7)	17:11	67	16:25 (6)	17:44	133	16:58 (6)	19:17	118	17:47 (6)	19:48	12	16:54 (6)	20:16
5	07:14	15:56 (7)	06:57	15:16 (6)	06:19	14:44 (6)	06:29		15:51 (6)	05:46						05:21
	16:37	16	16:12 (7)	17:12	72	16:28 (6)	17:45	134	16:58 (6)	19:18	116	17:47 (6)	19:49			20:16
6	07:14	15:56 (7)	06:56	15:14 (6)	06:18	14:43 (6)	06:28		15:51 (6)	05:45						05:21
	16:38	17	16:13 (7)	17:14	76	16:30 (6)	17:46	134	16:57 (6)	19:19	115	17:46 (6)	19:50			20:17
7	07:13	15:57 (7)	06:54	15:13 (6)	06:16	14:43 (6)	06:26		15:52 (6)	05:44						05:21
	16:39	17	16:14 (7)	17:15	79	16:32 (6)	17:47	135	16:58 (6)	19:20	112	17:44 (6)	19:51			20:18
8	07:13	15:58 (7)	06:53	15:11 (6)	06:15	14:42 (6)	06:24		15:53 (6)	05:42						05:20
	16:40	17	16:15 (7)	17:16	83	16:34 (6)	17:49	136	16:58 (6)	19:21	111	17:44 (6)	19:52			20:18
9	07:13	15:59 (7)	06:52	15:09 (6)	06:13	14:42 (6)	06:23		15:54 (6)	05:41						05:20
	16:41	17	16:16 (7)	17:17	87	16:36 (6)	17:50	137	16:59 (6)	19:22	108	17:42 (6)	19:53			20:19
10	07:13	16:00 (7)	06:51	15:07 (6)	06:12	14:42 (6)	06:21		15:56 (6)	05:40						05:20
	16:42	17	16:17 (7)	17:19	90	16:37 (6)	17:51	136	16:58 (6)	19:23	106	17:42 (6)	19:54			20:19
11	07:13	16:00 (7)	06:50	15:06 (6)	06:10	14:41 (6)	06:20		15:56 (6)	05:39						05:20
	16:43	18	16:18 (7)	17:20	93	16:39 (6)	17:52	137	16:58 (6)	19:24	104	17:40 (6)	19:55			20:20
12	07:13	16:01 (7)	06:49	15:04 (6)	06:08	14:42 (6)	06:18		15:57 (6)	05:38						05:20
	16:44	18	16:19 (7)	17:21	97	16:41 (6)	17:53	137	16:59 (6)	19:25	102	17:39 (6)	19:56			20:20
13	07:12	16:03 (7)	06:48	15:03 (6)	06:07	14:41 (6)	06:17		15:59 (6)	05:37						05:20
	16:45	18	16:21 (7)	17:22	99	16:42 (6)	17:54	137	16:58 (6)	19:26	99	17:38 (6)	19:57			20:21
14	07:12	16:03 (7)	06:46	15:01 (6)	06:05	14:42 (6)	06:15		15:59 (6)	05:36						05:20
	16:46	17	16:20 (7)	17:23	102	16:43 (6)	17:55	137	16:59 (6)	19:27	98	17:37 (6)	19:58			20:21
15	07:12	16:05 (7)	06:45	15:00 (6)	06:04	14:41 (6)	06:14		16:01 (6)	05:35						05:20
	16:48	15	16:20 (7)	17:25	105	16:45 (6)	17:56	137	16:58 (6)	19:28	95	17:36 (6)	19:59			20:22
16	07:11	16:06 (7)	06:44	14:59 (6)	06:02	06:20 (16)	06:12		16:02 (6)	05:34						05:20
	16:49	13	16:19 (7)	17:26	107	16:46 (6)	17:57	138	16:58 (6)	19:29	92	17:34 (6)	20:00			20:22
17	07:11	16:08 (7)	06:42	14:58 (6)	06:00	06:19 (16)	06:11		16:04 (6)	05:33						05:20
	16:50	10	16:18 (7)	17:27	110	16:48 (6)	17:58	142	16:58 (6)	19:30	89	17:33 (6)	20:01			20:22
18	07:10	16:11 (7)	06:41	14:56 (6)	05:59	06:17 (16)	06:09		16:04 (6)	05:32						05:20
	16:51	4	16:15 (7)	17:28	112	16:48 (6)	17:59	144	16:57 (6)	19:31	87	17:31 (6)	20:02			20:23
19	07:10		06:40	14:55 (6)	05:57	06:15 (16)	06:08		16:06 (6)	05:31						05:20
	16:52		17:29	114	16:49 (6)	18:00	146	16:57 (6)	19:32	84	17:30 (6)	20:02				20:23
20	07:09		06:38	14:54 (6)	05:55	06:14 (16)	06:06		16:08 (6)	05:31						05:20
	16:53		17:30	116	16:50 (6)	18:01	147	16:57 (6)	19:33	81	17:29 (6)	20:03				20:23
21	07:09		06:37	14:53 (6)	05:54	06:12 (16)	06:05		16:09 (6)	05:30						05:20
	16:54		17:32	118	16:51 (6)	18:02	148	16:56 (6)	19:34	78	17:27 (6)	20:04				20:24
22	07:08		06:36	14:53 (6)	05:52	06:10 (16)	06:03		16:11 (6)	05:29						05:20
	16:56		17:33	119	16:52 (6)	18:03	150	16:56 (6)	19:35	75	17:26 (6)	20:05				20:24
23	07:08		06:34	14:51 (6)	05:50	06:12 (16)	06:02		16:12 (6)	05:28						05:21
	16:57		17:34	122	16:53 (6)	18:04	147	16:56 (6)	19:36	72	17:24 (6)	20:06				20:24
24	07:07		06:33	14:50 (6)	05:49	06:13 (16)	06:00		16:14 (6)	05:27						05:21
	16:58		17:35	124	16:54 (6)	18:06	144	16:55 (6)	19:37	68	17:22 (6)	20:07				20:24
25	07:06		06:31	14:49 (6)	05:47	06:14 (16)	05:59		16:16 (6)	05:27						05:21
	16:59		17:36	125	16:54 (6)	18:07	141	16:54 (6)	19:39	65	17:21 (6)	20:08				20:24
26	07:06		06:30	14:49 (6)	05:46	06:16 (16)	05:58		16:17 (6)	05:26						05:21
	17:00		17:37	126	16:55 (6)	18:08	138	16:54 (6)	19:40	61	17:18 (6)	20:09				20:24
27	07:05		06:28	14:47 (6)	05:44	06:17 (16)	05:56		16:19 (6)	05:25						05:22
	17:01		17:38	128	16:55 (6)	18:09	135	16:53 (6)	19:41	58	17:17 (6)	20:10				20:24
28	07:04	15:48 (6)	06:27	14:47 (6)	05:42	06:20 (16)	05:55		16:22 (6)	05:25						05:22
	17:03	7	15:55 (6)	17:40	129	16:56 (6)	18:10	130	16:53 (6)	19:42	53	17:15 (6)	20:10			20:24
29	07:03	15:38 (6)				06:41			16:23 (6)	05:24						05:23
	17:04	26	16:04 (6)			19:11		127	17:52 (6)	19:43	49	17:12 (6)	20:11			20:24
30	07:02	15:33 (6)				06:39			15:46 (6)	05:52						05:23
	17:05	36	16:09 (6)			19:12		125	17:51 (6)	19:44	44	17:10 (6)	20:12			20:24
31	07:01	15:29 (6)				06:37			15:47 (6)							
	17:06	44	16:13 (6)			19:13		124	17:51 (6)				20:13			
Potential sun hours	299			298		370		398		446						450
Total, worst case	389			2770		4249		2704		106						

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: N - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:23	05:47	06:17	15:55 (6) 06:46	15:20 (6) 06:19	14:37 (6) 06:53
2	20:24	20:06	19:24	17:39 (6) 18:34	17:37 (6) 16:48	16:07 (6) 16:25
3	05:24	05:48	06:18	15:54 (6) 06:47	15:20 (6) 06:20	14:38 (6) 06:54
4	20:24	20:05	19:22	17:40 (6) 18:32	17:37 (6) 16:47	16:05 (6) 16:25
5	05:24	05:49	06:19	15:52 (6) 06:48	15:19 (6) 06:21	14:41 (6) 06:55
6	20:24	20:04	19:21	17:40 (6) 18:31	17:36 (6) 16:46	16:04 (6) 16:24
7	05:25	05:50	06:19	15:51 (6) 06:49	15:19 (6) 06:22	14:43 (6) 06:56
8	20:24	20:03	19:19	17:41 (6) 18:29	17:35 (6) 16:45	16:02 (6) 16:24
9	05:25	05:51	06:20	15:49 (6) 06:50	15:19 (6) 06:23	14:45 (6) 06:57
10	20:24	20:01	19:17	17:41 (6) 18:28	17:35 (6) 16:44	15:59 (6) 16:24
11	05:26	05:51	06:21	15:48 (6) 06:51	15:20 (6) 06:25	14:46 (6) 06:58
12	20:23	20:00	19:16	17:42 (6) 18:26	17:35 (6) 16:43	15:57 (6) 16:24
13	05:27	05:52	06:22	15:46 (6) 06:52	15:19 (6) 06:26	14:50 (6) 06:59
14	20:23	19:59	19:14	17:42 (6) 18:24	17:34 (6) 16:42	15:56 (6) 16:24
15	05:27	05:53	06:23	15:45 (6) 06:53	15:19 (6) 06:27	14:52 (6) 07:00
16	20:23	19:58	19:12	17:42 (6) 18:23	17:34 (6) 16:41	15:53 (6) 16:24
17	05:28	05:54	06:24	15:43 (6) 06:54	15:19 (6) 06:28	14:54 (6) 07:01
18	20:22	19:57	19:11	17:43 (6) 18:21	17:33 (6) 16:39	15:51 (6) 16:24
19	05:29	05:55	06:25	15:41 (6) 06:55	15:19 (6) 06:29	14:57 (6) 07:01
20	20:22	19:55	19:09	17:42 (6) 18:20	17:32 (6) 16:38	15:47 (6) 16:24
21	05:29	05:56	06:26	15:40 (6) 06:56	15:19 (6) 06:30	15:02 (6) 07:02
22	20:22	19:54	19:07	17:42 (6) 18:18	17:31 (6) 16:38	15:45 (6) 16:24
23	05:30	05:57	06:27	15:38 (6) 06:57	15:19 (6) 06:32	15:05 (6) 07:03
24	20:21	19:53	19:06	17:42 (6) 18:16	17:30 (6) 16:37	15:41 (6) 16:24
25	05:31	05:58	06:28	15:37 (6) 06:58	15:20 (6) 06:33	15:10 (6) 07:04
26	20:21	19:52	19:04	17:42 (6) 18:15	17:29 (6) 16:36	15:36 (6) 16:24
27	05:31	05:59	06:29	15:36 (6) 06:59	15:20 (6) 06:34	15:21 (6) 07:05
28	20:20	19:50	19:02	17:42 (6) 18:13	17:28 (6) 16:35	15:26 (6) 16:24
29	05:32	06:00	06:30	07:09 (16) 07:00	15:20 (6) 06:35	07:05
30	20:20	19:49	19:01	17:42 (6) 18:12	17:27 (6) 16:34	16:25
31	05:33	06:01	06:31	07:07 (16) 07:01	15:20 (6) 06:36	07:06
32	20:19	19:48	18:59	17:42 (6) 18:10	17:26 (6) 16:33	16:25
33	05:34	06:02	06:32	07:05 (16) 07:02	15:21 (6) 06:37	07:07
34	20:19	19:46	18:57	17:42 (6) 18:09	17:25 (6) 16:32	16:25
35	05:34	06:03	06:33	07:03 (16) 07:03	15:22 (6) 06:39	07:07
36	20:18	19:45	18:56	17:42 (6) 18:07	17:25 (6) 16:32	16:25
37	05:35	06:04	06:34	07:01 (16) 07:04	15:23 (6) 06:40	07:08
38	20:17	19:43	18:54	17:42 (6) 18:06	17:24 (6) 16:31	16:26
39	05:36	06:05	06:35	06:58 (16) 07:05	15:23 (6) 06:41	07:09
40	20:17	19:42	18:52	17:42 (6) 18:04	17:23 (6) 16:30	16:26
41	05:37	06:06	06:36	06:56 (16) 07:06	15:24 (6) 06:42	07:09
42	20:16	19:40	18:51	17:42 (6) 18:03	17:21 (6) 16:29	16:27
43	05:38	06:07	06:37	06:57 (16) 07:08	15:25 (6) 06:43	07:10
44	20:15	19:39	18:49	17:42 (6) 18:02	17:20 (6) 16:29	16:27
45	05:39	06:08	06:38	06:58 (16) 07:09	15:25 (6) 06:44	07:10
46	20:14	19:38	18:47	17:41 (6) 18:00	17:19 (6) 16:28	16:28
47	05:39	06:09	06:39	06:59 (16) 07:10	15:26 (6) 06:45	07:11
48	20:13	19:36	18:46	17:41 (6) 17:59	17:17 (6) 16:28	15:49 (7) 16:28
49	05:40	06:10	06:40	07:00 (16) 06:11	14:28 (6) 06:47	15:46 (7) 07:11
50	20:13	19:35	18:44	17:41 (6) 16:57	16:17 (6) 16:27	15:56 (7) 16:29
51	05:41	06:11	06:41	07:00 (16) 06:12	14:29 (6) 06:48	15:45 (7) 07:12
52	20:12	19:33	18:42	17:39 (6) 16:56	16:16 (6) 16:27	15:58 (7) 16:29
53	05:42	06:12	06:42	07:01 (16) 06:13	14:30 (6) 06:49	15:44 (7) 07:12
54	20:11	19:32	18:41	17:39 (6) 16:55	16:14 (6) 16:26	15:59 (7) 16:30
55	05:43	06:13	06:43	15:22 (6) 06:14	14:31 (6) 06:50	15:43 (7) 07:12
56	20:10	19:30	18:39	17:39 (6) 16:53	16:12 (6) 16:26	16:00 (7) 16:31
57	05:44	06:14	06:44	15:21 (6) 06:15	14:32 (6) 06:51	15:43 (7) 07:13
58	20:09	19:28	18:37	17:38 (6) 16:52	16:11 (6) 16:25	16:01 (7) 16:31
59	05:45	06:15	06:45	15:21 (6) 06:17	14:34 (6) 06:52	15:42 (7) 07:13
60	20:08	19:27	18:36	17:38 (6) 16:51	16:10 (6) 16:25	16:00 (7) 16:32
61	05:46	06:16	15:57 (6)	06:18	14:36 (6)	07:13
62	20:07	19:25	17:39 (6)	16:50	16:08 (6)	16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case		1580	3890	3781	922	447

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: O - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:13 16:34	07:00 17:07	06:25 17:41	06:59 (2) 08:55 (2)	07:48 (2) 18:36 (3)	05:51 19:44
2	07:13 16:35	06:59 17:09	06:24 17:42	06:58 (2) 08:56 (2)	07:48 (2) 18:35 (3)	05:49 19:46
3	07:13 16:36	06:58 17:10	07:46 (2) 08:08 (2)	06:22 17:43	06:32 18:35 (3)	05:48 19:47
4	07:13 16:36	06:57 17:11	07:41 (2) 08:14 (2)	06:21 17:44	06:31 18:34 (3)	05:47 19:48
5	07:13 16:37	06:56 17:12	07:37 (2) 08:18 (2)	06:19 17:45	06:29 18:32 (3)	05:46 19:49
6	07:13 16:38	06:55 17:14	07:34 (2) 08:22 (2)	06:18 17:46	06:27 18:32 (3)	05:45 19:50
7	07:13 16:39	06:54 17:15	07:31 (2) 08:25 (2)	06:16 17:47	06:26 18:30 (3)	05:43 19:51
8	07:13 16:40	06:53 17:16	07:29 (2) 08:28 (2)	06:15 17:48	06:24 18:28 (3)	05:42 19:52
9	07:13 16:41	06:52 17:17	07:25 (2) 08:30 (2)	06:13 17:49	06:23 18:25 (3)	05:41 19:53
10	07:13 16:42	06:51 17:18	07:23 (2) 08:32 (2)	06:11 17:51	06:21 18:23 (3)	05:40 19:54
11	07:13 16:43	06:50 17:20	07:22 (2) 08:34 (2)	06:10 17:52	06:20 18:21 (3)	05:39 19:55
12	07:12 16:44	06:49 17:21	07:20 (2) 08:37 (2)	06:08 17:53	06:18 18:19 (3)	05:38 19:56
13	07:12 16:45	06:47 17:22	07:19 (2) 08:39 (2)	06:07 17:54	06:16 18:17 (3)	05:37 19:57
14	07:12 16:46	06:46 17:23	07:16 (2) 08:40 (2)	06:05 17:55	06:15 18:15 (3)	05:36 19:58
15	07:12 16:47	06:45 17:24	07:15 (2) 08:42 (2)	06:03 17:56	06:13 18:13 (3)	05:35 19:59
16	07:11 16:49	06:44 17:26	07:14 (2) 08:43 (2)	06:02 17:57	06:12 18:10 (3)	05:34 19:59
17	07:11 16:50	06:42 17:27	07:12 (2) 08:44 (2)	06:00 17:58	06:10 17:38 (4)	05:33 19:30
18	07:10 16:51	06:41 17:28	07:11 (2) 08:46 (2)	05:58 17:59	06:09 17:38 (4)	05:32 19:31
19	07:10 16:52	06:40 17:29	07:10 (2) 08:47 (2)	05:57 18:00	06:07 17:39 (4)	05:31 19:32
20	07:09 16:53	06:38 17:30	07:08 (2) 08:48 (2)	05:55 18:01	06:06 17:41 (4)	05:30 19:33
21	07:09 16:54	06:37 17:31	07:07 (2) 08:49 (2)	05:54 18:02	06:04 17:42 (4)	05:30 19:34
22	07:08 16:55	06:35 17:33	07:05 (2) 08:50 (2)	05:52 18:03	06:03 17:44 (4)	05:29 19:35
23	07:07 16:57	06:34 17:34	07:05 (2) 08:51 (2)	05:50 18:04	06:02 17:44 (4)	05:28 19:36
24	07:07 16:58	06:33 17:35	07:04 (2) 08:52 (2)	05:49 18:05	06:00 17:45 (4)	05:27 19:37
25	07:06 16:59	06:31 17:36	07:02 (2) 08:52 (2)	05:47 18:06	05:59 17:45 (4)	05:27 19:38
26	07:05 17:00	06:30 17:37	07:02 (2) 08:54 (2)	05:45 18:07	05:57 17:47 (4)	05:26 19:39
27	07:05 17:01	06:28 17:38	07:00 (2) 08:54 (2)	05:44 18:08	05:56 17:46 (4)	05:25 19:40
28	07:04 17:03	06:27 17:39	07:00 (2) 08:55 (2)	05:42 18:09	05:55 17:42 (4)	05:25 19:41
29	07:03 17:04		06:40 19:11	05:53 18:38 (3)	05:53 19:42	05:24 20:11
30	07:02 17:05		06:39 19:12	05:52 18:37 (3)	05:52 19:43	05:24 20:12
31	07:01 17:06		06:37 19:13	05:51 18:36 (3)	05:51 19:44	05:23 20:12
Potential sun hours	299	298	370	398	446	450
Total, worst case		2136	4953	2860		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: O - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July		August		September		October		November		December	
1	05:23	05:47			06:16	07:52 (2)	06:45	07:30 (2)	06:19		06:54 (2)	06:53
	20:24	20:06			19:24	128 18:20 (3)	18:34	163 18:11 (3)	16:48	67	08:01 (2)	16:25
2	05:24	05:48			06:17	07:50 (2)	06:46	07:30 (2)	06:20		06:56 (2)	06:54
	20:24	20:05			19:22	134 18:22 (3)	18:32	158 18:08 (3)	16:47	63	07:59 (2)	16:24
3	05:24	05:48			06:18	07:49 (2)	06:47	07:30 (2)	06:21		06:58 (2)	06:55
	20:24	20:04			19:20	139 18:23 (3)	18:31	152 18:05 (3)	16:46	58	07:56 (2)	16:24
4	05:25	05:49			06:19	07:48 (2)	06:48	07:30 (2)	06:22		07:01 (2)	06:56
	20:24	20:02			19:19	145 18:25 (3)	18:29	144 18:01 (3)	16:45	53	07:54 (2)	16:24
5	05:25	05:50			06:20	07:47 (2)	06:49	07:30 (2)	06:23		07:04 (2)	06:57
	20:23	20:01			19:17	149 18:26 (3)	18:27	133 17:55 (3)	16:44	47	07:51 (2)	16:24
6	05:26	05:51			06:21	07:46 (2)	06:50	07:30 (2)	06:24		07:07 (2)	06:58
	20:23	20:00			19:15	154 18:28 (3)	18:26	122 09:32 (2)	16:43	40	07:47 (2)	16:24
7	05:27	05:52			06:22	07:45 (2)	06:51	07:30 (2)	06:26		07:11 (2)	06:59
	20:23	19:59			19:14	158 18:29 (3)	18:24	122 09:32 (2)	16:41	32	07:43 (2)	16:24
8	05:27	05:53			06:23	07:43 (2)	06:53	07:30 (2)	06:27		07:18 (2)	06:59
	20:23	19:58			19:12	161 18:28 (3)	18:23	121 09:31 (2)	16:40	20	07:38 (2)	16:24
9	05:28	05:54			06:24	07:42 (2)	06:54	07:30 (2)	06:28			07:00
	20:22	19:57			19:11	164 18:28 (3)	18:21	120 09:30 (2)	16:39			16:24
10	05:28	05:55			06:25	07:41 (2)	06:55	07:31 (2)	06:29			07:01
	20:22	19:55			19:09	167 18:28 (3)	18:19	120 09:31 (2)	16:38			16:24
11	05:29	05:56			06:26	07:41 (2)	06:56	07:32 (2)	06:30			07:02
	20:21	19:54			19:07	169 18:29 (3)	18:18	118 09:30 (2)	16:37			16:24
12	05:30	05:57			06:27	07:40 (2)	06:57	07:32 (2)	06:31			07:03
	20:21	19:53			19:06	172 18:29 (3)	18:16	117 09:29 (2)	16:36			16:24
13	05:31	05:58			06:28	07:39 (2)	06:58	07:32 (2)	06:33			07:04
	20:21	19:51			19:04	173 18:28 (3)	18:15	116 09:28 (2)	16:36			16:24
14	05:31	05:59		08:32 (2)	06:29	07:38 (2)	06:59	07:33 (2)	06:34			07:04
	20:20	19:50	14	08:46 (2)	19:02	175 18:28 (3)	18:13	114 09:27 (2)	16:35			16:24
15	05:32	06:00		08:26 (2)	06:30	07:38 (2)	07:00	07:33 (2)	06:35			07:05
	20:19	19:49	26	08:52 (2)	19:01	178 18:30 (4)	18:12	113 09:26 (2)	16:34			16:24
16	05:33	06:01		08:22 (2)	06:31	07:37 (2)	07:01	07:34 (2)	06:36			07:06
	20:19	19:47	33	08:55 (2)	18:59	184 18:34 (4)	18:10	111 09:25 (2)	16:33			16:25
17	05:34	06:02		08:19 (2)	06:32	07:36 (2)	07:02	07:34 (2)	06:37			07:07
	20:18	19:46	40	08:59 (2)	18:57	187 18:35 (4)	18:09	110 09:24 (2)	16:32			16:25
18	05:34	06:03		08:16 (2)	06:33	07:36 (2)	07:03	07:35 (2)	06:38			07:07
	20:18	19:45	45	09:01 (2)	18:56	186 18:34 (4)	18:07	107 09:22 (2)	16:31			16:25
19	05:35	06:04		08:14 (2)	06:34	07:35 (2)	07:04	07:35 (2)	06:40			07:08
	20:17	19:43	50	09:04 (2)	18:54	185 18:32 (4)	18:06	106 09:21 (2)	16:31			16:26
20	05:36	06:05		08:12 (2)	06:35	07:35 (2)	07:05	07:37 (2)	06:41			07:08
	20:16	19:42	54	09:06 (2)	18:52	185 18:31 (4)	18:04	104 09:21 (2)	16:30			16:26
21	05:37	06:06		08:10 (2)	06:36	07:34 (2)	07:06	07:38 (2)	06:42			07:09
	20:16	19:40	58	09:08 (2)	18:51	184 18:29 (4)	18:03	101 09:19 (2)	16:29			16:27
22	05:38	06:07		08:08 (2)	06:37	07:33 (2)	07:07	07:39 (2)	06:43			07:10
	20:15	19:39	62	09:10 (2)	18:49	182 18:26 (4)	18:01	99 09:18 (2)	16:29			16:27
23	05:38	06:08		08:06 (2)	06:38	07:32 (2)	07:08	07:40 (2)	06:44			07:10
	20:14	19:37	66	09:12 (2)	18:47	182 18:25 (4)	18:00	97 09:17 (2)	16:28			16:28
24	05:39	06:09		08:04 (2)	06:39	07:32 (2)	07:10	07:41 (2)	06:45			07:10
	20:13	19:36	69	09:13 (2)	18:46	180 18:23 (4)	17:59	94 09:15 (2)	16:28			16:28
25	05:40	06:10		08:02 (2)	06:40	07:31 (2)	06:11	06:42 (2)	06:46			07:11
	20:12	19:34	73	09:15 (2)	18:44	178 18:21 (4)	16:57	91 08:13 (2)	16:27			16:29
26	05:41	06:11		08:00 (2)	06:40	07:31 (2)	06:12	06:44 (2)	06:47			07:11
	20:11	19:33	76	09:16 (2)	18:42	177 18:20 (4)	16:56	89 08:13 (2)	16:27			16:29
27	05:42	06:12		07:58 (2)	06:41	07:31 (2)	06:13	06:45 (2)	06:49			07:12
	20:11	19:31	94	18:12 (3)	18:41	174 18:18 (3)	16:55	86 08:11 (2)	16:26			16:30
28	05:43	06:13		07:57 (2)	06:42	07:31 (2)	06:14	06:46 (2)	06:50			07:12
	20:10	19:30	102	18:14 (3)	18:39	171 18:16 (3)	16:53	83 08:09 (2)	16:26			16:31
29	05:44	06:14		07:56 (2)	06:43	07:30 (2)	06:15	06:48 (2)	06:51			07:12
	20:09	19:28	110	18:16 (3)	18:37	170 18:15 (3)	16:52	79 08:07 (2)	16:25			16:31
30	05:45	06:15		07:54 (2)	06:44	07:30 (2)	06:16	06:49 (2)	06:52			07:13
	20:08	19:27	117	18:17 (3)	18:36	167 18:13 (3)	16:51	76 08:05 (2)	16:25			16:32
31	05:46	06:15		07:53 (2)			06:18	06:52 (2)				07:13
	20:07	19:25	123	18:19 (3)			16:50	72 08:04 (2)				16:33
Potential sun hours	457	427			375		346		300			290
Total, worst case			1212		5058		3438		380			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: P - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

		[January		[February		[March		[April		[May		[June		[July		[August		[September		[October		[November		[December
1	07:13	15:50 (7)	07:01	16:10 (7)	06:25	06:36	05:51	05:23	05:23	05:47	06:17	06:46	06:19	06:53	15:34 (7)									
	16:34	18	16:08 (21)	17:08	13	16:23 (7)	17:41	19:14	19:45	20:13	20:24	20:06	19:24	18:34	16:48	16:25	26	16:00 (21)						
2	07:13	15:50 (7)	07:00	16:14 (7)	06:24	06:34	05:50	05:22	05:24	05:48	06:18	06:47	06:20	06:54	15:35 (7)									
	16:35	19	16:09 (21)	17:09	5	16:19 (7)	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:32	16:47	16:25	25	16:00 (21)						
3	07:13	15:50 (7)	06:59		06:22	06:32	05:48	05:22	05:24	05:49	06:19	06:48	06:21	06:55	15:35 (7)									
	16:36	20	16:10 (21)	17:10		17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46	16:24	24	15:59 (21)							
4	07:14	15:50 (7)	06:58		06:21	06:31	05:47	05:22	05:25	05:50	06:19	06:49	06:22	06:56	15:36 (7)									
	16:37	21	16:11 (21)	17:11		17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45	16:24	23	15:59 (21)							
5	07:14	15:51 (7)	06:57		06:19	06:29	05:46	05:21	05:25	05:51	06:20	06:50	06:23	06:57	15:36 (7)									
	16:37	21	16:12 (21)	17:12		17:45	19:18	19:49	20:16	20:24	20:01	19:17	18:28	16:44	16:24	23	15:59 (21)							
6	07:14	15:51 (7)	06:56		06:18	06:28	05:45	05:21	05:26	05:51	06:21	06:51	06:25	06:58	15:37 (7)									
	16:38	22	16:13 (21)	17:14		17:46	19:19	19:50	20:17	20:23	20:00	19:16	18:26	16:43	16:24	22	15:59 (21)							
7	07:14	15:51 (7)	06:54		06:16	06:26	05:44	05:21	05:27	05:52	06:22	06:52	06:26	06:59	15:38 (7)									
	16:39	23	16:14 (21)	17:15		17:47	19:20	19:51	20:18	20:23	19:59	19:14	18:24	16:42	16:24	21	15:59 (21)							
8	07:13	15:52 (7)	06:53		06:15	06:24	05:42	05:20	05:27	05:53	06:23	06:53	06:27	07:00	15:38 (7)									
	16:40	23	16:15 (21)	17:16		17:49	19:21	19:52	20:18	20:23	19:58	19:12	18:23	16:41	16:24	21	15:59 (21)							
9	07:13	15:52 (7)	06:52		06:13	06:23	05:41	05:20	05:28	05:54	06:24	06:54	06:28	7	15:44 (7)	07:01								
	16:41	24	16:16 (21)	17:17		17:50	19:22	19:53	20:19	20:22	19:57	19:11	18:21	16:40	16:24	20	15:59 (21)							
10	07:13	15:53 (7)	06:51		06:12	06:21	05:40	05:20	05:29	05:55	06:25	06:55	06:29	15	15:55 (7)	07:01								
	16:42	24	16:17 (21)	17:19		17:51	19:23	19:54	20:19	20:22	19:55	19:09	18:20	16:39	16:24	19	15:59 (21)							
11	07:13	15:52 (7)	06:50		06:10	06:20	05:39	05:20	05:29	05:56	06:26	06:56	06:30	19	15:59 (7)	07:02								
	16:43	26	16:18 (21)	17:20		17:52	19:24	19:55	20:20	20:22	19:54	19:07	18:18	16:38	16:24	18	15:59 (21)							
12	07:13	15:53 (7)	06:49		06:08	06:18	05:38	05:20	05:30	05:57	06:27	06:57	06:32	22	15:57 (7)	07:03								
	16:44	26	16:19 (21)	17:21		17:53	19:25	19:56	20:20	20:23	19:53	19:06	18:20	16:41	16:24	18	15:58 (21)							
13	07:12	15:54 (7)	06:48		06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33	18	15:41 (7)	07:04								
	16:45	27	16:21 (21)	17:22		17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36	16:24	18	15:59 (21)							
14	07:12	15:53 (7)	06:46		06:05	06:15	05:36	05:20	05:31	05:59	06:29	06:59	06:34	18	15:42 (7)	07:05								
	16:46	28	16:21 (21)	17:23		17:55	19:27	19:58	20:21	20:20	19:50	19:02	18:13	16:35	16:24	17	15:59 (21)							
15	07:12	15:54 (7)	06:45		06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35	27	16:01 (7)	07:05								
	16:48	29	16:23 (21)	17:25		17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34	16:24	17	16:00 (21)							
16	07:11	15:54 (7)	06:44		06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36	19	16:03 (7)	07:06								
	16:49	29	16:23 (21)	17:26		17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:10	16:33	16:25	16	15:59 (21)							
17	07:11	15:55 (7)	06:42		06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:37	30	16:04 (7)	07:07								
	16:50	30	16:25 (21)	17:27		17:58	19:30	20:01	20:22	20:19	19:46	18:57	18:09	16:32	16:25	16	16:00 (21)							
18	07:10	15:55 (7)	06:41		05:59	06:09	05:32	05:20	05:34	06:03	06:33	07:03	06:39	32	16:05 (7)	07:07								
	16:51	31	16:26 (21)	17:28		17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:07	16:32	16:25	15	16:00 (21)							
19	07:10	15:56 (7)	06:40		05:57	06:08	05:31	05:20	05:35	06:04	06:34	07:04	06:40	33	16:05 (7)	07:08								
	16:52	32	16:28 (21)	17:29		18:00	19:32	20:03	20:23	20:17	19:43	18:54	18:06	16:31	16:26	15	16:00 (21)							
20	07:09	15:56 (7)	06:38		05:55	06:06	05:31	05:20	05:36	06:05	06:35	07:05	06:41	34	16:06 (7)	07:09								
	16:53	33	16:29 (21)	17:30		18:01	19:33	20:03	20:23	20:17	19:42	18:52	18:04	16:30	16:26	15	16:01 (21)							
21	07:09	15:56 (7)	06:37		05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:06	06:42	34	16:06 (21)	07:09								
	16:54	33	16:29 (21)	17:32		18:02	19:34	20:04	20:24	20:16	19:40	18:51	18:03	16:29	16:27	15	16:01 (21)							
22	07:08	15:57 (7)	06:36		05:52	06:03	05:29	05:20	05:38	06:07	06:37	07:08	06:43	33	16:05 (21)	07:10								
	16:56	34	16:31 (21)	17:33		18:03	19:35	20:05	20:24	20:15	19:39	18:49	18:02	16:29	16:27	15	16:02 (21)							
23	07:08	15:58 (7)	06:34		05:50	06:02	05:28	05:21	05:39	06:08	06:38	07:09	06:44	33	16:05 (21)	07:10								
	16:57	34	16:32 (7)	17:34		18:04	19:36	20:06	20:24	20:14	19:38	18:47	18:00	16:28	16:26	15	16:02 (21)							
24	07:07	15:58 (7)	06:33		05:49	06:00	05:27	05:21	05:39	06:09	06:39	07:10	06:45	32	16:04 (21)	07:11								
	16:58	33	16:31 (7)	17:35		18:06	19:38	20:07	20:24	20:13	19:36	18:46	17:59	16:28	16:25	15	16:03 (21)							
25	07:06	16:00 (7)	06:31		05:47	05:59	05:27	05:21	05:40	06:10	06:40	06:11	06:47	31	16:03 (21)	07:11								
	16:59	32	16:32 (7)	17:36		18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:57	16:27	16:25	15	16:03 (21)							
26	07:06	16:01 (7)	06:30		05:46	05:58	05:26	05:21	05:41	06:11	06:41	06:12	06:48	30	16:03 (21)	07:12								
	17:00	30	16:31 (7)	17:37		18:08	19:40	20:09	20:24	20:12	19:33	18:42	16:56	16:27	16:25	16	16:04 (21)							
27	07:05	16:01 (7)	06:28		05:44	05:56	05:26	05:22	05:42	06:12	06:42	06:13	06:49	30	16:03 (21)	07:12								
	17:01	29	16:30 (7)	17:39		18:09	19:41	20:10	20:24	20:11	19:32	18:41	16:55	16:26	16:24	16	16:04 (21)							
28	07:04	16:02 (7)	06:27		05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50	29	16:03 (21)	07:13								
	17:03	26	16:29 (7)	17:40		18:10	19:42	20:10	20:24	20:10	19:30	18:39	16:53	16:26	16:24	16	16:05 (21)							
29	07:03	16:04 (7)			06:41	05:54	05:24	05:23	05:44	06:14	06:44	06:15	06:51	28	16:04 (21)	07:13								
	17:04	24	16:28 (7)		19:11	19:43	20:11	20:24	20:09	19:28	18:37	16:52	16:25	27	16:01 (21)	07:13								
30	07:02	16:05 (7)			06:39	05:52	05:24	05:23	05:45	06:15	06:45	06:17	06:52	26	16:00 (21)	07:13								
	17:05	22	16:27 (7)		19:12	19:44	20:12	20:24	20:08	19:27	18:36	16:51	16:25	25	16:00 (21)	07:13								
31	07:01	16:07 (7)			06:37			05:23		05:46	06:16	06:18		24	16:00 (21)	07:13								
	17:06	19	16:26 (7)		19:13			20:13		20:07	19:25	16:50		23	16:00 (21)	07:13								

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	(WTG causing flicker first time)
Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: Q - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	07:01 17:08	06:26 17:41	06:36 19:14	05:51 19:45	05:23 20:14	05:24 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:49	06:53 16:25
2	07:13 16:35	07:00 17:09	06:24 17:42	06:34 19:15	05:50 19:46	05:23 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:33	06:20 16:47	06:54 16:25
3	07:14 16:36	06:59 17:10	06:23 17:43	06:33 19:16	05:49 19:47	05:22 20:15	05:25 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46	06:55 16:25
4	07:14 16:37	06:58 17:12	06:21 17:44	06:31 19:17	05:47 19:48	05:22 20:16	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	06:22 16:45	06:56 16:24
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31	07:02 17:07		06:38 19:13		05:24 20:13		05:46 20:07	06:16 19:25		06:18 16:50		07:13 16:33
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case												

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	(WTG causing flicker first time)
Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: R - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	07:01 17:08	06:26 17:41	06:36 19:14	05:51 19:45	05:23 20:14	05:24 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:49	06:53 16:25
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3	07:14 16:36	06:59 17:10	06:23 17:43	06:33 19:16	05:49 19:47	05:22 20:15	05:25 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46	06:55 16:25
4	07:14 16:37	06:58 17:12	06:21 17:44	06:31 19:17	05:47 19:48	05:22 20:16	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	06:22 16:45	06:56 16:24
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14	07:12 16:47	06:46 17:24	06:05 17:55	06:15 19:27	05:36 19:58	05:20 20:21	05:32 20:20	05:59 19:50	06:29 19:03	06:59 18:14	06:34 16:35	07:05 16:25
15	07:12 16:48	06:45 17:25	06:04 17:56	06:14 19:28	05:35 19:59	05:20 20:22	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	07:06 16:25
16	07:11 16:49	06:44 17:26	06:02 17:57	06:12 19:29	05:34 20:00	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:11	06:36 16:33	07:06 16:25
17	07:11 16:50	06:43 17:27	06:00 17:58	06:11 19:30	05:33 20:01	05:20 20:22	05:34 20:19	06:02 19:46	06:32 18:58	07:02 18:09	06:38 16:33	07:07 16:25
18	07:11 16:51	06:41 17:28	05:59 17:59	06:09 19:31	05:33 20:02	05:20 20:23	05:35 20:18	06:03 19:45	06:33 18:56	07:03 18:08	06:39 16:32	07:08 16:26
19	07:10 16:52	06:40 17:30	05:57 18:01	06:08 19:33	05:32 20:03	05:20 20:23	05:36 20:17	06:04 19:44	06:34 18:54	07:04 18:06	06:40 16:31	07:08 16:26
20	07:10 16:54	06:39 17:31	05:56 18:02	06:06 19:34	05:31 20:04	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:53	07:06 18:05	06:41 16:30	07:09 16:27
21	07:09 16:55	06:37 17:32	05:54 18:03	06:05 19:35	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:41	06:36 18:51	07:07 18:03	06:42 16:30	07:09 16:27
22	07:08 16:56	06:36 17:33	05:52 18:04	06:03 19:36	05:29 20:05	05:21 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29	07:10 16:27
23	07:08 16:57	06:34 17:34	05:51 18:05	06:02 19:37	05:29 20:06	05:21 20:24	05:39 20:14	06:08 19:38	06:38 18:48	07:09 18:00	06:44 16:29	07:10 16:28
24	07:07 16:58	06:33 17:35	05:49 18:06	06:01 19:38	05:28 20:07	05:21 20:24	05:40 20:14	06:09 19:36	06:39 18:46	07:10 17:59	06:46 16:28	07:11 16:29
25	07:06 16:59	06:32 17:36	05:47 18:07	05:59 19:39	05:27 20:08	05:21 20:24	05:41 20:13	06:10 19:35	06:40 18:44	06:11 16:58	06:47 16:27	07:11 16:29
26	07:06 17:01	06:30 17:38	05:46 18:08	05:58 19:40	05:26 20:09	05:22 20:24	05:42 20:12	06:11 19:33	06:41 18:43	06:12 16:56	06:48 16:27	07:12 16:30
27	07:05 17:02	06:29 17:39	05:44 18:09	05:56 19:41	05:26 20:10	05:22 20:24	05:42 20:11	06:12 19:32	06:42 18:41	06:13 16:55	06:49 16:27	07:12 16:30
28	07:04 17:03	06:27 17:40	05:42 18:10	05:55 19:42	05:25 20:10	05:22 20:24	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:54	06:50 16:26	07:12 16:31
29	07:03 17:04		06:41 19:11	05:54 19:43	05:25 20:11	05:23 20:24	05:44 20:09	06:14 19:29	06:44 18:38	06:16 16:52	06:51 16:26	07:13 16:32
30	07:02 17:05		06:39 19:12	05:52 19:44	05:24 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:45 18:36	06:17 16:51	06:52 16:25	07:13 16:32
31	07:02 17:07		06:38 19:13		05:24 20:13		05:46 20:07	06:16 19:25		06:18 16:50		07:13 16:33
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case												

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	(WTG causing flicker first time)
Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: S - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May	June
1	07:13	11:09 (4)	07:00	16:10 (5)	06:25	06:44 (3)	06:36	05:51	05:23
	16:34	13:02 (4)	17:07	16:44 (5)	17:41	07:05 (3)	19:14	19:45	20:13
2	07:13	11:10 (4)	06:59	16:10 (5)	06:24	06:43 (3)	06:34	05:50	05:22
	16:35	13:02 (4)	17:09	16:45 (5)	17:42	07:05 (3)	19:15	19:46	20:14
3	07:13	11:11 (4)	06:59	16:10 (5)	06:22	06:41 (3)	06:32	05:48	05:22
	16:36	13:02 (4)	17:10	16:46 (5)	17:43	07:05 (3)	19:16	19:47	20:15
4	07:13	11:12 (4)	06:58	16:10 (5)	06:21	06:40 (3)	06:31	05:47	05:22
	16:36	13:02 (4)	17:11	16:48 (5)	17:44	07:05 (3)	19:17	19:48	20:15
5	07:13	11:13 (4)	06:56	16:11 (5)	06:19	06:38 (3)	06:29	05:46	05:21
	16:37	13:02 (4)	17:12	16:49 (5)	17:45	07:04 (3)	19:18	19:49	20:16
6	07:13	11:14 (4)	06:55	16:11 (5)	06:18	06:36 (3)	06:28	05:45	05:21
	16:38	13:02 (4)	17:14	16:51 (5)	17:46	07:03 (3)	19:19	19:50	20:17
7	07:13	11:15 (4)	06:54	16:12 (5)	06:16	06:36 (3)	06:26	05:44	05:21
	16:39	13:02 (4)	17:15	16:50 (5)	17:47	07:03 (3)	19:20	19:51	20:17
8	07:13	11:16 (4)	06:53	16:13 (5)	06:15	06:37 (3)	06:24	05:42	05:20
	16:40	13:03 (4)	17:16	16:50 (5)	17:48	07:02 (3)	19:21	19:52	20:18
9	07:13	11:17 (4)	06:52	16:14 (5)	06:13	06:38 (3)	06:23	05:41	05:20
	16:41	13:03 (4)	17:17	16:50 (5)	17:50	07:01 (3)	19:22	19:53	20:19
10	07:13	11:17 (4)	06:51	16:14 (5)	06:11	06:39 (3)	06:21	05:40	05:20
	16:42	13:02 (4)	17:18	16:48 (5)	17:51	06:59 (3)	19:23	19:54	20:19
11	07:13	11:19 (4)	06:50	16:15 (5)	06:10	06:40 (3)	06:20	05:39	05:20
	16:43	13:02 (4)	17:20	16:48 (5)	17:52	06:56 (3)	19:24	19:55	20:20
12	07:13	11:20 (4)	06:49	16:16 (5)	06:08	06:43 (3)	06:18	05:38	05:20
	16:44	13:02 (4)	17:21	16:47 (5)	17:53	06:54 (3)	19:25	19:56	20:20
13	07:12	11:21 (4)	06:47	16:18 (5)	06:07		06:17	05:37	05:20
	16:45	16:20 (5)	17:22	16:46 (5)	17:54		19:26	19:57	20:21
14	07:12	11:23 (4)	06:46	16:19 (5)	06:05		06:15	05:36	05:20
	16:46	16:21 (5)	17:23	16:43 (5)	17:55		19:27	19:58	20:21
15	07:12	11:25 (4)	06:45	16:22 (5)	06:03		06:13	05:35	05:20
	16:48	16:23 (5)	17:24	16:41 (5)	17:56		19:28	19:59	20:22
16	07:11	11:26 (4)	06:44	16:25 (5)	06:02		06:12	05:34	05:20
	16:49	16:24 (5)	17:26	16:39 (5)	17:57		19:29	20:00	20:22
17	07:11	11:28 (4)	06:42		06:00		06:10	05:33	05:20
	16:50	16:25 (5)	17:27		17:58		19:30	20:01	20:22
18	07:10	11:29 (4)	06:41		05:59		06:09	05:32	05:20
	16:51	16:26 (5)	17:28		17:59		19:31	20:01	20:23
19	07:10	11:31 (4)	06:40		05:57		06:07	05:31	05:20
	16:52	16:28 (5)	17:29		18:00		19:32	20:02	20:23
20	07:09	11:33 (4)	06:38		05:55		06:06	05:31	05:20
	16:53	16:29 (5)	17:30		18:01		19:33	20:03	20:23
21	07:09	11:35 (4)	06:37		05:54		06:05	05:30	05:20
	16:54	16:29 (5)	17:32		18:02		19:34	20:04	20:23
22	07:08	11:38 (4)	06:36		05:52		06:03	05:29	05:20
	16:55	16:31 (5)	17:33		18:03		19:35	20:05	20:24
23	07:08	11:40 (4)	06:34	06:53 (3)	05:50		06:02	05:28	05:20
	16:57	16:32 (5)	17:34	06:59 (3)	18:04		19:36	20:06	20:24
24	07:07	11:43 (4)	06:33	06:52 (3)	05:49		06:00	05:27	05:21
	16:58	16:33 (5)	17:35	07:01 (3)	18:05		19:37	20:07	20:24
25	07:06	11:46 (4)	06:31	06:50 (3)	05:47		05:59	05:27	05:21
	16:59	16:34 (5)	17:36	07:02 (3)	18:06		19:38	20:08	20:24
26	07:05	11:51 (4)	06:30	06:49 (3)	05:45		05:57	05:26	05:21
	17:00	16:36 (5)	17:37	07:04 (3)	18:08		19:39	20:09	20:24
27	07:05	11:56 (4)	06:28	06:47 (3)	05:44		05:56	05:25	05:22
	17:01	16:38 (5)	17:38	07:04 (3)	18:09		19:40	20:09	20:24
28	07:04	12:02 (4)	06:27	06:46 (3)	05:42		05:55	05:25	05:22
	17:03	16:39 (5)	17:40	07:05 (3)	18:10		19:42	20:10	20:24
29	07:03	16:10 (5)			06:41		05:53	05:24	05:22
	17:04	16:40 (5)			19:11		19:43	20:11	20:24
30	07:02	16:10 (5)			06:39		05:52	05:24	05:23
	17:05	16:41 (5)			19:12		19:44	20:12	20:24
31	07:01	16:10 (5)			06:37			05:23	
	17:06	16:42 (5)			19:13			20:13	
Potential sun hours	299		298		370		398	446	450
Total, worst case	2859		593		267				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: S - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October		November		December	
1	05:23	05:47	06:17	06:46		07:24 (3)	06:19	15:43 (5)	06:53
	20:24	20:06	19:24	18:34	6	07:30 (3)	16:48	16:18 (5)	12:44 (4)
2	05:24	05:48	06:17	06:47		07:20 (3)	06:20	15:42 (5)	06:54
	20:24	20:05	19:22	18:32	14	07:34 (3)	16:47	16:19 (5)	12:45 (4)
3	05:24	05:49	06:18	06:48		07:17 (3)	06:21	15:42 (5)	06:55
	20:24	20:04	19:20	18:31	19	07:36 (3)	16:46	16:19 (5)	12:46 (4)
4	05:25	05:50	06:19	06:49		07:15 (3)	06:22	15:42 (5)	06:56
	20:24	20:03	19:19	18:29	22	07:37 (3)	16:45	16:20 (5)	12:47 (4)
5	05:25	05:50	06:20	06:50		07:14 (3)	06:23	15:41 (5)	06:57
	20:24	20:01	19:17	18:28	24	07:38 (3)	16:44	16:20 (5)	12:48 (4)
6	05:26	05:51	06:21	06:51		07:12 (3)	06:25	15:41 (5)	06:58
	20:23	20:00	19:16	18:26	26	07:38 (3)	16:43	16:19 (5)	12:48 (4)
7	05:27	05:52	06:22	06:52		07:11 (3)	06:26	15:40 (5)	06:59
	20:23	19:59	19:14	18:24	28	07:39 (3)	16:42	16:17 (5)	12:49 (4)
8	05:27	05:53	06:23	06:53		07:13 (3)	06:27	15:41 (5)	07:00
	20:23	19:58	19:12	18:23	27	07:40 (3)	16:40	16:17 (5)	12:50 (4)
9	05:28	05:54	06:24	06:54		07:14 (3)	06:28	15:41 (5)	07:00
	20:22	19:57	19:11	18:21	26	07:40 (3)	16:39	16:16 (5)	12:51 (4)
10	05:29	05:55	06:25	06:55		07:15 (3)	06:29	15:41 (5)	07:01
	20:22	19:55	19:09	18:20	25	07:40 (3)	16:38	16:15 (5)	12:52 (4)
11	05:29	05:56	06:26	06:56		07:16 (3)	06:30	15:40 (5)	07:02
	20:22	19:54	19:07	18:18	23	07:39 (3)	16:37	16:13 (5)	12:53 (4)
12	05:30	05:57	06:27	06:57		07:17 (3)	06:32	15:41 (5)	07:03
	20:21	19:53	19:06	18:16	22	07:39 (3)	16:37	16:13 (5)	12:53 (4)
13	05:31	05:58	06:28	06:58		07:18 (3)	06:33	15:42 (5)	07:04
	20:21	19:51	19:04	18:15	20	07:38 (3)	16:36	16:12 (5)	12:54 (4)
14	05:31	05:59	06:29	06:59		07:19 (3)	06:34	11:34 (4)	07:05
	20:20	19:50	19:02	18:13	18	07:37 (3)	16:35	16:11 (5)	12:55 (4)
15	05:32	06:00	06:30	07:00		07:20 (3)	06:35	11:27 (4)	07:05
	20:20	19:49	19:01	18:12	16	07:36 (3)	16:34	16:10 (5)	12:56 (4)
16	05:33	06:01	06:31	07:01		07:21 (3)	06:36	11:24 (4)	07:06
	20:19	19:47	18:59	18:10	14	07:35 (3)	16:33	16:09 (5)	12:56 (4)
17	05:34	06:02	06:32	07:02		07:22 (3)	06:37	11:20 (4)	07:07
	20:18	19:46	18:57	18:09	11	07:33 (3)	16:32	16:08 (5)	12:57 (4)
18	05:34	06:03	06:33	07:03		07:23 (3)	06:38	11:17 (4)	07:07
	20:18	19:45	18:56	18:07	8	07:31 (3)	16:32	16:07 (5)	12:56 (4)
19	05:35	06:04	06:34	07:04		07:25 (3)	06:40	11:14 (4)	07:08
	20:17	19:43	18:54	18:06	4	07:29 (3)	16:31	16:06 (5)	12:57 (4)
20	05:36	06:05	06:35	07:05			06:41	11:13 (4)	07:09
	20:16	19:42	18:52	18:04			16:30	16:06 (5)	12:58 (4)
21	05:37	06:06	06:36	07:06			06:42	11:11 (4)	07:09
	20:16	19:40	18:51	18:03			16:29	16:05 (5)	12:58 (4)
22	05:38	06:07	06:37	07:07			06:43	11:09 (4)	07:10
	20:15	19:39	18:49	18:02			16:29	16:05 (5)	12:59 (4)
23	05:39	06:08	06:38	07:09			06:44	11:07 (4)	07:10
	20:14	19:37	18:47	18:00			16:28	16:04 (5)	12:59 (4)
24	05:39	06:09	06:39	07:10			06:45	11:06 (4)	07:11
	20:13	19:36	18:46	17:59			16:28	16:03 (5)	12:59 (4)
25	05:40	06:10	06:40	06:11		15:59 (5)	06:46	11:05 (4)	07:11
	20:12	19:34	18:44	16:57	6	16:05 (5)	16:27	16:02 (5)	12:59 (4)
26	05:41	06:11	06:41	06:12		15:54 (5)	06:48	11:05 (4)	07:11
	20:12	19:33	18:42	16:56	15	16:09 (5)	16:27	16:03 (5)	12:59 (4)
27	05:42	06:12	06:42	06:13		15:51 (5)	06:49	11:04 (4)	07:12
	20:11	19:31	18:41	16:55	21	16:12 (5)	16:26	16:02 (5)	12:59 (4)
28	05:43	06:13	06:43	06:14		15:48 (5)	06:50	11:03 (4)	07:12
	20:10	19:30	18:39	16:53	25	16:13 (5)	16:26	16:01 (5)	12:59 (4)
29	05:44	06:14	06:44	06:15		15:47 (5)	06:51	11:02 (4)	07:12
	20:09	19:28	18:37	16:52	28	16:15 (5)	16:25	16:01 (5)	12:59 (4)
30	05:45	06:15	06:45	06:16		15:46 (5)	06:52	11:02 (4)	07:13
	20:08	19:27	18:36	16:51	31	16:17 (5)	16:25	16:02 (4)	12:59 (4)
31	05:46	06:16		06:18		15:45 (5)		16:01 (4)	12:59 (4)
	20:07	19:25		16:50	33	16:18 (5)		16:33	12:59 (4)
Potential sun hours	457	427	375	346	512	300		290	3487
Total, worst case									

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: T - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January			February			March			April			May			June		
1	07:13		11:02 (4)	07:00		16:07 (5)	06:25		06:44 (3)	06:36		05:51		05:23			
	16:34	107	12:49 (4)	17:08		16:44 (5)	17:41		07:05 (3)	19:14		19:45		20:13			
2	07:13		11:03 (4)	06:59		16:08 (5)	06:24		06:43 (3)	06:34		05:50		05:22			
	16:35	106	12:49 (4)	17:09	37	16:45 (5)	17:42	23	07:06 (3)	19:15		19:46		20:14			
3	07:13		11:03 (4)	06:59		16:08 (5)	06:22		06:41 (3)	06:32		05:48		05:22			
	16:36	106	12:49 (4)	17:10	38	16:46 (5)	17:43	24	07:05 (3)	19:16		19:47		20:15			
4	07:13		11:04 (4)	06:58		16:09 (5)	06:21		06:40 (3)	06:31		05:47		05:22			
	16:36	105	12:49 (4)	17:11	39	16:48 (5)	17:44	25	07:05 (3)	19:17		19:48		20:15			
5	07:13		11:05 (4)	06:56		16:09 (5)	06:19		06:38 (3)	06:29		05:46		05:21			
	16:37	104	12:49 (4)	17:12	39	16:48 (5)	17:45	26	07:04 (3)	19:18		19:49		20:16			
6	07:13		11:06 (4)	06:55		16:10 (5)	06:18		06:36 (3)	06:28		05:45		05:21			
	16:38	103	12:49 (4)	17:14	38	16:48 (5)	17:46	27	07:03 (3)	19:19		19:50		20:17			
7	07:13		11:07 (4)	06:54		16:11 (5)	06:16		06:37 (3)	06:26		05:44		05:21			
	16:39	102	12:49 (4)	17:15	37	16:48 (5)	17:47	26	07:03 (3)	19:20		19:51		20:17			
8	07:13		11:09 (4)	06:53		16:12 (5)	06:15		06:37 (3)	06:24		05:42		05:20			
	16:40	100	12:49 (4)	17:16	35	16:47 (5)	17:48	24	07:01 (3)	19:21		19:52		20:18			
9	07:13		11:10 (4)	06:52		16:13 (5)	06:13		06:39 (3)	06:23		05:41		05:20			
	16:41	99	12:49 (4)	17:17	34	16:47 (5)	17:50	22	07:01 (3)	19:22		19:53		20:19			
10	07:13		11:10 (4)	06:51		16:13 (5)	06:11		06:40 (3)	06:21		05:40		05:20			
	16:42	101	16:17 (5)	17:18	32	16:45 (5)	17:51	18	06:58 (3)	19:23		19:54		20:19			
11	07:13		11:12 (4)	06:50		16:14 (5)	06:10		06:41 (3)	06:20		05:39		05:20			
	16:43	101	16:18 (5)	17:20	30	16:44 (5)	17:52	14	06:55 (3)	19:24		19:55		20:20			
12	07:13		11:14 (4)	06:49		16:16 (5)	06:08		06:46 (3)	06:18		05:38		05:20			
	16:44	100	16:19 (5)	17:21	27	16:43 (5)	17:53	6	06:52 (3)	19:25		19:56		20:20			
13	07:12		11:14 (4)	06:47		16:18 (5)	06:07			06:17		05:37		05:20			
	16:45	101	16:20 (5)	17:22	24	16:42 (5)	17:54			19:26		19:57		20:21			
14	07:12		11:16 (4)	06:46		16:20 (5)	06:05			06:15		05:36		05:20			
	16:46	100	16:21 (5)	17:23	19	16:39 (5)	17:55			19:27		19:58		20:21			
15	07:12		11:18 (4)	06:45		16:23 (5)	06:03			06:13		05:35		05:20			
	16:48	100	16:23 (5)	17:24	13	16:36 (5)	17:56			19:28		19:59		20:22			
16	07:11		11:19 (4)	06:44			06:02			06:12		05:34		05:20			
	16:49	99	16:24 (5)	17:26			17:57			19:29		20:00		20:22			
17	07:11		11:22 (4)	06:42			06:00			06:10		05:33		05:20			
	16:50	97	16:25 (5)	17:27			17:58			19:30		20:01		20:22			
18	07:10		11:23 (4)	06:41			05:59			06:09		05:32		05:20			
	16:51	96	16:26 (5)	17:28			17:59			19:31		20:01		20:23			
19	07:10		11:26 (4)	06:40			05:57			06:07		05:31		05:20			
	16:52	94	16:28 (5)	17:29			18:00			19:32		20:02		20:23			
20	07:09		11:28 (4)	06:38			05:55			06:06		05:31		05:20			
	16:53	92	16:29 (5)	17:30			18:01			19:33		20:03		20:23			
21	07:09		11:30 (4)	06:37			05:54			06:05		05:30		05:20			
	16:54	88	16:29 (5)	17:32			18:02			19:34		20:04		20:23			
22	07:08		11:33 (4)	06:36		06:55 (3)	05:52			06:03		05:29		05:20			
	16:55	85	16:31 (5)	17:33	2	06:57 (3)	18:03			19:35		20:05		20:24			
23	07:08		11:36 (4)	06:34		06:53 (3)	05:50			06:02		05:28		05:20			
	16:57	80	16:32 (5)	17:34	6	06:59 (3)	18:04			19:36		20:06		20:24			
24	07:07		11:40 (4)	06:33		06:52 (3)	05:49			06:00		05:27		05:21			
	16:58	75	16:33 (5)	17:35	10	07:02 (3)	18:05			19:37		20:07		20:24			
25	07:06		11:45 (4)	06:31		06:50 (3)	05:47			05:59		05:27		05:21			
	16:59	66	16:34 (5)	17:36	13	07:03 (3)	18:06			19:38		20:08		20:24			
26	07:05		11:53 (4)	06:30		06:49 (3)	05:45			05:57		05:26		05:21			
	17:00	55	16:36 (5)	17:37	15	07:04 (3)	18:08			19:39		20:09		20:24			
27	07:05		16:07 (5)	06:28		06:47 (3)	05:44			05:56		05:25		05:22			
	17:01	31	16:38 (5)	17:38	17	07:04 (3)	18:09			19:40		20:09		20:24			
28	07:04		16:07 (5)	06:27		06:46 (3)	05:42			05:55		05:25		05:22			
	17:03	32	16:39 (5)	17:40	19	07:05 (3)	18:10			19:42		20:10		20:24			
29	07:03		16:07 (5)				06:41			05:53		05:24		05:22			
	17:04	33	16:40 (5)				19:11			19:43		20:11		20:24			
30	07:02		16:07 (5)				06:39			05:52		05:24		05:23			
	17:05	34	16:41 (5)				19:12			19:44		20:12		20:24			
31	07:01		16:07 (5)				06:37					05:23					
	17:06	35	16:42 (5)				19:13					20:13					
Potential sun hours	299			298		370			398		446		450				
Total, worst case	2627			561		256											

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: T - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October		November		December	
1	05:23	05:47	06:17	06:46		06:19		15:42 (5)	06:53
	20:24	20:06	19:24	18:34		16:48	33	16:15 (5)	16:25
2	05:24	05:48	06:17	06:47		07:21 (3)	06:20	15:41 (5)	06:54
	20:24	20:05	19:22	18:32	12	07:33 (3)	16:47	16:16 (5)	16:25
3	05:24	05:49	06:18	06:48		07:18 (3)	06:21	15:40 (5)	06:55
	20:24	20:04	19:20	18:31	17	07:35 (3)	16:46	16:16 (5)	16:24
4	05:25	05:50	06:19	06:49		07:16 (3)	06:22	15:40 (5)	06:56
	20:24	20:03	19:19	18:29	21	07:37 (3)	16:45	16:18 (5)	16:24
5	05:25	05:50	06:20	06:50		07:14 (3)	06:23	15:40 (5)	06:57
	20:24	20:01	19:17	18:28	24	07:38 (3)	16:44	16:18 (5)	16:24
6	05:26	05:51	06:21	06:51		07:13 (3)	06:25	15:39 (5)	06:58
	20:23	20:00	19:16	18:26	25	07:38 (3)	16:43	16:18 (5)	16:24
7	05:27	05:52	06:22	06:52		07:12 (3)	06:26	15:38 (5)	06:59
	20:23	19:59	19:14	18:24	27	07:39 (3)	16:42	16:17 (5)	16:24
8	05:27	05:53	06:23	06:53		07:13 (3)	06:27	15:39 (5)	07:00
	20:23	19:58	19:12	18:23	27	07:40 (3)	16:40	16:17 (5)	16:24
9	05:28	05:54	06:24	06:54		07:14 (3)	06:28	15:39 (5)	07:00
	20:22	19:57	19:11	18:21	26	07:40 (3)	16:39	16:16 (5)	16:24
10	05:29	05:55	06:25	06:55		07:15 (3)	06:29	15:38 (5)	07:01
	20:22	19:55	19:09	18:20	25	07:40 (3)	16:38	16:15 (5)	16:24
11	05:29	05:56	06:26	06:56		07:16 (3)	06:30	15:38 (5)	07:02
	20:22	19:54	19:07	18:18	23	07:39 (3)	16:37	16:13 (5)	16:24
12	05:30	05:57	06:27	06:57		07:17 (3)	06:32	15:39 (5)	07:03
	20:21	19:53	19:06	18:16	22	07:39 (3)	16:37	16:13 (5)	16:24
13	05:31	05:58	06:28	06:58		07:18 (3)	06:33	15:39 (5)	07:04
	20:21	19:52	19:04	18:15	20	07:38 (3)	16:36	16:12 (5)	16:24
14	05:31	05:59	06:29	06:59		07:19 (3)	06:34	15:39 (5)	07:05
	20:20	19:50	19:02	18:13	18	07:37 (3)	16:35	16:11 (5)	16:24
15	05:32	06:00	06:30	07:00		07:20 (3)	06:35	15:39 (5)	07:05
	20:20	19:49	19:01	18:12	16	07:36 (3)	16:34	16:10 (5)	16:24
16	05:33	06:01	06:31	07:01		07:21 (3)	06:36	11:25 (4)	07:06
	20:19	19:47	18:59	18:10	14	07:35 (3)	16:33	16:09 (5)	16:25
17	05:34	06:02	06:32	07:02		07:22 (3)	06:37	11:19 (4)	07:07
	20:18	19:46	18:57	18:09	12	07:34 (3)	16:32	16:08 (5)	16:25
18	05:34	06:03	06:33	07:03		07:23 (3)	06:38	11:14 (4)	07:07
	20:18	19:45	18:56	18:07	9	07:32 (3)	16:32	16:07 (5)	16:25
19	05:35	06:04	06:34	07:04		07:25 (3)	06:40	11:10 (4)	07:08
	20:17	19:43	18:54	18:06	5	07:30 (3)	16:31	16:06 (5)	16:26
20	05:36	06:05	06:35	07:05			06:41	11:08 (4)	07:09
	20:16	19:42	18:52	18:04			16:30	16:06 (5)	16:26
21	05:37	06:06	06:36	07:06			06:42	11:06 (4)	07:09
	20:16	19:40	18:51	18:03			16:29	16:05 (5)	16:27
22	05:38	06:07	06:37	07:07			06:43	11:04 (4)	07:10
	20:15	19:39	18:49	18:02			16:29	16:05 (5)	16:27
23	05:39	06:08	06:38	07:09			06:44	11:02 (4)	07:10
	20:14	19:37	18:47	18:00			16:28	16:04 (5)	16:28
24	05:39	06:09	06:39	07:10			06:45	11:00 (4)	07:11
	20:13	19:36	18:46	17:59			16:28	16:03 (5)	16:28
25	05:40	06:10	06:40	06:11			06:46	10:59 (4)	07:11
	20:12	19:34	18:44	16:57			16:27	16:02 (5)	16:29
26	05:41	06:11	06:41	06:12			06:48	10:58 (4)	07:11
	20:12	19:33	18:42	16:56			16:27	16:03 (5)	16:29
27	05:42	06:12	06:42	06:13		15:52 (5)	06:49	10:57 (4)	07:12
	20:11	19:31	18:41	16:55	15	16:07 (5)	16:26	16:02 (5)	16:30
28	05:43	06:13	06:43	06:14		15:49 (5)	06:50	10:56 (4)	07:12
	20:10	19:30	18:39	16:53	20	16:09 (5)	16:26	16:01 (5)	16:31
29	05:44	06:14	06:44	06:15		15:46 (5)	06:51	10:55 (4)	07:12
	20:09	19:28	18:37	16:52	25	16:11 (5)	16:25	16:01 (5)	16:31
30	05:45	06:15	06:45	06:16		15:45 (5)	06:52	10:55 (4)	07:13
	20:08	19:27	18:36	16:51	28	16:13 (5)	16:25	16:00 (5)	16:32
31	05:46	06:16		06:18		15:44 (5)			07:13
	20:07	19:25		16:50	30	16:14 (5)			16:33
Potential sun hours	457	427	375	346		300		290	108
Total, worst case					461	1864		3331	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: U - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:13 16:34	07:00 17:07	07:32 (2) 06:25 08:21 (2) 17:41	07:01 (2) 06:36 08:51 (2) 19:14	08:04 (2) 05:51 18:26 (3) 19:45	05:23 20:13
2	07:13 16:35	06:59 17:09	07:30 (2) 06:24 08:24 (2) 17:42	07:01 (2) 06:34 08:51 (2) 19:15	08:05 (2) 05:49 18:24 (3) 19:46	05:22 20:14
3	07:13 16:36	06:58 17:10	07:28 (2) 06:22 08:26 (2) 17:43	07:00 (2) 06:32 17:14 (3) 19:16	08:06 (2) 05:48 18:24 (3) 19:47	05:22 20:15
4	07:13 16:36	06:57 17:11	07:26 (2) 06:21 08:28 (2) 17:44	06:59 (2) 06:31 17:18 (3) 19:17	08:07 (2) 05:47 18:22 (3) 19:48	05:21 20:15
5	07:13 16:37	06:56 17:12	07:24 (2) 06:19 08:30 (2) 17:45	06:59 (2) 06:29 17:21 (3) 19:18	08:08 (2) 05:46 18:20 (3) 19:49	05:21 20:16
6	07:13 16:38	06:55 17:14	07:23 (2) 06:18 08:32 (2) 17:46	06:59 (2) 06:27 17:23 (3) 19:19	08:10 (2) 05:45 18:19 (3) 19:50	05:21 20:17
7	07:13 16:39	06:54 17:15	07:21 (2) 06:16 08:34 (2) 17:47	06:59 (2) 06:26 17:25 (3) 19:20	08:11 (2) 05:43 18:17 (3) 19:51	05:21 20:17
8	07:13 16:40	06:53 17:16	07:20 (2) 06:15 08:36 (2) 17:48	06:58 (2) 06:24 17:26 (3) 19:21	08:13 (2) 05:42 18:15 (3) 19:52	05:20 20:18
9	07:13 16:41	06:52 17:17	07:18 (2) 06:13 08:36 (2) 17:49	06:59 (2) 06:23 17:28 (3) 19:22	08:15 (2) 05:41 18:12 (3) 19:53	05:20 20:18
10	07:13 16:42	06:51 17:18	07:17 (2) 06:11 08:38 (2) 17:51	06:58 (2) 06:21 17:29 (3) 19:23	08:17 (2) 05:40 18:09 (3) 19:54	05:20 20:19
11	07:13 16:43	06:50 17:20	07:16 (2) 06:10 08:40 (2) 17:52	06:57 (2) 06:20 17:30 (3) 19:24	08:20 (2) 05:39 18:06 (3) 19:55	05:20 20:20
12	07:12 16:44	06:49 17:21	07:15 (2) 06:08 08:41 (2) 17:53	06:58 (2) 06:18 17:31 (3) 19:25	08:23 (2) 05:38 18:00 (3) 19:56	05:20 20:20
13	07:12 16:45	06:47 17:22	07:14 (2) 06:07 08:43 (2) 17:54	06:57 (2) 06:16 17:31 (3) 19:26	08:28 (2) 05:37 18:46 (2) 19:57	05:20 20:21
14	07:12 16:46	06:46 17:23	07:12 (2) 06:05 08:43 (2) 17:55	06:57 (2) 06:15 17:31 (3) 19:27	05:36 19:58	05:19 20:21
15	07:12 16:47	06:45 17:24	07:12 (2) 06:03 08:44 (2) 17:56	06:58 (2) 06:13 17:32 (3) 19:28	05:35 19:59	05:19 20:21
16	07:11 16:49	06:44 17:26	07:11 (2) 06:02 08:45 (2) 17:57	06:57 (2) 06:12 17:36 (4) 19:29	05:34 19:59	05:19 20:22
17	07:11 16:50	06:42 17:27	07:09 (2) 06:00 08:46 (2) 17:58	06:58 (2) 06:10 17:38 (4) 19:30	05:33 20:00	05:19 20:22
18	07:10 16:51	06:41 17:28	07:09 (2) 05:58 08:47 (2) 17:59	06:58 (2) 06:09 17:38 (4) 19:31	05:32 20:01	05:20 20:23
19	07:10 16:52	06:40 17:29	07:08 (2) 05:57 08:48 (2) 18:00	06:57 (2) 06:07 17:39 (4) 19:32	05:31 20:02	05:20 20:23
20	07:09 16:53	06:38 17:30	07:07 (2) 05:55 08:48 (2) 18:01	06:58 (2) 06:06 17:41 (4) 19:33	05:30 20:03	05:20 20:23
21	07:09 16:54	06:37 17:31	07:06 (2) 05:54 08:49 (2) 18:02	06:58 (2) 06:04 17:42 (4) 19:34	05:30 20:04	05:20 20:23
22	07:08 16:55	06:35 17:33	07:05 (2) 05:52 08:49 (2) 18:03	06:58 (2) 06:03 17:42 (4) 19:35	05:29 20:05	05:20 20:24
23	07:07 16:57	06:34 17:34	07:05 (2) 05:50 08:50 (2) 18:04	06:59 (2) 06:02 17:44 (4) 19:36	05:28 20:06	05:20 20:24
24	07:07 16:58	06:33 17:35	07:05 (2) 05:49 08:51 (2) 18:05	06:59 (2) 06:00 17:45 (4) 19:37	05:27 20:07	05:21 20:24
25	07:06 17:00	06:31 17:37	07:03 (2) 05:47 08:50 (2) 18:06	06:59 (2) 05:59 17:44 (4) 19:38	05:27 20:08	05:21 20:24
26	07:05 17:01	06:30 17:38	07:03 (2) 05:45 08:51 (2) 18:08	07:00 (2) 05:57 17:43 (4) 19:39	05:26 20:08	05:21 20:24
27	07:05 17:01	06:28 17:38	07:02 (2) 05:44 08:51 (2) 18:08	07:00 (2) 05:56 17:30 (3) 19:40	05:25 20:09	05:22 20:24
28	07:04 17:03	07:45 (2) 06:27 08:07 (2) 17:39	07:02 (2) 05:42 08:51 (2) 18:09	07:00 (2) 05:55 17:29 (3) 19:41	05:25 20:10	05:22 20:24
29	07:03 17:04	07:41 (2) 06:27 08:11 (2) 17:39	07:02 (2) 05:42 08:51 (2) 18:09	08:02 (2) 05:53 18:29 (3) 19:42	05:24 20:11	05:22 20:24
30	07:02 17:05	07:37 (2) 06:27 08:15 (2) 17:39	07:02 (2) 05:42 08:51 (2) 18:09	08:02 (2) 05:52 18:28 (3) 19:43	05:24 20:12	05:23 20:24
31	07:01 17:06	07:34 (2) 06:27 08:18 (2) 17:39	07:02 (2) 05:42 08:51 (2) 18:09	08:02 (2) 05:52 18:26 (3) 19:43	05:23 20:12	05:23 20:24
Potential sun hours	299	298	370	398	446	450
Total, worst case	134	2449	4841	1173		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: U - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:23	05:47	06:16	08:19 (2) 06:45	07:36 (2) 06:19	06:47 (2) 06:53
	20:24	20:06	19:24	18:05 (3) 18:34	18:10 (3) 16:48	08:08 (2) 16:25
2	05:24	05:48	06:17	08:16 (2) 06:46	07:36 (2) 06:20	06:48 (2) 06:54
	20:24	20:05	19:22	18:08 (3) 18:32	18:09 (3) 16:47	08:06 (2) 16:24
3	05:24	05:48	06:18	08:13 (2) 06:47	07:36 (2) 06:21	06:49 (2) 06:55
	20:24	20:04	19:20	18:10 (3) 18:31	18:07 (3) 16:46	08:04 (2) 16:24
4	05:25	05:49	06:19	08:10 (2) 06:48	07:35 (2) 06:22	06:52 (2) 06:56
	20:24	20:02	19:19	18:12 (3) 18:29	18:06 (3) 16:45	08:04 (2) 16:24
5	05:25	05:50	06:20	08:08 (2) 06:49	07:35 (2) 06:23	06:53 (2) 06:57
	20:23	20:01	19:17	18:14 (3) 18:27	18:04 (3) 16:44	08:02 (2) 16:24
6	05:26	05:51	06:21	08:06 (2) 06:50	07:35 (2) 06:24	06:54 (2) 06:58
	20:23	20:00	19:15	18:15 (3) 18:26	18:02 (3) 16:43	08:00 (2) 16:24
7	05:27	05:52	06:22	08:04 (2) 06:52	07:34 (2) 06:26	06:56 (2) 06:59
	20:23	19:59	19:14	18:16 (3) 18:24	18:00 (3) 16:41	08:04 (2) 16:24
8	05:27	05:53	06:23	08:01 (2) 06:53	07:34 (2) 06:27	06:59 (2) 06:59
	20:23	19:58	19:12	18:16 (3) 18:23	17:57 (3) 16:40	08:04 (2) 16:24
9	05:28	05:54	06:24	07:59 (2) 06:54	07:35 (2) 06:28	07:01 (2) 07:00
	20:22	19:57	19:11	18:17 (3) 18:21	17:55 (3) 16:39	07:54 (2) 16:24
10	05:28	05:55	06:25	07:58 (2) 06:55	07:35 (2) 06:29	07:03 (2) 07:01
	20:22	19:55	19:09	18:17 (3) 18:19	17:51 (3) 16:38	07:52 (2) 16:24
11	05:29	05:56	06:26	07:56 (2) 06:56	07:35 (2) 06:30	07:05 (2) 07:02
	20:21	19:54	19:07	18:18 (3) 18:18	17:45 (3) 16:37	07:49 (2) 16:24
12	05:30	05:57	06:27	07:55 (2) 06:57	07:35 (2) 06:31	07:09 (2) 07:03
	20:21	19:53	19:06	18:18 (3) 18:16	09:25 (2) 16:36	07:47 (2) 16:24
13	05:31	05:58	06:28	07:53 (2) 06:58	07:35 (2) 06:33	07:13 (2) 07:04
	20:21	19:51	19:04	18:19 (3) 18:15	09:24 (2) 16:36	07:43 (2) 16:24
14	05:31	05:59	06:29	07:52 (2) 06:59	07:35 (2) 06:34	07:18 (2) 07:04
	20:20	19:50	19:02	18:19 (3) 18:13	09:24 (2) 16:35	07:38 (2) 16:24
15	05:32	06:00	06:30	07:51 (2) 07:00	07:35 (2) 06:35	07:05
	20:19	19:49	19:01	18:19 (3) 18:12	09:23 (2) 16:34	16:24
16	05:33	06:01	06:31	07:50 (2) 07:01	07:35 (2) 06:36	07:06
	20:19	19:47	18:59	18:19 (3) 18:10	09:22 (2) 16:33	16:25
17	05:34	06:02	06:32	07:48 (2) 07:02	07:35 (2) 06:37	07:07
	20:18	19:46	18:57	18:30 (4) 18:09	09:22 (2) 16:32	16:25
18	05:34	06:03	06:33	07:47 (2) 07:03	07:35 (2) 06:38	07:07
	20:18	19:45	18:56	18:32 (4) 18:07	09:21 (2) 16:31	16:25
19	05:35	06:04	06:34	07:46 (2) 07:04	07:36 (2) 06:40	07:08
	20:17	19:43	18:54	18:32 (4) 18:06	09:20 (2) 16:31	16:26
20	05:36	06:05	06:35	07:45 (2) 07:05	07:37 (2) 06:41	07:08
	20:16	19:42	18:52	18:31 (4) 18:04	09:20 (2) 16:30	16:26
21	05:37	06:06	06:36	07:44 (2) 07:06	07:37 (2) 06:42	07:09
	20:16	19:40	18:51	18:29 (4) 18:03	09:19 (2) 16:29	16:27
22	05:38	06:07	06:37	07:43 (2) 07:07	07:38 (2) 06:43	07:10
	20:15	19:39	18:49	18:26 (4) 18:01	09:18 (2) 16:29	16:27
23	05:38	06:08	06:38	07:42 (2) 07:08	07:38 (2) 06:44	07:10
	20:14	19:37	18:47	18:25 (4) 18:00	09:17 (2) 16:28	16:28
24	05:39	06:09	06:39	07:41 (2) 07:10	07:39 (2) 06:45	07:10
	20:13	19:36	18:46	18:23 (4) 17:59	09:16 (2) 16:28	16:28
25	05:40	06:10	06:40	07:40 (2) 06:11	06:39 (2) 06:46	07:11
	20:12	19:34	18:44	18:21 (4) 16:57	08:15 (2) 16:27	16:29
26	05:41	06:11	06:41	07:39 (2) 06:12	06:41 (2) 06:47	07:11
	20:11	19:33	18:42	18:20 (4) 16:56	08:15 (2) 16:27	16:29
27	05:42	06:12	06:41	07:39 (2) 06:13	06:41 (2) 06:49	07:12
	20:11	19:31	18:41	18:18 (4) 16:55	08:14 (2) 16:26	16:30
28	05:43	06:13	06:42	07:38 (2) 06:14	06:42 (2) 06:50	07:12
	20:10	19:30	18:39	18:16 (4) 16:53	08:12 (2) 16:26	16:31
29	05:44	06:14	06:43	07:38 (2) 06:15	06:43 (2) 06:51	07:12
	20:09	19:28	18:37	18:12 (3) 16:52	08:11 (2) 16:25	16:31
30	05:45	06:15	08:28 (2) 06:44	07:37 (2) 06:16	06:44 (2) 06:52	07:13
	20:08	19:27	18:36	18:11 (3) 16:51	08:10 (2) 16:25	16:32
31	05:46	06:15	08:23 (2)	06:18	06:46 (2)	07:13
	20:07	19:25	18:00 (3)	16:50	08:09 (2)	16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case		58	4220	3641	795	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: V - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May	June
1	07:13	14:54 (22)	07:01	06:25	06:59 (5)	06:36	05:51	05:23	
	16:34	15:28 (22)	17:08	17:41	07:16 (5)	19:14	19:45	20:13	
2	07:13	14:55 (22)	07:00	06:24	07:02 (5)	06:34	05:50	05:22	
	16:35	15:27 (22)	17:09	17:42	07:13 (5)	19:15	19:46	20:14	
3	07:13	14:56 (22)	06:59	06:22		06:33	05:48	05:22	
	16:36	15:27 (22)	17:10	17:43		19:16	19:47	20:15	
4	07:14	14:57 (22)	06:58	06:21		06:31	05:47	05:22	
	16:37	15:27 (22)	17:11	17:44		19:17	19:48	20:16	
5	07:14	14:59 (22)	06:57	06:19		06:29	05:46	05:21	
	16:37	15:27 (22)	17:12	17:45		19:18	19:49	20:16	
6	07:14	15:00 (22)	06:56	06:18		06:28	05:45	05:21	
	16:38	15:26 (22)	17:14	17:46		19:19	19:50	20:17	
7	07:13	15:02 (22)	06:54	06:16		06:26	05:44	05:21	
	16:39	15:26 (22)	17:15	17:47		19:20	19:51	20:17	
8	07:13	15:04 (22)	06:53	06:15		06:24	05:42	05:20	
	16:40	15:25 (22)	17:16	17:49		19:21	19:52	20:18	
9	07:13	15:06 (22)	06:52	06:13		06:23	05:41	05:20	
	16:41	15:24 (22)	17:17	17:50		19:22	19:53	20:19	
10	07:13	15:08 (22)	06:51	07:10 (5)	06:12	06:21	05:40	05:20	
	16:42	15:22 (22)	17:19	07:15 (5)	17:51	19:23	19:54	20:19	
11	07:13	15:12 (22)	06:50	07:09 (5)	06:10	06:20	05:39	05:20	
	16:43	15:20 (22)	17:20	07:18 (5)	17:52	19:24	19:55	20:20	
12	07:13		06:49	07:08 (5)	06:08	06:18	05:38	05:20	
	16:44		17:21	07:20 (5)	17:53	19:25	19:56	20:20	
13	07:12		06:48	07:07 (5)	06:07	06:17	05:37	05:20	
	16:45		17:22	07:21 (5)	17:54	19:26	19:57	20:21	
14	07:12		06:46	07:05 (5)	06:05	06:15	05:36	05:20	
	16:47		17:23	07:22 (5)	17:55	19:27	19:58	20:21	
15	07:12		06:45	07:04 (5)	06:04	06:14	05:35	05:20	
	16:48		17:25	07:23 (5)	17:56	19:28	19:59	20:22	
16	07:11		06:44	07:03 (5)	06:02	06:12	05:34	05:20	
	16:49		17:26	07:24 (5)	17:57	19:29	20:00	20:22	
17	07:11		06:42	07:02 (5)	06:00	06:11	05:33	05:20	
	16:50		17:27	07:24 (5)	17:58	19:30	20:01	20:22	
18	07:10		06:41	07:00 (5)	05:59	06:09	05:32	05:20	
	16:51		17:28	07:24 (5)	17:59	19:31	20:02	20:23	
19	07:10		06:40	06:59 (5)	05:57	06:08	05:31	05:20	
	16:52		17:29	07:25 (5)	18:00	19:32	20:02	20:23	
20	07:09		06:38	06:57 (5)	05:55	06:06	05:31	05:20	
	16:53		17:30	07:24 (5)	18:01	19:33	20:03	20:23	
21	07:09		06:37	06:56 (5)	05:54	06:05	05:30	05:20	
	16:54		17:32	07:24 (5)	18:02	19:34	20:04	20:24	
22	07:08		06:36	06:55 (5)	05:52	06:03	05:29	05:20	
	16:56		17:33	07:24 (5)	18:03	19:35	20:05	20:24	
23	07:08		06:34	06:53 (5)	05:50	06:02	05:28	05:21	
	16:57		17:34	07:23 (5)	18:05	19:36	20:06	20:24	
24	07:07		06:33	06:54 (5)	05:49	06:00	05:28	05:21	
	16:58		17:35	07:23 (5)	18:06	19:37	20:07	20:24	
25	07:06		06:31	06:54 (5)	05:47	05:59	05:27	05:21	
	16:59		17:36	07:22 (5)	18:07	19:39	20:08	20:24	
26	07:06		06:30	06:55 (5)	05:46	05:58	05:26	05:21	
	17:00		17:37	07:21 (5)	18:08	19:40	20:09	20:24	
27	07:05		06:28	06:56 (5)	05:44	05:56	05:26	05:22	
	17:02		17:39	07:20 (5)	18:09	19:41	20:09	20:24	
28	07:04		06:27	06:57 (5)	05:42	05:55	05:25	05:22	
	17:03		17:40	07:18 (5)	18:10	19:42	20:10	20:24	
29	07:03				06:41	05:54	05:24	05:23	
	17:04				19:11	19:43	20:11	20:24	
30	07:02				06:39	05:52	05:24	05:23	
	17:05				19:12	19:44	20:12	20:24	
31	07:01				06:37		05:23		
	17:06				19:13		20:13		
Potential sun hours	299		298		370		398	446	450
Total, worst case	266		411		28				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: V - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:23	05:47	06:17	06:46	06:19	06:53
	20:24	20:06	19:24	18:34	16:48	16:25
2	05:24	05:48	06:18	06:47	06:20	06:54
	20:24	20:05	19:22	18:32	16:47	16:25
3	05:24	05:49	06:19	06:48	06:21	06:55
	20:24	20:04	19:21	18:31	16:46	16:24
4	05:25	05:50	06:20	06:49	06:22	06:56
	20:24	20:03	19:19	18:29	16:45	16:24
5	05:26	05:51	06:20	06:50	06:23	06:57
	20:24	20:01	19:17	18:28	16:44	16:24
6	05:26	05:52	06:21	06:51	06:25	06:58
	20:23	20:00	19:16	18:26	16:43	16:24
7	05:27	05:52	06:22	06:52	06:26	06:59
	20:23	19:59	19:14	18:24	16:42	16:24
8	05:27	05:53	06:23	06:53	06:27	07:00
	20:23	19:58	19:12	18:23	16:41	16:24
9	05:28	05:54	06:24	06:54	06:28	07:01
	20:22	19:57	19:11	18:21	16:40	16:24
10	05:29	05:55	06:25	06:55	06:29	07:01
	20:22	19:55	19:09	18:20	16:39	16:24
11	05:29	05:56	06:26	06:56	07:39 (5)	07:02
	20:22	19:54	19:07	18:18	07:43 (5)	16:24
12	05:30	05:57	06:27	06:57	07:34 (5)	07:03
	20:21	19:53	19:06	18:16	07:48 (5)	16:24
13	05:31	05:58	06:28	06:58	07:31 (5)	07:04
	20:21	19:52	19:04	18:15	07:50 (5)	16:24
14	05:31	05:59	06:29	06:59	07:29 (5)	07:05
	20:20	19:50	19:02	18:13	07:51 (5)	16:24
15	05:32	06:00	06:30	07:00	07:28 (5)	07:05
	20:20	19:49	19:01	18:12	07:52 (5)	16:25
16	05:33	06:01	06:31	07:01	07:26 (5)	07:06
	20:19	19:48	18:59	18:10	07:53 (5)	16:25
17	05:34	06:02	06:32	07:02	07:25 (5)	07:07
	20:18	19:46	18:57	18:09	07:54 (5)	16:25
18	05:35	06:03	06:33	07:03	07:25 (5)	07:07
	20:18	19:45	18:56	18:07	07:55 (5)	16:25
19	05:35	06:04	06:34	07:04	07:25 (5)	07:08
	20:17	19:43	18:54	18:06	07:55 (5)	16:26
20	05:36	06:05	06:35	07:05	07:26 (5)	07:09
	20:16	19:42	18:52	18:04	07:55 (5)	16:26
21	05:37	06:06	06:36	07:06	07:27 (5)	07:09
	20:16	19:40	18:51	18:03	07:55 (5)	16:27
22	05:38	06:07	06:37	07:08	07:28 (5)	07:10
	20:15	19:39	18:49	18:02	07:55 (5)	16:27
23	05:39	06:08	06:38	07:09	07:29 (5)	07:10
	20:14	19:38	18:47	18:00	07:54 (5)	16:28
24	05:40	06:09	06:39	07:10	07:30 (5)	07:11
	20:13	19:36	18:46	17:59	07:54 (5)	16:28
25	05:40	06:10	06:40	06:11	06:32 (5)	07:11
	20:13	19:35	18:44	16:57	06:54 (5)	16:29
26	05:41	06:11	06:41	06:12	06:33 (5)	07:12
	20:12	19:33	18:42	16:56	06:53 (5)	16:29
27	05:42	06:12	06:42	06:13	06:34 (5)	07:12
	20:11	19:32	18:41	16:55	06:52 (5)	16:30
28	05:43	06:13	06:43	06:14	06:35 (5)	07:12
	20:10	19:30	18:39	16:53	06:51 (5)	16:31
29	05:44	06:14	06:44	06:15	06:36 (5)	07:12
	20:09	19:28	18:37	16:52	06:50 (5)	16:31
30	05:45	06:15	06:45	06:17	06:38 (5)	07:13
	20:08	19:27	18:36	16:51	06:49 (5)	16:32
31	05:46	06:16		06:18	06:39 (5)	07:13
	20:07	19:25		16:50	06:47 (5)	16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case				441	4	1000

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: W - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January		February		March		April		May		June		July		August		September		October		November		December		
1	07:13		11:43 (8)	07:01	06:26	06:36	05:51	05:23	05:23	05:47	06:17	06:46	06:19									06:53	11:36 (8)		
	16:34	92	13:15 (8)	17:08	17:41	19:14	19:45	20:14	20:24	20:06	19:24	18:34	16:49									16:25	78	12:54 (8)	
2	07:14		11:44 (8)	07:00	06:24	06:34	05:50	05:22	05:24	05:48	06:18	06:47	06:20									06:54	11:36 (8)		
	16:35	91	13:15 (8)	17:09	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:33	16:47									16:25	79	12:55 (8)	
3	07:14		11:45 (8)	06:59	06:23	06:33	05:48	05:22	05:24	05:49	06:19	06:48	06:21									06:55	11:35 (8)		
	16:36	90	13:15 (8)	17:10	17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46									16:24	81	12:56 (8)	
4	07:14		11:46 (8)	06:58	06:21	06:31	05:47	05:22	05:25	05:50	06:20	06:49	06:22									06:56	11:34 (8)		
	16:37	89	13:15 (8)	17:11	17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45									16:24	83	12:57 (8)	
5	07:14		11:47 (8)	06:57	06:20	06:29	05:46	05:21	05:26	05:51	06:21	06:50	06:24									06:57	11:34 (8)		
	16:37	88	13:15 (8)	17:13	17:45	19:18	19:49	20:16	20:24	20:02	19:17	18:28	16:44									16:24	84	12:58 (8)	
6	07:14		11:47 (8)	06:56	06:18	06:28	05:45	05:21	05:26	05:52	06:22	06:51	06:25									06:58	11:34 (8)		
	16:38	87	13:14 (8)	17:14	17:46	19:19	19:50	20:17	20:24	20:00	19:16	18:26	16:43									16:24	86	13:00 (8)	
7	07:14		11:49 (8)	06:55	06:16	06:26	05:44	05:21	05:27	05:53	06:22	06:52	06:26									06:59	11:33 (8)		
	16:39	85	13:14 (8)	17:15	17:48	19:20	19:51	20:18	20:23	19:59	19:14	18:24	16:42									16:24	88	13:01 (8)	
8	07:14		11:50 (8)	06:54	06:15	06:25	05:42	05:20	05:27	05:53	06:23	06:53	06:27									07:00	11:33 (8)		
	16:40	83	13:13 (8)	17:16	17:49	19:21	19:52	20:18	20:23	19:58	19:13	18:23	16:41									16:24	89	13:02 (8)	
9	07:13		11:52 (8)	06:52	06:13	06:23	05:41	05:20	05:28	05:54	06:24	06:54	06:28									07:01	11:33 (8)		
	16:41	81	13:13 (8)	17:17	17:50	19:22	19:53	20:19	20:23	19:57	19:11	18:21	16:40									16:24	90	13:03 (8)	
10	07:13		11:53 (8)	06:51	06:12	06:21	05:40	05:20	05:29	05:55	06:25	06:55	06:29									07:02	11:33 (8)		
	16:42	80	13:13 (8)	17:19	17:51	19:23	19:54	20:19	20:22	19:56	19:09	18:20	16:39									16:24	91	13:04 (8)	
11	07:13		11:54 (8)	06:50	06:10	06:20	05:39	05:20	05:29	05:56	06:26	06:56	06:31									07:02	11:33 (8)		
	16:43	78	13:12 (8)	17:20	17:52	19:24	19:55	20:20	20:22	19:54	19:08	18:18	16:38									16:24	92	13:05 (8)	
12	07:13		11:56 (8)	06:49	06:08	06:18	05:38	05:20	05:30	05:57	06:27	06:57	06:32									07:03	11:33 (8)		
	16:44	75	13:11 (8)	17:21	17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:17	16:37									16:24	93	13:06 (8)	
13	07:13		11:58 (8)	06:48	06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33									07:04	11:33 (8)		
	16:45	73	13:11 (8)	17:22	17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36									16:24	93	13:06 (8)	
14	07:12		12:00 (8)	06:46	06:05	06:15	05:36	05:20	05:31	05:59	06:29	06:59	06:34									07:05	11:33 (8)		
	16:47	70	13:10 (8)	17:23	17:55	19:27	19:58	20:21	20:20	19:50	19:03	18:13	16:35									16:24	94	13:07 (8)	
15	07:12		12:02 (8)	06:45	06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35									07:06	11:34 (8)		
	16:48	67	13:09 (8)	17:25	17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34									16:25	94	13:08 (8)	
16	07:11		12:04 (8)	06:44	06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36									07:06	11:33 (8)		
	16:49	63	13:07 (8)	17:26	17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:10	16:33									16:25	95	13:08 (8)	
17	07:11		12:07 (8)	06:43	06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:38									07:07	11:34 (8)		
	16:50	59	13:06 (8)	17:27	17:58	19:30	20:01	20:23	20:19	19:46	18:58	18:09	16:32									16:25	95	13:09 (8)	
18	07:11		12:09 (8)	06:41	05:59	06:09	05:32	05:20	05:35	06:03	06:33	07:03	06:39									07:08	11:34 (8)		
	16:51	55	13:04 (8)	17:28	17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:07	16:32									16:26	96	13:10 (8)	
19	07:10		12:13 (8)	06:40	05:57	06:08	05:31	05:20	05:35	06:04	06:34	07:04	06:40									07:08	11:34 (8)		
	16:52	50	13:03 (8)	17:29	18:00	19:32	20:03	20:23	20:17	19:43	18:54	18:06	16:31									16:26	96	13:10 (8)	
20	07:10		12:16 (8)	06:39	05:55	06:06	05:31	05:20	05:36	06:05	06:35	07:06	06:41						12:02 (8)			07:09	11:35 (8)		
	16:53	44	13:00 (8)	17:31	18:01	19:33	20:04	20:23	20:17	19:42	18:53	18:05	16:30						25			12:27 (8)	16:26	96	13:11 (8)
21	07:09		12:21 (8)	06:37	05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:07	06:42						11:56 (8)			07:09	11:35 (8)		
	16:54	36	12:57 (8)	17:32	18:03	19:35	20:04	20:24	20:16	19:41	18:51	18:03	16:30						36			12:32 (8)	16:27	96	13:11 (8)
22	07:08		12:27 (8)	06:36	05:52	06:03	05:29	05:20	05:38	06:07	06:37	07:08	06:43						11:52 (8)			07:10	11:36 (8)		
	16:56	25	12:52 (8)	17:33	18:04	19:36	20:05	20:24	20:15	19:39	18:49	18:02	16:29						44			12:36 (8)	16:27	96	13:12 (8)
23	07:08		06:34	05:51	06:02	05:28	05:21	05:39	06:08	06:38	07:09	06:44	11:49 (8)						11:49 (8)			07:10	11:36 (8)		
	16:57		17:34	18:05	19:37	20:06	20:24	20:14	19:38	18:48	18:00	16:28	49						12:38 (8)			16:28	96	13:12 (8)	
24	07:07		06:33	05:49	06:00	05:28	05:21	05:40	06:09	06:39	07:10	06:46	11:47 (8)						11:47 (8)			07:11	11:37 (8)		
	16:58		17:35	18:06	19:38	20:07	20:24	20:14	19:36	18:46	17:59	16:28	55						12:42 (8)			16:28	96	13:13 (8)	
25	07:06		06:31	05:47	05:59	05:27	05:21	05:40	06:10	06:40	06:11	06:47	11:45 (8)						11:45 (8)			07:11	11:37 (8)		
	16:59		17:36	18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:58	16:27	59						12:44 (8)			16:29	96	13:13 (8)	
26	07:06		06:30	05:46	05:58	05:26	05:21	05:41	06:11	06:41	06:12	06:48	11:43 (8)						11:43 (8)			07:12	11:38 (8)		
	17:00		17:37	18:08	19:40	20:09	20:24	20:12	19:33	18:42	16:56	16:27	63						12:46 (8)			16:29	95	13:13 (8)	
27	07:05		06:29	05:44	05:56	05:26	05:22	05:42	06:12	06:42	06:13	06:49	11:41 (8)						11:41 (8)			07:12	11:39 (8)		
	17:02		17:39	18:09	19:41	20:10	20:25	20:11	19:32	18:41	16:55	16:26	67						12:48 (8)			16:30	95	13:14 (8)	
28	07:04		06:27	05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50	11:40 (8)						11:40 (8)			07:12	11:39 (8)		
	17:03		17:40	18:10	19:42	20:10	20:25	20:10	19:30	18:39	16:54	16:26	70						12:50 (8)			16:31	95	13:14 (8)	
29	07:03			06:41	05:54	05:24	05:23	05:44	06:14	06:44	06:16	06:51	11:38 (8)						11:38 (8)			07:13	11:40 (8)		
	17:04			19:11	19:43	20:11	20:25	20:09	19:29	18:38	16:52	16:26	73						12:51 (8)			16:31	94	13:14 (8)	
30	07:02			06:39	05:52	05:24	05:23	05:45	06:15	06:45	06:17	06:52	11:37 (8)						11:37 (8)			07:13	11:40 (8)		
	17:05			19:12	19:44	20:12	20:24	20:08	19:27	18:36	16:51	16:25	75						12:52 (8)			16:32	94	13:14 (8)	
31	07:02			06:37		05:23		05:46	06:16		06:18											07:13	11:41 (8)		
	17:06			19:13		20:13		20:07	19:25		16:50											16:33			

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: X - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May		June	
1	07:13	07:35 (5)	07:01	07:27 (15)	06:25	07:05 (15)	06:36	08:25 (15)	05:51	05:23	
	16:34	07:39 (5)	17:08	08:22 (15)	17:41	08:43 (15)	19:14	18:42 (21)	19:45	20:13	
2	07:13	07:35 (5)	07:00	07:26 (15)	06:24	07:05 (15)	06:34	08:29 (15)	05:50	05:22	
	16:35	07:40 (5)	17:09	08:24 (15)	17:42	08:43 (15)	19:15	18:40 (21)	19:46	20:14	
3	07:13	07:35 (5)	06:59	07:24 (15)	06:22	07:04 (15)	06:33	08:39 (15)	05:48	05:22	
	16:36	07:41 (5)	17:10	08:26 (15)	17:43	08:42 (15)	19:16	18:38 (21)	19:47	20:15	
4	07:14	07:35 (5)	06:58	07:23 (15)	06:21	07:05 (15)	06:31	18:26 (21)	05:47	05:22	
	16:37	07:41 (5)	17:11	08:28 (15)	17:44	08:43 (15)	19:17	18:36 (21)	19:48	20:16	
5	07:14	07:35 (5)	06:57	07:22 (15)	06:19	07:04 (15)	06:29	18:27 (21)	05:46	05:21	
	16:37	07:42 (5)	17:12	08:29 (15)	17:45	08:42 (15)	19:18	18:34 (21)	19:49	20:16	
6	07:14	07:35 (5)	06:56	07:21 (15)	06:18	07:05 (15)	06:28	18:26 (21)	05:45	05:21	
	16:38	07:43 (5)	17:14	08:31 (15)	17:46	08:42 (15)	19:19	18:32 (21)	19:50	20:17	
7	07:13	07:35 (5)	06:54	07:20 (15)	06:16	07:04 (15)	06:26	18:26 (21)	05:44	05:21	
	16:39	07:44 (5)	17:15	08:32 (15)	17:47	08:41 (15)	19:20	18:29 (21)	19:51	20:18	
8	07:13	07:35 (5)	06:53	07:19 (15)	06:15	07:04 (15)	06:24	18:27 (21)	05:42	05:20	
	16:40	07:45 (5)	17:16	08:34 (15)	17:49	08:40 (15)	19:21	18:28 (21)	19:52	20:18	
9	07:13	07:35 (5)	06:52	07:18 (15)	06:13	07:04 (15)	06:23		05:41	05:20	
	16:41	07:45 (5)	17:17	08:35 (15)	17:50	08:39 (15)	19:22		19:53	20:19	
10	07:13	07:35 (5)	06:51	07:16 (15)	06:12	07:04 (15)	06:21		05:40	05:20	
	16:42	07:46 (5)	17:19	08:35 (15)	17:51	08:38 (15)	19:23		19:54	20:19	
11	07:13	07:34 (5)	06:50	07:15 (15)	06:10	07:05 (15)	06:20		05:39	05:20	
	16:43	07:46 (5)	17:20	08:37 (15)	17:52	08:38 (15)	19:24		19:55	20:20	
12	07:13	07:34 (5)	06:49	07:14 (15)	06:08	07:05 (15)	06:18		05:38	05:20	
	16:44	07:47 (5)	17:21	08:38 (15)	17:53	08:37 (15)	19:25		19:56	20:20	
13	07:12	07:34 (5)	06:48	07:14 (15)	06:07	07:04 (15)	06:17		05:37	05:20	
	16:45	07:48 (5)	17:22	08:39 (15)	17:54	08:35 (15)	19:26		19:57	20:21	
14	07:12	07:33 (5)	06:46	07:12 (15)	06:05	07:05 (15)	06:15		05:36	05:20	
	16:47	07:48 (5)	17:23	08:39 (15)	17:55	08:35 (15)	19:27		19:58	20:21	
15	07:12	07:33 (5)	06:45	07:12 (15)	06:04	07:05 (15)	06:14		05:35	05:20	
	16:48	07:49 (5)	17:25	08:40 (15)	17:56	08:33 (15)	19:28		19:59	20:22	
16	07:11	07:32 (5)	06:44	07:11 (15)	06:02	07:05 (15)	06:12		05:34	05:20	
	16:49	07:48 (5)	17:26	08:41 (15)	17:57	08:32 (15)	19:29		20:00	20:22	
17	07:11	07:32 (5)	06:42	07:11 (15)	06:00	07:06 (15)	06:11		05:33	05:20	
	16:50	07:49 (5)	17:27	08:42 (15)	17:58	08:31 (15)	19:30		20:01	20:22	
18	07:10	07:31 (5)	06:41	07:10 (15)	05:59	07:06 (15)	06:09		05:32	05:20	
	16:51	07:49 (5)	17:28	08:42 (15)	17:59	08:29 (15)	19:31		20:02	20:23	
19	07:10	07:31 (5)	06:40	07:10 (15)	05:57	07:07 (15)	06:08		05:31	05:20	
	16:52	07:49 (5)	17:29	08:43 (15)	18:00	08:27 (15)	19:32		20:02	20:23	
20	07:09	07:30 (5)	06:38	07:08 (15)	05:55	07:08 (15)	06:06		05:31	05:20	
	16:53	07:49 (5)	17:30	08:42 (15)	18:01	08:27 (15)	19:33		20:03	20:23	
21	07:09	07:29 (5)	06:37	07:08 (15)	05:54	07:08 (15)	06:05		05:30	05:20	
	16:54	07:49 (5)	17:32	08:43 (15)	18:02	08:25 (15)	19:34		20:04	20:24	
22	07:08	07:29 (5)	06:36	07:08 (15)	05:52	07:09 (15)	06:03		05:29	05:20	
	16:56	07:49 (5)	17:33	08:44 (15)	18:03	08:22 (15)	19:35		20:05	20:24	
23	07:08	07:28 (5)	06:34	07:07 (15)	05:50	07:10 (15)	06:02		05:28	05:21	
	16:57	07:48 (5)	17:34	08:43 (15)	18:05	07:44 (21)	19:36		20:06	20:24	
24	07:07	07:29 (5)	06:33	07:07 (15)	05:49	07:11 (15)	06:00		05:28	05:21	
	16:58	07:48 (5)	17:35	08:44 (15)	18:06	07:45 (21)	19:38		20:07	20:24	
25	07:06	07:31 (5)	06:31	07:06 (15)	05:47	07:13 (15)	05:59		05:27	05:21	
	16:59	08:00 (15)	17:36	08:44 (15)	18:07	07:46 (21)	19:39		20:08	20:24	
26	07:06	07:32 (5)	06:30	07:06 (15)	05:46	07:14 (15)	05:58		05:26	05:21	
	17:00	08:06 (15)	17:37	08:44 (15)	18:08	07:47 (21)	19:40		20:09	20:24	
27	07:05	07:34 (5)	06:28	07:05 (15)	05:44	07:15 (15)	05:56		05:26	05:22	
	17:02	08:10 (15)	17:39	08:43 (15)	18:09	07:48 (21)	19:41		20:10	20:24	
28	07:04	07:36 (15)	06:27	07:05 (15)	05:42	07:17 (15)	05:55		05:25	05:22	
	17:03	08:13 (15)	17:40	08:44 (15)	18:10	07:49 (21)	19:42		20:10	20:24	
29	07:03	07:33 (15)			06:41	08:18 (15)	05:54		05:24	05:23	
	17:04	08:15 (15)			19:11	18:49 (21)	19:43		20:11	20:24	
30	07:02	07:31 (15)			06:39	08:20 (15)	05:52		05:24	05:23	
	17:05	08:18 (15)			19:12	18:47 (21)	19:44		20:12	20:24	
31	07:01	07:29 (15)			06:37	08:23 (15)			05:23		
	17:06	08:20 (15)			19:13	18:45 (21)			20:13		
Potential sun hours	299		298		370		398		446		450
Total, worst case	589		2343		2615		124				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: X - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December				
1	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	07:43 (15) 09:15 (15)	06:19 16:48	06:46 (15) 08:05 (15)	06:53 16:25	07:16 (5) 12 07:28 (5)	
2	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:33	07:43 (15) 09:15 (15)	06:20 16:47	06:47 (15) 08:04 (15)	06:54 16:25	07:17 (5) 11 07:28 (5)	
3	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	07:42 (15) 09:16 (15)	06:21 16:46	06:49 (15) 08:03 (15)	06:55 16:24	07:18 (5) 11 07:29 (5)	
4	05:25 20:24	05:50 20:03	06:20 19:19	18:24 (21) 18:25 (21)	06:49 18:29	07:41 (15) 09:16 (15)	06:22 16:45	06:50 (15) 08:02 (15)	06:56 16:24	07:19 (5) 10 07:29 (5)
5	05:26 20:24	05:51 20:01	06:20 19:17	18:23 (21) 18:26 (21)	06:50 18:28	07:42 (15) 09:17 (15)	06:23 16:44	06:51 (15) 08:00 (15)	06:57 16:24	07:20 (5) 9 07:29 (5)
6	05:26 20:23	05:52 20:00	06:21 19:16	18:22 (21) 18:28 (21)	06:51 18:26	07:41 (15) 09:17 (15)	06:25 16:43	06:52 (15) 07:59 (15)	06:58 16:24	07:21 (5) 8 07:29 (5)
7	05:27 20:23	05:52 19:59	06:22 19:14	18:22 (21) 18:29 (21)	06:52 18:24	07:40 (15) 09:17 (15)	06:26 16:42	06:54 (15) 07:58 (15)	06:59 16:24	07:22 (5) 7 07:29 (5)
8	05:27 20:23	05:53 19:58	06:23 19:12	18:21 (21) 18:31 (21)	06:53 18:23	07:40 (15) 09:17 (15)	06:27 16:41	06:55 (15) 07:57 (15)	07:00 16:24	07:23 (5) 6 07:29 (5)
9	05:28 20:22	05:54 19:57	06:24 19:11	18:21 (21) 18:32 (21)	06:54 18:21	07:39 (15) 09:17 (15)	06:28 16:40	06:57 (15) 07:55 (15)	07:01 16:24	07:24 (5) 6 07:30 (5)
10	05:29 20:22	05:55 19:55	06:25 19:09	08:23 (15) 18:33 (21)	06:55 18:20	07:39 (15) 09:17 (15)	06:29 16:39	06:58 (15) 07:53 (15)	07:01 16:24	07:25 (5) 5 07:30 (5)
11	05:29 20:22	05:56 19:54	06:26 19:07	08:18 (15) 18:34 (21)	06:56 18:18	07:39 (15) 09:17 (15)	06:30 16:38	07:01 (15) 07:52 (15)	07:02 16:24	07:26 (5) 4 07:30 (5)
12	05:30 20:21	05:57 19:53	06:27 19:06	08:14 (15) 18:36 (21)	06:57 18:17	07:38 (15) 09:17 (15)	06:32 16:37	07:03 (15) 07:50 (15)	07:03 16:24	07:26 (5) 4 07:30 (5)
13	05:31 20:21	05:58 19:52	06:28 19:04	08:11 (15) 18:37 (21)	06:58 18:15	07:38 (15) 09:17 (15)	06:33 16:36	07:05 (15) 07:47 (15)	07:04 16:24	07:27 (5) 3 07:30 (5)
14	05:31 20:20	05:59 19:50	06:29 19:02	08:09 (15) 18:39 (21)	06:59 18:13	07:38 (15) 09:16 (15)	06:34 16:35	07:08 (15) 07:44 (15)	07:05 16:24	07:28 (5) 2 07:30 (5)
15	05:32 20:20	06:00 19:49	06:30 19:01	08:06 (15) 18:39 (21)	07:00 18:12	07:38 (15) 09:16 (15)	06:35 16:34	07:07 (5) 07:42 (15)	07:05 16:25	07:29 (5) 2 07:31 (5)
16	05:33 20:19	06:01 19:48	06:31 18:59	08:04 (15) 18:37 (21)	07:01 18:10	07:38 (15) 09:15 (15)	06:36 16:33	07:05 (5) 07:38 (15)	07:06 16:25	07:29 (5) 1 07:30 (5)
17	05:34 20:19	06:02 19:46	06:32 18:57	08:02 (15) 18:35 (21)	07:02 18:09	07:38 (15) 09:15 (15)	06:37 16:32	07:04 (5) 07:32 (15)	07:07 16:25	07:30 (5) 1 07:31 (5)
18	05:35 20:18	06:03 19:45	06:33 18:56	08:00 (15) 18:34 (21)	07:03 18:07	07:39 (15) 09:15 (15)	06:39 16:32	07:03 (5) 07:22 (5)	07:07 16:25	07:31 (5) 1 07:32 (5)
19	05:35 20:17	06:04 19:43	06:34 18:54	07:59 (15) 18:32 (21)	07:04 18:06	07:39 (15) 09:15 (15)	06:40 16:31	07:02 (5) 07:22 (5)	07:08 16:26	
20	05:36 20:17	06:05 19:42	06:35 18:52	07:57 (15) 18:31 (21)	07:05 18:04	07:39 (15) 09:14 (15)	06:41 16:30	07:04 (5) 07:24 (5)	07:09 16:26	
21	05:37 20:16	06:06 19:41	06:36 18:51	07:55 (15) 09:08 (15)	07:06 18:03	07:39 (15) 09:14 (15)	06:42 16:30	07:05 (5) 07:25 (5)	07:09 16:27	
22	05:38 20:15	06:07 19:39	06:37 18:49	07:54 (15) 09:10 (15)	07:08 18:02	07:39 (15) 09:13 (15)	06:43 16:29	07:06 (5) 07:25 (5)	07:10 16:27	
23	05:39 20:14	06:08 19:38	06:38 18:47	07:53 (15) 09:11 (15)	07:09 18:00	07:39 (15) 09:12 (15)	06:44 16:28	07:07 (5) 07:25 (5)	07:10 16:28	
24	05:40 20:13	06:09 19:36	06:39 18:46	07:51 (15) 09:11 (15)	07:10 17:59	07:41 (15) 09:12 (15)	06:45 16:28	07:08 (5) 07:26 (5)	07:11 16:28	
25	05:40 20:13	06:10 19:35	06:40 18:44	07:50 (15) 09:12 (15)	06:11 16:57	06:41 (15) 08:11 (15)	06:47 16:27	07:10 (5) 07:27 (5)	07:11 16:29	07:34 (5) 1 07:35 (5)
26	05:41 20:12	06:11 19:33	06:41 18:42	07:49 (15) 09:13 (15)	06:12 16:56	06:41 (15) 08:10 (15)	06:48 16:27	07:11 (5) 07:27 (5)	07:12 16:29	07:34 (5) 1 07:35 (5)
27	05:42 20:11	06:12 19:32	06:42 18:41	07:48 (15) 09:14 (15)	06:13 16:55	06:42 (15) 08:09 (15)	06:49 16:26	07:12 (5) 07:28 (5)	07:12 16:30	07:35 (5) 1 07:36 (5)
28	05:43 20:10	06:13 19:30	06:43 18:39	07:46 (15) 09:13 (15)	06:14 16:53	06:42 (15) 08:08 (15)	06:50 16:26	07:13 (5) 07:28 (5)	07:12 16:31	07:35 (5) 2 07:37 (5)
29	05:44 20:09	06:14 19:28	06:44 18:37	07:45 (15) 09:14 (15)	06:15 16:52	06:43 (15) 08:07 (15)	06:51 16:26	07:14 (5) 07:28 (5)	07:13 16:31	07:35 (5) 2 07:37 (5)
30	05:45 20:08	06:15 19:27	06:45 18:36	07:44 (15) 09:14 (15)	06:17 16:51	06:44 (15) 08:07 (15)	06:52 16:25	07:15 (5) 07:28 (5)	07:13 16:32	07:35 (5) 3 07:38 (5)
31	05:46 20:07	06:16 19:25		06:18 16:50		06:45 (15) 08:06 (15)		07:13 16:33	07:35 (5) 3 07:38 (5)	
Potential sun hours	457	427	375	346	300	290				
Total, worst case			1565	2900	1174	116				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: Y - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (25)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:13	07:01	06:25	06:36	05:51	05:23	05:23	05:47	06:17	06:46	06:19	06:53	
	16:34	17:07	17:41	19:14	19:45	20:13	20:24	20:06	19:24	18:34	16:48	16:25	
2	07:13	07:00	06:24	06:34	05:50	05:22	05:24	05:48	06:18	06:47	06:20	06:54	
	16:35	17:09	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:32	16:47	16:24	
3	07:13	06:59	06:22	06:32	05:48	05:22	05:24	05:49	06:18	06:48	06:21	06:55	
	16:36	17:10	17:43	19:16	19:47	20:15	20:24	20:04	19:20	18:31	16:46	16:24	
4	07:14	06:58	06:21	06:31	05:47	05:21	05:25	05:49	06:19	06:49	06:22	06:56	
	16:36	17:11	17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45	16:24	
5	07:14	06:57	06:19	06:29	05:46	05:21	05:25	05:50	06:20	06:50	06:23	06:57	
	16:37	17:12	17:45	19:18	19:49	20:16	20:24	20:01	19:17	18:28	16:44	16:24	
6	07:14	06:56	06:18	06:28	05:45	05:21	05:26	05:51	06:21	06:51	06:25	06:58	
	16:38	17:14	17:46	19:19	19:50	20:17	20:23	20:00	19:16	18:26	16:43	16:24	
7	07:13	06:54	06:16	06:26	05:43	05:21	05:27	05:52	06:22	06:52	06:26	06:59	
	16:39	17:15	17:47	19:20	19:51	20:18	20:23	19:59	19:14	18:24	16:42	16:24	
8	07:13	06:53	06:15	06:24	05:42	05:20	05:27	05:53	06:23	06:53	06:27	07:00	
	16:40	17:16	17:48	19:21	19:52	20:18	20:23	19:58	19:12	18:23	16:40	16:24	
9	07:13	06:52	06:13	06:23	05:41	05:20	05:28	05:54	06:24	06:54	06:28	07:01	
	16:41	17:17	17:50	19:22	19:53	20:19	20:22	19:57	19:11	18:21	16:39	16:24	
10	07:13	06:51	06:12	06:21	05:40	05:20	05:28	05:55	06:25	06:55	06:29	07:01	
	16:42	17:18	17:51	19:23	19:54	20:19	20:22	19:55	19:09	18:20	16:38	16:24	
11	07:13	06:50	06:10	06:20	05:39	05:20	05:29	05:56	06:26	06:56	06:30	07:02	
	16:43	17:20	17:52	19:24	19:55	20:20	20:22	19:54	19:07	18:18	16:37	16:24	
12	07:13	06:49	06:08	06:18	05:38	05:20	05:30	05:57	06:27	06:57	06:32	07:03	
	16:44	17:21	17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:16	16:37	16:24	
13	07:12	06:47	06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33	07:04	
	16:45	17:22	17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36	16:24	
14	07:12	06:46	06:05	06:15	05:36	05:19	05:31	05:59	06:29	06:59	06:34	07:05	
	16:46	17:23	17:55	19:27	19:58	20:21	20:20	19:50	19:02	18:13	16:35	16:24	
15	07:12	06:45	06:03	06:13	05:35	05:19	05:32	06:00	06:30	07:00	06:35	07:05	
	16:47	17:24	17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34	16:24	
16	07:11	06:44	06:02	06:12	05:34	05:19	05:33	06:01	06:31	07:01	06:36	07:06	
	16:49	17:26	17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:10	16:33	16:25	
17	07:11	06:42	06:00	06:10	05:33	05:20	05:34	06:02	06:32	07:02	06:37	07:07	
	16:50	17:27	17:58	19:30	20:01	20:22	20:19	19:46	18:57	18:09	16:32	16:25	
18	07:10	06:41	05:59	06:09	05:32	05:20	05:34	06:03	06:33	07:03	06:39	07:07	10:50 (1)
	16:51	17:28	17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:07	16:31	16:25	8 10:58 (1)
19	07:10	06:40	05:57	06:07	05:31	05:20	05:35	06:04	06:34	07:04	06:40	07:08	10:48 (1)
	16:52	17:29	18:00	19:32	20:02	20:23	20:17	19:43	18:54	18:06	16:31	16:26	11 10:59 (1)
20	07:09	06:38	05:55	06:06	05:30	05:20	05:36	06:05	06:35	07:05	06:41	07:09	10:48 (1)
	16:53	17:30	18:01	19:33	20:03	20:23	20:17	19:42	18:52	18:04	16:30	16:26	13 11:01 (1)
21	07:09	06:37	05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:06	06:42	07:09	10:48 (1)
	16:54	17:32	18:02	19:34	20:04	20:24	20:16	19:40	18:51	18:03	16:29	16:27	13 11:01 (1)
22	07:08	06:36	05:52	06:03	05:29	05:20	05:38	06:07	06:37	07:08	06:43	07:10	10:49 (1)
	16:55	17:33	18:03	19:35	20:05	20:24	20:15	19:39	18:49	18:02	16:29	16:27	13 11:02 (1)
23	07:08	06:34	05:50	06:02	05:28	05:20	05:39	06:08	06:38	07:09	06:44	07:10	10:49 (1)
	16:57	17:34	18:04	19:36	20:06	20:24	20:14	19:38	18:47	18:00	16:28	16:28	13 11:02 (1)
24	07:07	06:33	05:49	06:00	05:27	05:21	05:39	06:09	06:39	07:10	06:45	07:11	10:51 (1)
	16:58	17:35	18:05	19:37	20:07	20:24	20:13	19:36	18:46	17:59	16:28	16:28	12 11:03 (1)
25	07:06	06:31	05:47	05:59	05:27	05:21	05:40	06:10	06:40	06:11	06:47	07:11	10:52 (1)
	16:59	17:36	18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:57	16:27	16:29	9 11:01 (1)
26	07:06	06:30	05:45	05:57	05:26	05:21	05:41	06:11	06:41	06:12	06:48	07:12	10:55 (1)
	17:00	17:37	18:08	19:40	20:09	20:24	20:12	19:33	18:42	16:56	16:27	16:29	4 10:59 (1)
27	07:05	06:28	05:44	05:56	05:25	05:22	05:42	06:12	06:42	06:13	06:49	07:12	
	17:01	17:38	18:09	19:41	20:10	20:24	20:11	19:31	18:41	16:55	16:26	16:30	
28	07:04	06:27	05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50	07:12	
	17:03	17:40	18:10	19:42	20:10	20:24	20:10	19:30	18:39	16:53	16:26	16:31	
29	07:03		06:41	05:53	05:24	05:22	05:44	06:14	06:44	06:15	06:51	07:13	
	17:04		19:11	19:43	20:11	20:24	20:09	19:28	18:37	16:52	16:25	16:31	
30	07:02		06:39	05:52	05:24	05:23	05:45	06:15	06:45	06:17	06:52	07:13	
	17:05		19:12	19:44	20:12	20:24	20:08	19:27	18:36	16:51	16:25	16:32	
31	07:01		06:37		05:23		05:46	06:16		06:18		07:13	
	17:06		19:13		20:13		20:07	19:25		16:50		16:33	
Potential sun hours	299	298	370	398	447	450	457	427	375	346	300	290	96
Total, worst case													

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: Z - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (26)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May		June		July		August		September		October		November		December	
1	07:13	13:47 (10)	07:01	14:15 (10)	06:26	06:36	05:51	05:23	05:24	05:47	06:17	06:46	06:19	14:16 (10)	06:53	13:34 (10)							
2	16:34	93	15:20 (10)	17:08	61	15:16 (10)	17:41	19:14	19:45	20:14	20:24	20:06	19:24	18:34	16:49	5	14:21 (10)	16:25	90	15:04 (10)			
3	16:35	93	15:21 (10)	17:09	58	15:15 (10)	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:33	16:47	22	14:30 (10)	16:25	91	15:05 (10)			
4	16:36	93	15:21 (10)	17:10	55	15:14 (10)	17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46	31	14:34 (10)	16:25	90	15:05 (10)			
5	16:37	92	15:21 (10)	17:11	51	15:12 (10)	17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45	37	14:36 (10)	16:24	91	15:06 (10)			
6	16:38	93	15:21 (10)	17:13	47	15:10 (10)	17:45	19:18	19:49	20:16	20:24	20:02	19:17	18:28	16:44	43	14:39 (10)	16:24	92	15:07 (10)			
7	16:39	92	15:21 (10)	17:14	43	15:09 (10)	17:47	19:19	19:50	20:17	20:24	20:00	19:16	18:26	16:43	48	14:41 (10)	16:24	92	15:07 (10)			
8	16:40	91	15:21 (10)	17:15	36	15:06 (10)	17:48	19:20	19:51	20:18	20:23	19:59	19:14	18:25	16:42	51	14:43 (10)	16:24	93	15:08 (10)			
9	16:41	91	15:22 (10)	17:16	29	15:03 (10)	17:49	19:21	19:52	20:18	20:23	19:58	19:13	18:23	16:41	56	14:45 (10)	16:24	92	15:08 (10)			
10	16:42	91	15:22 (10)	17:18	20	14:59 (10)	17:50	19:22	19:53	20:19	20:23	19:57	19:11	18:21	16:40	59	14:46 (10)	16:24	93	15:09 (10)			
11	16:43	90	15:22 (10)	17:20																			
12	16:44	90	15:23 (10)	17:21																			
13	16:45	89	15:23 (10)	17:22																			
14	16:46	88	15:23 (10)	17:24																			
15	16:47	87	15:23 (10)	17:25																			
16	16:48	87	15:23 (10)	17:26																			
17	16:49	86	15:23 (10)	17:27																			
18	16:50	85	15:23 (10)	17:28																			
19	16:51	84	15:23 (10)	17:29																			
20	16:52	83	15:23 (10)	17:30																			
21	16:53	82	15:23 (10)	17:31																			
22	16:54	81	15:23 (10)	17:32																			
23	16:55	81	15:23 (10)	17:33																			
24	16:56	80	15:23 (10)	17:34																			
25	16:57	79	15:23 (10)	17:35																			
26	16:58	77	15:21 (10)	17:35																			
27	16:59	76	15:22 (10)	17:36																			
28	17:00	74	15:21 (10)	17:38																			
29	17:01	72	15:20 (10)	17:39																			
30	17:02	71	15:20 (10)	17:40																			
31	17:03	69	15:19 (10)																				
Potential sun hours	299		298		370	398	446	450	457	427	375	346	300	2005		290	2886						
Total, worst case	2600		400																				

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	(WTG causing flicker first time)
Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AA - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (27)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May	June
1	07:13	14:56 (15)	07:00	07:20 (4)	06:25	15:25 (15)	06:36	05:51	05:23
	16:34	16:08 (15)	17:08	16:29 (15)	17:41	16:08 (15)	19:14	19:45	20:13
2	07:13	14:56 (15)	07:00	07:19 (4)	06:24	15:28 (15)	06:34	05:50	05:22
	16:35	16:09 (15)	17:09	16:29 (15)	17:42	16:06 (15)	19:15	19:46	20:14
3	07:13	14:56 (15)	06:59	07:20 (4)	06:22	15:31 (15)	06:32	05:48	05:22
	16:36	16:10 (15)	17:10	16:29 (15)	17:43	16:02 (15)	19:16	19:47	20:15
4	07:14	14:56 (15)	06:58	07:21 (4)	06:21	15:36 (15)	06:31	05:47	05:22
	16:37	16:11 (15)	17:11	16:29 (15)	17:44	15:58 (15)	19:17	19:48	20:16
5	07:14	14:57 (15)	06:57	07:23 (4)	06:19		06:29	05:46	05:21
	16:37	16:12 (15)	17:12	16:29 (15)	17:45		19:18	19:49	20:16
6	07:14	14:57 (15)	06:56	15:00 (15)	06:18		06:28	05:45	05:21
	16:38	16:13 (15)	17:14	16:29 (15)	17:46		19:19	19:50	20:17
7	07:13	14:57 (15)	06:54	15:01 (15)	06:16		06:26	05:44	05:21
	16:39	16:14 (15)	17:15	16:29 (15)	17:47		19:20	19:51	20:17
8	07:13	14:57 (15)	06:53	15:02 (15)	06:15		06:24	05:42	05:20
	16:40	16:15 (15)	17:16	16:29 (15)	17:49		19:21	19:52	20:18
9	07:13	14:58 (15)	06:52	15:02 (15)	06:13		06:23	05:41	05:20
	16:41	16:16 (15)	17:17	16:29 (15)	17:50		19:22	19:53	20:19
10	07:13	14:57 (15)	06:51	15:02 (15)	06:12		06:21	05:40	05:20
	16:42	16:16 (15)	17:19	16:28 (15)	17:51		19:23	19:54	20:19
11	07:13	14:57 (15)	06:50	15:03 (15)	06:10		06:20	05:39	05:20
	16:43	16:18 (15)	17:20	16:28 (15)	17:52		19:24	19:55	20:20
12	07:13	14:58 (15)	06:49	15:03 (15)	06:08		06:18	05:38	05:20
	16:44	16:19 (15)	17:21	16:28 (15)	17:53		19:25	19:56	20:20
13	07:12	14:57 (15)	06:47	15:04 (15)	06:07		06:17	05:37	05:20
	16:45	16:19 (15)	17:22	16:28 (15)	17:54		19:26	19:57	20:21
14	07:12	14:57 (15)	06:46	15:04 (15)	06:05		06:15	05:36	05:20
	16:46	16:20 (15)	17:23	16:27 (15)	17:55		19:27	19:58	20:21
15	07:12	14:58 (15)	06:45	15:05 (15)	06:04		06:14	05:35	05:20
	16:48	16:21 (15)	17:25	16:27 (15)	17:56		19:28	19:59	20:22
16	07:11	14:57 (15)	06:44	15:06 (15)	06:02		06:12	05:34	05:20
	16:49	16:21 (15)	17:26	16:26 (15)	17:57		19:29	20:00	20:22
17	07:11	14:58 (15)	06:42	15:08 (15)	06:00		06:11	05:33	05:20
	16:50	16:23 (15)	17:27	16:26 (15)	17:58		19:30	20:01	20:22
18	07:10	14:57 (15)	06:41	15:08 (15)	05:59	17:36 (21)	06:09	05:32	05:20
	16:51	16:23 (15)	17:28	16:24 (15)	17:59	2	17:38 (21)	19:31	20:02
19	07:10	07:31 (4)	06:40	15:09 (15)	05:57		17:34 (21)	06:08	05:31
	16:52	16:24 (15)	17:29	16:24 (15)	18:00	5	17:39 (21)	19:32	20:02
20	07:09	07:30 (4)	06:38	15:10 (15)	05:55		17:34 (21)	06:06	05:31
	16:53	16:24 (15)	17:30	16:22 (15)	18:01	7	17:41 (21)	19:33	20:03
21	07:09	07:29 (4)	06:37	15:11 (15)	05:54		17:33 (21)	06:05	05:30
	16:54	16:24 (15)	17:32	16:22 (15)	18:02	9	17:42 (21)	19:34	20:04
22	07:08	07:29 (4)	06:36	15:13 (15)	05:52		17:33 (21)	06:03	05:29
	16:56	16:26 (15)	17:33	16:21 (15)	18:03	9	17:42 (21)	19:35	20:05
23	07:08	07:28 (4)	06:34	15:14 (15)	05:50		17:33 (21)	06:02	05:28
	16:57	16:26 (15)	17:34	16:19 (15)	18:04	11	17:44 (21)	19:36	20:06
24	07:07	07:27 (4)	06:33	15:15 (15)	05:49		17:33 (21)	06:00	05:27
	16:58	16:26 (15)	17:35	16:18 (15)	18:06	12	17:45 (21)	19:37	20:07
25	07:06	07:26 (4)	06:31	15:17 (15)	05:47		17:33 (21)	05:59	05:27
	16:59	16:26 (15)	17:36	16:16 (15)	18:07	12	17:45 (21)	19:39	20:08
26	07:06	07:26 (4)	06:30	15:19 (15)	05:46		17:34 (21)	05:58	05:26
	17:00	16:28 (15)	17:37	16:15 (15)	18:08	13	17:47 (21)	19:40	20:09
27	07:05	07:25 (4)	06:28	15:20 (15)	05:44		17:35 (21)	05:56	05:25
	17:01	16:28 (15)	17:39	16:13 (15)	18:09	13	17:48 (21)	19:41	20:09
28	07:04	07:24 (4)	06:27	15:23 (15)	05:42		17:38 (21)	05:55	05:25
	17:03	16:28 (15)	17:40	16:11 (15)	18:10	9	17:47 (21)	19:42	20:10
29	07:03	07:23 (4)			06:41			05:53	05:24
	17:04	16:28 (15)			19:11			19:43	20:11
30	07:02	07:22 (4)			06:39			05:52	05:24
	17:05	16:28 (15)			19:12			19:44	20:12
31	07:01	07:21 (4)			06:37				05:23
	17:06	16:29 (15)			19:13				20:13
Potential sun hours	299		298		370		398	446	450
Total, worst case	2712		2244		236				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: AA - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (27)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September		October		November		December	
1	05:23	05:47	06:17		06:46		06:19	14:32 (15)	06:53	14:39 (15)
	20:24	20:06	19:24		18:34		16:48	86	15:58 (15)	81 16:00 (15)
2	05:24	05:48	06:18		06:47		06:20		14:31 (15)	14:40 (15)
	20:24	20:05	19:22		18:32		16:47	87	15:58 (15)	80 16:00 (15)
3	05:24	05:49	06:19		06:48		06:21		14:31 (15)	14:41 (15)
	20:24	20:04	19:21		18:31		16:46	88	15:59 (15)	78 15:59 (15)
4	05:25	05:50	06:19		06:49		06:22		14:31 (15)	14:41 (15)
	20:24	20:03	19:19		18:29		16:45	88	15:59 (15)	78 15:59 (15)
5	05:25	05:51	06:20		06:50		06:23		06:57 (4)	14:42 (15)
	20:24	20:01	19:17		18:28		16:44	91	15:59 (15)	77 15:59 (15)
6	05:26	05:51	06:21		06:51		06:25		06:53 (4)	14:43 (15)
	20:23	20:00	19:16		18:26		16:43	99	15:59 (15)	76 15:59 (15)
7	05:27	05:52	06:22		06:52		06:26		06:52 (4)	14:44 (15)
	20:23	19:59	19:14		18:24		16:42	104	16:00 (15)	75 15:59 (15)
8	05:27	05:53	06:23		06:53		06:27		06:50 (4)	14:44 (15)
	20:23	19:58	19:12		18:23		16:41	107	16:00 (15)	75 15:59 (15)
9	05:28	05:54	06:24		06:54	16:14 (15)	06:28		06:50 (4)	14:45 (15)
	20:22	19:57	19:11		18:21	15	16:29 (15)	108	16:00 (15)	74 15:59 (15)
10	05:29	05:55	06:25		06:55	16:08 (15)	06:29		06:51 (4)	14:46 (15)
	20:22	19:55	19:09		18:20	27	16:35 (15)	108	16:00 (15)	73 15:59 (15)
11	05:29	05:56	06:26		06:56	16:04 (15)	06:30		06:53 (4)	14:47 (15)
	20:22	19:54	19:07		18:18	34	16:38 (15)	106	16:00 (15)	72 15:59 (15)
12	05:30	05:57	06:27		06:57	16:00 (15)	06:32		06:54 (4)	14:47 (15)
	20:21	19:53	19:06		18:16	40	16:40 (15)	106	16:00 (15)	71 15:58 (15)
13	05:31	05:58	06:28		06:58	15:57 (15)	06:33		06:55 (4)	14:48 (15)
	20:21	19:52	19:04		18:15	46	16:43 (15)	105	16:00 (15)	71 15:59 (15)
14	05:31	05:59	06:29		06:59	15:54 (15)	06:34		06:56 (4)	14:49 (15)
	20:20	19:50	19:02		18:13	50	16:44 (15)	105	16:00 (15)	70 15:59 (15)
15	05:32	06:00	06:30	18:28 (21)	07:00	15:52 (15)	06:35		06:58 (4)	14:49 (15)
	20:20	19:49	19:01	8	18:36 (21)	54	16:46 (15)	103	16:01 (15)	71 16:00 (15)
16	05:33	06:01	06:31	18:25 (21)	07:01	15:49 (15)	06:36		06:59 (4)	14:49 (15)
	20:19	19:48	18:59	12	18:37 (21)	58	16:47 (15)	101	16:00 (15)	70 15:59 (15)
17	05:34	06:02	06:32	18:23 (21)	07:02	15:47 (15)	06:37		07:00 (4)	14:50 (15)
	20:18	19:46	18:57	12	18:35 (21)	61	16:48 (15)	99	16:00 (15)	70 16:00 (15)
18	05:34	06:03	06:33	18:21 (21)	07:03	15:46 (15)	06:39		07:01 (4)	14:51 (15)
	20:18	19:45	18:56	13	18:34 (21)	64	16:50 (15)	98	16:00 (15)	69 16:00 (15)
19	05:35	06:04	06:34	18:20 (21)	07:04	15:45 (15)	06:40		07:02 (4)	14:51 (15)
	20:17	19:43	18:54	12	18:32 (21)	66	16:51 (15)	97	16:00 (15)	69 16:00 (15)
20	05:36	06:05	06:35	18:19 (21)	07:05	15:43 (15)	06:41		07:04 (4)	14:52 (15)
	20:16	19:42	18:52	12	18:31 (21)	69	16:52 (15)	95	16:01 (15)	69 16:01 (15)
21	05:37	06:06	06:36	18:19 (21)	07:06	15:41 (15)	06:42		07:05 (4)	14:52 (15)
	20:16	19:40	18:51	10	18:29 (21)	72	16:53 (15)	93	16:00 (15)	69 16:01 (15)
22	05:38	06:07	06:37	18:19 (21)	07:08	15:40 (15)	06:43		07:06 (4)	14:53 (15)
	20:15	19:39	18:49	8	18:27 (21)	73	16:53 (15)	90	16:00 (15)	69 16:02 (15)
23	05:39	06:08	06:38	18:18 (21)	07:09	15:39 (15)	06:44		07:07 (4)	14:53 (15)
	20:14	19:38	18:47	8	18:26 (21)	75	16:54 (15)	88	16:00 (15)	69 16:02 (15)
24	05:40	06:09	06:39	18:19 (21)	07:10	15:37 (15)	06:45		14:34 (15)	14:54 (15)
	20:13	19:36	18:46	5	18:24 (21)	77	16:54 (15)	86	16:00 (15)	69 16:03 (15)
25	05:40	06:10	06:40	18:19 (21)	06:11	14:37 (15)	06:46		14:36 (15)	14:54 (15)
	20:13	19:35	18:44	3	18:22 (21)	79	15:56 (15)	85	16:01 (15)	69 16:03 (15)
26	05:41	06:11	06:41	18:19 (21)	06:12	14:36 (15)	06:48		14:36 (15)	14:54 (15)
	20:12	19:33	18:42	1	18:20 (21)	80	15:56 (15)	84	16:00 (15)	70 16:04 (15)
27	05:42	06:12	06:42		06:13	14:35 (15)	06:49		14:37 (15)	14:54 (15)
	20:11	19:32	18:41		16:55	81	15:56 (15)	83	16:00 (15)	70 16:04 (15)
28	05:43	06:13	06:43		06:14	14:34 (15)	06:50		14:37 (15)	14:55 (15)
	20:10	19:30	18:39		16:53	83	15:57 (15)	83	16:00 (15)	70 16:05 (15)
29	05:44	06:14	06:44		06:15	14:33 (15)	06:51		14:38 (15)	14:56 (15)
	20:09	19:28	18:37		16:52	84	15:57 (15)	82	16:00 (15)	70 16:06 (15)
30	05:45	06:15	06:45		06:17	14:33 (15)	06:52		14:39 (15)	14:56 (15)
	20:08	19:27	18:36		16:51	85	15:58 (15)	81	16:00 (15)	70 16:06 (15)
31	05:46	06:16			06:18	14:32 (15)			07:13	14:56 (15)
	20:07	19:25			16:50	86	15:58 (15)		16:33	71 16:07 (15)
Potential sun hours	457	427	375		346		300		290	
Total, worst case			104		1459		2836		2235	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: AB - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (28)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May	June
1	07:13	15:59 (7)	07:01	16:05 (6)	06:25	15:37 (6)	06:36	05:51	05:23
	16:34	9	16:08 (7)	17:08	28	16:33 (6)	17:41	19:45	20:13
2	07:13	16:00 (7)	07:00	16:02 (6)	06:24	15:37 (6)	06:34	05:50	05:22
	16:35	9	16:09 (7)	17:09	34	16:36 (6)	17:42	19:46	20:14
3	07:13	16:00 (7)	06:59	16:00 (6)	06:22	15:37 (6)	06:32	05:48	05:22
	16:36	10	16:10 (7)	17:10	39	16:39 (6)	17:43	19:47	20:15
4	07:14	16:01 (7)	06:58	15:58 (6)	06:21	15:37 (6)	06:31	05:47	05:22
	16:36	10	16:11 (7)	17:11	43	16:41 (6)	17:44	19:48	20:16
5	07:14	16:01 (7)	06:57	15:56 (6)	06:19	15:37 (6)	06:29	05:46	05:21
	16:37	10	16:11 (7)	17:12	47	16:43 (6)	17:45	19:49	20:16
6	07:14	16:02 (7)	06:56	15:54 (6)	06:18	15:37 (6)	06:28	05:45	05:21
	16:38	11	16:13 (7)	17:14	51	16:45 (6)	17:46	19:50	20:17
7	07:13	16:02 (7)	06:54	15:53 (6)	06:16	15:38 (6)	06:26	05:44	05:21
	16:39	12	16:14 (7)	17:15	54	16:47 (6)	17:47	19:51	20:18
8	07:13	16:03 (7)	06:53	15:51 (6)	06:15	15:37 (6)	06:24	05:42	05:20
	16:40	12	16:15 (7)	17:16	58	16:49 (6)	17:49	19:52	20:18
9	07:13	16:04 (7)	06:52	15:50 (6)	06:13	15:38 (6)	06:23	05:41	05:20
	16:41	12	16:16 (7)	17:17	61	16:51 (6)	17:50	19:53	20:19
10	07:13	16:04 (7)	06:51	15:48 (6)	06:12	06:30 (16)	06:21	05:40	05:20
	16:42	12	16:16 (7)	17:19	63	16:51 (6)	17:51	19:54	20:19
11	07:13	16:05 (7)	06:50	15:47 (6)	06:10	06:28 (16)	06:20	05:39	05:20
	16:43	13	16:18 (7)	17:20	66	16:53 (6)	17:52	19:55	20:20
12	07:13	16:06 (7)	06:49	15:46 (6)	06:08	06:27 (16)	06:18	05:38	05:20
	16:44	13	16:19 (7)	17:21	68	16:54 (6)	17:53	19:56	20:20
13	07:12	16:07 (7)	06:48	15:46 (6)	06:07	06:25 (16)	06:17	05:37	05:20
	16:45	14	16:21 (7)	17:22	69	16:55 (6)	17:54	19:57	20:21
14	07:12	16:07 (7)	06:46	15:44 (6)	06:05	06:24 (16)	06:15	05:36	05:20
	16:46	14	16:21 (7)	17:23	72	16:56 (6)	17:55	19:58	20:21
15	07:12	16:08 (7)	06:45	15:43 (6)	06:04	06:22 (16)	06:14	05:35	05:20
	16:48	15	16:23 (7)	17:25	74	16:57 (6)	17:56	19:59	20:22
16	07:11	16:09 (7)	06:44	15:43 (6)	06:02	06:20 (16)	06:12	05:34	05:20
	16:49	14	16:23 (7)	17:26	75	16:58 (6)	17:57	20:00	20:22
17	07:11	16:11 (7)	06:42	15:43 (6)	06:00	06:19 (16)	06:10	05:33	05:20
	16:50	14	16:25 (7)	17:27	76	16:59 (6)	17:58	20:01	20:22
18	07:10	16:12 (7)	06:41	15:41 (6)	05:59	06:17 (16)	06:09	05:32	05:20
	16:51	12	16:24 (7)	17:28	78	16:59 (6)	17:59	20:02	20:23
19	07:10	16:14 (7)	06:40	15:41 (6)	05:57	06:15 (16)	06:08	05:31	05:20
	16:52	9	16:23 (7)	17:29	79	17:00 (6)	18:00	20:02	20:23
20	07:09	16:17 (7)	06:38	15:40 (6)	05:55	06:14 (16)	06:06	05:31	05:20
	16:53	3	16:20 (7)	17:30	80	16:47 (6)	19:33	20:03	20:23
21	07:09		06:37	15:40 (6)	05:54	06:12 (16)	06:05	05:30	05:20
	16:54		17:32	17:01 (6)	18:02	16:45 (6)	19:34	20:04	20:24
22	07:08		06:36	15:39 (6)	05:52	06:12 (16)	06:03	05:29	05:20
	16:56		17:33	17:01 (6)	18:03	16:43 (6)	19:35	20:05	20:24
23	07:08		06:34	15:38 (6)	05:50	06:13 (16)	06:02	05:28	05:21
	16:57		17:34	17:01 (6)	18:04	16:41 (6)	19:36	20:06	20:24
24	07:07		06:33	15:39 (6)	05:49	06:14 (16)	06:00	05:27	05:21
	16:58		17:35	17:02 (6)	18:06	16:39 (6)	19:37	20:07	20:24
25	07:06		06:31	15:38 (6)	05:47	06:15 (16)	05:59	05:27	05:21
	16:59		17:36	17:02 (6)	18:07	16:36 (6)	19:39	20:08	20:24
26	07:06		06:30	15:38 (6)	05:46	06:19 (16)	05:58	05:26	05:21
	17:00		17:37	17:02 (6)	18:08	16:34 (6)	19:40	20:09	20:24
27	07:05		06:28	15:37 (6)	05:44	16:01 (6)	05:56	05:25	05:22
	17:01		17:38	17:02 (6)	18:09	16:30 (6)	19:41	20:10	20:24
28	07:04		06:27	15:37 (6)	05:42	16:06 (6)	05:55	05:25	05:22
	17:03		17:40	17:02 (6)	18:10	16:26 (6)	19:42	20:10	20:24
29	07:03				06:41		05:53	05:24	05:22
	17:04				19:11		19:43	20:11	20:24
30	07:02				06:39		05:52	05:24	05:23
	17:05				19:12		19:44	20:12	20:24
31	07:01				06:37			05:23	
	17:06	20	16:09 (6)		19:13			20:13	
			16:29 (6)						
Potential sun hours	299		298		370		398	446	450
Total, worst case		248		1882		2156			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AB - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (28)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December			
1	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	07:05 (16) 17:35 (6)	06:19 16:48	15:18 (6) 16:21 (6)	06:53 16:25	15:47 (7) 16:00 (7)
2	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:32	07:06 (16) 17:35 (6)	06:20 16:47	15:19 (6) 16:19 (6)	06:54 16:25	15:47 (7) 16:00 (7)
3	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	07:07 (16) 17:35 (6)	06:21 16:46	15:21 (6) 16:19 (6)	06:55 16:24	15:47 (7) 15:59 (7)
4	05:25 20:24	05:50 20:03	06:19 19:19	06:49 18:29	16:15 (6) 17:36 (6)	06:22 16:45	15:23 (6) 16:17 (6)	06:56 16:24	15:47 (7) 15:59 (7)
5	05:25 20:24	05:50 20:01	06:20 19:17	06:50 18:28	16:14 (6) 17:36 (6)	06:23 16:44	15:24 (6) 16:15 (6)	06:57 16:24	15:47 (7) 15:59 (7)
6	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	16:14 (6) 17:37 (6)	06:25 16:43	15:26 (6) 16:13 (6)	06:58 16:24	15:48 (7) 15:59 (7)
7	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	16:14 (6) 17:37 (6)	06:26 16:42	15:29 (6) 16:12 (6)	06:59 16:24	15:48 (7) 15:59 (7)
8	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	16:13 (6) 17:36 (6)	06:27 16:40	15:31 (6) 16:09 (6)	07:00 16:24	15:49 (7) 15:59 (7)
9	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	16:12 (6) 17:36 (6)	06:28 16:39	15:33 (6) 16:07 (6)	07:01 16:24	15:49 (7) 15:59 (7)
10	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	16:12 (6) 17:36 (6)	06:29 16:38	15:36 (6) 16:03 (6)	07:01 16:24	15:50 (7) 15:59 (7)
11	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	16:11 (6) 17:36 (6)	06:30 16:37	15:41 (6) 16:00 (6)	07:02 16:24	15:50 (7) 15:59 (7)
12	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	16:11 (6) 17:35 (6)	06:32 16:37		07:03 16:24	15:50 (7) 15:58 (7)
13	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	16:10 (6) 17:35 (6)	06:33 16:36		07:04 16:24	15:51 (7) 15:59 (7)
14	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	16:10 (6) 17:35 (6)	06:34 16:35		07:05 16:24	15:52 (7) 15:59 (7)
15	05:32 20:20	06:00 19:49	06:30 19:01	16:56 (6) 17:14 (6)	07:00 18:12	16:10 (6) 17:34 (6)	06:35 16:34	07:05 16:25	15:52 (7) 16:00 (7)
16	05:33 20:19	06:01 19:48	06:31 18:59	16:51 (6) 17:18 (6)	07:01 18:10	16:09 (6) 17:34 (6)	06:36 16:33	07:06 16:25	15:52 (7) 15:59 (7)
17	05:34 20:19	06:02 19:46	06:32 18:57	07:08 (16) 17:21 (6)	07:02 18:09	16:09 (6) 17:33 (6)	06:37 16:32	07:07 16:25	15:53 (7) 16:00 (7)
18	05:34 20:18	06:03 19:45	06:33 18:56	07:04 (16) 17:24 (6)	07:03 18:07	16:10 (6) 17:33 (6)	06:39 16:32	07:07 16:25	15:54 (7) 16:00 (7)
19	05:35 20:17	06:04 19:43	06:34 18:54	07:01 (16) 17:26 (6)	07:04 18:06	16:10 (6) 17:33 (6)	06:40 16:31	07:08 16:26	15:54 (7) 16:00 (7)
20	05:36 20:17	06:05 19:42	06:35 18:52	07:00 (16) 17:27 (6)	07:05 18:04	16:10 (6) 17:32 (6)	06:41 16:30	07:09 16:26	15:55 (7) 16:01 (7)
21	05:37 20:16	06:06 19:40	06:36 18:51	06:58 (16) 17:29 (6)	07:06 18:03	16:10 (6) 17:31 (6)	06:42 16:29	07:09 16:27	15:55 (7) 16:01 (7)
22	05:38 20:15	06:07 19:39	06:37 18:49	06:57 (16) 17:30 (6)	07:08 18:02	16:10 (6) 17:30 (6)	06:43 16:29	15:54 (7) 15:56 (7)	15:56 (7) 16:02 (7)
23	05:39 20:14	06:08 19:38	06:38 18:47	06:58 (16) 17:31 (6)	07:09 18:00	16:11 (6) 17:29 (6)	06:44 16:28	15:50 (7) 15:59 (7)	15:56 (7) 16:02 (7)
24	05:39 20:13	06:09 19:36	06:39 18:46	06:59 (16) 17:32 (6)	07:10 17:59	16:11 (6) 17:28 (6)	06:45 16:28	15:49 (7) 16:01 (7)	15:57 (7) 16:03 (7)
25	05:40 20:13	06:10 19:35	06:40 18:44	07:00 (16) 17:33 (6)	06:11 16:57	15:12 (6) 16:28 (6)	06:47 16:27	15:49 (7) 16:03 (7)	15:57 (7) 16:03 (7)
26	05:41 20:12	06:11 19:33	06:41 18:42	07:00 (16) 17:33 (6)	06:12 16:56	15:13 (6) 16:27 (6)	06:48 16:27	15:48 (7) 16:03 (7)	15:57 (7) 16:04 (7)
27	05:42 20:11	06:12 19:32	06:42 18:41	07:01 (16) 17:33 (6)	06:13 16:55	15:13 (6) 16:26 (6)	06:49 16:26	15:47 (7) 16:02 (7)	15:58 (7) 16:05 (7)
28	05:43 20:10	06:13 19:30	06:43 18:39	07:02 (16) 17:34 (6)	06:14 16:53	15:14 (6) 16:25 (6)	06:50 16:26	15:47 (7) 16:01 (7)	15:58 (7) 16:05 (7)
29	05:44 20:09	06:14 19:28	06:44 18:37	07:03 (16) 17:34 (6)	06:15 16:52	15:15 (6) 16:24 (6)	06:51 16:25	15:47 (7) 16:01 (7)	15:59 (7) 16:06 (7)
30	05:45 20:08	06:15 19:27	06:45 18:36	07:04 (16) 17:35 (6)	06:17 16:51	15:16 (6) 16:24 (6)	06:52 16:25	15:47 (7) 16:00 (7)	15:59 (7) 16:06 (7)
31	05:46 20:07	06:16 19:25		06:18 16:50	15:17 (6) 16:22 (6)			07:13 16:33	15:59 (7) 16:07 (7)
Potential sun hours	457	427	375	346	300	602	290	258	
Total, worst case			1133	2490	602		258		

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: AC - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (29)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:13 16:34	07:01 17:08	06:26 17:41	15:51 (20) 17:13 (20)	17:10 (20) 19:14	05:51 19:45
2	07:13 16:35	07:00 17:09	06:24 17:42	15:51 (20) 17:13 (20)	17:13 (20) 19:15	05:50 19:46
3	07:14 16:36	06:59 17:10	06:23 17:43	15:50 (20) 17:13 (20)	17:19 (20) 19:16	05:48 19:47
4	07:14 16:37	06:58 17:11	06:21 17:44	15:50 (20) 17:14 (20)	17:33 (20) 19:17	05:47 19:48
5	07:14 16:38	06:57 17:13	06:19 17:45	15:50 (20) 17:13 (20)	19:18	05:46 19:49
6	07:14 16:38	06:56 17:14	06:18 17:46	15:50 (20) 17:14 (20)	06:28 19:19	05:45 19:50
7	07:14 16:39	06:55 17:15	06:16 17:48	15:49 (20) 17:13 (20)	06:26 19:20	05:44 19:51
8	07:13 16:40	06:53 17:16	06:15 17:49	15:49 (20) 17:12 (20)	06:25 19:21	05:43 19:52
9	07:13 16:41	06:52 17:17	06:13 17:50	15:49 (20) 17:13 (20)	06:23 19:22	05:41 19:53
10	07:13 16:42	06:51 17:19	06:12 17:51	15:49 (20) 17:12 (20)	06:21 19:23	05:40 19:54
11	07:13 16:43	06:50 17:20	06:10 17:52	15:50 (20) 17:12 (20)	06:20 19:24	05:39 19:55
12	07:13 16:44	06:49 17:21	06:08 17:53	15:49 (20) 17:11 (20)	06:18 19:25	05:38 19:56
13	07:12 16:46	06:48 17:22	06:07 17:54	15:49 (20) 17:10 (20)	06:17 19:26	05:37 19:57
14	07:12 16:47	06:46 17:23	06:05 17:55	15:50 (20) 17:10 (20)	06:15 19:27	05:36 19:58
15	07:12 16:48	06:45 17:25	06:04 17:56	15:50 (20) 17:09 (20)	06:14 19:28	05:35 19:59
16	07:11 16:49	06:44 17:26	06:02 17:57	15:50 (20) 17:08 (20)	06:12 19:29	05:34 20:00
17	07:11 16:50	06:43 17:27	06:00 17:58	15:51 (20) 17:08 (20)	06:11 19:30	05:33 20:01
18	07:11 16:51	06:41 17:28	05:59 17:59	15:51 (20) 17:07 (20)	06:09 19:31	05:32 20:02
19	07:10 16:52	06:40 17:29	05:57 18:00	15:52 (20) 17:07 (20)	06:08 19:32	05:32 20:03
20	07:10 16:53	06:38 17:31	05:55 18:01	15:53 (20) 17:05 (20)	06:06 19:33	05:31 20:03
21	07:09 16:54	06:37 17:32	05:54 18:03	15:53 (20) 17:04 (20)	06:05 19:34	05:30 20:04
22	07:08 16:56	06:36 17:33	05:52 18:04	15:55 (20) 17:03 (20)	06:03 19:36	05:29 20:05
23	07:08 16:57	06:34 17:34	05:51 18:05	15:55 (20) 17:01 (20)	06:02 19:37	05:28 20:06
24	07:07 16:58	06:33 17:35	05:49 18:06	15:56 (20) 17:00 (20)	06:00 19:38	05:28 20:07
25	07:06 16:59	06:31 17:36	05:47 18:07	15:58 (20) 16:59 (20)	05:59 19:39	05:27 20:08
26	07:06 17:00	06:30 17:37	05:46 18:08	15:58 (20) 16:57 (20)	05:58 19:40	05:26 20:09
27	07:05 17:02	06:29 17:39	05:44 18:09	15:59 (20) 16:55 (20)	05:56 19:41	05:26 20:10
28	07:04 17:03	06:27 17:40	05:42 18:10	16:02 (20) 16:53 (20)	05:55 19:42	05:25 20:10
29	07:03 17:04		06:41 19:11	17:03 (20) 17:51 (20)	05:54 19:43	05:24 20:11
30	07:02 17:05		06:39 19:12	17:05 (20) 17:48 (20)	05:52 19:44	05:24 20:12
31	07:02 17:06		06:37 19:13	17:08 (20) 17:46 (20)		05:23 20:13
Potential sun hours	299	298	370	398	446	450
Total, worst case		1760	2239	71		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AC - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (29)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:24	05:47	06:17	06:46	16:29 (20)	06:19
	20:24	20:06	19:24	18:34	17:51 (20)	16:49
2	05:24	05:48	06:18	06:47	16:28 (20)	06:20
	20:24	20:05	19:22	18:33	17:51 (20)	16:47
3	05:25	05:49	06:19	06:48	16:28 (20)	06:21
	20:24	20:04	19:21	18:31	17:51 (20)	16:46
4	05:25	05:50	06:20	06:49	16:27 (20)	06:22
	20:24	20:03	19:19	18:29	17:50 (20)	16:45
5	05:26	05:51	06:21	06:50	16:27 (20)	06:24
	20:24	20:02	19:17	18:28	17:50 (20)	16:44
6	05:26	05:52	06:22	06:51	16:26 (20)	06:25
	20:23	20:00	19:16	18:26	17:50 (20)	16:43
7	05:27	05:53	06:22	06:52	16:26 (20)	06:26
	20:23	19:59	19:14	18:24	17:49 (20)	16:42
8	05:27	05:54	06:23	06:53	16:25 (20)	06:27
	20:23	19:58	19:12	18:23	17:49 (20)	16:41
9	05:28	05:54	06:24	17:14 (20)	06:54	16:25 (20)
	20:23	19:57	19:11	17:26 (20)	18:21	17:48 (20)
10	05:29	05:55	06:25	17:08 (20)	06:55	16:25 (20)
	20:22	19:56	19:09	17:32 (20)	18:20	17:48 (20)
11	05:29	05:56	06:26	17:02 (20)	06:56	16:25 (20)
	20:22	19:54	19:08	17:34 (20)	18:18	17:47 (20)
12	05:30	05:57	06:27	16:59 (20)	06:57	16:25 (20)
	20:21	19:53	19:06	17:37 (20)	18:17	17:47 (20)
13	05:31	05:58	06:28	16:56 (20)	06:58	16:24 (20)
	20:21	19:52	19:04	17:39 (20)	18:15	17:46 (20)
14	05:32	05:59	06:29	16:54 (20)	06:59	16:25 (20)
	20:20	19:50	19:03	17:41 (20)	18:13	17:45 (20)
15	05:32	06:00	06:30	16:51 (20)	07:00	07:43 (22)
	20:20	19:49	19:01	17:42 (20)	18:12	17:44 (20)
16	05:33	06:01	06:31	16:49 (20)	07:01	07:39 (22)
	20:19	19:48	18:59	17:44 (20)	18:10	17:43 (20)
17	05:34	06:02	06:32	16:47 (20)	07:02	07:38 (22)
	20:19	19:46	18:58	17:45 (20)	18:09	17:43 (20)
18	05:35	06:03	06:33	16:45 (20)	07:03	07:36 (22)
	20:18	19:45	18:56	17:46 (20)	18:07	17:42 (20)
19	05:35	06:04	06:34	16:43 (20)	07:04	07:35 (22)
	20:17	19:43	18:54	17:47 (20)	18:06	17:41 (20)
20	05:36	06:05	06:35	16:42 (20)	07:05	07:33 (22)
	20:17	19:42	18:53	17:47 (20)	18:05	17:40 (20)
21	05:37	06:06	06:36	16:40 (20)	07:07	07:32 (22)
	20:16	19:41	18:51	17:48 (20)	18:03	17:39 (20)
22	05:38	06:07	06:37	16:39 (20)	07:08	07:32 (22)
	20:15	19:39	18:49	17:49 (20)	18:02	17:38 (20)
23	05:39	06:08	06:38	16:37 (20)	07:09	07:31 (22)
	20:14	19:38	18:47	17:49 (20)	18:00	17:36 (20)
24	05:40	06:09	06:39	16:36 (20)	07:10	07:32 (22)
	20:13	19:36	18:46	17:50 (20)	17:59	17:36 (20)
25	05:41	06:10	06:40	16:35 (20)	06:11	06:32 (22)
	20:13	19:35	18:44	17:50 (20)	16:58	16:34 (20)
26	05:41	06:11	06:41	16:34 (20)	06:12	06:33 (22)
	20:12	19:33	18:42	17:50 (20)	16:56	16:33 (20)
27	05:42	06:12	06:42	16:33 (20)	06:13	06:34 (22)
	20:11	19:32	18:41	17:51 (20)	16:55	16:31 (20)
28	05:43	06:13	06:43	16:32 (20)	06:14	06:35 (22)
	20:10	19:30	18:39	17:51 (20)	16:54	16:29 (20)
29	05:44	06:14	06:44	16:31 (20)	06:15	06:37 (22)
	20:09	19:29	18:38	17:51 (20)	16:52	16:28 (20)
30	05:45	06:15	06:45	16:30 (20)	06:17	06:38 (22)
	20:08	19:27	18:36	17:51 (20)	16:51	16:26 (20)
31	05:46	06:16		06:18	06:39 (22)	
	20:07	19:25		16:50	16:23 (20)	
Potential sun hours	457	427	375	346	300	290
Total, worst case			1303	2669	154	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AD - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (30)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:13 16:34 48	15:17 (7) 16:05 (21) 07:01 17:08	06:25 17:41	06:36 19:14	05:51 19:45	05:23 20:13
2	07:13 16:35 47	15:18 (7) 16:05 (21) 07:00 17:09	06:24 17:42	06:34 19:15	05:50 19:46	05:22 20:14
3	07:14 16:36 46	15:19 (7) 16:05 (21) 06:59 17:10	06:22 17:43	06:32 19:16	05:48 19:47	05:22 20:15
4	07:14 16:37 46	15:21 (7) 16:05 (21) 06:58 17:11	06:21 17:44	17:22 (14) 06:31 17:23 (14) 19:17	05:47 19:48	05:22 20:16
5	07:14 16:37 44	15:20 (7) 16:04 (21) 06:57 17:12	06:19 17:45	17:20 (14) 06:29 17:24 (14) 19:18	05:46 19:49	05:21 20:16
6	07:14 16:38 43	15:21 (7) 16:04 (21) 06:56 17:14	06:18 17:46	17:20 (14) 06:28 17:26 (14) 19:19	05:45 19:50	05:21 20:17
7	07:14 16:39 41	15:23 (7) 16:04 (21) 06:54 17:15	06:16 17:47	17:19 (14) 06:26 17:27 (14) 19:20	05:44 19:51	05:21 20:18
8	07:13 16:40 39	15:24 (7) 16:03 (21) 06:53 17:16	06:15 17:49	17:18 (14) 06:24 17:27 (14) 19:21	05:42 19:52	05:20 20:18
9	07:13 16:41 35	15:25 (7) 16:02 (21) 06:52 17:17	06:13 17:50	17:18 (14) 06:23 17:29 (14) 19:22	05:41 19:53	05:20 20:19
10	07:13 16:42 25	15:27 (7) 15:52 (7) 06:51 17:19	06:12 17:51	17:18 (14) 06:21 17:30 (14) 19:23	05:40 19:54	05:20 20:19
11	07:13 16:43 23	15:28 (7) 15:51 (7) 06:50 17:20	06:10 17:52	17:19 (14) 06:20 17:31 (14) 19:24	05:39 19:55	05:20 20:20
12	07:13 16:44 21	15:29 (7) 15:50 (7) 06:49 17:21	06:08 17:53	17:19 (14) 06:18 17:32 (14) 19:25	05:38 19:56	05:20 20:20
13	07:12 16:45 17	15:32 (7) 15:49 (7) 06:48 17:22	06:07 17:54	17:20 (14) 06:17 17:33 (14) 19:26	05:37 19:57	05:20 20:21
14	07:12 16:46 14	15:33 (7) 15:47 (7) 06:46 17:23	06:05 17:55	17:22 (14) 06:15 17:33 (14) 19:27	05:36 19:58	05:20 20:21
15	07:12 16:48 8	15:37 (7) 15:45 (7) 06:45 17:25	06:04 17:56	06:14 19:28	05:35 19:59	05:20 20:22
16	07:11 16:49	06:44 17:26	06:02 17:57	06:12 19:29	05:34 20:00	05:20 20:22
17	07:11 16:50	06:42 17:27	06:00 17:58	06:11 19:30	05:33 20:01	05:20 20:22
18	07:10 16:51	06:41 17:28	05:59 17:59	06:09 19:31	05:32 20:02	05:20 20:23
19	07:10 16:52	06:40 17:29	05:57 18:00	06:08 19:32	05:31 20:03	05:20 20:23
20	07:09 16:53	06:38 17:30	05:55 18:01	06:06 19:33	05:31 20:03	05:20 20:23
21	07:09 16:54	06:37 17:32	05:54 18:02	06:05 19:34	05:30 20:04	05:20 20:24
22	07:08 16:56	06:36 17:33	05:52 18:03	06:03 19:35	05:29 20:05	05:20 20:24
23	07:08 16:57	06:34 17:34	05:50 18:05	06:02 19:36	05:28 20:06	05:21 20:24
24	07:07 16:58	06:33 17:35	05:49 18:06	06:00 19:38	05:28 20:07	05:21 20:24
25	07:06 16:59	06:31 17:36	05:47 18:07	05:59 19:39	05:27 20:08	05:21 20:24
26	07:06 17:00	06:30 17:37	05:46 18:08	05:58 19:40	05:26 20:09	05:21 20:24
27	07:05 17:02	06:28 17:39	05:44 18:09	05:56 19:41	05:26 20:10	05:22 20:24
28	07:04 17:03	06:27 17:40	05:42 18:10	05:55 19:42	05:25 20:10	05:22 20:24
29	07:03 17:04		06:41 19:11	05:54 19:43	05:24 20:11	05:23 20:24
30	07:02 17:05		06:39 19:12	05:52 19:44	05:24 20:12	05:23 20:24
31	07:01 17:06		06:37 19:13		05:23 20:13	
Potential sun hours	299	298	370	398	446	450
Total, worst case	497		100			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AD - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (30)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September		October		November		December	
1	05:23	05:47	06:17		06:46	17:58 (14)	06:19		06:53	15:10 (7)
	20:24	20:06	19:24		18:34	13 18:11 (14)	16:48		16:25	23 15:33 (7)
2	05:24	05:48	06:18		06:47	17:57 (14)	06:20		06:54	15:09 (7)
	20:24	20:05	19:22		18:32	13 18:10 (14)	16:47		16:25	25 15:34 (7)
3	05:24	05:49	06:19		06:48	17:56 (14)	06:21		06:55	15:08 (7)
	20:24	20:04	19:21		18:31	12 18:08 (14)	16:46		16:24	35 15:45 (21)
4	05:25	05:50	06:20		06:49	17:56 (14)	06:22		06:56	15:08 (7)
	20:24	20:03	19:19		18:29	11 18:07 (14)	16:45		16:24	39 15:47 (21)
5	05:25	05:51	06:20		06:50	17:55 (14)	06:23		06:57	15:08 (7)
	20:24	20:02	19:17		18:28	11 18:06 (14)	16:44		16:24	41 15:49 (21)
6	05:26	05:51	06:21		06:51	17:55 (14)	06:25		06:58	15:08 (7)
	20:23	20:00	19:16		18:26	9 18:04 (14)	16:43		16:24	42 15:50 (21)
7	05:27	05:52	06:22		06:52	17:55 (14)	06:26		06:59	15:07 (7)
	20:23	19:59	19:14		18:24	7 18:02 (14)	16:42		16:24	44 15:51 (21)
8	05:27	05:53	06:23		06:53	17:55 (14)	06:27		07:00	15:08 (7)
	20:23	19:58	19:12		18:23	6 18:01 (14)	16:41		16:24	45 15:53 (21)
9	05:28	05:54	06:24		06:54	17:56 (14)	06:28		07:01	15:08 (7)
	20:22	19:57	19:11		18:21	3 17:59 (14)	16:40		16:24	46 15:54 (21)
10	05:29	05:55	06:25		06:55		06:29		07:01	15:08 (7)
	20:22	19:55	19:09		18:20		16:39		16:24	47 15:55 (21)
11	05:29	05:56	06:26		06:56		06:30		07:02	15:08 (7)
	20:22	19:54	19:07		18:18		16:38		16:24	48 15:56 (21)
12	05:30	05:57	06:27		06:57		06:32		07:03	15:08 (7)
	20:21	19:53	19:06		18:16		16:37		16:24	47 15:55 (21)
13	05:31	05:58	06:28		06:58		06:33		07:04	15:08 (7)
	20:21	19:52	19:04		18:15		16:36		16:24	48 15:56 (21)
14	05:31	05:59	06:29		06:59		06:34		07:05	15:08 (7)
	20:20	19:50	19:02		18:13		16:35		16:24	49 15:57 (21)
15	05:32	06:00	06:30		07:00		06:35		07:05	15:09 (7)
	20:20	19:49	19:01		18:12		16:34		16:25	49 15:58 (21)
16	05:33	06:01	06:31		07:01		06:36		07:06	15:09 (7)
	20:19	19:48	18:59		18:10		16:33		16:25	49 15:58 (21)
17	05:34	06:02	06:32		07:02		06:37		07:07	15:09 (7)
	20:19	19:46	18:57		18:09		16:32		16:25	50 15:59 (21)
18	05:34	06:03	06:33		07:03		06:39		07:07	15:10 (7)
	20:18	19:45	18:56		18:07		16:32		16:25	50 16:00 (21)
19	05:35	06:04	06:34		07:04		06:40		07:08	15:10 (7)
	20:17	19:43	18:54		18:06		16:31		16:26	50 16:00 (21)
20	05:36	06:05	06:35		07:05		06:41		07:09	15:11 (7)
	20:17	19:42	18:52		18:04		16:30		16:26	50 16:01 (21)
21	05:37	06:06	06:36		07:06		06:42		07:09	15:11 (7)
	20:16	19:41	18:51		18:03		16:29		16:27	50 16:01 (21)
22	05:38	06:07	06:37		07:08		06:43		07:10	15:12 (7)
	20:15	19:39	18:49		18:02		16:29		16:27	50 16:02 (21)
23	05:39	06:08	06:38		07:09		06:44		07:10	15:12 (7)
	20:14	19:38	18:47		18:00		16:28		16:28	50 16:02 (21)
24	05:40	06:09	06:39		07:10		06:45		07:11	15:13 (7)
	20:13	19:36	18:46		17:59		16:28		16:28	50 16:03 (21)
25	05:40	06:10	06:40		06:11		06:47		07:11	15:13 (7)
	20:13	19:35	18:44		16:57		16:27		16:29	50 16:03 (21)
26	05:41	06:11	06:41		06:12		06:48		07:12	15:13 (7)
	20:12	19:33	18:42		16:56		16:27		16:29	50 16:03 (21)
27	05:42	06:12	06:42		06:13		06:49	15:17 (7)	07:12	15:14 (7)
	20:11	19:32	18:41		16:55		16:26	7 15:24 (7)	16:30	50 16:04 (21)
28	05:43	06:13	06:43		06:14		06:50	15:14 (7)	07:12	15:15 (7)
	20:10	19:30	18:39		16:53		16:26	13 15:27 (7)	16:31	49 16:04 (21)
29	05:44	06:14	06:44	18:03 (14)	06:15		06:51	15:12 (7)	07:13	15:15 (7)
	20:09	19:28	18:37	9 18:12 (14)	16:52		16:25	17 15:29 (7)	16:31	49 16:04 (21)
30	05:45	06:15	06:45	18:00 (14)	06:17		06:52	15:11 (7)	07:13	15:16 (7)
	20:08	19:27	18:36	13 18:13 (14)	16:51		16:25	20 15:31 (7)	16:32	48 16:04 (21)
31	05:46	06:16			06:18				07:13	15:16 (7)
	20:07	19:25			16:50				16:33	48 16:04 (21)
Potential sun hours	457	427	375		346		300		290	
Total, worst case			22	85	57			1421		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: AE - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (31)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January		February		March		April		May		June		July		August		September		October		November		December		
1	07:13		07:01	07:29 (16)	06:25	06:36	05:51	05:23	05:23	05:47	06:17	06:46	06:19				06:17	06:46	06:19			06:53	07:16 (16)		
	16:34		17:08	23 07:52 (16)	17:41	19:14	19:45	20:13	20:24	20:06	19:24	18:34	16:48				19:24	18:34	16:48			16:25	12 07:28 (16)		
2	07:13		07:00	07:31 (16)	06:24	06:34	05:50	05:22	05:24	05:48	06:18	06:47	06:20				06:18	06:47	06:20			06:54	07:17 (16)		
	16:35		17:09	19 07:50 (16)	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:32	16:47				19:22	18:32	16:47			16:24	11 07:28 (16)		
3	07:13		06:59	07:32 (16)	06:22	06:32	05:48	05:22	05:24	05:49	06:18	06:48	06:21				06:18	06:48	06:21			06:55	07:18 (16)		
	16:36		17:10	17 07:49 (16)	17:43	19:16	19:47	20:15	20:24	20:04	19:20	18:31	16:46				19:20	18:31	16:46			16:24	9 07:27 (16)		
4	07:14		07:35 (16)	06:58	07:35 (16)	06:21	06:31	05:47	05:22	05:25	05:50	06:19	06:49				06:19	06:49	06:22			06:56	07:19 (16)		
	16:36	2	07:37 (16)	17:11	12 07:47 (16)	17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45				19:19	18:29	16:45			16:24	8 07:27 (16)	
5	07:14		07:35 (16)	06:57	07:39 (16)	06:19	06:29	05:46	05:21	05:25	05:50	06:20	06:50				20:03	19:19	18:29	16:45			16:24	8 07:27 (16)	
	16:37	4	07:39 (16)	17:12	4 07:43 (16)	17:45	19:18	19:49	20:16	20:24	20:01	19:17	18:28	16:44				20:01	19:17	18:28	16:44			16:24	7 07:27 (16)
6	07:14		07:35 (16)	06:56	06:18	06:28	05:45	05:21	05:26	05:51	06:21	06:51	06:25				20:01	19:16	18:26	16:43	6 07:08 (16)	06:58	07:21 (16)		
	16:38	5	07:40 (16)	17:14	17:46	19:19	19:50	20:17	20:23	20:00	19:16	18:26	16:43				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
7	07:13		07:35 (16)	06:54	06:16	06:26	05:44	05:21	05:27	05:52	06:22	06:52	06:26				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:39	6	07:41 (16)	17:15	17:47	19:20	19:51	20:18	20:23	19:59	19:14	18:24	16:42				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
8	07:13		07:35 (16)	06:53	06:15	06:24	05:42	05:20	05:27	05:53	06:23	06:53	06:27				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:40	8	07:43 (16)	17:16	17:49	19:21	19:52	20:18	20:23	19:58	19:12	18:23	16:40				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
9	07:13		07:35 (16)	06:52	06:13	06:23	05:41	05:20	05:28	05:54	06:24	06:54	06:28				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:41	9	07:44 (16)	17:17	17:50	19:22	19:53	20:19	20:22	19:57	19:11	18:21	16:39				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
10	07:13		07:35 (16)	06:51	06:12	06:21	05:40	05:20	05:29	05:55	06:25	06:55	06:29				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:42	10	07:45 (16)	17:18	17:51	19:23	19:54	20:19	20:22	19:55	19:09	18:20	16:38				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
11	07:13		07:34 (16)	06:50	06:10	06:20	05:39	05:20	05:29	05:56	06:26	06:56	06:30				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:43	12	07:46 (16)	17:20	17:52	19:24	19:55	20:20	20:22	19:54	19:07	18:18	16:37				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
12	07:13		07:34 (16)	06:49	06:08	06:18	05:38	05:20	05:30	05:57	06:27	06:57	06:32				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:44	13	07:47 (16)	17:21	17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:16	16:37				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
13	07:12		07:34 (16)	06:47	06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:45	14	07:48 (16)	17:22	17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
14	07:12		07:33 (16)	06:46	06:05	06:15	05:36	05:20	05:31	05:59	06:29	06:59	06:34				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:46	16	07:49 (16)	17:23	17:55	19:27	19:58	20:21	20:20	19:50	19:02	18:13	16:35				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
15	07:12		07:33 (16)	06:45	06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:48	17	07:50 (16)	17:24	17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
16	07:11		07:32 (16)	06:44	06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:49	18	07:51 (16)	17:26	17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:10	16:33				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
17	07:11		07:32 (16)	06:42	06:00	06:10	05:33	05:20	05:34	06:02	06:32	07:02	06:37				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:50	19	07:51 (16)	17:27	17:58	19:30	20:01	20:22	20:19	19:46	18:57	18:09	16:32				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
18	07:10		07:31 (16)	06:41	05:59	06:09	05:32	05:20	05:34	06:03	06:33	07:03	06:39				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:51	20	07:51 (16)	17:28	17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:07	16:32				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
19	07:10		07:31 (16)	06:40	05:57	06:07	05:31	05:20	05:35	06:04	06:34	07:04	06:40				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:52	22	07:53 (16)	17:29	18:00	19:32	20:02	20:23	20:17	19:43	18:54	18:06	16:31				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
20	07:09		07:30 (16)	06:38	05:55	06:06	05:31	05:20	05:36	06:05	06:35	07:05	06:41				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:53	23	07:53 (16)	17:30	18:01	19:33	20:03	20:23	20:17	19:42	18:52	18:04	16:30				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
21	07:09		07:29 (16)	06:37	05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:06	06:42				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:54	24	07:53 (16)	17:32	18:02	19:34	20:04	20:24	20:16	19:40	18:51	18:03	16:29				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
22	07:08		07:29 (16)	06:36	05:52	06:03	05:29	05:20	05:38	06:07	06:37	07:08	06:43				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:55	25	07:54 (16)	17:33	18:03	19:35	20:05	20:24	20:15	19:39	18:49	18:02	16:29				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
23	07:08		07:28 (16)	06:34	05:50	06:02	05:28	05:20	05:39	06:08	06:38	07:09	06:44				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:57	26	07:54 (16)	17:34	18:04	19:36	20:06	20:24	20:14	19:38	18:47	18:00	16:28				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
24	07:07		07:27 (16)	06:33	05:49	06:00	05:27	05:21	05:39	06:09	06:39	07:10	06:45				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:58	27	07:54 (16)	17:35	18:06	19:37	20:07	20:24	20:13	19:36	18:46	17:59	16:28				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
25	07:06		07:27 (16)	06:31	05:47	05:59	05:27	05:21	05:40	06:10	06:40	07:11	06:47				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
	16:59	28	07:55 (16)	17:36	18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:57	16:27				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26 (16)		
26	07:06		07:26 (16)	06:30	05:46	05:57	05:26	05:21	05:41	06:11	06:41	07:12	06:48				20:00	19:16	18:26	16:43	6 07:14 (16)	16:24	5 07:26		

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 18:21/3.4.424

SHADOW - Calendar

Shadow receptor: AF - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (32)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December			
1	07:13 16:34	07:01 17:08	06:26 17:41	06:59 (8) 08:19 (8)	06:36 19:14	05:51 19:45	05:23 20:14	05:24 20:24	05:47 20:06	06:17 19:24	06:46 18:34	75 07:38 (8)	06:19 16:49	06:45 (8) 07:36 (8)	06:53 16:25
2	07:14 16:35	07:00 17:09	06:24 17:42	06:59 (8) 08:20 (8)	06:34 19:15	05:50 19:46	05:22 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:33	76 08:53 (8)	06:20 16:47	06:47 (8) 07:35 (8)	06:54 16:25
3	07:14 16:36	06:59 17:10	07:39 (8) 07:41 (8)	06:23 17:43	06:58 (8) 08:19 (8)	06:33 19:16	05:48 19:47	05:22 20:15	05:24 20:24	05:49 20:04	06:19 19:21	77 08:54 (8)	06:21 16:46	06:49 (8) 07:32 (8)	06:55 16:24
4	07:14 16:37	06:58 17:11	07:30 (8) 07:50 (8)	06:21 17:44	06:59 (8) 08:19 (8)	06:31 19:17	05:47 19:48	05:22 20:16	05:25 20:24	05:50 20:03	06:20 19:20	78 08:54 (8)	06:22 16:45	06:51 (8) 07:30 (8)	06:56 16:24
5	07:14 16:38	06:57 17:13	07:26 (8) 07:54 (8)	06:20 17:45	06:58 (8) 08:18 (8)	06:29 19:18	05:46 19:49	05:21 20:16	05:26 20:24	05:51 20:02	06:21 19:17	79 08:54 (8)	06:24 16:44	06:53 (8) 07:27 (8)	06:57 16:24
6	07:14 16:38	06:56 17:14	07:23 (8) 07:58 (8)	06:18 17:46	06:58 (8) 08:19 (8)	06:28 19:19	05:45 19:50	05:21 20:17	05:26 20:24	05:52 20:00	06:22 19:16	80 08:54 (8)	06:25 16:43	06:56 (8) 07:24 (8)	06:58 16:24
7	07:14 16:39	06:55 17:15	07:21 (8) 08:00 (8)	06:16 17:48	06:58 (8) 08:18 (8)	06:26 19:20	05:44 19:51	05:21 20:18	05:27 20:23	05:53 20:19	06:22 19:22	81 08:54 (8)	06:26 16:42	07:01 (8) 07:20 (8)	06:59 16:24
8	07:14 16:40	06:54 17:16	07:19 (8) 08:03 (8)	06:15 17:49	06:58 (8) 08:17 (8)	06:25 19:21	05:43 19:52	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:13	82 08:54 (8)	06:27 16:41	07:00 07:21	06:59 16:24
9	07:13 16:41	07:02 17:17	07:17 (8) 08:05 (8)	06:13 17:50	06:58 (8) 08:17 (8)	06:23 19:22	05:41 19:53	05:20 20:19	05:28 20:23	05:54 19:57	06:24 19:11	83 08:54 (8)	06:28 16:40	07:01 07:22	06:59 16:24
10	07:13 16:42	06:51 17:19	07:16 (8) 08:07 (8)	06:12 17:51	06:58 (8) 08:15 (8)	06:21 19:23	05:40 19:54	05:20 20:19	05:29 20:22	05:55 19:56	06:25 19:09	84 08:54 (8)	06:29 16:39	07:02 07:23	06:59 16:24
11	07:13 16:43	06:50 17:20	07:13 (8) 08:08 (8)	06:10 17:52	06:59 (8) 08:15 (8)	06:20 19:24	05:39 19:55	05:20 20:20	05:29 20:22	05:56 19:54	06:26 19:08	85 08:53 (8)	06:31 16:38	07:02 07:23	06:59 16:24
12	07:13 16:43	06:49 17:21	07:12 (8) 08:10 (8)	06:09 17:53	06:59 (8) 08:14 (8)	06:18 19:25	05:38 19:56	05:20 20:20	05:30 20:21	05:57 19:53	06:27 19:06	86 08:53 (8)	06:32 16:37	07:03 07:24	06:59 16:24
13	07:13 16:45	06:48 17:22	07:11 (8) 08:11 (8)	06:07 17:54	06:58 (8) 08:13 (8)	06:17 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	87 08:53 (8)	06:33 16:36	07:04 07:25	06:59 16:24
14	07:12 16:47	06:46 17:23	07:10 (8) 08:13 (8)	06:05 17:55	06:59 (8) 08:12 (8)	06:15 19:27	05:36 19:58	05:20 20:21	05:31 20:20	05:59 19:50	06:29 19:03	88 08:25 (8)	06:34 16:35	07:05 07:26	06:59 16:24
15	07:12 16:48	06:45 17:25	07:08 (8) 08:13 (8)	06:04 17:56	06:59 (8) 08:11 (8)	06:14 19:28	05:35 19:59	05:20 20:22	05:32 20:19	06:00 19:49	06:30 19:01	89 08:26 (8)	06:35 16:34	07:06 07:27	06:59 16:24
16	07:12 16:49	06:44 17:26	07:08 (8) 08:15 (8)	06:02 17:57	06:59 (8) 08:09 (8)	06:02 19:29	05:34 20:00	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	90 08:04 (8)	06:36 16:33	07:06 07:28	06:59 16:24
17	07:11 16:50	06:43 17:27	07:07 (8) 08:16 (8)	06:00 17:58	07:01 (8) 08:08 (8)	06:11 19:30	05:33 20:01	05:20 20:23	05:34 20:19	06:02 19:46	06:32 18:58	91 08:08 (8)	06:37 16:32	07:07 07:29	06:59 16:24
18	07:11 16:51	06:41 17:28	07:05 (8) 08:16 (8)	05:59 17:59	07:01 (8) 08:06 (8)	06:09 19:31	05:32 20:02	05:20 20:23	05:35 20:18	06:03 19:45	06:33 18:56	92 07:58 (8)	06:38 16:32	07:08 07:30	06:59 16:24
19	07:10 16:52	06:40 17:29	07:05 (8) 08:17 (8)	05:57 18:00	07:03 (8) 08:05 (8)	06:08 19:32	05:32 20:03	05:20 20:23	05:35 20:17	06:04 19:44	06:34 18:54	93 07:55 (8)	06:39 16:31	07:09 07:31	06:59 16:24
20	07:10 16:53	06:39 17:31	07:05 (8) 08:18 (8)	05:56 18:01	07:03 (8) 08:08 (8)	06:06 19:34	05:31 20:04	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:53	94 07:53 (8)	06:40 16:30	07:10 07:32	06:59 16:24
21	07:09 16:54	06:37 17:32	07:03 (8) 08:18 (8)	05:54 18:03	07:04 (8) 08:01 (8)	06:05 19:35	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:41	06:36 18:51	95 07:51 (8)	06:41 16:29	07:11 07:33	06:59 16:24
22	07:08 16:55	06:36 17:33	07:03 (8) 08:19 (8)	05:52 18:04	07:05 (8) 08:06 (8)	06:03 19:36	05:29 20:05	05:20 20:24	05:38 20:15	06:07 19:37	06:37 18:49	96 07:49 (8)	06:42 16:28	07:12 07:34	06:59 16:24
23	07:08 16:57	06:34 17:34	07:02 (8) 08:19 (8)	05:51 18:05	07:06 (8) 07:57 (8)	06:02 19:37	05:28 20:06	05:20 20:24	05:39 20:14	06:08 19:38	06:38 18:48	97 07:48 (8)	06:43 16:27	07:13 07:35	06:59 16:24
24	07:07 16:58	06:33 17:35	07:02 (8) 08:20 (8)	05:49 18:06	07:08 (8) 07:55 (8)	06:00 19:38	05:28 20:07	05:20 20:24	05:40 20:14	06:09 19:36	06:39 18:46	98 07:46 (8)	06:44 16:26	07:14 07:36	06:59 16:24
25	07:06 16:59	06:32 17:36	07:00 (8) 08:19 (8)	05:47 18:07	07:10 (8) 07:53 (8)	05:59 19:39	05:27 20:08	05:20 20:24	05:40 20:13	06:10 19:35	06:40 18:44	99 07:45 (8)	06:45 16:25	07:15 07:37	06:59 16:24
26	07:06 17:00	06:30 17:37	07:00 (8) 08:20 (8)	05:46 18:08	07:12 (8) 07:50 (8)	05:58 19:40	05:26 20:09	05:21 20:24	05:41 20:12	06:11 19:33	06:41 18:43	100 07:44 (8)	06:46 16:24	07:16 07:38	06:59 16:24
27	07:05 17:02	06:29 17:39	07:00 (8) 08:19 (8)	05:44 18:09	07:14 (8) 07:46 (8)	05:56 19:41	05:26 20:10	05:22 20:25	05:42 20:11	06:12 19:32	06:42 18:41	101 07:42 (8)	06:47 16:23	07:17 07:39	06:59 16:24
28	07:04 17:03	06:27 17:40	07:00 (8) 08:20 (8)	05:42 18:10	07:18 (8) 07:42 (8)	05:55 19:42	05:25 20:10	05:22 20:25	05:43 20:10	06:13 19:30	06:43 18:39	102 07:41 (8)	06:48 16:22	07:18 07:40	06:59 16:24
29	07:03 17:04				07:23 (8) 08:23 (8)	05:54 19:43	05:24 20:11	05:23 20:25	05:44 20:09	06:14 19:29	06:44 18:38	103 07:40 (8)	06:49 16:21	07:19 07:41	06:59 16:24
30	07:02 17:05					05:52 19:44	05:24 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:45 18:36	104 07:39 (8)	06:50 16:20	07:20 07:42	06:59 16:24
31	07:02 17:06						05:22 20:13	05:24 20:07	05:46 20:05	06:16 19:25	06:46 18:35	105 07:38 (8)	06:51 16:19	07:21 07:43	06:59 16:24
Potential sun hours	299	298	370	398	447	450	457	427	375	889	2295	346	300	262	290
Total, worst case		1544	1852												

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	(WTG causing flicker first time)
Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AG - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (33)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:13 16:34 46	08:19 (15) 09:05 (15) 17:08	07:01 17:08	06:26 17:41	16:39 (21) 17:10 (21) 19:14	17:23 (7) 18:42 (7) 19:45 20:13
2	07:13 16:35 45	08:20 (15) 09:05 (15) 17:09	07:00 17:09	06:24 17:42	16:41 (21) 17:09 (21) 19:15	17:22 (7) 18:40 (7) 19:46 20:14
3	07:13 16:36 44	08:21 (15) 09:05 (15) 17:10	06:59 17:10	06:22 17:43	16:42 (21) 17:06 (21) 19:16	17:23 (7) 18:38 (7) 19:47 20:15
4	07:14 16:37 43	08:22 (15) 09:05 (15) 17:11	06:58 17:11	06:21 17:44	16:45 (21) 17:15 (7) 19:17	17:23 (7) 18:36 (7) 19:48 20:16
5	07:14 16:37 42	08:23 (15) 09:05 (15) 17:12	06:57 17:12	06:19 17:45	16:47 (21) 17:22 (7) 19:18	17:24 (7) 18:34 (7) 19:49 20:16
6	07:14 16:38 41	08:24 (15) 09:05 (15) 17:14	06:56 17:14	06:18 17:46	16:53 (7) 17:26 (7) 19:19	17:23 (7) 18:32 (7) 19:50 20:17
7	07:14 16:39 40	08:25 (15) 09:05 (15) 17:15	06:54 17:15	06:16 17:47	16:49 (7) 17:27 (7) 19:20	17:23 (7) 18:29 (7) 19:51 20:18
8	07:13 16:40 39	08:26 (15) 09:05 (15) 17:16	06:53 17:16	06:15 17:49	16:46 (7) 17:27 (7) 19:21	17:24 (7) 18:28 (7) 19:52 20:18
9	07:13 16:41 38	08:27 (15) 09:05 (15) 17:17	06:52 17:17	06:13 17:50	16:44 (7) 17:29 (7) 19:22	17:24 (7) 18:25 (7) 19:53 20:19
10	07:13 16:42 36	08:29 (15) 09:05 (15) 17:19	06:51 17:19	06:12 17:51	16:42 (7) 17:30 (7) 19:23	17:25 (7) 18:27 (7) 19:54 20:19
11	07:13 16:43 35	08:29 (15) 09:04 (15) 17:20	06:50 17:20	06:10 17:52	16:40 (7) 17:31 (7) 19:24	17:26 (7) 18:21 (7) 19:55 20:20
12	07:13 16:44 32	08:31 (15) 09:03 (15) 17:21	06:49 17:21	06:08 17:53	16:38 (7) 17:32 (7) 19:25	17:27 (7) 18:20 (7) 19:56 20:20
13	07:12 16:45 30	08:33 (15) 09:03 (15) 17:22	06:48 17:22	06:07 17:54	16:36 (7) 17:33 (7) 19:26	17:27 (7) 18:17 (7) 19:57 20:21
14	07:12 16:47 27	08:34 (15) 09:01 (15) 17:23	06:46 17:23	06:05 17:55	16:35 (7) 17:35 (7) 19:27	17:27 (7) 18:15 (7) 19:58 20:21
15	07:12 16:48 24	08:36 (15) 09:00 (15) 17:25	06:45 17:25	06:04 17:56	16:33 (7) 17:35 (7) 19:28	17:29 (7) 18:13 (7) 19:59 20:22
16	07:11 16:49 20	08:38 (15) 08:58 (15) 17:26	06:44 17:26	06:02 17:57	16:32 (7) 17:36 (7) 19:29	17:29 (7) 18:11 (7) 20:00 20:22
17	07:11 16:50 13	08:42 (15) 08:55 (15) 17:27	06:42 17:27	06:00 17:58	16:31 (7) 17:38 (7) 19:30	17:31 (7) 18:09 (7) 20:01 20:22
18	07:10 16:51 19	06:41 17:28	06:41 17:28	05:59 17:59	16:30 (7) 17:38 (7) 19:31	17:33 (7) 18:08 (7) 20:02 20:23
19	07:10 16:52 16	06:40 17:29	06:40 17:29	05:57 18:00	16:29 (7) 17:39 (7) 19:32	17:34 (7) 18:05 (7) 20:03 20:23
20	07:09 16:53 21	06:38 17:30	06:38 17:30	05:55 18:01	16:28 (7) 17:41 (7) 19:33	17:36 (7) 18:03 (7) 20:03 20:23
21	07:09 16:54 22	06:37 17:32	06:37 17:32	05:54 18:02	16:27 (7) 17:42 (7) 19:34	17:37 (7) 18:01 (7) 20:04 20:24
22	07:08 16:56 23	06:36 17:33	06:36 17:33	05:52 18:03	16:26 (7) 17:42 (7) 19:35	17:39 (7) 17:59 (7) 20:05 20:24
23	07:08 16:57 24	06:34 17:34	06:34 17:34	05:51 18:05	16:26 (7) 17:44 (7) 19:36	17:41 (7) 17:57 (7) 20:06 20:24
24	07:07 16:58 25	06:33 17:35	06:33 17:35	05:49 18:06	16:25 (7) 17:43 (7) 19:38	17:44 (7) 17:55 (7) 20:07 20:24
25	07:06 16:59 26	06:31 17:36	06:31 17:36	05:47 18:07	16:25 (7) 17:44 (7) 19:39	17:49 (7) 17:54 (7) 20:08 20:24
26	07:06 17:00 27	06:30 17:37	06:30 17:37	05:46 18:08	16:24 (7) 17:44 (7) 19:40	05:26 20:09 20:24
27	07:05 17:02 28	06:28 17:39	06:28 17:39	05:44 18:09	16:24 (7) 17:43 (7) 19:41	05:26 20:10 20:24
28	07:04 17:03 29	06:27 17:40	06:27 17:40	05:42 18:10	16:24 (7) 17:44 (7) 19:42	05:25 20:10 20:24
29	07:03 17:04 30			06:41 19:11	17:23 (7) 18:43 (7) 19:43	05:24 20:11 20:24
30	07:02 17:05 31			06:39 19:12	17:23 (7) 18:42 (7) 19:44	05:24 20:12 20:24
Potential sun hours	299	298	370	398	446	450
Total, worst case	595	570	1842	1193		

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	(WTG causing flicker first time)
Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AG - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (33)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:23 20:24	05:47 20:06	06:17 19:24	17:24 (7) 18:20 (7)	06:46 18:34	17:16 (7) 18:11 (7)
2	05:24 20:24	05:48 20:05	06:18 19:22	17:23 (7) 18:22 (7)	06:47 18:33	17:17 (7) 18:10 (7)
3	05:24 20:24	05:49 20:04	06:19 19:21	17:22 (7) 18:21 (7)	06:48 18:31	17:19 (7) 18:08 (7)
4	05:25 20:24	05:50 20:03	06:20 19:19	17:21 (7) 18:25 (7)	06:49 18:29	17:21 (7) 18:07 (7)
5	05:26 20:24	05:51 20:02	06:20 19:17	17:20 (7) 18:26 (7)	06:50 18:28	17:23 (7) 18:06 (7)
6	05:26 20:23	05:52 20:00	06:21 19:16	17:19 (7) 18:28 (7)	06:51 18:26	17:25 (7) 18:04 (7)
7	05:27 20:23	05:52 19:59	06:22 19:14	17:19 (7) 18:29 (7)	06:52 18:24	17:27 (7) 18:02 (7)
8	05:27 20:23	05:53 19:58	06:23 19:12	17:18 (7) 18:31 (7)	06:53 18:23	17:26 (21) 18:00 (7)
9	05:28 20:22	05:54 19:57	06:24 19:11	17:17 (7) 18:32 (7)	06:54 18:21	17:21 (21) 17:54 (7)
10	05:29 20:22	05:55 19:55	06:25 19:09	17:16 (7) 18:33 (7)	06:55 18:20	17:18 (21) 17:40 (21)
11	05:29 20:22	05:56 19:54	06:26 19:07	17:15 (7) 18:34 (7)	06:56 18:18	17:15 (21) 17:42 (21)
12	05:30 20:21	05:57 19:53	06:27 19:06	17:14 (7) 18:34 (7)	06:57 18:17	17:14 (21) 17:43 (21)
13	05:31 20:21	05:58 19:52	06:28 19:04	17:14 (7) 18:33 (7)	06:58 18:15	17:12 (21) 17:44 (21)
14	05:31 20:20	05:59 19:50	06:29 19:02	17:13 (7) 18:33 (7)	06:59 18:13	17:11 (21) 17:44 (21)
15	05:32 20:20	06:00 19:49	06:30 19:01	17:13 (7) 18:33 (7)	07:00 18:12	17:09 (21) 17:45 (21)
16	05:33 20:19	06:01 19:48	06:31 18:59	17:13 (7) 18:32 (7)	07:01 18:10	17:08 (21) 17:45 (21)
17	05:34 20:19	06:02 19:46	06:32 18:57	17:13 (7) 18:32 (7)	07:02 18:09	17:08 (21) 17:45 (21)
18	05:35 20:18	06:03 19:45	06:33 18:56	17:12 (7) 18:31 (7)	07:03 18:07	17:08 (21) 17:45 (21)
19	05:35 20:17	06:04 19:43	06:34 18:54	17:12 (7) 18:31 (7)	07:04 18:06	17:07 (21) 17:43 (21)
20	05:36 20:17	06:05 19:42	06:35 18:52	17:12 (7) 18:30 (7)	07:05 18:04	17:07 (21) 17:42 (21)
21	05:37 20:16	06:06 19:41	06:36 18:51	17:12 (7) 18:29 (7)	07:06 18:03	17:06 (21) 17:40 (21)
22	05:38 20:15	06:07 19:39	06:37 18:49	17:12 (7) 18:27 (7)	07:08 18:02	17:06 (21) 17:38 (21)
23	05:39 20:14	06:08 19:38	06:38 18:47	17:12 (7) 18:26 (7)	07:09 18:00	17:06 (21) 17:37 (21)
24	05:40 20:13	06:09 19:36	06:39 18:46	17:13 (7) 18:24 (7)	07:10 17:59	17:07 (21) 17:36 (21)
25	05:40 20:13	06:10 19:35	06:40 18:44	17:13 (7) 18:22 (7)	07:11 16:57	17:36 (21) 16:35 (21)
26	05:41 20:12	06:11 19:33	06:41 18:42	17:13 (7) 18:21 (7)	07:12 16:56	16:07 (21) 16:33 (21)
27	05:42 20:11	06:12 19:32	06:42 18:41	17:14 (7) 18:19 (7)	07:13 16:55	16:07 (21) 16:32 (21)
28	05:43 20:10	06:13 19:30	06:43 18:39	17:14 (7) 18:16 (7)	07:14 16:53	16:08 (21) 16:30 (21)
29	05:44 20:09	06:14 19:28	06:44 18:37	17:14 (7) 18:15 (7)	07:15 16:52	16:08 (21) 16:28 (21)
30	05:45 20:08	06:15 19:27	06:45 18:36	17:15 (7) 18:13 (7)	07:16 16:51	16:10 (21) 16:28 (21)
31	05:46 20:07	06:16 19:25	06:46 18:35	17:16 (7) 18:14 (7)	07:17 16:50	16:11 (21) 16:26 (21)
Potential sun hours	457	427	375	346	300	290
Total, worst case		453	2142	1028	175	1411

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AH - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (34)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	07:00 17:07	06:25 17:41	06:36 19:14	05:51 19:44	05:23 20:13	05:23 20:24	05:47 20:06	06:16 19:23	06:45 18:34	06:19 16:48	06:53 16:25
2	07:13 16:35	06:59 17:09	06:24 17:42	06:34 19:15	05:49 19:45	05:22 20:14	05:24 20:24	05:48 20:05	06:17 19:22	06:46 18:32	06:20 16:47	06:54 16:24
3	07:13 16:36	06:58 17:10	06:22 17:43	06:32 19:16	05:48 19:47	05:22 20:15	05:24 20:24	05:48 20:03	06:18 19:20	06:47 18:31	06:21 16:46	06:55 16:24
4	07:13 16:36	06:57 17:11	06:21 17:44	06:31 19:17	05:47 19:48	05:21 20:15	05:25 20:24	05:49 20:02	06:19 19:19	06:48 18:29	06:22 16:45	06:56 16:24
5	07:13 16:37	06:56 17:12	06:19 17:45	06:29 19:18	05:46 19:49	05:21 20:16	05:25 20:23	05:50 20:01	06:20 19:17	06:49 18:27	06:23 16:44	06:57 16:24
6	07:13 16:38	06:55 17:14	06:18 17:46	06:27 19:19	05:45 19:50	05:21 20:17	05:26 20:23	05:51 20:00	06:21 19:15	06:50 18:26	06:24 16:43	06:58 16:24
7	07:13 16:39	06:54 17:15	06:16 17:47	06:26 19:20	05:43 19:51	05:21 20:17	05:27 20:23	05:52 19:59	06:22 19:14	06:51 18:24	06:26 16:41	06:59 16:24
8	07:13 16:40	06:53 17:16	06:15 17:48	06:24 19:21	05:42 19:52	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:40	06:59 16:24
9	07:13 16:41	06:52 17:17	06:13 17:49	06:23 19:22	05:41 19:53	05:20 20:18	05:28 20:22	05:54 19:56	06:24 19:11	06:54 18:21	06:28 16:39	07:00 16:24
10	07:13 16:42	06:51 17:18	06:11 17:51	06:21 19:23	05:40 19:54	05:20 20:19	05:28 20:22	05:55 19:55	06:25 19:09	06:55 18:19	06:29 16:38	07:01 16:24
11	07:13 16:43	06:50 17:20	06:10 17:52	06:20 19:24	05:39 19:55	05:20 20:20	05:29 20:21	05:56 19:54	06:26 19:07	06:56 18:18	06:30 16:37	07:02 16:24
12	07:12 16:44	06:49 17:21	06:08 17:53	06:18 19:25	05:38 19:56	05:20 20:20	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	06:31 16:36	07:03 16:24
13	07:12 16:45	06:47 17:22	06:07 17:54	06:16 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:51	06:28 19:04	06:58 18:15	06:33 16:36	07:04 16:24
14	07:12 16:46	06:46 17:23	06:05 17:55	06:15 19:27	05:36 19:58	05:19 20:21	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	06:34 16:35	07:04 16:24
15	07:11 16:47	06:45 17:24	06:03 17:56	06:13 19:28	05:35 19:58	05:19 20:21	05:32 20:19	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	07:05 16:24
16	07:11 16:49	06:44 17:26	06:02 17:57	06:12 19:29	05:34 19:59	05:19 20:22	05:33 20:19	06:01 19:47	06:31 18:59	07:01 18:10	06:36 16:33	07:06 16:25
17	07:11 16:50	06:42 17:27	06:00 17:58	06:10 19:30	05:33 20:00	05:19 20:22	05:34 20:18	06:02 19:46	06:32 18:57	07:02 18:09	06:37 16:32	07:07 16:25
18	07:10 16:51	06:41 17:28	05:58 17:59	06:09 19:31	05:32 20:01	05:20 20:22	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:38 16:31	07:07 16:25
19	07:10 16:52	06:40 17:29	05:57 18:00	06:07 19:32	05:31 20:02	05:20 20:23	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31	07:08 16:26
20	07:09 16:53	06:38 17:30	05:55 18:01	06:06 19:33	05:30 20:03	05:20 20:23	05:36 20:16	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30	07:08 16:26
21	07:09 16:54	06:37 17:31	05:54 18:02	06:04 19:34	05:30 20:04	05:20 20:23	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	06:42 16:29	07:09 16:27
22	07:08 16:55	06:35 17:33	05:52 18:03	06:03 19:35	05:29 20:05	05:20 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:07 18:01	06:43 16:29	07:09 16:27
23	07:07 16:57	06:34 17:34	05:50 18:04	06:02 19:36	05:28 20:06	05:20 20:24	05:38 20:14	06:08 19:37	06:38 18:47	07:08 18:00	06:44 16:28	07:10 16:28
24	07:07 16:58	06:33 17:35	05:49 18:05	06:00 19:37	05:27 20:07	05:21 20:24	05:39 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:28	07:10 16:28
25	07:06 16:59	06:31 17:36	05:47 18:06	05:59 19:38	05:27 20:08	05:21 20:24	05:40 20:12	06:10 19:34	06:40 18:44	06:11 16:57	06:46 16:27	07:11 16:29
26	07:05 17:00	06:30 17:37	05:45 18:07	05:57 19:39	05:26 20:08	05:21 20:24	05:41 20:11	06:11 19:33	06:40 18:42	06:12 16:56	06:47 16:27	07:11 16:29
27	07:05 17:01	06:28 17:38	05:44 18:08	05:56 19:40	05:25 20:09	05:22 20:24	05:42 20:11	06:12 19:31	06:41 18:41	06:13 16:55	06:48 16:26	07:12 16:30
28	07:04 17:03	06:27 17:39	05:42 18:09	05:55 19:41	05:25 20:10	05:22 20:24	05:43 20:10	06:13 19:30	06:42 18:39	06:14 16:53	06:50 16:26	07:12 16:31
29	07:03 17:04		06:40 19:11	05:53 19:42	05:24 20:11	05:22 20:24	05:44 20:09	06:14 19:28	06:43 18:37	06:15 16:52	06:51 16:25	07:12 16:31
30	07:02 17:05		06:39 19:12	05:52 19:43	05:24 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:44 18:36	06:16 16:51	06:52 16:25	07:13 16:32
31	07:01 17:06		06:37 19:13		05:23 20:12		05:46 20:07	06:15 19:25		06:17 16:49		07:13 16:33
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case												

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: AI - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (35)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January			February			March			April			May			June		
1	07:13		07:35 (15)	07:01		09:02 (7)	06:26		06:36			18:05 (14)	05:51		05:23		
	16:34	104	09:46 (7)	17:08	21	09:23 (7)	17:41		19:14	37		18:42 (14)	19:45		20:14		
2	07:13		07:36 (15)	07:00		09:11 (7)	06:24		06:34			18:04 (14)	05:50		05:22		
	16:35	104	09:47 (7)	17:09	3	09:14 (7)	17:42		19:15	36		18:40 (14)	19:46		20:14		
3	07:14		07:36 (15)	06:59			06:23		06:33			18:05 (14)	05:48		05:22		
	16:36	104	09:47 (7)	17:10			17:43		19:16	33		18:38 (14)	19:47		20:15		
4	07:14		07:36 (15)	06:58			06:21		06:31			18:05 (14)	05:47		05:22		
	16:37	104	09:47 (7)	17:11			17:44		19:17	31		18:36 (14)	19:48		20:16		
5	07:14		07:35 (15)	06:57			06:19		06:29			18:05 (14)	05:46		05:21		
	16:38	104	09:47 (7)	17:13			17:45		19:18	29		18:34 (14)	19:49		20:16		
6	07:14		07:35 (15)	06:56			06:18		06:28			18:05 (14)	05:45		05:21		
	16:38	105	09:47 (7)	17:14			17:46		19:19	27		18:32 (14)	19:50		20:17		
7	07:14		07:35 (15)	06:55			06:16		06:26			18:06 (14)	05:44		05:21		
	16:39	104	09:47 (7)	17:15			17:48		19:20	23		18:29 (14)	19:51		20:18		
8	07:13		07:35 (15)	06:53			06:15		06:25			18:07 (14)	05:42		05:20		
	16:40	104	09:47 (7)	17:16			17:49		19:21	21		18:28 (14)	19:52		20:18		
9	07:13		07:35 (15)	06:52			06:13		06:23			18:07 (14)	05:41		05:20		
	16:41	104	09:48 (7)	17:17			17:50		19:22	18		18:25 (14)	19:53		20:19		
10	07:13		07:35 (15)	06:51			06:12		06:21			18:09 (14)	05:40		05:20		
	16:42	104	09:48 (7)	17:19			17:51		19:23	15		18:24 (14)	19:54		20:19		
11	07:13		07:34 (15)	06:50			06:10		06:20			18:10 (14)	05:39		05:20		
	16:43	104	09:47 (7)	17:20			17:52		19:24	11		18:21 (14)	19:55		20:20		
12	07:13		07:35 (15)	06:49			06:08		06:18			18:12 (14)	05:38		05:20		
	16:44	102	09:47 (7)	17:21			17:53		19:25	8		18:20 (14)	19:56		20:20		
13	07:12		07:36 (15)	06:48			06:07		06:17			18:13 (14)	05:37		05:20		
	16:45	101	09:47 (7)	17:22			17:54		19:26	4		18:17 (14)	19:57		20:21		
14	07:12		07:36 (15)	06:46			06:05		06:15				05:36		05:20		
	16:47	99	09:47 (7)	17:23			17:55		19:27				19:58		20:21		
15	07:12		07:37 (15)	06:45			06:04		06:14				05:35		05:20		
	16:48	98	09:47 (7)	17:25			17:56		19:28				19:59		20:22		
16	07:11		07:37 (15)	06:44			06:02	11	17:25 (14)	06:12			05:34		05:20		
	16:49	96	09:46 (7)	17:26			17:57		17:36 (14)	19:29			20:00		20:22		
17	07:11		07:39 (15)	06:42			06:00		17:22 (14)	06:11			05:33		05:20		
	16:50	92	09:46 (7)	17:27			17:58	16	17:38 (14)	19:30			20:01		20:22		
18	07:11		07:39 (15)	06:41			05:59		17:19 (14)	06:09			05:32		05:20		
	16:51	91	09:45 (7)	17:28			17:59	19	17:38 (14)	19:31			20:02		20:23		
19	07:10		07:41 (15)	06:40			05:57		17:16 (14)	06:08			05:31		05:20		
	16:52	87	09:45 (7)	17:29			18:00	23	17:39 (14)	19:32			20:03		20:23		
20	07:10		07:42 (15)	06:38			05:55		17:15 (14)	06:06			05:31		05:20		
	16:53	83	09:44 (7)	17:31			18:01	26	17:41 (14)	19:33			20:03		20:23		
21	07:09		07:43 (15)	06:37			05:54		17:13 (14)	06:05			05:30		05:20		
	16:54	80	09:43 (7)	17:32			18:02	29	17:42 (14)	19:34			20:04		20:24		
22	07:08		07:45 (15)	06:36			05:52		17:12 (14)	06:03			05:29		05:20		
	16:56	75	09:43 (7)	17:33			18:04	31	17:43 (14)	19:35			20:05		20:24		
23	07:08		07:47 (15)	06:34			05:51		17:10 (14)	06:02			05:28		05:21		
	16:57	69	09:42 (7)	17:34			18:05	34	17:44 (14)	19:37			20:06		20:24		
24	07:07		08:44 (7)	06:33			05:49		17:09 (14)	06:00			05:28		05:21		
	16:58	56	09:40 (7)	17:35			18:06	36	17:45 (14)	19:38			20:07		20:24		
25	07:06		08:46 (7)	06:31			05:47		17:08 (14)	05:59			05:27		05:21		
	16:59	54	09:40 (7)	17:36			18:07	38	17:46 (14)	19:39			20:08		20:24		
26	07:06		08:48 (7)	06:30			05:46		17:07 (14)	05:58			05:26		05:21		
	17:00	50	09:38 (7)	17:37			18:08	40	17:47 (14)	19:40			20:09		20:24		
27	07:05		08:49 (7)	06:29			05:44		17:06 (14)	05:56			05:26		05:22		
	17:02	48	09:37 (7)	17:39			18:09	42	17:48 (14)	19:41			20:10		20:24		
28	07:04		08:51 (7)	06:27			05:42		17:06 (14)	05:55			05:25		05:22		
	17:03	44	09:35 (7)	17:40			18:10	43	17:49 (14)	19:42			20:11		20:24		
29	07:03		08:53 (7)				06:41		18:05 (14)	05:54			05:24		05:23		
	17:04	39	09:32 (7)				19:11	44	18:49 (14)	19:43			20:11		20:24		
30	07:02		08:55 (7)				06:39		18:05 (14)	05:52			05:24		05:23		
	17:05	35	09:30 (7)				19:12	41	18:46 (14)	19:44			20:12		20:24		
31	07:01		08:58 (7)				06:37		18:05 (14)				05:23				
	17:06	29	09:27 (7)				19:13	40	18:45 (14)				20:13				
Potential sun hours	299			298			370		398			293		446		450	
Total, worst case	2573			24			513										

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AI - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (35)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July		August		September		October		November		December	
1	05:23	05:47			06:17	18:09 (14)	06:46	06:19			06:53	07:16 (15)
	20:24	20:06			19:24	11 18:20 (14)	18:34	16:48			16:25	104 09:29 (7)
2	05:24	05:48			06:18	18:07 (14)	06:47	06:20			06:54	07:17 (15)
	20:24	20:05			19:22	15 18:22 (14)	18:33	16:47			16:25	104 09:30 (7)
3	05:24	05:49			06:19	18:05 (14)	06:48	06:21			06:55	07:18 (15)
	20:24	20:04			19:21	18 18:23 (14)	18:31	16:46			16:24	104 09:31 (7)
4	05:25	05:50			06:20	18:04 (14)	06:49	06:22			06:56	07:19 (15)
	20:24	20:03			19:19	21 18:25 (14)	18:29	16:45			16:24	104 09:31 (7)
5	05:26	05:51			06:21	18:03 (14)	06:50	06:24			06:57	07:20 (15)
	20:24	20:02			19:17	23 18:26 (14)	18:28	16:44			16:24	104 09:32 (7)
6	05:26	05:52			06:21	18:02 (14)	06:51	06:25			06:58	07:21 (15)
	20:23	20:00			19:16	26 18:28 (14)	18:26	16:43			16:24	104 09:33 (7)
7	05:27	05:53			06:22	18:01 (14)	06:52	06:26			06:59	07:22 (15)
	20:23	19:59			19:14	28 18:29 (14)	18:24	16:42			16:24	104 09:34 (7)
8	05:27	05:53			06:23	18:00 (14)	06:53	06:27			07:00	07:23 (15)
	20:23	19:58			19:12	31 18:31 (14)	18:23	16:41			16:24	104 09:34 (7)
9	05:28	05:54			06:24	17:59 (14)	06:54	06:28		08:40 (7)	07:01	07:24 (15)
	20:23	19:57			19:11	33 18:32 (14)	18:21	16:40	7	08:47 (7)	16:24	104 09:35 (7)
10	05:29	05:55			06:25	17:58 (14)	06:55	06:29		08:33 (7)	07:02	07:25 (15)
	20:22	19:56			19:09	36 18:34 (14)	18:20	16:39	21	08:54 (7)	16:24	104 09:36 (7)
11	05:29	05:56			06:26	17:57 (14)	06:56	06:31		08:30 (7)	07:02	07:26 (15)
	20:22	19:54			19:08	37 18:34 (14)	18:18	16:38	29	08:59 (7)	16:24	104 09:37 (7)
12	05:30	05:57			06:27	17:56 (14)	06:57	06:32		08:27 (7)	07:03	07:27 (15)
	20:21	19:53			19:06	40 18:36 (14)	18:17	16:37	35	09:02 (7)	16:24	104 09:38 (7)
13	05:31	05:58			06:28	17:56 (14)	06:58	06:33		08:25 (7)	07:04	07:27 (15)
	20:21	19:52			19:04	41 18:37 (14)	18:15	16:36	40	09:05 (7)	16:24	104 09:37 (7)
14	05:31	05:59			06:29	17:56 (14)	06:59	06:34		08:23 (7)	07:05	07:28 (15)
	20:20	19:50			19:03	43 18:39 (14)	18:13	16:35	44	09:07 (7)	16:24	103 09:38 (7)
15	05:32	06:00			06:30	17:56 (14)	07:00	06:35		08:22 (7)	07:05	07:29 (15)
	20:20	19:49			19:01	43 18:39 (14)	18:12	16:34	48	09:10 (7)	16:25	103 09:39 (7)
16	05:33	06:01			06:31	17:55 (14)	07:01	06:36		08:21 (7)	07:06	07:29 (15)
	20:19	19:48			18:59	42 18:37 (14)	18:10	16:33	50	09:11 (7)	16:25	104 09:39 (7)
17	05:34	06:02			06:32	17:55 (14)	07:02	06:38		08:19 (7)	07:07	07:30 (15)
	20:19	19:46			18:58	40 18:35 (14)	18:09	16:32	54	09:13 (7)	16:25	103 09:40 (7)
18	05:35	06:03			06:33	17:56 (14)	07:03	06:39		08:18 (7)	07:08	07:31 (15)
	20:18	19:45			18:56	38 18:34 (14)	18:07	16:32	56	09:14 (7)	16:26	103 09:41 (7)
19	05:35	06:04			06:34	17:56 (14)	07:04	06:40		07:22 (15)	07:08	07:31 (15)
	20:17	19:43			18:54	36 18:32 (14)	18:06	16:31	69	09:17 (7)	16:26	103 09:41 (7)
20	05:36	06:05			06:35	17:56 (14)	07:05	06:41		07:20 (15)	07:09	07:32 (15)
	20:17	19:42			18:52	35 18:31 (14)	18:05	16:30	75	09:18 (7)	16:26	103 09:42 (7)
21	05:37	06:06			06:36	17:57 (14)	07:07	06:42		07:19 (15)	07:09	07:32 (15)
	20:16	19:41			18:51	32 18:29 (14)	18:03	16:30	80	09:19 (7)	16:27	103 09:42 (7)
22	05:38	06:07			06:37	17:58 (14)	07:08	06:43		07:18 (15)	07:10	07:33 (15)
	20:15	19:39			18:49	29 18:27 (14)	18:02	16:29	83	09:20 (7)	16:27	103 09:43 (7)
23	05:39	06:08			06:38	17:59 (14)	07:09	06:44		07:17 (15)	07:10	07:33 (15)
	20:14	19:38			18:47	27 18:26 (14)	18:00	16:28	87	09:21 (7)	16:28	103 09:43 (7)
24	05:40	06:09			06:39	18:00 (14)	07:10	06:45		07:16 (15)	07:11	07:34 (15)
	20:13	19:36			18:46	24 18:24 (14)	17:59	16:28	91	09:22 (7)	16:28	103 09:44 (7)
25	05:40	06:10			06:40	18:01 (14)	06:11	06:47		07:17 (15)	07:11	07:34 (15)
	20:13	19:35			18:44	21 18:22 (14)	16:58	16:27	92	09:24 (7)	16:29	103 09:44 (7)
26	05:41	06:11			06:41	18:03 (14)	06:12	06:48		07:16 (15)	07:12	07:34 (15)
	20:12	19:33			18:42	18 18:21 (14)	16:56	16:27	96	09:25 (7)	16:29	103 09:44 (7)
27	05:42	06:12			06:42	18:06 (14)	06:13	06:49		07:16 (15)	07:12	07:35 (15)
	20:11	19:32			18:41	13 18:19 (14)	16:55	16:26	98	09:26 (7)	16:30	104 09:45 (7)
28	05:43	06:13			06:43	18:11 (14)	06:14	06:50		07:16 (15)	07:12	07:35 (15)
	20:10	19:30			18:39	6 18:17 (14)	16:54	16:26	99	09:27 (7)	16:31	104 09:45 (7)
29	05:44	06:14			06:44		06:15	06:51		07:16 (15)	07:13	07:35 (15)
	20:09	19:28			18:37		16:52	16:26	101	09:27 (7)	16:32	103 09:45 (7)
30	05:45	06:15		18:13 (14)	06:45		06:17	06:52		07:16 (15)	07:13	07:35 (15)
	20:08	19:27	4	18:17 (14)	18:36		16:51	16:25	102	09:28 (7)	16:32	103 09:45 (7)
31	05:46	06:16		18:11 (14)			06:18				07:13	07:35 (15)
	20:07	19:25	8	18:19 (14)			16:50				16:33	104 09:46 (7)
Potential sun hours	457	427			375		346	300			290	
Total, worst case			12		807			1457			3210	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: AJ - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (36)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	January	February	March	April	May	June
1	07:13	07:01	07:24 (8) 06:26	07:09 (8) 06:36	05:51	05:23
	16:34	17:08	08:12 (8) 17:41	08:26 (8) 19:14	19:45	20:14
2	07:14	07:00	07:23 (8) 06:24	07:09 (8) 06:34	05:50	05:22
	16:35	17:09	08:14 (8) 17:42	08:26 (8) 19:15	19:46	20:14
3	07:14	06:59	07:22 (8) 06:23	07:09 (8) 06:33	05:48	05:22
	16:36	17:10	08:15 (8) 17:43	08:25 (8) 19:16	19:47	20:15
4	07:14	06:58	07:21 (8) 06:21	07:10 (8) 06:31	05:47	05:22
	16:37	17:11	08:17 (8) 17:44	08:25 (8) 19:17	19:48	20:16
5	07:14	06:57	07:20 (8) 06:20	07:10 (8) 06:29	05:46	05:21
	16:38	17:13	08:18 (8) 17:45	08:23 (8) 19:18	19:49	20:16
6	07:14	06:56	07:19 (8) 06:18	07:11 (8) 06:28	05:45	05:21
	16:38	17:14	08:20 (8) 17:46	08:23 (8) 19:19	19:50	20:17
7	07:14	06:55	07:18 (8) 06:16	07:11 (8) 06:26	05:44	05:21
	16:39	17:15	08:21 (8) 17:48	08:21 (8) 19:20	19:51	20:18
8	07:14	06:54	07:17 (8) 06:15	07:11 (8) 06:25	05:43	05:20
	16:40	17:16	08:22 (8) 17:49	08:20 (8) 19:21	19:52	20:18
9	07:13	06:52	07:16 (8) 06:13	07:12 (8) 06:23	05:41	05:20
	16:41	17:17	08:23 (8) 17:50	08:19 (8) 19:22	19:53	20:19
10	07:13	06:51	07:16 (8) 06:12	07:12 (8) 06:21	05:40	05:20
	16:42	17:19	08:24 (8) 17:51	08:17 (8) 19:23	19:54	20:19
11	07:13	06:50	07:14 (8) 06:10	07:13 (8) 06:20	05:39	05:20
	16:43	17:20	08:24 (8) 17:52	08:17 (8) 19:24	19:55	20:20
12	07:13	06:49	07:14 (8) 06:09	07:14 (8) 06:18	05:38	05:20
	16:44	17:21	08:25 (8) 17:53	08:15 (8) 19:25	19:56	20:20
13	07:13	06:48	07:13 (8) 06:07	07:14 (8) 06:17	05:37	05:20
	16:45	17:22	08:26 (8) 17:54	08:13 (8) 19:26	19:57	20:21
14	07:12	06:46	07:13 (8) 06:05	07:16 (8) 06:15	05:36	05:20
	16:47	17:23	08:27 (8) 17:55	08:11 (8) 19:27	19:58	20:21
15	07:12	06:45	07:12 (8) 06:04	07:17 (8) 06:14	05:35	05:20
	16:48	17:25	08:27 (8) 17:56	08:09 (8) 19:28	19:59	20:22
16	07:12	06:44	07:12 (8) 06:02	07:18 (8) 06:12	05:34	05:20
	16:49	17:26	08:28 (8) 17:57	08:06 (8) 19:29	20:00	20:22
17	07:11	06:43	07:12 (8) 06:00	07:20 (8) 06:11	05:33	05:20
	16:50	17:27	08:28 (8) 17:58	08:05 (8) 19:30	20:01	20:23
18	07:11	06:41	07:11 (8) 05:59	07:22 (8) 06:09	05:32	05:20
	16:51	17:28	08:28 (8) 17:59	08:02 (8) 19:31	20:02	20:23
19	07:10	06:40	07:11 (8) 05:57	07:25 (8) 06:08	05:32	05:20
	16:52	17:29	08:28 (8) 18:00	07:59 (8) 19:32	20:03	20:23
20	07:10	06:39	07:11 (8) 05:56	07:27 (8) 06:06	05:31	05:20
	16:53	17:31	08:29 (8) 18:01	07:55 (8) 19:34	20:04	20:23
21	07:09	06:37	07:10 (8) 05:54	07:31 (8) 06:05	05:30	05:20
	16:54	17:32	08:28 (8) 18:03	07:49 (8) 19:35	20:04	20:24
22	07:08	06:36	07:10 (8) 05:52		06:03	05:29
	16:56	17:33	08:29 (8) 18:04		19:36	20:05
23	07:08	06:34	07:09 (8) 05:51		06:02	05:28
	16:57	17:34	08:28 (8) 18:05		19:37	20:06
24	07:07	06:33	07:09 (8) 05:49		06:00	05:28
	16:58	17:35	08:28 (8) 18:06		19:38	20:07
25	07:06	07:45 (8) 06:32	07:09 (8) 05:47		05:59	05:27
	16:59	07:50 (8) 17:36	08:28 (8) 18:07		19:39	20:08
26	07:06	07:38 (8) 06:30	07:09 (8) 05:46		05:58	05:26
	17:00	07:57 (8) 17:37	08:28 (8) 18:08		19:40	20:09
27	07:05	07:35 (8) 06:29	07:09 (8) 05:44		05:56	05:26
	17:02	08:01 (8) 17:39	08:27 (8) 18:09		19:41	20:10
28	07:04	07:32 (8) 06:27	07:09 (8) 05:42		05:55	05:25
	17:03	08:04 (8) 17:40	08:27 (8) 18:10		19:42	20:10
29	07:03	07:30 (8)			05:54	05:24
	17:04	08:06 (8)			19:43	20:11
30	07:02	07:28 (8)			05:52	05:24
	17:05	08:08 (8)			19:44	20:12
31	07:02	07:26 (8)				05:23
	17:06	08:10 (8)				20:13
Potential sun hours	299	298	370	398	447	450
Total, worst case	202	1966	1225			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AJ - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (36)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December
1	05:23	05:47	06:17	06:46	07:54 (8)	06:19
	20:24	20:06	19:24	18:34	08:54 (8)	16:49
2	05:24	05:48	06:18	06:47	07:52 (8)	06:20
	20:24	20:05	19:22	18:33	08:55 (8)	16:47
3	05:24	05:49	06:19	06:48	07:51 (8)	06:21
	20:24	20:04	19:21	18:31	08:56 (8)	16:46
4	05:25	05:50	06:20	06:49	07:50 (8)	06:22
	20:24	20:03	19:19	18:29	08:56 (8)	16:45
5	05:26	05:51	06:21	06:50	07:49 (8)	06:24
	20:24	20:02	19:17	18:28	08:57 (8)	16:44
6	05:26	05:52	06:22	06:51	07:48 (8)	06:25
	20:24	20:00	19:16	18:26	08:58 (8)	16:43
7	05:27	05:53	06:22	06:52	07:47 (8)	06:26
	20:23	19:59	19:14	18:24	08:58 (8)	16:42
8	05:27	05:53	06:23	06:53	07:46 (8)	06:27
	20:23	19:58	19:13	18:23	08:59 (8)	16:41
9	05:28	05:54	06:24	06:54	07:45 (8)	06:28
	20:23	19:57	19:11	18:21	08:59 (8)	16:40
10	05:29	05:55	06:25	06:55	07:44 (8)	06:29
	20:22	19:56	19:09	18:20	08:59 (8)	16:39
11	05:29	05:56	06:26	06:56	07:43 (8)	06:31
	20:22	19:54	19:08	18:18	08:59 (8)	16:38
12	05:30	05:57	06:27	06:57	07:43 (8)	06:32
	20:21	19:53	19:06	18:17	09:00 (8)	16:37
13	05:31	05:58	06:28	06:58	07:42 (8)	06:33
	20:21	19:52	19:04	18:15	09:00 (8)	16:36
14	05:31	05:59	06:29	06:59	07:41 (8)	06:34
	20:20	19:50	19:03	18:14	09:00 (8)	16:35
15	05:32	06:00	06:30	07:00	07:41 (8)	06:35
	20:20	19:49	19:01	18:12	09:00 (8)	16:34
16	05:33	06:01	06:31	07:01	07:41 (8)	06:36
	20:19	19:48	18:59	18:10	08:59 (8)	16:33
17	05:34	06:02	06:32	07:02	07:41 (8)	06:38
	20:19	19:46	18:58	18:09	09:00 (8)	16:32
18	05:35	06:03	06:33	07:03	07:41 (8)	06:39
	20:18	19:45	18:56	18:07	09:00 (8)	16:32
19	05:35	06:04	06:34	07:04	07:41 (8)	06:40
	20:17	19:44	18:54	18:06	09:00 (8)	16:31
20	05:36	06:05	06:35	07:06	07:40 (8)	06:41
	20:17	19:42	18:53	18:05	08:59 (8)	16:30
21	05:37	06:06	06:36	07:07	07:40 (8)	06:42
	20:16	19:41	18:51	18:03	08:59 (8)	16:30
22	05:38	06:07	06:37	07:08	07:40 (8)	06:43
	20:15	19:39	18:49	18:02	08:59 (8)	16:29
23	05:39	06:08	06:38	07:09	07:40 (8)	06:44
	20:14	19:38	18:48	18:00	08:58 (8)	16:28
24	05:40	06:09	06:39	07:10	07:41 (8)	06:46
	20:14	19:36	18:46	17:59	08:58 (8)	16:28
25	05:40	06:10	06:40	07:11	06:41 (8)	06:47
	20:13	19:35	18:44	16:58	07:58 (8)	16:27
26	05:41	06:11	06:41	07:12	06:42 (8)	06:48
	20:12	19:33	18:43	16:56	07:57 (8)	16:27
27	05:42	06:12	06:42	07:13	06:42 (8)	06:49
	20:11	19:32	18:41	16:55	07:56 (8)	16:26
28	05:43	06:13	06:43	07:14	06:43 (8)	06:50
	20:10	19:30	18:39	16:54	07:56 (8)	16:26
29	05:44	06:14	06:44	07:15	06:44 (8)	06:51
	20:09	19:29	18:38	16:52	07:56 (8)	16:26
30	05:45	06:15	06:45	07:16	06:45 (8)	06:52
	20:08	19:27	18:36	16:51	07:55 (8)	16:25
31	05:46	06:16		06:18	06:46 (8)	
	20:07	19:25		16:50	07:54 (8)	
Potential sun hours	457	427	375	346	300	290
Total, worst case			362	2295	789	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AK - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (37)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

January		February		March		April		May	June
1	07:13	15:57 (7)	07:01	15:35 (6)	06:25	15:34 (6)	06:36	05:51	05:23
	16:34	16:08 (7)	17:08	16:41 (6)	17:41	16:44 (6)	19:14	19:45	20:13
2	07:13	15:57 (7)	07:00	15:35 (6)	06:24	15:35 (6)	06:34	05:50	05:22
	16:35	16:09 (7)	17:09	16:41 (6)	17:42	16:44 (6)	19:15	19:46	20:14
3	07:13	15:58 (7)	06:59	15:34 (6)	06:22	15:36 (6)	06:32	05:48	05:22
	16:36	16:10 (7)	17:10	16:42 (6)	17:43	16:42 (6)	19:16	19:47	20:15
4	07:14	15:58 (7)	06:58	15:34 (6)	06:21	15:37 (6)	06:31	05:47	05:22
	16:36	16:11 (7)	17:11	16:43 (6)	17:44	16:42 (6)	19:17	19:48	20:16
5	07:14	15:59 (7)	06:57	15:33 (6)	06:19	06:38 (16)	06:29	05:46	05:21
	16:37	16:11 (7)	17:12	16:44 (6)	17:45	16:40 (6)	19:18	19:49	20:16
6	07:14	16:00 (7)	06:56	15:33 (6)	06:18	06:36 (16)	06:28	05:45	05:21
	16:38	16:13 (7)	17:14	16:45 (6)	17:46	16:38 (6)	19:19	19:50	20:17
7	07:13	16:01 (7)	06:54	15:33 (6)	06:16	06:35 (16)	06:26	05:44	05:21
	16:39	16:14 (7)	17:15	16:46 (6)	17:47	16:37 (6)	19:20	19:51	20:18
8	07:13	16:02 (7)	06:53	15:32 (6)	06:15	06:33 (16)	06:24	05:42	05:20
	16:40	16:15 (7)	17:16	16:46 (6)	17:49	16:35 (6)	19:21	19:52	20:18
9	07:13	16:03 (7)	06:52	15:32 (6)	06:13	06:32 (16)	06:23	05:41	05:20
	16:41	16:16 (7)	17:17	16:47 (6)	17:50	16:34 (6)	19:22	19:53	20:19
10	07:13	16:03 (7)	06:51	15:31 (6)	06:12	06:30 (16)	06:21	05:40	05:20
	16:42	16:16 (7)	17:19	16:47 (6)	17:51	16:32 (6)	19:23	19:54	20:19
11	07:13	16:04 (7)	06:50	15:31 (6)	06:10	06:28 (16)	06:20	05:39	05:20
	16:43	16:18 (7)	17:20	16:47 (6)	17:52	16:29 (6)	19:24	19:55	20:20
12	07:13	16:05 (7)	06:49	15:31 (6)	06:08	06:27 (16)	06:18	05:38	05:20
	16:44	16:19 (7)	17:21	16:48 (6)	17:53	16:27 (6)	19:25	19:56	20:20
13	07:12	16:07 (7)	06:48	15:31 (6)	06:07	06:25 (16)	06:17	05:37	05:20
	16:45	16:20 (7)	17:22	16:49 (6)	17:54	16:24 (6)	19:26	19:57	20:21
14	07:12	16:08 (7)	06:46	15:30 (6)	06:05	06:24 (16)	06:15	05:36	05:20
	16:46	16:19 (7)	17:23	16:48 (6)	17:55	16:21 (6)	19:27	19:58	20:21
15	07:12	16:10 (7)	06:45	15:30 (6)	06:04	06:22 (16)	06:14	05:35	05:20
	16:48	16:18 (7)	17:25	16:49 (6)	17:56	16:15 (6)	19:28	19:59	20:22
16	07:11	15:56 (6)	06:44	15:31 (6)	06:02	06:20 (16)	06:12	05:34	05:20
	16:49	16:12 (6)	17:26	16:49 (6)	17:57	06:45 (16)	19:29	20:00	20:22
17	07:11	15:54 (6)	06:42	15:31 (6)	06:00	06:20 (16)	06:10	05:33	05:20
	16:50	16:16 (6)	17:27	16:49 (6)	17:58	06:45 (16)	19:30	20:01	20:22
18	07:10	15:51 (6)	06:41	15:30 (6)	05:59	06:20 (16)	06:09	05:32	05:20
	16:51	16:18 (6)	17:28	16:49 (6)	17:59	06:43 (16)	19:31	20:02	20:23
19	07:10	15:50 (6)	06:40	15:31 (6)	05:57	06:20 (16)	06:08	05:31	05:20
	16:52	16:21 (6)	17:29	16:49 (6)	18:00	06:41 (16)	19:32	20:02	20:23
20	07:09	15:48 (6)	06:38	15:30 (6)	05:55	06:22 (16)	06:06	05:31	05:20
	16:53	16:23 (6)	17:30	16:48 (6)	18:01	06:40 (16)	19:33	20:03	20:23
21	07:09	15:46 (6)	06:37	15:31 (6)	05:54	06:24 (16)	06:05	05:30	05:20
	16:54	16:25 (6)	17:32	16:48 (6)	18:02	06:37 (16)	19:34	20:04	20:24
22	07:08	15:45 (6)	06:36	15:31 (6)	05:52	06:29 (16)	06:03	05:29	05:20
	16:56	16:28 (6)	17:33	16:49 (6)	18:03	06:31 (16)	19:35	20:05	20:24
23	07:08	15:44 (6)	06:34	15:31 (6)	05:50		06:02	05:28	05:21
	16:57	16:29 (6)	17:34	16:48 (6)	18:04		19:36	20:06	20:24
24	07:07	15:42 (6)	06:33	15:32 (6)	05:49		06:00	05:27	05:21
	16:58	16:30 (6)	17:35	16:48 (6)	18:06		19:37	20:07	20:24
25	07:06	15:42 (6)	06:31	15:32 (6)	05:47		05:59	05:27	05:21
	16:59	16:33 (6)	17:36	16:47 (6)	18:07		19:39	20:08	20:24
26	07:06	15:41 (6)	06:30	15:33 (6)	05:46		05:58	05:26	05:21
	17:00	16:34 (6)	17:37	16:47 (6)	18:08		19:40	20:09	20:24
27	07:05	15:40 (6)	06:28	15:33 (6)	05:44		05:56	05:25	05:22
	17:01	16:35 (6)	17:38	16:45 (6)	18:09		19:41	20:10	20:24
28	07:04	15:39 (6)	06:27	15:34 (6)	05:42		05:55	05:25	05:22
	17:03	16:36 (6)	17:40	16:45 (6)	18:10		19:42	20:10	20:24
29	07:03	15:38 (6)			06:41		05:53	05:24	05:22
	17:04	16:37 (6)			19:11		19:43	20:11	20:24
30	07:02	15:37 (6)			06:39		05:52	05:24	05:23
	17:05	16:38 (6)			19:12		19:44	20:12	20:24
31	07:01	15:36 (6)			06:37			05:23	
	17:06	16:40 (6)			19:13			20:13	
Potential sun hours	299		298		370		398	446	450
Total, worst case	891		2089		1051				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: AK - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (37)

Assumptions for shadow calculations

The calculated times are "worst case" given by the following assumptions:

The sun is shining all the day, from sunrise to sunset

The rotor plane is always perpendicular to the line from the WTG to the sun

The WTG is always operating

	July	August	September	October	November	December			
1	05:23	05:47	06:17	06:46	07:05 (16)	06:19	15:01 (6)	06:53	15:46 (7)
	20:24	20:06	19:24	18:34	17:05 (6)	16:48	16:17 (6)	16:25	16:00 (7)
2	05:24	05:48	06:18	06:47	07:06 (16)	06:20	15:01 (6)	06:54	15:46 (7)
	20:24	20:05	19:22	18:32	17:07 (6)	16:47	16:16 (6)	16:25	16:00 (7)
3	05:24	05:49	06:19	06:48	07:07 (16)	06:21	15:02 (6)	06:55	15:46 (7)
	20:24	20:04	19:21	18:31	17:09 (6)	16:46	16:16 (6)	16:24	15:59 (7)
4	05:25	05:50	06:19	06:49	07:08 (16)	06:22	15:02 (6)	06:56	15:46 (7)
	20:24	20:03	19:19	18:29	17:10 (6)	16:45	16:15 (6)	16:24	15:59 (7)
5	05:25	05:50	06:20	06:50	07:09 (16)	06:23	15:03 (6)	06:57	15:46 (7)
	20:24	20:01	19:17	18:28	17:11 (6)	16:44	16:15 (6)	16:24	15:59 (7)
6	05:26	05:51	06:21	06:51	07:11 (16)	06:25	15:03 (6)	06:58	15:46 (7)
	20:23	20:00	19:16	18:26	17:13 (6)	16:43	16:14 (6)	16:24	15:59 (7)
7	05:27	05:52	06:22	06:52	07:12 (16)	06:26	15:05 (6)	06:59	15:46 (7)
	20:23	19:59	19:14	18:24	17:14 (6)	16:42	16:14 (6)	16:24	15:59 (7)
8	05:27	05:53	06:23	06:53	07:13 (16)	06:27	15:05 (6)	07:00	15:46 (7)
	20:23	19:58	19:12	18:23	17:15 (6)	16:40	16:13 (6)	16:24	15:59 (7)
9	05:28	05:54	06:24	06:54	16:12 (6)	06:28	15:06 (6)	07:01	15:47 (7)
	20:22	19:57	19:11	18:21	17:16 (6)	16:39	16:12 (6)	16:24	15:59 (7)
10	05:29	05:55	06:25	06:55	16:11 (6)	06:29	15:06 (6)	07:01	15:47 (7)
	20:22	19:55	19:09	18:20	17:16 (6)	16:38	16:11 (6)	16:24	15:59 (7)
11	05:29	05:56	06:26	06:56	16:09 (6)	06:30	15:08 (6)	07:02	15:48 (7)
	20:22	19:54	19:07	18:18	17:17 (6)	16:37	16:11 (6)	16:24	15:59 (7)
12	05:30	05:57	06:27	06:57	16:08 (6)	06:32	15:09 (6)	07:03	15:47 (7)
	20:21	19:53	19:06	18:16	17:17 (6)	16:37	16:10 (6)	16:24	15:58 (7)
13	05:31	05:58	06:28	06:58	16:07 (6)	06:33	15:10 (6)	07:04	15:48 (7)
	20:21	19:52	19:04	18:15	17:18 (6)	16:36	16:09 (6)	16:24	15:59 (7)
14	05:31	05:59	06:29	06:59	16:06 (6)	06:34	15:11 (6)	07:05	15:49 (7)
	20:20	19:50	19:02	18:13	17:18 (6)	16:35	16:08 (6)	16:24	15:59 (7)
15	05:32	06:00	06:30	07:00	16:05 (6)	06:35	15:13 (6)	07:05	15:49 (7)
	20:20	19:49	19:01	18:12	17:18 (6)	16:34	16:08 (6)	16:25	16:00 (7)
16	05:33	06:01	06:31	07:01	16:04 (6)	06:36	15:14 (6)	07:06	15:49 (7)
	20:19	19:48	18:59	18:10	17:18 (6)	16:33	16:07 (6)	16:25	15:59 (7)
17	05:34	06:02	06:32	07:02	16:03 (6)	06:37	15:15 (6)	07:07	15:50 (7)
	20:19	19:46	18:57	18:09	17:18 (6)	16:32	16:06 (6)	16:25	16:00 (7)
18	05:34	06:03	06:33	07:03	16:03 (6)	06:39	15:16 (6)	07:07	15:51 (7)
	20:18	19:45	18:56	18:07	17:19 (6)	16:32	16:04 (6)	16:25	16:00 (7)
19	05:35	06:04	06:34	07:04	16:03 (6)	06:40	15:18 (6)	07:08	15:51 (7)
	20:17	19:43	18:54	18:06	17:19 (6)	16:31	16:03 (6)	16:26	16:00 (7)
20	05:36	06:05	06:35	07:05	16:02 (6)	06:41	15:20 (6)	07:09	15:52 (7)
	20:17	19:42	18:52	18:04	17:19 (6)	16:30	16:03 (6)	16:26	16:01 (7)
21	05:37	06:06	06:36	07:06	16:01 (6)	06:42	15:22 (6)	07:09	15:51 (7)
	20:16	19:40	18:51	18:03	17:19 (6)	16:29	16:01 (6)	16:27	16:01 (7)
22	05:38	06:07	06:37	07:10 (16)	07:08	16:01 (6)	15:23 (6)	07:10	15:52 (7)
	20:15	19:39	18:49	18:02	17:19 (6)	16:29	15:59 (6)	16:27	16:02 (7)
23	05:39	06:08	06:38	07:07 (16)	07:09	16:00 (6)	15:25 (6)	07:10	15:53 (7)
	20:14	19:38	18:47	17:24 (16)	18:00	17:19 (6)	15:58 (6)	16:28	16:02 (7)
24	05:39	06:09	06:39	07:05 (16)	07:10	16:00 (6)	15:28 (6)	07:11	15:54 (7)
	20:13	19:36	18:46	17:25 (16)	17:59	17:18 (6)	15:56 (6)	16:28	16:03 (7)
25	05:40	06:10	06:40	07:04 (16)	06:11	15:00 (6)	15:31 (6)	07:11	15:54 (7)
	20:13	19:35	18:44	17:26 (16)	16:57	16:19 (6)	15:54 (6)	16:29	16:03 (7)
26	05:41	06:11	06:41	07:01 (16)	06:12	15:00 (6)	15:35 (6)	07:12	15:54 (7)
	20:12	19:33	18:42	17:26 (16)	16:56	16:19 (6)	15:51 (6)	16:29	16:04 (7)
27	05:42	06:12	06:42	07:01 (16)	06:13	15:00 (6)	15:42 (6)	07:12	15:55 (7)
	20:11	19:32	18:41	17:26 (16)	16:55	16:18 (6)	15:57 (7)	16:30	16:05 (7)
28	05:43	06:13	06:43	07:02 (16)	06:14	15:00 (6)	15:48 (7)	07:12	15:55 (7)
	20:10	19:30	18:39	16:52 (6)	16:53	16:18 (6)	15:59 (7)	16:31	16:05 (7)
29	05:44	06:14	06:44	07:03 (16)	06:15	15:00 (6)	15:47 (7)	07:13	15:56 (7)
	20:09	19:28	18:37	16:59 (6)	16:52	16:17 (6)	16:00 (7)	16:31	16:06 (7)
30	05:45	06:15	06:45	07:04 (16)	06:17	15:01 (6)	15:46 (7)	07:13	15:56 (7)
	20:08	19:27	18:36	17:02 (6)	16:51	16:18 (6)	16:00 (7)	16:32	16:06 (7)
31	05:46	06:16		06:18		15:01 (6)		07:13	15:56 (7)
	20:07	19:25		16:50	76	16:17 (6)		16:33	16:07 (7)
Potential sun hours	457	427	375	346	300	1468	290	339	
Total, worst case			248	2225	1468				

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: A - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (1)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January		February		March		April		May		June	
1	07:13	12:29 (16)	07:00	12:02 (16)	06:25	06:46 (17)	06:36	12:06 (16)	05:51	11:54 (16)	05:23
	16:34	102	14:11 (16)	17:07	175	14:57 (16)	17:41	15:24 (16)	19:14	16:19 (16)	20:13
2	07:13	12:28 (16)	07:00	12:01 (16)	06:24	06:47 (17)	06:34	12:05 (16)	05:50	11:54 (16)	05:22
	16:35	104	14:12 (16)	17:09	178	14:59 (16)	17:42	15:25 (16)	19:15	16:19 (16)	20:14
3	07:13	12:28 (16)	06:59	12:00 (16)	06:22	06:47 (17)	06:32	12:05 (16)	05:48	11:53 (16)	05:22
	16:36	105	14:13 (16)	17:10	180	15:00 (16)	17:43	15:25 (16)	19:16	16:18 (16)	20:15
4	07:13	12:27 (16)	06:58	11:59 (16)	06:21	06:47 (17)	06:31	12:04 (16)	05:47	11:54 (16)	05:21
	16:36	108	14:15 (16)	17:11	182	15:01 (16)	17:44	15:26 (16)	19:17	16:17 (16)	20:15
5	07:13	12:27 (16)	06:57	11:58 (16)	06:19	06:47 (17)	06:29	12:03 (16)	05:46	11:54 (16)	05:21
	16:37	109	14:16 (16)	17:12	185	15:03 (16)	17:45	15:26 (16)	19:18	16:17 (16)	20:16
6	07:13	12:26 (16)	06:55	11:57 (16)	06:18	06:47 (17)	06:28	12:03 (16)	05:45	11:54 (16)	05:21
	16:38	112	14:18 (16)	17:14	187	15:04 (16)	17:46	15:26 (16)	19:19	16:17 (16)	20:17
7	07:13	12:26 (16)	06:54	11:56 (16)	06:16	06:49 (17)	06:26	12:02 (16)	05:43	11:54 (16)	05:21
	16:39	113	14:19 (16)	17:15	189	15:05 (16)	17:47	15:27 (16)	19:20	16:17 (16)	20:17
8	07:13	12:25 (16)	06:53	11:55 (16)	06:15	06:49 (17)	06:24	12:02 (16)	05:42	11:54 (16)	05:20
	16:40	116	14:21 (16)	17:16	192	15:07 (16)	17:48	15:27 (16)	19:21	16:17 (16)	20:18
9	07:13	12:25 (16)	06:52	11:54 (16)	06:13	06:51 (17)	06:23	12:01 (16)	05:41	11:54 (16)	05:20
	16:41	118	14:23 (16)	17:17	194	15:08 (16)	17:50	15:28 (16)	19:22	16:16 (16)	20:19
10	07:13	12:23 (16)	06:51	11:52 (16)	06:11	06:52 (17)	06:21	12:01 (16)	05:40	11:54 (16)	05:20
	16:42	120	14:23 (16)	17:18	196	15:08 (16)	17:51	15:28 (16)	19:23	16:16 (16)	20:19
11	07:13	12:23 (16)	06:50	11:51 (16)	06:10	06:53 (17)	06:20	12:00 (16)	05:39	11:54 (16)	05:20
	16:43	122	14:25 (16)	17:20	199	15:10 (16)	17:52	15:28 (16)	19:24	16:16 (16)	20:20
12	07:13	12:22 (16)	06:49	11:50 (16)	06:08	06:56 (17)	06:18	11:59 (16)	05:38	11:54 (16)	05:20
	16:44	125	14:27 (16)	17:21	201	15:11 (16)	17:53	15:29 (16)	19:25	16:15 (16)	20:20
13	07:12	12:21 (16)	06:47	07:07 (17)	06:07	06:59 (17)	06:17	11:59 (16)	05:37	11:54 (16)	05:20
	16:45	127	14:28 (16)	17:22	212	15:12 (16)	17:54	15:28 (16)	19:26	16:15 (16)	20:21
14	07:12	12:21 (16)	06:46	07:05 (17)	06:05	11:21 (16)	06:15	11:59 (16)	05:36	11:54 (16)	05:19
	16:46	129	14:30 (16)	17:23	220	15:13 (16)	17:55	15:29 (16)	19:27	16:15 (16)	20:21
15	07:12	12:20 (16)	06:45	07:04 (17)	06:03	11:19 (16)	06:13	11:59 (16)	05:35	11:54 (16)	05:19
	16:47	132	14:32 (16)	17:24	225	15:14 (16)	17:56	15:29 (16)	19:28	16:14 (16)	20:22
16	07:11	12:19 (16)	06:44	07:03 (17)	06:02	11:18 (16)	06:12	11:58 (16)	05:34	11:54 (16)	05:19
	16:49	134	14:33 (16)	17:26	230	15:15 (16)	17:57	15:29 (16)	19:29	16:14 (16)	20:22
17	07:11	12:18 (16)	06:42	07:01 (17)	06:00	11:18 (16)	06:10	11:58 (16)	05:33	11:54 (16)	05:20
	16:50	137	14:35 (16)	17:27	234	15:15 (16)	17:58	15:29 (16)	19:30	16:14 (16)	20:22
18	07:10	12:17 (16)	06:41	07:00 (17)	05:59	11:17 (16)	06:09	11:57 (16)	05:32	11:54 (16)	05:20
	16:51	139	14:36 (16)	17:28	240	15:17 (16)	17:59	15:29 (16)	19:31	16:13 (16)	20:23
19	07:10	12:16 (16)	06:40	06:59 (17)	05:57	11:16 (16)	06:07	11:57 (16)	05:31	11:55 (16)	05:20
	16:52	143	14:39 (16)	17:29	244	15:18 (16)	18:00	15:29 (16)	19:32	16:13 (16)	20:23
20	07:09	12:15 (16)	06:38	06:57 (17)	05:55	11:15 (16)	06:06	11:57 (16)	05:30	11:55 (16)	05:20
	16:53	145	14:40 (16)	17:30	247	15:18 (16)	18:01	15:29 (16)	19:33	16:13 (16)	20:23
21	07:09	12:14 (16)	06:37	06:56 (17)	05:54	11:14 (16)	06:05	11:56 (16)	05:30	11:55 (16)	05:20
	16:54	147	14:41 (16)	17:32	252	15:19 (16)	18:02	15:29 (16)	19:34	16:13 (16)	20:23
22	07:08	12:13 (16)	06:36	06:55 (17)	05:52	11:13 (16)	06:03	11:56 (16)	05:29	11:55 (16)	05:20
	16:55	150	14:43 (16)	17:33	255	15:20 (16)	18:03	15:29 (16)	19:35	16:12 (16)	20:24
23	07:08	12:12 (16)	06:34	06:53 (17)	05:50	11:13 (16)	06:02	11:55 (16)	05:28	11:55 (16)	05:20
	16:57	153	14:45 (16)	17:34	259	15:21 (16)	18:04	15:29 (16)	19:36	16:12 (16)	20:24
24	07:07	12:11 (16)	06:33	06:52 (17)	05:49	11:12 (16)	06:00	11:56 (16)	05:27	11:55 (16)	05:21
	16:58	155	14:46 (16)	17:35	263	15:22 (16)	18:05	15:29 (16)	19:37	16:12 (16)	20:24
25	07:06	12:09 (16)	06:31	06:50 (17)	05:47	11:11 (16)	05:59	11:56 (16)	05:27	11:55 (16)	05:21
	16:59	158	14:47 (16)	17:36	267	15:22 (16)	18:06	15:29 (16)	19:38	16:12 (16)	20:24
26	07:05	12:09 (16)	06:30	06:49 (17)	05:45	11:11 (16)	05:57	11:55 (16)	05:26	11:56 (16)	05:21
	17:00	160	14:49 (16)	17:37	269	15:23 (16)	18:08	15:29 (16)	19:39	16:12 (16)	20:24
27	07:05	12:08 (16)	06:28	06:47 (17)	05:44	11:09 (16)	05:56	11:55 (16)	05:25	11:56 (16)	05:22
	17:01	163	14:51 (16)	17:38	273	15:23 (16)	18:09	15:29 (16)	19:41	16:11 (16)	20:24
28	07:04	12:07 (16)	06:27	06:47 (17)	05:42	11:08 (16)	05:55	11:55 (16)	05:25	11:56 (16)	05:22
	17:03	165	14:52 (16)	17:40	274	15:24 (16)	18:10	15:29 (16)	19:42	16:12 (16)	20:24
29	07:03	12:06 (16)			06:41	12:08 (16)	05:53	11:54 (16)	05:24	11:56 (16)	05:22
	17:04	167	14:53 (16)		19:11	16:29 (16)	19:43	16:19 (16)	20:11	16:11 (16)	20:24
30	07:02	12:04 (16)			06:39	12:07 (16)	05:52	11:54 (16)	05:24	11:57 (16)	05:23
	17:05	171	14:55 (16)		19:12	16:29 (16)	19:44	16:19 (16)	20:12	16:11 (16)	20:24
31	07:01	12:03 (16)			06:37	12:07 (16)			05:23	11:57 (16)	
	17:06	173	14:56 (16)		19:13	16:29 (16)			20:13	16:11 (16)	
Potential sun hours	299		298		370		398		446		450
Total, worst case	4202		6222		8300		7954		7295		5031
Sun reduction	0,39		0,40		0,44		0,50		0,58		0,65
Oper. time red.	0,84		0,84		0,84		0,84		0,84		0,84
Wind dir. red.	0,61		0,61		0,61		0,61		0,61		0,61
Total reduction	0,20		0,21		0,22		0,26		0,30		0,33
Total, real	832		1284		1848		2048		2169		1673

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: A - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (1)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

July		August		September		October		November		December	
1	05:23	12:04 (16)	05:47	12:04 (16)	06:17	11:59 (16)	06:46	07:36 (17)	06:19	11:22 (16)	06:53
	20:24	16:16 (16)	20:06	16:25 (16)	19:24	16:25 (16)	18:34	16:07 (16)	16:48	14:38 (16)	16:25
2	05:24	12:04 (16)	05:48	12:04 (16)	06:17	11:59 (16)	06:47	07:33 (17)	06:20	11:23 (16)	06:54
	20:24	16:16 (16)	20:05	16:25 (16)	19:22	16:25 (16)	18:32	16:07 (16)	16:47	14:37 (16)	16:24
3	05:24	12:05 (16)	05:49	12:04 (16)	06:18	11:59 (16)	06:48	07:30 (17)	06:21	11:25 (16)	06:55
	20:24	16:16 (16)	20:04	16:26 (16)	19:20	16:24 (16)	18:31	16:06 (16)	16:46	14:36 (16)	16:24
4	05:25	12:04 (16)	05:49	12:04 (16)	06:19	11:59 (16)	06:49	07:28 (17)	06:22	11:26 (16)	06:56
	20:24	16:16 (16)	20:03	16:26 (16)	19:19	16:24 (16)	18:29	16:05 (16)	16:45	14:35 (16)	16:24
5	05:25	12:05 (16)	05:50	12:03 (16)	06:20	11:59 (16)	06:50	07:26 (17)	06:23	11:27 (16)	06:57
	20:24	16:17 (16)	20:01	16:26 (16)	19:17	16:24 (16)	18:27	16:04 (16)	16:44	14:34 (16)	16:24
6	05:26	12:04 (16)	05:51	12:03 (16)	06:21	11:59 (16)	06:51	07:25 (17)	06:25	11:28 (16)	06:58
	20:23	16:17 (16)	20:00	16:27 (16)	19:16	16:23 (16)	18:26	16:03 (16)	16:43	14:32 (16)	16:24
7	05:27	12:05 (16)	05:52	12:03 (16)	06:22	11:59 (16)	06:52	07:23 (17)	06:26	11:29 (16)	06:59
	20:23	16:17 (16)	19:59	16:27 (16)	19:14	16:23 (16)	18:24	16:02 (16)	16:41	14:31 (16)	16:24
8	05:27	12:04 (16)	05:53	12:03 (16)	06:23	11:59 (16)	06:53	07:23 (17)	06:27	11:31 (16)	07:00
	20:23	16:17 (16)	19:58	16:27 (16)	19:12	16:23 (16)	18:23	16:02 (16)	16:40	14:31 (16)	16:24
9	05:28	12:05 (16)	05:54	12:03 (16)	06:24	11:58 (16)	06:54	07:22 (17)	06:28	11:32 (16)	07:01
	20:22	16:18 (16)	19:57	16:27 (16)	19:11	16:21 (16)	18:21	16:01 (16)	16:39	14:29 (16)	16:24
10	05:28	12:05 (16)	05:55	12:03 (16)	06:25	11:58 (16)	06:55	07:21 (17)	06:29	11:33 (16)	07:01
	20:22	16:19 (16)	19:55	16:27 (16)	19:09	16:21 (16)	18:20	16:00 (16)	16:38	14:28 (16)	16:24
11	05:29	12:04 (16)	05:56	12:03 (16)	06:26	11:58 (16)	06:56	07:21 (17)	06:30	11:34 (16)	07:02
	20:22	16:18 (16)	19:54	16:28 (16)	19:07	16:21 (16)	18:18	15:59 (16)	16:37	14:27 (16)	16:24
12	05:30	12:05 (16)	05:57	12:03 (16)	06:27	11:58 (16)	06:57	07:20 (17)	06:32	11:36 (16)	07:03
	20:21	16:19 (16)	19:53	16:28 (16)	19:06	16:20 (16)	18:16	15:58 (16)	16:36	14:27 (16)	16:24
13	05:31	12:05 (16)	05:58	12:03 (16)	06:28	11:58 (16)	06:58	07:20 (17)	06:33	11:38 (16)	07:04
	20:21	16:20 (16)	19:52	16:28 (16)	19:04	16:20 (16)	18:15	15:57 (16)	16:36	14:25 (16)	16:24
14	05:31	12:05 (16)	05:59	12:02 (16)	06:29	11:58 (16)	06:59	07:19 (17)	06:34	11:39 (16)	07:05
	20:20	16:20 (16)	19:50	16:27 (16)	19:02	16:19 (16)	18:13	15:56 (16)	16:35	14:24 (16)	16:24
15	05:32	12:05 (16)	06:00	12:02 (16)	06:30	11:59 (16)	07:00	07:20 (17)	06:35	11:40 (16)	07:05
	20:20	16:20 (16)	19:49	16:27 (16)	19:01	16:19 (16)	18:12	15:55 (16)	16:34	14:23 (16)	16:24
16	05:33	12:05 (16)	06:01	12:02 (16)	06:31	11:59 (16)	07:01	07:21 (17)	06:36	11:42 (16)	07:06
	20:19	16:21 (16)	19:47	16:27 (16)	18:59	16:18 (16)	18:10	15:54 (16)	16:33	14:22 (16)	16:25
17	05:34	12:05 (16)	06:02	12:01 (16)	06:32	11:59 (16)	07:02	07:22 (17)	06:37	11:43 (16)	07:07
	20:18	16:21 (16)	19:46	16:27 (16)	18:57	16:27 (16)	18:09	15:53 (16)	16:32	14:21 (16)	16:25
18	05:34	12:05 (16)	06:03	12:01 (16)	06:33	11:59 (16)	07:03	07:23 (17)	06:39	11:45 (16)	07:07
	20:18	16:22 (16)	19:45	16:27 (16)	18:56	16:30 (16)	18:07	15:52 (16)	16:31	14:20 (16)	16:25
19	05:35	12:05 (16)	06:04	12:01 (16)	06:34	11:59 (16)	07:04	07:25 (17)	06:40	11:46 (16)	07:08
	20:17	16:21 (16)	19:43	16:27 (16)	18:54	16:32 (16)	18:06	15:52 (16)	16:31	14:19 (16)	16:26
20	05:36	12:05 (16)	06:05	12:01 (16)	06:35	11:59 (16)	07:05	07:26 (17)	06:41	11:48 (16)	07:09
	20:16	16:22 (16)	19:42	16:27 (16)	18:52	18:31 (16)	18:04	15:51 (16)	16:30	14:18 (16)	16:26
21	05:37	12:05 (16)	06:06	12:01 (16)	06:36	11:59 (16)	07:06	07:27 (17)	06:42	11:50 (16)	07:09
	20:16	16:22 (16)	19:40	16:27 (16)	18:51	18:29 (16)	18:03	15:50 (16)	16:29	14:17 (16)	16:27
22	05:38	12:05 (16)	06:07	12:01 (16)	06:37	11:59 (16)	07:07	07:28 (17)	06:43	11:51 (16)	07:10
	20:15	16:23 (16)	19:39	16:27 (16)	18:49	18:27 (16)	18:02	15:48 (16)	16:29	14:16 (16)	16:27
23	05:39	12:05 (16)	06:08	12:01 (16)	06:38	12:00 (16)	07:09	07:29 (17)	06:44	11:52 (16)	07:10
	20:14	16:23 (16)	19:37	16:27 (16)	18:47	18:26 (16)	18:00	15:47 (16)	16:28	14:15 (16)	16:28
24	05:39	12:04 (16)	06:09	12:01 (16)	06:39	11:59 (16)	07:10	07:30 (17)	06:45	11:54 (16)	07:11
	20:13	16:23 (16)	19:36	16:27 (16)	18:46	18:23 (16)	17:59	15:46 (16)	16:28	14:14 (16)	16:28
25	05:40	12:04 (16)	06:10	12:01 (16)	06:40	11:59 (16)	06:11	06:32 (17)	06:46	11:56 (16)	07:11
	20:12	16:23 (16)	19:34	16:27 (16)	18:44	18:21 (16)	16:57	14:46 (16)	16:27	14:13 (16)	16:29
26	05:41	12:05 (16)	06:11	12:01 (16)	06:41	11:59 (16)	06:12	06:33 (17)	06:48	11:58 (16)	07:11
	20:12	16:24 (16)	19:33	16:27 (16)	18:42	18:20 (16)	16:56	14:45 (16)	16:27	14:12 (16)	16:29
27	05:42	12:05 (16)	06:12	12:00 (16)	06:42	11:59 (16)	06:13	06:34 (17)	06:49	11:59 (16)	07:12
	20:11	16:24 (16)	19:31	16:26 (16)	18:41	18:18 (16)	16:55	14:43 (16)	16:26	14:11 (16)	16:30
28	05:43	12:05 (16)	06:13	12:00 (16)	06:43	12:00 (16)	06:14	06:35 (17)	06:50	12:01 (16)	07:12
	20:10	16:25 (16)	19:30	16:26 (16)	18:39	18:16 (16)	16:53	14:42 (16)	16:26	14:10 (16)	16:31
29	05:44	12:05 (16)	06:14	11:59 (16)	06:44	12:00 (16)	06:15	06:36 (17)	06:51	12:02 (16)	07:12
	20:09	16:25 (16)	19:28	16:25 (16)	18:37	18:15 (16)	16:52	14:41 (16)	16:25	14:09 (16)	16:31
30	05:45	12:05 (16)	06:15	11:59 (16)	06:45	07:42 (17)	06:16	11:20 (16)	06:52	12:03 (16)	07:13
	20:08	16:25 (16)	19:27	16:25 (16)	18:36	16:08 (16)	16:51	14:41 (16)	16:25	14:08 (16)	16:32
31	05:46	12:05 (16)	06:16	11:59 (16)			06:18	11:21 (16)		07:13	
	20:07	16:26 (16)	19:25	16:25 (16)			16:50	14:39 (16)		16:33	100
Potential sun hours	457		427		375		346		300		290
Total, worst case	6266		8209		7906		7918		4829		3151
Sun reduction	0,72		0,71		0,63		0,52		0,45		0,39
Oper. time red.	0,84		0,84		0,84		0,84		0,84		0,84
Wind dir. red.	0,61		0,61		0,61		0,61		0,61		0,61
Total reduction	0,37		0,36		0,32		0,27		0,23		0,20
Total, real	2305		2963		2561		2110		1107		634

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: B - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (2)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	07:13 16:34	07:00 17:08	06:25 17:41	06:36 19:14	05:51 19:45	15:16 (4) 20:13
2	07:13 16:35	06:59 17:09	06:24 17:42	06:34 19:15	140 19:46	15:12 (4) 20:14
3	07:13 16:36	06:58 17:10	06:22 17:43	06:32 19:16	147 19:47	15:07 (4) 20:15
4	07:13 16:36	06:58 17:11	06:21 17:44	06:31 19:17	152 19:48	15:04 (4) 20:15
5	07:13 16:37	06:56 17:12	06:19 17:45	17:19 (5) 19:18	153 19:49	15:01 (4) 20:16
6	07:13 16:38	06:55 17:14	06:18 17:46	17:15 (5) 19:19	155 19:50	14:58 (4) 20:17
7	07:13 16:39	06:54 17:15	06:16 17:47	17:13 (5) 19:20	156 19:51	14:55 (4) 20:17
8	07:13 16:40	06:53 17:16	06:15 17:48	17:10 (5) 19:21	158 19:52	14:52 (4) 20:18
9	07:13 16:41	06:52 17:17	06:13 17:50	17:09 (5) 19:22	159 19:53	14:50 (4) 20:19
10	07:13 16:42	06:51 17:18	06:11 17:51	17:07 (5) 19:23	160 19:54	14:47 (4) 20:19
11	07:13 16:43	06:50 17:20	06:10 17:52	17:05 (5) 19:24	161 19:55	14:45 (4) 20:20
12	07:13 16:44	06:49 17:21	06:08 17:53	17:05 (5) 19:25	162 19:56	14:43 (4) 20:20
13	07:12 16:45	06:47 17:22	06:07 17:54	17:04 (5) 19:26	162 19:57	14:40 (4) 20:21
14	07:12 16:46	06:46 17:23	06:05 17:55	17:04 (5) 19:27	164 19:58	14:38 (4) 20:21
15	07:12 16:46	06:45 17:24	06:03 17:56	17:03 (5) 19:28	164 19:59	14:36 (4) 20:21
16	07:11 16:49	06:44 17:26	06:02 17:57	17:02 (5) 19:29	165 20:00	14:34 (4) 20:22
17	07:11 16:50	06:42 17:27	06:00 17:58	17:02 (5) 19:30	166 20:01	14:32 (4) 20:22
18	07:10 16:51	06:41 17:28	05:59 17:59	17:01 (5) 19:31	166 20:01	14:30 (4) 20:23
19	07:10 16:52	06:40 17:29	05:57 18:00	17:01 (5) 19:32	167 20:02	14:29 (4) 20:23
20	07:09 16:53	06:38 17:30	05:55 18:01	17:02 (5) 19:33	167 20:03	14:27 (4) 20:23
21	07:09 16:54	06:37 17:32	05:54 18:02	17:01 (5) 19:34	168 20:04	14:25 (4) 20:23
22	07:08 16:55	06:36 17:33	05:52 18:03	17:01 (5) 19:35	168 20:05	14:23 (4) 20:24
23	07:08 16:57	06:34 17:34	05:50 18:04	17:02 (5) 19:36	169 20:06	14:23 (4) 20:24
24	07:07 16:58	06:33 17:35	05:49 18:05	17:03 (5) 19:37	168 20:07	14:21 (4) 20:24
25	07:06 16:59	06:31 17:36	05:47 18:06	17:03 (5) 19:38	169 20:08	14:19 (4) 20:24
26	07:05 17:00	06:30 17:37	05:45 18:08	06:16 (3) 19:39	170 20:09	14:19 (4) 20:24
27	07:05 17:01	06:28 17:38	05:44 18:09	17:06 (5) 19:40	169 20:10	14:17 (4) 20:24
28	07:04 17:03	06:27 17:40	05:42 18:10	17:07 (5) 19:42	170 20:11	14:17 (4) 20:24
29	07:03 17:04	06:25 17:41	05:40 18:11	17:08 (5) 19:43	170 20:12	14:15 (4) 20:24
30	07:02 17:05	06:23 17:42	05:38 18:12	17:09 (5) 19:44	170 20:13	14:15 (4) 20:24
31	07:01 17:06	06:21 17:43	05:36 18:13	17:10 (5) 19:45	171 20:14	14:13 (4) 20:24
Potential sun hours	299	298	370	398	446	450
Total, worst case			703	793	5055	5125
Sun reduction			0,44	0,50	0,58	0,65
Oper. time red.			0,84	0,84	0,84	0,84
Wind dir. red.			0,54	0,63	0,63	0,63
Total reduction			0,20	0,27	0,31	0,34
Total, real			138	211	1557	1765

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: B - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (2)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

July		August		September		October		November		December	
1	05:23	14:12 (4)	05:47	14:54 (4)	06:17	06:46	17:43 (5)	06:19	06:53		
	20:24	17:03 (4)	20:06	17:36 (4)	19:24	18:34	18:11 (5)	16:48	16:25		
2	05:24	14:12 (4)	05:48	14:55 (4)	06:17	06:47	17:44 (5)	06:20	06:54		
	20:24	17:03 (4)	20:05	17:37 (4)	19:22	18:32	18:10 (5)	16:47	16:25		
3	05:24	14:13 (4)	05:49	14:58 (4)	06:18	06:48	17:44 (5)	06:21	06:55		
	20:24	17:04 (4)	20:04	17:38 (4)	19:20	18:31	18:08 (5)	16:46	16:24		
4	05:25	14:13 (4)	05:50	15:00 (4)	06:19	06:49	17:45 (5)	06:22	06:56		
	20:24	17:04 (4)	20:03	17:40 (4)	19:19	18:29	18:06 (5)	16:45	16:24		
5	05:25	14:15 (4)	05:50	15:03 (4)	06:20	06:50	17:46 (5)	06:23	06:57		
	20:23	17:06 (4)	20:01	17:41 (4)	19:17	18:28	18:05 (5)	16:44	16:24		
6	05:26	14:15 (4)	05:51	15:06 (4)	06:21	06:51	17:47 (5)	06:25	06:58		
	20:23	17:06 (4)	20:00	17:43 (4)	19:16	18:26	18:03 (5)	16:43	16:24		
7	05:27	14:16 (4)	05:52	15:09 (4)	06:22	06:52	17:49 (5)	06:26	06:59		
	20:23	17:07 (4)	19:59	17:44 (4)	19:14	18:24	18:01 (5)	16:42	16:24		
8	05:27	14:18 (4)	05:53	15:12 (4)	06:23	06:53	17:52 (5)	06:27	07:00		
	20:23	17:08 (4)	19:58	17:46 (4)	19:12	18:23	18:01 (5)	16:40	16:24		
9	05:28	14:18 (4)	05:54	15:15 (4)	06:24	06:54	17:57 (5)	06:28	07:00		
	20:22	17:08 (4)	19:57	17:47 (4)	19:11	18:21	17:59 (5)	16:39	16:24		
10	05:29	14:19 (4)	05:55	15:18 (4)	06:25	06:55		06:29	07:01		
	20:22	17:10 (4)	19:55	17:49 (4)	19:09	18:20		16:38	16:24		
11	05:29	14:20 (4)	05:56	15:22 (4)	06:26	06:56		06:30	07:02		
	20:22	17:10 (4)	19:54	17:47 (4)	19:07	18:18		16:37	16:24		
12	05:30	14:21 (4)	05:57	15:25 (4)	06:27	06:57		06:32	07:03		
	20:21	17:11 (4)	19:53	17:43 (4)	19:06	18:16		16:37	16:24		
13	05:31	14:22 (4)	05:58	15:29 (4)	06:28	18:06 (5)	06:58	06:33	07:04		
	20:21	17:13 (4)	19:51	17:40 (4)	19:04	18:12 (5)	18:15	16:36	16:24		
14	05:31	14:24 (4)	05:59	15:32 (4)	06:29	18:01 (5)	06:59	06:34	07:05		
	20:20	17:14 (4)	19:50	17:35 (4)	19:02	18:17 (5)	18:13	16:35	16:24		
15	05:32	14:24 (4)	06:00	15:37 (4)	06:30	17:58 (5)	07:00	06:35	07:05		
	20:20	17:14 (4)	19:49	17:31 (4)	19:01	18:20 (5)	18:12	16:34	16:25		
16	05:33	14:26 (4)	06:01	15:42 (4)	06:31	17:55 (5)	07:01	06:36	07:06		
	20:19	17:16 (4)	19:47	17:26 (4)	18:59	18:21 (5)	18:10	16:33	16:25		
17	05:34	14:27 (4)	06:02	15:48 (4)	06:32	07:05 (3)	07:02	06:37	07:07		
	20:18	17:17 (4)	19:46	17:21 (4)	18:57	18:23 (5)	18:09	16:32	16:25		
18	05:34	14:29 (4)	06:03	15:54 (4)	06:33	17:52 (5)	07:03	06:38	07:07		
	20:18	17:18 (4)	19:45	17:15 (4)	18:56	18:24 (5)	18:07	16:32	16:25		
19	05:35	14:30 (4)	06:04	16:02 (4)	06:34	17:50 (5)	07:04	06:40	07:08		
	20:17	17:19 (4)	19:43	17:08 (4)	18:54	18:24 (5)	18:06	16:31	16:26		
20	05:36	14:31 (4)	06:05	16:12 (4)	06:35	17:49 (5)	07:05	06:41	07:09		
	20:16	17:20 (4)	19:42	16:58 (4)	18:52	18:25 (5)	18:04	16:30	16:26		
21	05:37	14:33 (4)	06:06		06:36	17:48 (5)	07:06	06:42	07:09		
	20:16	17:22 (4)	19:40		18:51	18:25 (5)	18:03	16:29	16:27		
22	05:38	14:35 (4)	06:07		06:37	17:47 (5)	07:07	06:43	07:10		
	20:15	17:23 (4)	19:39		18:49	18:26 (5)	18:02	16:29	16:27		
23	05:39	14:37 (4)	06:08		06:38	17:46 (5)	07:09	06:44	07:10		
	20:14	17:24 (4)	19:37		18:47	18:26 (5)	18:00	16:28	16:28		
24	05:39	14:37 (4)	06:09		06:39	17:44 (5)	07:10	06:45	07:11		
	20:13	17:25 (4)	19:36		18:46	18:23 (5)	17:59	16:28	16:28		
25	05:40	14:39 (4)	06:10		06:40	17:44 (5)	06:11	06:46	07:11		
	20:12	17:26 (4)	19:34		18:44	18:21 (5)	16:57	16:27	16:29		
26	05:41	14:41 (4)	06:11		06:41	17:44 (5)	06:12	06:47	07:11		
	20:12	17:28 (4)	19:33		18:42	18:20 (5)	16:56	16:27	16:29		
27	05:42	14:43 (4)	06:12		06:42	17:43 (5)	06:13	06:49	07:12		
	20:11	17:29 (4)	19:31		18:41	18:18 (5)	16:55	16:26	16:30		
28	05:43	14:45 (4)	06:13		06:43	17:43 (5)	06:14	06:50	07:12		
	20:10	17:31 (4)	19:30		18:39	18:16 (5)	16:53	16:26	16:31		
29	05:44	14:47 (4)	06:14		06:44	17:43 (5)	06:15	06:51	07:12		
	20:09	17:32 (4)	19:28		18:37	18:15 (5)	16:52	16:25	16:31		
30	05:45	14:50 (4)	06:15		06:45	17:43 (5)	06:16	06:52	07:13		
	20:08	17:34 (4)	19:27		18:36	18:13 (5)	16:51	16:25	16:32		
31	05:46	14:52 (4)	06:16			06:18			07:13		
	20:07	17:35 (4)	19:25			16:50			16:33		
Potential sun hours	457		427		375	346		300	290		
Total, worst case	5236		2612		561	157					
Sun reduction	0,72		0,71		0,63	0,52					
Oper. time red.	0,84		0,84		0,84	0,84					
Wind dir. red.	0,63		0,63		0,54	0,54					
Total reduction	0,38		0,37		0,28	0,23					
Total, real	1995		976		160	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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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: C - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (3)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
3,74 4,31 5,21 6,68 8,38 9,76 10,61 9,72 7,93 5,84 4,48 3,68

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
1.010 780 356 292 406 724 917 547 457 439 520 890 7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	15:50 (7) 16:08 (21)	07:01 17:08	06:25 17:41	06:36 19:14	05:51 19:45	05:23 20:13	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:48
2	07:13 16:35	15:51 (7) 16:09 (21)	07:00 17:09	06:24 17:42	06:34 19:15	05:50 19:46	05:22 20:14	05:22 20:24	05:48 20:05	06:18 19:22	06:47 18:32	06:20 16:47
3	07:13 16:36	15:51 (7) 16:10 (21)	06:59 17:10	06:22 17:43	06:32 19:16	05:48 19:47	05:22 20:15	05:22 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46
4	07:14 16:37	15:52 (7) 16:11 (21)	06:58 17:11	06:21 17:44	06:31 19:17	05:47 19:48	05:22 20:16	05:22 20:24	05:50 20:03	06:19 19:19	06:49 18:29	06:22 16:45
5	07:14 16:37	15:52 (7) 16:12 (21)	06:57 17:12	06:19 17:45	06:29 19:18	05:46 19:49	05:21 20:16	05:25 20:24	05:51 20:01	06:20 19:17	06:50 18:28	06:23 16:44
6	07:14 16:38	15:53 (7) 16:13 (21)	06:56 17:14	06:18 17:46	06:28 19:19	05:45 19:50	05:21 20:17	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	06:25 16:43
7	07:14 16:39	15:53 (7) 16:14 (21)	06:54 17:15	06:16 17:47	06:26 19:20	05:44 19:51	05:21 20:18	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	06:26 16:42
8	07:13 16:40	15:54 (7) 16:15 (21)	06:53 17:16	06:15 17:49	06:24 19:21	05:42 19:52	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:41
9	07:13 16:41	15:54 (7) 16:16 (21)	06:52 17:17	06:13 17:50	06:23 19:22	05:41 19:53	05:20 20:19	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	06:28 16:39
10	07:13 16:42	15:55 (7) 16:17 (21)	06:51 17:19	06:12 17:51	06:21 19:23	05:40 19:54	05:20 20:19	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	06:29 16:38
11	07:13 16:43	15:55 (7) 16:18 (21)	06:50 17:20	06:10 17:52	06:20 19:24	05:39 19:55	05:20 20:20	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	06:30 16:38
12	07:13 16:44	15:56 (7) 16:19 (21)	06:49 17:21	06:08 17:53	06:18 19:25	05:38 19:56	05:20 20:21	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	06:32 16:37
13	07:12 16:45	15:56 (7) 16:21 (21)	06:48 17:22	06:07 17:54	06:17 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36
14	07:12 16:46	15:56 (7) 16:21 (21)	06:46 17:23	06:05 17:55	06:15 19:27	05:36 19:58	05:20 20:21	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	06:34 16:35
15	07:12 16:48	15:57 (7) 16:23 (21)	06:45 17:25	06:04 17:56	06:14 19:28	05:35 19:59	05:20 20:22	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34
16	07:11 16:49	15:58 (7) 16:23 (21)	06:44 17:26	06:02 17:57	06:12 19:29	05:34 20:00	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:10	06:36 16:33
17	07:11 16:50	15:59 (7) 16:25 (21)	06:42 17:27	06:00 17:58	06:11 19:30	05:33 20:01	05:20 20:22	05:34 20:19	06:02 19:46	06:32 18:57	07:02 18:09	06:37 16:32
18	07:10 16:51	15:59 (7) 16:26 (21)	06:41 17:28	05:59 17:59	06:09 19:31	05:32 20:02	05:20 20:23	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:39 16:32
19	07:10 16:52	16:01 (7) 16:27 (7)	06:40 17:29	05:57 18:00	06:08 19:32	05:31 20:02	05:20 20:23	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31
20	07:09 16:53	16:01 (7) 16:27 (7)	06:38 17:30	05:55 18:01	06:06 19:33	05:31 20:03	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30
21	07:09 16:54	16:02 (7) 16:26 (7)	06:37 17:32	05:54 18:02	06:05 19:34	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	06:42 16:29
22	07:08 16:56	16:04 (7) 16:26 (7)	06:36 17:33	05:52 18:03	06:03 19:35	05:29 20:05	05:20 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29
23	07:08 16:57	16:05 (7) 16:25 (7)	06:34 17:34	05:50 18:04	06:02 19:36	05:28 20:06	05:21 20:24	05:39 20:14	06:08 19:38	06:38 18:47	07:09 18:00	06:44 16:28
24	07:07 16:58	16:06 (7) 16:24 (7)	06:33 17:35	05:49 18:06	06:00 19:38	05:27 20:07	05:21 20:24	05:39 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:28
25	07:06 16:59	16:09 (7) 16:23 (7)	06:31 17:36	05:47 18:07	05:59 19:39	05:27 20:08	05:21 20:24	05:40 20:13	06:10 19:35	06:40 18:44	06:11 16:57	06:47 16:27
26	07:06 17:00	16:12 (7) 16:20 (7)	06:30 17:37	05:46 18:08	05:58 19:40	05:26 20:09	05:21 20:24	05:41 20:12	06:11 19:33	06:41 18:42	06:12 16:56	06:48 16:27
27	07:05 17:01	16:12 (7) 17:39	06:28 18:09	05:44 19:41	05:56 20:10	05:25 20:24	05:22 20:24	05:42 20:11	06:12 19:32	06:42 18:41	06:13 16:55	06:49 16:26
28	07:04 17:03	16:27 (7) 17:40	05:42 18:10	05:55 19:42	05:25 20:10	05:25 20:24	05:22 20:24	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:53	06:50 16:26
29	07:03 17:04	16:27 (7) 19:11	05:41 19:43	05:53 20:11	05:24 20:24	05:24 20:24	05:23 20:24	05:44 20:09	06:14 19:28	06:44 18:37	06:15 16:52	06:51 16:25
30	07:02 17:05	16:27 (7) 19:12	05:40 19:44	05:52 20:12	05:24 20:24	05:24 20:24	05:23 20:24	05:45 20:08	06:15 19:27	06:45 18:36	06:17 16:51	06:52 16:25
31	07:01 17:06	16:27 (7) 19:13	05:37 19:44	05:52 20:13	05:23 20:24	05:23 20:24	05:22 20:24	05:46 20:07	06:16 19:25	06:46 18:36	06:18 16:50	06:53 16:26
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case	558										333	538
Sun reduction	0,39										0,45	0,39
Oper. time red.	0,84										0,84	0,84
Wind dir. red.	0,55										0,55	0,55
Total reduction	0,18										0,21	0,18
Total, real	100										69	98

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: D - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (4)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
3,74 4,31 5,21 6,68 8,38 9,76 10,61 9,72 7,93 5,84 4,48 3,68

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
1.010 780 356 292 406 724 917 547 457 439 520 890 7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	15:37 (7) 16:08 (21)	07:01 17:08	06:25 17:41	06:36 19:14	05:51 19:45	05:23 20:13	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:48
2	07:13 16:35	15:38 (7) 16:09 (21)	07:00 17:09	06:24 17:42	06:34 19:15	05:50 19:46	05:22 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:32	06:20 16:47
3	07:13 16:36	15:38 (7) 16:10 (21)	06:59 17:10	06:22 17:43	06:32 19:16	05:48 19:47	05:22 20:15	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46
4	07:14 16:37	15:39 (7) 16:11 (21)	06:58 17:11	06:21 17:44	06:31 19:17	05:47 19:48	05:22 20:16	05:25 20:24	05:50 20:03	06:19 19:19	06:49 18:29	06:22 16:45
5	07:14 16:37	15:40 (7) 16:12 (21)	06:57 17:12	06:19 17:45	06:29 19:18	05:46 19:49	05:21 20:16	05:25 20:24	05:51 20:01	06:20 19:17	06:50 18:28	06:23 16:44
6	07:14 16:38	15:41 (7) 16:13 (21)	06:56 17:14	06:18 17:46	06:28 19:19	05:45 19:50	05:21 20:17	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	06:25 16:43
7	07:14 16:39	15:42 (7) 16:14 (21)	06:54 17:15	06:16 17:47	06:26 19:20	05:44 19:51	05:21 20:18	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	06:26 16:42
8	07:13 16:40	15:42 (7) 16:15 (21)	06:53 17:16	06:15 17:49	06:24 19:21	05:42 19:52	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:41
9	07:13 16:41	15:43 (7) 16:16 (21)	06:52 17:17	06:13 17:50	06:23 19:22	05:41 19:53	05:20 20:19	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	06:28 16:39
10	07:13 16:42	15:44 (7) 16:17 (21)	06:51 17:19	06:12 17:51	06:21 19:23	05:40 19:54	05:20 20:19	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	06:29 16:38
11	07:13 16:43	15:45 (7) 16:17 (21)	06:50 17:20	06:10 17:52	06:20 19:24	05:39 19:55	05:20 20:20	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	06:30 16:38
12	07:13 16:44	15:46 (7) 16:17 (21)	06:49 17:21	06:08 17:53	06:18 19:25	05:38 19:56	05:20 20:21	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	06:32 16:37
13	07:12 16:45	15:47 (7) 16:18 (21)	06:48 17:22	06:07 17:54	06:17 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36
14	07:12 16:46	15:48 (7) 16:19 (21)	06:46 17:23	06:05 17:55	06:15 19:27	05:36 19:58	05:20 20:21	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	06:34 16:35
15	07:12 16:48	15:49 (7) 16:20 (21)	06:45 17:25	06:04 17:56	06:14 19:28	05:35 19:59	05:20 20:22	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34
16	07:11 16:49	15:50 (7) 16:21 (21)	06:44 17:26	06:02 17:57	06:12 19:29	05:34 20:00	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:10	06:36 16:33
17	07:11 16:50	15:51 (7) 16:22 (21)	06:43 17:27	06:01 17:58	06:11 19:30	05:33 20:01	05:20 20:22	05:34 20:19	06:02 19:46	06:32 18:57	07:02 18:09	06:37 16:32
18	07:10 16:51	15:52 (7) 16:23 (21)	06:42 17:28	06:00 17:59	06:10 19:31	05:32 20:02	05:20 20:23	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:39 16:32
19	07:10 16:52	15:53 (7) 16:24 (21)	06:41 17:29	05:59 18:00	06:09 19:32	05:32 20:03	05:20 20:23	05:34 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31
20	07:09 16:53	15:54 (7) 16:25 (21)	06:40 17:30	05:57 18:01	06:08 19:33	05:31 20:03	05:20 20:23	05:35 20:17	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30
21	07:09 16:54	15:55 (7) 16:26 (21)	06:39 17:31	05:56 18:02	06:07 19:34	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	06:42 16:29
22	07:08 16:56	15:56 (7) 16:27 (21)	06:38 17:32	05:55 18:03	06:06 19:35	05:29 20:05	05:20 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:28
23	07:08 16:57	15:57 (7) 16:28 (21)	06:37 17:33	05:54 18:04	06:05 19:36	05:28 20:06	05:21 20:24	05:39 20:14	06:08 19:38	06:38 18:47	07:09 18:00	06:44 16:27
24	07:07 16:58	15:58 (7) 16:29 (21)	06:36 17:34	05:53 18:05	06:04 19:37	05:27 20:07	05:21 20:24	05:39 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:26
25	07:06 16:59	15:59 (7) 16:30 (21)	06:35 17:35	05:52 18:06	06:03 19:38	05:26 20:08	05:21 20:24	05:40 20:13	06:10 19:35	06:40 18:44	07:11 16:57	06:46 16:25
26	07:06 17:00	16:00 (7) 16:31 (21)	06:34 17:36	05:51 18:07	06:02 19:39	05:25 20:09	05:21 20:24	05:41 20:12	06:11 19:33	06:41 18:42	07:12 16:56	06:47 16:24
27	07:05 17:01	16:01 (7) 16:32 (21)	06:33 17:37	05:50 18:08	06:01 19:40	05:24 20:09	05:22 20:24	05:42 20:12	06:12 19:33	06:42 18:42	07:13 16:56	06:48 16:23
28	07:04 17:03	16:02 (7) 16:33 (21)	06:32 17:38	05:49 18:09	06:00 19:41	05:23 20:10	05:22 20:24	05:43 20:11	06:13 19:32	06:43 18:41	07:14 16:55	06:49 16:22
29	07:03 17:04	16:03 (7) 16:34 (21)	06:31 17:39	05:48 18:10	05:59 19:42	05:22 20:10	05:22 20:24	05:44 20:10	06:14 19:30	06:44 18:39	07:15 16:53	06:50 16:21
30	07:02 17:05	16:04 (7) 16:35 (21)	06:30 17:40	05:47 18:11	05:58 19:43	05:21 20:11	05:23 20:24	05:45 20:09	06:15 19:28	06:45 18:37	07:16 16:52	06:51 16:20
31	07:01 17:06	16:05 (7) 16:36 (21)	06:29 17:41	05:46 18:12	05:57 19:44	05:20 20:12	05:24 20:24	05:46 20:08	06:16 19:27	06:46 18:36	07:17 16:51	06:52 16:19
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case	527										173	943
Sun reduction	0,39										0,45	0,39
Oper. time red.	0,84										0,84	0,84
Wind dir. red.	0,55										0,55	0,55
Total reduction	0,18										0,21	0,18
Total, real	94										36	171

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: E - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (5)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June					
1	07:13	07:01			06:26	06:44 (22)	06:36	16:29 (20)	05:51	16:01 (20)	05:23	16:09 (20)				
	16:34	17:08			17:41	16	07:00 (22)	19:14	121	18:30 (20)	19:45	102	17:43 (20)	20:14	54	17:03 (20)
2	07:13	07:00			06:24	06:43 (22)	06:34	16:27 (20)	05:50	16:01 (20)	05:23	16:10 (20)				
	16:35	17:09			17:42	18	07:01 (22)	19:15	124	18:31 (20)	19:46	100	17:41 (20)	20:14	53	17:03 (20)
3	07:14	06:59			06:23	06:41 (22)	06:33	16:26 (20)	05:48	16:02 (20)	05:22	16:10 (20)				
	16:36	17:10			17:43	20	07:01 (22)	19:16	127	18:33 (20)	19:47	98	17:40 (20)	20:15	51	17:01 (20)
4	07:14	06:58			06:21	06:40 (22)	06:31	16:23 (20)	05:47	16:01 (20)	05:22	16:11 (20)				
	16:37	17:11			17:44	22	07:02 (22)	19:17	131	18:34 (20)	19:48	96	17:37 (20)	20:16	50	17:01 (20)
5	07:14	06:57			06:19	06:38 (22)	06:29	16:22 (20)	05:46	16:01 (20)	05:21	16:11 (20)				
	16:38	17:13			17:45	23	07:01 (22)	19:18	132	18:34 (20)	19:49	95	17:36 (20)	20:16	50	17:01 (20)
6	07:14	06:56			06:18	06:37 (22)	06:28	16:20 (20)	05:45	16:01 (20)	05:21	16:12 (20)				
	16:39	17:14			17:46	25	07:02 (22)	19:19	132	18:32 (20)	19:50	93	17:34 (20)	20:17	49	17:01 (20)
7	07:14	06:55			06:16	06:35 (22)	06:26	16:18 (20)	05:44	16:01 (20)	05:21	16:11 (20)				
	16:39	17:15			17:48	26	07:01 (22)	19:20	131	18:29 (20)	19:51	92	17:33 (20)	20:18	48	16:59 (20)
8	07:13	06:53			06:15	06:35 (22)	06:25	16:17 (20)	05:43	16:02 (20)	05:21	16:12 (20)				
	16:40	17:16			17:49	25	07:00 (22)	19:21	131	18:28 (20)	19:52	89	17:31 (20)	20:18	47	16:59 (20)
9	07:13	06:52			06:13	06:36 (22)	06:23	16:15 (20)	05:41	16:02 (20)	05:20	16:13 (20)				
	16:41	17:17			17:50	23	06:59 (22)	19:22	130	18:25 (20)	19:53	88	17:30 (20)	20:19	46	16:59 (20)
10	07:13	06:51			06:12	06:36 (22)	06:21	16:14 (20)	05:40	16:02 (20)	05:20	16:13 (20)				
	16:42	17:19			17:51	22	06:58 (22)	19:23	130	18:24 (20)	19:54	86	17:28 (20)	20:19	46	16:59 (20)
11	07:13	06:50			06:10	06:37 (22)	06:20	16:13 (20)	05:39	16:02 (20)	05:20	16:13 (20)				
	16:43	17:20			17:52	20	06:57 (22)	19:24	128	18:21 (20)	19:55	85	17:27 (20)	20:20	46	16:59 (20)
12	07:13	06:49			06:08	06:39 (22)	06:18	16:12 (20)	05:38	16:02 (20)	05:20	16:14 (20)				
	16:44	17:21			17:53	16	06:55 (22)	19:25	128	18:20 (20)	19:56	83	17:25 (20)	20:20	44	16:58 (20)
13	07:12	06:48			06:07	06:41 (22)	06:17	16:10 (20)	05:37	16:03 (20)	05:20	16:14 (20)				
	16:46	17:22			17:54	10	06:51 (22)	19:26	127	18:17 (20)	19:57	81	17:24 (20)	20:21	44	16:58 (20)
14	07:12	06:46			06:05		06:15	16:10 (20)	05:36	16:03 (20)	05:20	16:15 (20)				
	16:47	17:23			17:55		19:27	126	18:16 (20)	19:58	79	17:22 (20)	20:21	43	16:58 (20)	
15	07:12	06:45			06:04		06:14	16:08 (20)	05:35	16:03 (20)	05:20	16:15 (20)				
	16:48	17:25			17:56		19:28	125	18:13 (20)	19:59	78	17:21 (20)	20:22	43	16:58 (20)	
16	07:11	06:44			06:02		06:12	16:08 (20)	05:34	16:03 (20)	05:20	16:15 (20)				
	16:49	17:26			17:57		19:29	123	18:11 (20)	20:00	76	17:19 (20)	20:22	43	16:58 (20)	
17	07:11	06:43			06:00		06:11	16:07 (20)	05:33	16:03 (20)	05:20	16:15 (20)				
	16:50	17:27			17:58		19:30	122	18:09 (20)	20:01	75	17:18 (20)	20:22	43	16:58 (20)	
18	07:11	06:41			05:59		06:09	16:06 (20)	05:32	16:05 (20)	05:20	16:15 (20)				
	16:51	17:28			17:59		19:31	121	18:07 (20)	20:02	72	17:17 (20)	20:23	43	16:58 (20)	
19	07:10	06:40			05:57	16:21 (20)	06:08	16:05 (20)	05:32	16:05 (20)	05:20	16:15 (20)				
	16:52	17:29			18:00	29	16:50 (20)	19:32	120	18:05 (20)	20:03	71	17:16 (20)	20:23	43	16:58 (20)
20	07:10	06:38			05:55	16:12 (20)	06:06	16:05 (20)	05:31	16:05 (20)	05:20	16:16 (20)				
	16:53	17:31			18:01	45	16:57 (20)	19:33	118	18:03 (20)	20:03	69	17:14 (20)	20:23	42	16:58 (20)
21	07:09	06:37			05:54	16:05 (20)	06:05	16:04 (20)	05:30	16:05 (20)	05:20	16:16 (20)				
	16:55	17:32			18:03	57	17:02 (20)	19:34	117	18:01 (20)	20:04	68	17:13 (20)	20:24	42	16:58 (20)
22	07:08	06:36			05:52	16:01 (20)	06:03	16:04 (20)	05:29	16:06 (20)	05:20	16:17 (20)				
	16:56	17:33			18:04	66	17:07 (20)	19:36	115	17:59 (20)	20:05	67	17:13 (20)	20:24	42	16:59 (20)
23	07:08	06:34			05:51	15:56 (20)	06:02	16:04 (20)	05:28	16:06 (20)	05:21	16:17 (20)				
	16:57	17:34			18:05	75	17:11 (20)	19:37	114	17:58 (20)	20:06	65	17:11 (20)	20:24	42	16:59 (20)
24	07:07	06:33			05:49	15:52 (20)	06:00	16:03 (20)	05:28	16:06 (20)	05:21	16:16 (20)				
	16:58	17:35			18:06	81	17:13 (20)	19:38	112	17:55 (20)	20:07	64	17:10 (20)	20:24	43	16:59 (20)
25	07:06	06:31		06:50 (22)	05:47	15:49 (20)	05:59	16:03 (20)	05:27	16:07 (20)	05:21	16:16 (20)				
	16:59	17:36	3	06:53 (22)	18:07	88	17:17 (20)	19:39	111	17:54 (20)	20:08	62	17:09 (20)	20:24	43	16:59 (20)
26	07:06	06:30		06:49 (22)	05:46	15:45 (20)	05:58	16:02 (20)	05:26	16:07 (20)	05:22	16:17 (20)				
	17:00	17:37	7	06:56 (22)	18:08	94	17:19 (20)	19:40	109	17:51 (20)	20:09	61	17:08 (20)	20:24	43	17:00 (20)
27	07:05	06:29		06:47 (22)	05:44	15:42 (20)	05:56	16:02 (20)	05:26	16:07 (20)	05:22	16:17 (20)				
	17:02	17:39	11	06:58 (22)	18:09	99	17:21 (20)	19:41	108	17:50 (20)	20:10	60	17:07 (20)	20:24	43	17:00 (20)
28	07:04	06:27		06:46 (22)	05:42	15:40 (20)	05:55	16:02 (20)	05:25	16:08 (20)	05:22	16:18 (20)				
	17:03	17:40	14	07:00 (22)	18:10	104	17:24 (20)	19:42	106	17:48 (20)	20:10	58	17:06 (20)	20:24	43	17:01 (20)
29	07:03				06:41		16:37 (20)	05:54		16:02 (20)	05:24	16:08 (20)	05:23			16:17 (20)
	17:04				19:11	108	18:25 (20)	19:43	105	17:47 (20)	20:11	57	17:05 (20)	20:24	44	17:01 (20)
30	07:02				06:39		16:34 (20)	05:52		16:01 (20)	05:24		16:09 (20)	05:23		16:17 (20)
	17:05				19:12	113	18:27 (20)	19:44	103	17:44 (20)	20:12	56	17:05 (20)	20:24	44	17:01 (20)
31	07:02				06:37		16:32 (20)			05:23			16:09 (20)			
	17:06				19:13	117	18:29 (20)			20:13	54	17:03 (20)				
Potential sun hours	299	298			370			398		446		450				
Total, worst case			35		1342			3627		2380		1357				
Sun reduction			0,40		0,44			0,50		0,58		0,65				
Oper. time red.			0,84		0,84			0,84		0,84		0,84				
Wind dir. red.			0,59		0,57			0,57		0,57		0,57				
Total reduction			0,20		0,21			0,24		0,28		0,31				
Total, real			7		282			875		663		423				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: E - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (5)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

July		August		September		October		November		December	
1	05:24	16:18 (20)	05:47	16:13 (20)	06:17	16:12 (20)	06:46	07:19 (22)	06:19	06:53	
	20:24	45	17:03 (20)	20:06	83	17:36 (20)	19:24	128	18:20 (20)	18:34	14
2	05:24	16:17 (20)	05:48	16:13 (20)	06:18	16:12 (20)	06:47	07:17 (22)	06:20	06:54	
	20:24	46	17:03 (20)	20:05	85	17:38 (20)	19:22	130	18:22 (20)	18:33	18
3	05:25	16:18 (20)	05:49	16:13 (20)	06:19	16:13 (20)	06:48	07:15 (22)	06:21	06:55	
	20:24	46	17:04 (20)	20:04	86	17:39 (20)	19:21	130	18:23 (20)	18:31	21
4	05:25	16:17 (20)	05:50	16:11 (20)	06:20	16:14 (20)	06:49	07:14 (22)	06:22	06:56	
	20:24	47	17:04 (20)	20:03	89	17:40 (20)	19:19	131	18:25 (20)	18:29	23
5	05:26	16:18 (20)	05:51	16:11 (20)	06:21	16:15 (20)	06:50	07:13 (22)	06:24	06:57	
	20:24	47	17:05 (20)	20:02	90	17:41 (20)	19:17	131	18:26 (20)	18:28	24
6	05:26	16:17 (20)	05:52	16:11 (20)	06:22	16:16 (20)	06:51	07:12 (22)	06:25	06:58	
	20:23	49	17:06 (20)	20:00	92	17:43 (20)	19:16	132	18:28 (20)	18:26	25
7	05:27	16:18 (20)	05:53	16:11 (20)	06:22	16:17 (20)	06:52	07:12 (22)	06:26	06:59	
	20:23	49	17:07 (20)	19:59	93	17:44 (20)	19:14	132	18:29 (20)	18:24	25
8	05:27	16:18 (20)	05:54	16:11 (20)	06:23	16:18 (20)	06:53	07:13 (22)	06:27	07:00	
	20:23	50	17:08 (20)	19:58	95	17:46 (20)	19:12	131	18:29 (20)	18:23	24
9	05:28	16:17 (20)	05:54	16:10 (20)	06:24	16:20 (20)	06:54	07:14 (22)	06:28	07:01	
	20:23	51	17:08 (20)	19:57	97	17:47 (20)	19:11	128	18:28 (20)	18:21	23
10	05:29	16:17 (20)	05:55	16:10 (20)	06:25	16:21 (20)	06:55	07:15 (22)	06:29	07:02	
	20:22	53	17:10 (20)	19:56	99	17:49 (20)	19:09	125	18:26 (20)	18:20	21
11	05:29	16:18 (20)	05:56	16:10 (20)	06:26	16:21 (20)	06:56	07:16 (22)	06:31	07:02	
	20:22	53	17:11 (20)	19:54	100	17:50 (20)	19:08	122	18:23 (20)	18:18	19
12	05:30	16:17 (20)	05:57	16:10 (20)	06:27	16:23 (20)	06:57	07:17 (22)	06:32	07:03	
	20:21	54	17:11 (20)	19:53	102	17:52 (20)	19:06	117	18:20 (20)	18:17	17
13	05:31	16:17 (20)	05:58	16:10 (20)	06:28	16:25 (20)	06:58	07:18 (22)	06:33	07:04	
	20:21	55	17:12 (20)	19:52	103	17:53 (20)	19:04	113	18:18 (20)	18:15	15
14	05:32	16:17 (20)	05:59	16:10 (20)	06:29	16:26 (20)	06:59	07:19 (22)	06:34	07:05	
	20:20	57	17:14 (20)	19:50	105	17:55 (20)	19:03	110	18:16 (20)	18:14	13
15	05:32	16:17 (20)	06:00	16:10 (20)	06:30	16:28 (20)	07:00	07:20 (22)	06:35	07:05	
	20:20	58	17:15 (20)	19:49	106	17:56 (20)	19:01	105	18:13 (20)	18:12	10
16	05:33	16:16 (20)	06:01	16:09 (20)	06:31	16:31 (20)	07:01	07:21 (22)	06:36	07:06	
	20:19	60	17:16 (20)	19:48	109	17:58 (20)	18:59	100	18:11 (20)	18:10	6
17	05:34	16:17 (20)	06:02	16:08 (20)	06:32	16:33 (20)	07:02	07:27 (22)	06:38	07:07	
	20:19	60	17:17 (20)	19:46	110	17:58 (20)	18:58	95	18:08 (20)	18:09	
18	05:35	16:17 (20)	06:03	16:08 (20)	06:33	16:35 (20)	07:03		06:39	07:08	
	20:18	61	17:18 (20)	19:45	112	18:00 (20)	18:56	90	18:05 (20)	18:07	
19	05:35	16:17 (20)	06:04	16:08 (20)	06:34	16:38 (20)	07:04		06:40	07:08	
	20:17	63	17:20 (20)	19:43	113	18:01 (20)	18:54	83	18:01 (20)	18:06	
20	05:36	16:16 (20)	06:05	16:09 (20)	06:35	16:42 (20)	07:05		06:41	07:09	
	20:17	64	17:20 (20)	19:42	114	18:03 (20)	18:53	76	17:58 (20)	18:05	
21	05:37	16:16 (20)	06:06	16:09 (20)	06:36	16:45 (20)	07:07		06:42	07:09	
	20:16	65	17:21 (20)	19:41	115	18:04 (20)	18:51	69	17:54 (20)	18:03	
22	05:38	16:16 (20)	06:07	16:09 (20)	06:37	16:49 (20)	07:08		06:43	07:10	
	20:15	67	17:23 (20)	19:39	117	18:06 (20)	18:49	60	17:49 (20)	18:02	
23	05:39	16:15 (20)	06:08	16:09 (20)	06:38	16:54 (20)	07:09		06:44	07:10	
	20:14	69	17:24 (20)	19:38	118	18:07 (20)	18:48	50	17:44 (20)	18:00	
24	05:40	16:15 (20)	06:09	16:09 (20)	06:39	17:01 (20)	07:10		06:45	07:11	
	20:13	71	17:26 (20)	19:36	120	18:09 (20)	18:46	35	17:36 (20)	17:59	
25	05:41	16:15 (20)	06:10	16:09 (20)	06:40	17:15 (20)	06:11		06:47	07:11	
	20:13	72	17:27 (20)	19:35	121	18:10 (20)	18:44	6	17:21 (20)	16:58	
26	05:41	16:14 (20)	06:11	16:10 (20)	06:41		06:12		06:48	07:12	
	20:12	74	17:28 (20)	19:33	122	18:12 (20)	18:43		16:56	16:30	
27	05:42	16:14 (20)	06:12	16:10 (20)	06:42		06:13		06:49	07:12	
	20:11	75	17:29 (20)	19:32	124	18:14 (20)	18:41		16:55	16:30	
28	05:43	16:14 (20)	06:13	16:10 (20)	06:43		06:14		06:50	07:12	
	20:10	76	17:30 (20)	19:30	125	18:15 (20)	18:39		16:54	16:31	
29	05:44	16:14 (20)	06:14	16:11 (20)	06:44		06:15		06:51	07:13	
	20:09	78	17:32 (20)	19:29	126	18:17 (20)	18:38		16:52	16:32	
30	05:45	16:13 (20)	06:15	16:10 (20)	06:45		06:17		06:52	07:13	
	20:08	80	17:33 (20)	19:27	127	18:17 (20)	18:36	7	07:23 (22)	06:17	
31	05:46	16:13 (20)	06:16	16:11 (20)			06:18		16:25	16:32	
	20:07	82	17:35 (20)	19:25	128	18:19 (20)			06:18	07:13	
Potential sun hours	457		427		375		346		300	290	
Total, worst case	1877		3326		2536		298				
Sun reduction	0,72		0,71		0,63		0,52				
Oper. time red.	0,84		0,84		0,84		0,84				
Wind dir. red.	0,57		0,57		0,57		0,59				
Total reduction	0,34		0,34		0,30		0,26				
Total, real	647		1126		772		77				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: F - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (6)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June		July		August		September		October		November		December		
1	07:13		14:20 (18)	07:01		14:57 (18)	06:26	06:36	05:51	05:23	05:24	05:47	06:17	06:46	06:19		06:53						06:53	14:08 (18)	
	16:34	74	15:34 (18)	17:08	22	15:19 (18)	17:41	19:14	19:45	20:14	20:24	20:06	19:24	18:34	16:49		16:25	69					16:25	15:17 (18)	
2	07:14		14:20 (18)	07:00		15:03 (18)	06:24	06:34	05:50	05:23	05:24	05:48	06:18	06:47	06:20		06:54						06:54	14:08 (18)	
	16:35	74	15:34 (18)	17:09	11	15:14 (18)	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:33	16:47		16:25	70					16:25	15:18 (18)	
3	07:14		14:21 (18)	06:59			06:23	06:33	05:49	05:22	05:25	05:49	06:19	06:48	06:21		06:55						06:55	14:08 (18)	
	16:36	73	15:34 (18)	17:10			17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46		16:25	70					16:25	15:18 (18)	
4	07:14		14:21 (18)	06:58			06:21	06:31	05:47	05:22	05:25	05:50	06:20	06:49	06:22		06:56						06:56	14:08 (18)	
	16:37	73	15:34 (18)	17:11			17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45		16:24	71					16:24	15:19 (18)	
5	07:14		14:21 (18)	06:57			06:20	06:29	05:46	05:22	05:26	05:51	06:21	06:50	06:24		06:57						06:57	14:08 (18)	
	16:38	73	15:34 (18)	17:13			17:45	19:18	19:49	20:16	20:24	20:02	19:17	18:28	16:44		16:24	72					16:24	15:20 (18)	
6	07:14		14:22 (18)	06:56			06:18	06:28	05:45	05:21	05:26	05:52	06:22	06:51	06:25		06:58						06:58	14:08 (18)	
	16:39	72	15:34 (18)	17:14			17:47	19:19	19:50	20:17	20:24	20:00	19:16	18:26	16:43		16:24	72					16:24	15:20 (18)	
7	07:14		14:23 (18)	06:55			06:16	06:26	05:44	05:21	05:27	05:53	06:23	06:52	06:26		06:59						06:59	14:08 (18)	
	16:40	72	15:35 (18)	17:15			17:48	19:20	19:51	20:18	20:23	19:59	19:14	18:25	16:42		16:24	73					16:24	15:21 (18)	
8	07:14		14:24 (18)	06:54			06:15	06:25	05:43	05:21	05:28	05:54	06:24	06:53	06:27		07:00						07:00	14:08 (18)	
	16:41	71	15:35 (18)	17:16			17:49	19:21	19:52	20:18	20:23	19:58	19:13	18:23	16:41		16:24	74					16:24	15:22 (18)	
9	07:13		14:24 (18)	06:52			06:13	06:23	05:42	05:20	05:28	05:55	06:25	06:54	06:28									14:33 (18)	07:01
	16:42	71	15:35 (18)	17:18			17:50	19:22	19:53	20:19	20:23	19:57	19:11	18:21	16:40	13	14:33 (18)						16:24	15:22 (18)	
10	07:13		14:25 (18)	06:51			06:12	06:22	05:40	05:20	05:29	05:56	06:25	06:55	06:29		14:28 (18)						07:02	14:09 (18)	
	16:43	71	15:36 (18)	17:19			17:51	19:23	19:54	20:19	20:22	19:56	19:09	18:20	16:39	22	14:50 (18)						16:24	15:23 (18)	
11	07:13		14:25 (18)	06:50			06:10	06:20	05:39	05:20	05:30	05:57	06:26	06:56	06:31		14:25 (18)						07:02	14:10 (18)	
	16:44	70	15:35 (18)	17:20			17:52	19:24	19:55	20:20	20:22	19:54	19:08	18:18	16:38	29	14:54 (18)						16:24	15:24 (18)	
12	07:13		14:27 (18)	06:49			06:09	06:18	05:38	05:20	05:30	05:58	06:27	06:57	06:32		14:22 (18)						07:03	14:10 (18)	
	16:45	68	15:35 (18)	17:21			17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:17	16:37	34	14:56 (18)						16:24	15:24 (18)	
13	07:13		14:28 (18)	06:48			06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33		14:20 (18)						07:04	14:10 (18)	
	16:46	68	15:36 (18)	17:22			17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36	38	14:58 (18)						16:24	15:24 (18)	
14	07:12		14:28 (18)	06:46			06:05	06:15	05:36	05:20	05:32	05:59	06:29	06:59	06:34		14:18 (18)						07:05	14:10 (18)	
	16:47	67	15:35 (18)	17:24			17:55	19:27	19:58	20:21	20:20	19:50	19:03	18:14	16:35	42	15:00 (18)						16:25	15:25 (18)	
15	07:12		14:29 (18)	06:45			06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35		14:17 (18)						07:06	14:11 (18)	
	16:48	67	15:36 (18)	17:25			17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34	45	15:02 (18)						16:25	15:26 (18)	
16	07:11		14:30 (18)	06:44			06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36		14:16 (18)						07:06	14:11 (18)	
	16:49	65	15:35 (18)	17:26			17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:11	16:33	47	15:03 (18)						16:25	15:26 (18)	
17	07:11		14:31 (18)	06:43			06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:38		14:14 (18)						07:07	14:11 (18)	
	16:50	64	15:35 (18)	17:27			17:58	19:30	20:01	20:23	20:19	19:46	18:58	18:09	16:33	51	15:05 (18)						16:25	15:26 (18)	
18	07:11		14:32 (18)	06:41			05:59	06:09	05:33	05:20	05:35	06:03	06:33	07:03	06:39		14:13 (18)						07:08	14:12 (18)	
	16:51	63	15:35 (18)	17:28			17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:08	16:32	53	15:06 (18)						16:26	15:27 (18)	
19	07:10		14:33 (18)	06:40			05:57	06:08	05:32	05:20	05:36	06:04	06:34	07:04	06:40		14:13 (18)						07:08	14:12 (18)	
	16:52	62	15:35 (18)	17:30			18:01	19:33	20:03	20:23	20:17	19:44	18:54	18:06	16:31	55	15:08 (18)						16:26	15:27 (18)	
20	07:10		14:34 (18)	06:39			05:56	06:06	05:31	05:20	05:36	06:05	06:35	07:06	06:41		14:12 (18)						07:09	14:13 (18)	
	16:53	60	15:34 (18)	17:31			18:02	19:34	20:04	20:23	20:17	19:42	18:53	18:05	16:30	56	15:08 (18)						16:27	15:28 (18)	
21	07:09		14:36 (18)	06:37			05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:07	06:42		14:11 (18)						07:09	14:13 (18)	
	16:55	58	15:34 (18)	17:32			18:03	19:35	20:04	20:24	20:16	19:41	18:51	18:03	16:30	58	15:09 (18)						16:27	15:28 (18)	
22	07:08		14:37 (18)	06:36			05:52	06:03	05:29	05:21	05:38	06:07	06:37	07:08	06:43		14:10 (18)						07:10	14:14 (18)	
	16:56	56	15:33 (18)	17:33			18:04	19:36	20:05	20:24	20:15	19:39	18:49	18:02	16:29	60	15:10 (18)						16:27	15:29 (18)	
23	07:08		14:38 (18)	06:34			05:51	06:02	05:29	05:21	05:39	06:08	06:38	07:09	06:44		14:09 (18)						07:10	14:14 (18)	
	16:57	55	15:33 (18)	17:34			18:05	19:37	20:06	20:24	20:14	19:38	18:48	18:00	16:29	62	15:11 (18)						16:28	15:29 (18)	
24	07:07		14:39 (18)	06:33			05:49	06:01	05:28	05:21	05:40	06:09	06:39	07:10	06:46		14:10 (18)						07:11	14:15 (18)	
	16:58	53	15:32 (18)	17:35			18:06	19:38	20:07	20:24	20:14	19:36	18:46	17:59	16:28	63	15:13 (18)						16:29	15:30 (18)	
25	07:06		14:41 (18)	06:32			05:47	05:59	05:27	05:21	05:41	06:10	06:40	06:11	06:47		14:09 (18)						07:11	14:15 (18)	
	16:59	51	15:32 (18)	17:36			18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:58	16:27	64	15:13 (18)						16:29	15:30 (18)	
26	07:06		14:43 (18)	06:30			05:46	05:58	05:26	05:22	05:42	06:11	06:41	06:12	06:48		14:09 (18)						07:12	14:15 (18)	
	17:01	47	15:30 (18)	17:38			18:08	19:40	20:09	20:24	20:12	19:33	18:43	16:56	16:27	65	15:14 (18)						16:30	15:30 (18)	
27	07:05		14:44 (18)	06:29			05:44	05:56	05:26	05:22	05:42	06:12	06:42	06:13	06:49		14:08 (18)						07:12	14:17 (18)	
	17:02	45	15:29 (18)	17:39			18:09	19:41	20:10	20:24	20:11	19:32	18:41	16:55	16:27	67	15:15 (18)						16:30	15:31 (18)	
28	07:04		14:46 (18)	06:27			05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50		14:08 (18)						07:12	14:17 (18)	
	17:03	42	15:28 (18)	17:40			18:10	19:42	20:10	20:25	20:10	19:30	18:39	16:54	16:26	67	15:15 (18)						16:31	15:32 (18)	
29	07:03		14:48 (18)				06:41	05:54	05:25	05:23	05:44	06:14	06:44	06:16	06:51		14:08 (18)						07:13	14:17 (18)	
	17:04	38	15:26 (18)				19:11	19:43	20:11	20:24	20:09	19:29	18:38	16:52	16:26	68	15:16 (18)						16:32	15:32 (18)	

Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: G - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (7)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June		July		August		September		October		November		December	
1	07:13		14:19 (18)	07:01		14:57 (18)	06:26	06:36	05:51	05:23	05:24	05:47	06:17	06:46	06:19		06:53						06:53	14:07 (18)
	16:34	74	15:33 (18)	17:08	21	15:18 (18)	17:41	19:14	19:45	20:14	20:24	20:06	19:24	18:34	16:49		16:25	70	15:17 (18)				16:25	14:07 (18)
2	07:14		14:20 (18)	07:00		15:02 (18)	06:24	06:34	05:50	05:23	05:24	05:48	06:18	06:47	06:20		06:54						06:54	14:07 (18)
	16:35	73	15:33 (18)	17:09	11	15:13 (18)	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:33	16:47		16:25	70	15:17 (18)				16:25	14:07 (18)
3	07:14		14:20 (18)	06:59			06:23	06:33	05:49	05:22	05:25	05:49	06:19	06:48	06:21		06:55						06:55	14:07 (18)
	16:36	74	15:34 (18)	17:10			17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46		16:25	71	15:18 (18)				16:25	14:07 (18)
4	07:14		14:21 (18)	06:58			06:21	06:31	05:47	05:22	05:25	05:50	06:20	06:49	06:22		06:56						06:56	14:07 (18)
	16:37	73	15:34 (18)	17:11			17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45		16:24	72	15:19 (18)				16:24	14:07 (18)
5	07:14		14:21 (18)	06:57			06:20	06:29	05:46	05:22	05:26	05:51	06:21	06:50	06:24		06:57						06:57	14:07 (18)
	16:38	72	15:33 (18)	17:13			17:45	19:18	19:49	20:16	20:24	20:02	19:17	18:28	16:44		16:24	72	15:19 (18)				16:24	14:07 (18)
6	07:14		14:21 (18)	06:56			06:18	06:28	05:45	05:21	05:26	05:52	06:22	06:51	06:25		06:58						06:58	14:07 (18)
	16:39	73	15:34 (18)	17:14			17:47	19:19	19:50	20:17	20:24	20:00	19:16	18:26	16:43		16:24	73	15:20 (18)				16:24	14:08 (18)
7	07:14		14:22 (18)	06:55			06:16	06:26	05:44	05:21	05:27	05:53	06:23	06:52	06:26		06:59						06:59	14:08 (18)
	16:40	72	15:34 (18)	17:15			17:48	19:20	19:51	20:18	20:23	19:59	19:14	18:25	16:42		16:24	72	15:20 (18)				16:24	14:08 (18)
8	07:14		14:23 (18)	06:54			06:15	06:25	05:43	05:21	05:28	05:54	06:24	06:53	06:27		07:00						07:00	14:08 (18)
	16:41	71	15:34 (18)	17:16			17:49	19:21	19:52	20:18	20:23	19:58	19:13	18:23	16:41		16:24	73	15:21 (18)				16:24	14:08 (18)
9	07:13		14:24 (18)	06:52			06:13	06:23	05:42	05:20	05:28	05:55	06:25	06:54	06:28		14:32 (18)	07:01					14:32 (18)	14:08 (18)
	16:42	71	15:35 (18)	17:18			17:50	19:22	19:53	20:19	20:23	19:57	19:11	18:21	16:40	13	14:45 (18)	16:24	74	15:22 (18)			16:24	14:08 (18)
10	07:13		14:25 (18)	06:51			06:12	06:22	05:40	05:20	05:29	05:56	06:25	06:55	06:29		14:27 (18)	07:02					14:27 (18)	14:09 (18)
	16:43	70	15:35 (18)	17:19			17:51	19:23	19:54	20:19	20:22	19:56	19:09	18:20	16:39	23	14:50 (18)	16:24	73	15:22 (18)			16:24	14:09 (18)
11	07:13		14:25 (18)	06:50			06:10	06:20	05:39	05:20	05:30	05:57	06:26	06:56	06:31		14:25 (18)	07:02					14:25 (18)	14:09 (18)
	16:44	70	15:35 (18)	17:20			17:52	19:24	19:55	20:20	20:22	19:54	19:08	18:18	16:38	29	14:54 (18)	16:24	74	15:23 (18)			16:24	14:09 (18)
12	07:13		14:26 (18)	06:49			06:09	06:18	05:38	05:20	05:30	05:58	06:27	06:57	06:32		14:22 (18)	07:03					14:22 (18)	14:10 (18)
	16:45	69	15:35 (18)	17:21			17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:17	16:37	34	14:56 (18)	16:24	74	15:24 (18)			16:24	14:10 (18)
13	07:13		14:27 (18)	06:48			06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33		14:20 (18)	07:04					14:20 (18)	14:10 (18)
	16:46	68	15:35 (18)	17:22			17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36	38	14:58 (18)	16:24	75	15:24 (18)			16:24	14:10 (18)
14	07:12		14:27 (18)	06:46			06:05	06:15	05:36	05:20	05:32	05:59	06:29	06:59	06:34		14:17 (18)	07:05					14:17 (18)	14:10 (18)
	16:47	68	15:35 (18)	17:24			17:55	19:27	19:58	20:21	20:20	19:50	19:03	18:14	16:35	42	14:59 (18)	16:25	74	15:24 (18)			16:25	14:10 (18)
15	07:12		14:29 (18)	06:45			06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35		14:17 (18)	07:06					14:17 (18)	14:10 (18)
	16:48	66	15:35 (18)	17:25			17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34	45	15:02 (18)	16:25	75	15:25 (18)			16:25	14:10 (18)
16	07:11		14:29 (18)	06:44			06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36		14:15 (18)	07:06					14:15 (18)	14:10 (18)
	16:49	65	15:34 (18)	17:26			17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:11	16:33	48	15:03 (18)	16:25	75	15:25 (18)			16:25	14:11 (18)
17	07:11		14:31 (18)	06:43			06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:38		14:14 (18)	07:07					14:14 (18)	14:11 (18)
	16:50	64	15:35 (18)	17:27			17:58	19:30	20:01	20:23	20:19	19:46	18:58	18:09	16:33	50	15:04 (18)	16:25	75	15:26 (18)			16:25	14:12 (18)
18	07:11		14:31 (18)	06:41			05:59	06:09	05:33	05:20	05:35	06:03	06:33	07:03	06:39		14:12 (18)	07:08					14:12 (18)	14:12 (18)
	16:51	63	15:34 (18)	17:28			17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:08	16:32	53	15:05 (18)	16:26	75	15:27 (18)			16:26	14:12 (18)
19	07:10		14:33 (18)	06:40			05:57	06:08	05:32	05:20	05:36	06:04	06:34	07:04	06:40		14:12 (18)	07:08					14:12 (18)	14:12 (18)
	16:52	61	15:34 (18)	17:30			18:01	19:33	20:03	20:23	20:17	19:44	18:54	18:06	16:31	55	15:07 (18)	16:26	75	15:27 (18)			16:26	14:12 (18)
20	07:10		14:34 (18)	06:39			05:56	06:06	05:31	05:20	05:36	06:05	06:35	07:06	06:41		14:11 (18)	07:09					14:11 (18)	14:12 (18)
	16:53	60	15:34 (18)	17:31			18:02	19:34	20:04	20:23	20:17	19:42	18:53	18:05	16:30	57	15:08 (18)	16:27	76	15:28 (18)			16:27	14:12 (18)
21	07:09		14:35 (18)	06:37			05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:07	06:42		14:10 (18)	07:09					14:10 (18)	14:12 (18)
	16:55	59	15:34 (18)	17:32			18:03	19:35	20:04	20:24	20:16	19:41	18:51	18:03	16:30	59	15:09 (18)	16:27	76	15:28 (18)			16:27	14:13 (18)
22	07:08		14:36 (18)	06:36			05:52	06:03	05:29	05:21	05:38	06:07	06:37	07:08	06:43		14:10 (18)	07:10					14:10 (18)	14:13 (18)
	16:56	57	15:33 (18)	17:33			18:04	19:36	20:05	20:24	20:15	19:39	18:49	18:02	16:29	60	15:10 (18)	16:27	76	15:29 (18)			16:27	14:13 (18)
23	07:08		14:37 (18)	06:34			05:51	06:02	05:29	05:21	05:39	06:08	06:38	07:09	06:44		14:09 (18)	07:10					14:09 (18)	14:13 (18)
	16:57	55	15:32 (18)	17:34			18:05	19:37	20:06	20:24	20:14	19:38	18:48	18:00	16:29	61	15:10 (18)	16:28	76	15:29 (18)			16:28	14:14 (18)
24	07:07		14:38 (18)	06:33			05:49	06:01	05:28	05:21	05:40	06:09	06:39	07:10	06:46		14:09 (18)	07:11					14:09 (18)	14:14 (18)
	16:58	53	15:31 (18)	17:35			18:06	19:38	20:07	20:24	20:14	19:36	18:46	17:59	16:28	63	15:12 (18)	16:29	76	15:30 (18)			16:29	14:14 (18)
25	07:06		14:41 (18)	06:32			05:47	05:59	05:27	05:21	05:41	06:10	06:40	06:11	06:47		14:09 (18)	07:11					14:09 (18)	14:15 (18)
	16:59	50	15:31 (18)	17:36			18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:58	16:27	64	15:13 (18)	16:29	75	15:30 (18)			16:29	14:15 (18)
26	07:06		14:42 (18)	06:30			05:46	05:58	05:26	05:22	05:42	06:11	06:41	06:12	06:48		14:08 (18)	07:12					14:08 (18)	14:15 (18)
	17:01	48	15:30 (18)	17:38			18:08	19:40	20:09	20:24	20:12	19:33	18:43	16:56	16:27	65	15:13 (18)	16:30	75	15:30 (18)			16:30	14:15 (18)
27	07:05		14:44 (18)	06:29			05:44	05:56	05:26	05:22	05:42	06:12	06:42	06:13	06:49		14:08 (18)	07:12					14:08 (18)	14:16 (18)
	17:02	45	15:29 (18)	17:39			18:09	19:41	20:10	20:24	20:11	19:32	18:41	16:55	16:27	66	15:14 (18)	16:30	75	15:31 (18)			16:30	14:16 (18)
28	07:04		14:46 (18)	06:27			05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50		14:08 (18)	07:12					14:08 (18)	

SHADOW - Calendar

Shadow receptor: H - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (8)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January			February			March			April			May			June		
1	07:13	07:01	06:26							06:36			07:25 (18)	05:51		08:10 (18)	05:23	08:50 (18)
	16:34	17:08	17:41							19:14	105		09:10 (18)	19:45	68	09:18 (18)	20:14	19 09:09 (18)
2	07:14	07:00	06:24							06:34			07:27 (18)	05:50		08:12 (18)	05:23	08:52 (18)
	16:35	17:09	17:42							19:15	105		09:12 (18)	19:46	66	09:18 (18)	20:14	17 09:09 (18)
3	07:14	06:59	06:23							06:33			07:28 (18)	05:49		08:13 (18)	05:22	08:53 (18)
	16:36	17:10	17:43							19:16	105		09:13 (18)	19:47	65	09:18 (18)	20:15	16 09:09 (18)
4	07:14	06:58	06:21							06:31			07:29 (18)	05:47		08:15 (18)	05:22	08:53 (18)
	16:37	17:12	17:44							19:17	104		09:13 (18)	19:48	63	09:18 (18)	20:16	16 09:09 (18)
5	07:14	06:57	06:20							06:30			07:32 (18)	05:46		08:16 (18)	05:22	08:55 (18)
	16:38	17:13	17:45							19:18	103		09:15 (18)	19:49	60	09:16 (18)	20:16	14 09:09 (18)
6	07:14	06:56	06:18							06:28			07:33 (18)	05:45		08:17 (18)	05:21	08:56 (18)
	16:39	17:14	17:47							19:19	102		09:15 (18)	19:50	59	09:16 (18)	20:17	13 09:09 (18)
7	07:14	06:55	06:17							06:26			07:35 (18)	05:44		08:19 (18)	05:21	08:56 (18)
	16:40	17:15	17:48							19:20	102		09:17 (18)	19:51	57	09:16 (18)	20:18	12 09:08 (18)
8	07:14	06:54	06:15							06:25			07:36 (18)	05:43		08:20 (18)	05:21	08:57 (18)
	16:41	17:16	17:49							19:21	101		09:17 (18)	19:52	56	09:16 (18)	20:18	11 09:08 (18)
9	07:13	06:52	06:13							06:23			07:37 (18)	05:42		08:22 (18)	05:21	08:58 (18)
	16:42	17:18	17:50							19:22	100		09:17 (18)	19:53	53	09:15 (18)	20:19	10 09:08 (18)
10	07:13	06:51	06:12							06:22			07:39 (18)	05:40		08:23 (18)	05:20	08:58 (18)
	16:43	17:19	17:51							19:23	99		09:18 (18)	19:54	52	09:15 (18)	20:19	11 09:09 (18)
11	07:13	06:50	06:10							06:20			07:40 (18)	05:39		08:25 (18)	05:20	08:59 (18)
	16:44	17:20	17:52							19:24	98		09:18 (18)	19:55	50	09:15 (18)	20:20	10 09:09 (18)
12	07:13	06:49	06:09							06:18			07:42 (18)	05:38		08:26 (18)	05:20	09:00 (18)
	16:45	17:21	17:53							19:25	97		09:19 (18)	19:56	48	09:14 (18)	20:20	9 09:09 (18)
13	07:13	06:48	06:07							06:17			07:43 (18)	05:37		08:27 (18)	05:20	09:00 (18)
	16:46	17:22	17:54							19:26	96		09:19 (18)	19:57	47	09:14 (18)	20:21	9 09:09 (18)
14	07:12	06:46	06:05							06:15			07:45 (18)	05:36		08:29 (18)	05:20	09:01 (18)
	16:47	17:24	17:55							19:27	95		09:20 (18)	19:58	45	09:14 (18)	20:21	8 09:09 (18)
15	07:12	06:45	06:04							06:14			07:46 (18)	05:35		08:30 (18)	05:20	09:02 (18)
	16:48	17:25	17:56							19:28	93		09:19 (18)	19:59	43	09:13 (18)	20:22	7 09:09 (18)
16	07:11	06:44	06:02							06:12			07:48 (18)	05:34		08:31 (18)	05:20	09:02 (18)
	16:49	17:26	17:57							19:29	92		09:20 (18)	20:00	42	09:13 (18)	20:22	7 09:09 (18)
17	07:11	06:43	06:01							06:11			07:49 (18)	05:33		08:33 (18)	05:20	09:02 (18)
	16:50	17:27	17:58							19:30	91		09:20 (18)	20:01	40	09:13 (18)	20:23	7 09:09 (18)
18	07:11	06:41	05:59							06:09			07:51 (18)	05:33		08:35 (18)	05:20	09:03 (18)
	16:51	17:28	17:59	18						07:26 (18)	89		09:20 (18)	20:02	38	09:13 (18)	20:23	6 09:09 (18)
19	07:10	06:40	05:57							06:59 (18)			07:52 (18)	05:32		08:36 (18)	05:20	09:03 (18)
	16:52	17:30	18:01	37						07:36 (18)	88		09:20 (18)	20:03	36	09:12 (18)	20:23	6 09:09 (18)
20	07:10	06:39	05:56							06:52 (18)			07:54 (18)	05:31		08:37 (18)	05:20	09:03 (18)
	16:54	17:31	18:02	49						07:41 (18)	86		09:20 (18)	20:04	35	09:12 (18)	20:23	6 09:09 (18)
21	07:09	06:37	05:54							06:47 (18)			07:55 (18)	05:30		08:38 (18)	05:20	09:04 (18)
	16:55	17:32	18:03	59						07:46 (18)	85		09:20 (18)	20:04	33	09:11 (18)	20:24	6 09:10 (18)
22	07:08	06:36	05:52							06:44 (18)			07:57 (18)	05:29		08:40 (18)	05:21	09:04 (18)
	16:56	17:33	18:04	66						07:50 (18)	83		09:20 (18)	20:05	31	09:11 (18)	20:24	6 09:10 (18)
23	07:08	06:34	05:51							06:39 (18)			07:59 (18)	05:29		08:41 (18)	05:21	09:04 (18)
	16:57	17:34	18:05	74						07:53 (18)	81		09:20 (18)	20:06	30	09:11 (18)	20:24	6 09:10 (18)
24	07:07	06:33	05:49							06:36 (18)			08:00 (18)	05:28		08:42 (18)	05:21	09:04 (18)
	16:58	17:35	18:06	79						07:55 (18)	79		09:19 (18)	20:07	28	09:10 (18)	20:24	6 09:10 (18)
25	07:06	06:32	05:47							06:33 (18)			08:01 (18)	05:27		08:43 (18)	05:21	09:04 (18)
	16:59	17:37	18:07	85						07:58 (18)	79		09:20 (18)	20:08	28	09:11 (18)	20:24	7 09:11 (18)
26	07:06	06:30	05:46							06:30 (18)			08:03 (18)	05:26		08:44 (18)	05:22	09:04 (18)
	17:01	17:38	18:08	90						08:00 (18)	77		09:20 (18)	20:09	26	09:10 (18)	20:24	7 09:11 (18)
27	07:05	06:29	05:44							06:27 (18)			08:04 (18)	05:26		08:46 (18)	05:22	09:04 (18)
	17:02	17:39	18:09	95						08:02 (18)	75		09:19 (18)	20:10	24	09:10 (18)	20:24	7 09:11 (18)
28	07:04	06:27	05:43							06:25 (18)			08:06 (18)	05:25		08:46 (18)	05:22	09:04 (18)
	17:03	17:40	18:10	99						08:04 (18)	73		09:19 (18)	20:10	24	09:10 (18)	20:25	8 09:12 (18)
29	07:03		06:41							07:23 (18)			08:08 (18)	05:25		08:48 (18)	05:23	09:04 (18)
	17:04		19:11	103						09:06 (18)	71		09:19 (18)	20:11	22	09:10 (18)	20:25	8 09:12 (18)
30	07:02		06:39							07:23 (18)			08:08 (18)	05:24		08:49 (18)	05:23	09:04 (18)
	17:05		19:12	105						09:08 (18)	70		09:18 (18)	20:12	20	09:09 (18)	20:24	9 09:13 (18)
31	07:02		06:38							07:24 (18)				05:24		08:50 (18)		
	17:07		19:13	105						09:09 (18)				20:13	20	09:10 (18)		
Potential sun hours	299	298	370							398				446		450		
Total, worst case							1064			2724				1309		284		
Sun reduction							0,44			0,50				0,58		0,65		
Oper. time red.							0,84			0,84				0,84		0,84		
Wind dir. red.							0,56			0,56				0,56		0,56		
Total reduction							0,20			0,23				0,27		0,30		
Total, real							217			639				355		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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SHADOW - Calendar

Shadow receptor: H - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 0,0° (8)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

July		August		September		October		November		December	
1	05:24	09:03 (18)	05:47	08:36 (18)	06:17	07:39 (18)	06:46	06:19	06:53		
	20:24	10	09:13 (18)	20:06	49	09:25 (18)	19:24	98	09:17 (18)	18:34	16:25
2	05:24	09:04 (18)	05:48	08:35 (18)	06:18	07:37 (18)	06:47	06:20	06:54		
	20:24	10	09:14 (18)	20:05	50	09:25 (18)	19:22	99	09:16 (18)	18:33	16:25
3	05:25	09:03 (18)	05:49	08:33 (18)	06:19	07:35 (18)	06:48	06:21	06:55		
	20:24	11	09:14 (18)	20:04	53	09:26 (18)	19:21	100	09:15 (18)	18:31	16:25
4	05:25	09:03 (18)	05:50	08:32 (18)	06:20	07:33 (18)	06:49	06:22	06:56		
	20:24	11	09:14 (18)	20:03	54	09:26 (18)	19:19	101	09:14 (18)	18:29	16:24
5	05:26	09:02 (18)	05:51	08:30 (18)	06:21	07:31 (18)	06:50	06:24	06:57		
	20:24	12	09:14 (18)	20:02	56	09:26 (18)	19:18	102	09:13 (18)	18:28	16:24
6	05:26	09:02 (18)	05:52	08:28 (18)	06:22	07:29 (18)	06:51	06:25	06:58		
	20:24	13	09:15 (18)	20:00	58	09:26 (18)	19:16	102	09:11 (18)	18:26	16:24
7	05:27	09:01 (18)	05:53	08:26 (18)	06:23	07:27 (18)	06:52	06:26	06:59		
	20:23	14	09:15 (18)	19:59	60	09:26 (18)	19:14	103	09:10 (18)	18:25	16:24
8	05:28	09:01 (18)	05:54	08:25 (18)	06:24	07:25 (18)	06:53	06:27	07:00		
	20:23	15	09:16 (18)	19:58	61	09:26 (18)	19:13	103	09:08 (18)	18:23	16:24
9	05:28	09:01 (18)	05:55	08:23 (18)	06:25	07:23 (18)	06:54	06:28	07:01		
	20:23	15	09:16 (18)	19:57	63	09:26 (18)	19:11	104	09:07 (18)	18:21	16:24
10	05:29	08:59 (18)	05:56	08:22 (18)	06:26	07:20 (18)	06:55	06:29	07:02		
	20:22	17	09:16 (18)	19:56	64	09:26 (18)	19:09	105	09:05 (18)	18:20	16:24
11	05:30	08:59 (18)	05:57	08:20 (18)	06:26	07:18 (18)	06:56	06:31	07:02		
	20:22	18	09:17 (18)	19:54	67	09:27 (18)	19:08	105	09:03 (18)	18:18	16:24
12	05:30	08:59 (18)	05:58	08:18 (18)	06:27	07:16 (18)	06:57	06:32	07:03		
	20:21	19	09:18 (18)	19:53	69	09:27 (18)	19:06	105	09:01 (18)	18:17	16:24
13	05:31	08:57 (18)	05:59	08:17 (18)	06:28	07:13 (18)	06:58	06:33	07:04		
	20:21	20	09:17 (18)	19:52	70	09:27 (18)	19:04	105	08:58 (18)	18:15	16:24
14	05:32	08:57 (18)	05:59	08:15 (18)	06:29	07:13 (18)	06:59	06:34	07:05		
	20:20	21	09:18 (18)	19:50	72	09:27 (18)	19:03	103	08:56 (18)	18:14	16:25
15	05:32	08:56 (18)	06:00	08:13 (18)	06:30	07:14 (18)	07:00	06:35	07:06		
	20:20	23	09:19 (18)	19:49	74	09:27 (18)	19:01	100	08:54 (18)	18:12	16:25
16	05:33	08:55 (18)	06:01	08:11 (18)	06:31	07:16 (18)	07:01	06:36	07:06		
	20:19	23	09:18 (18)	19:48	76	09:27 (18)	18:59	96	08:52 (18)	18:11	16:25
17	05:34	08:54 (18)	06:02	08:10 (18)	06:32	07:18 (18)	07:02	06:38	07:07		
	20:19	25	09:19 (18)	19:46	77	09:27 (18)	18:58	91	08:49 (18)	18:09	16:25
18	05:35	08:53 (18)	06:03	08:08 (18)	06:33	07:20 (18)	07:03	06:39	07:08		
	20:18	27	09:20 (18)	19:45	78	09:26 (18)	18:56	86	08:46 (18)	18:08	16:26
19	05:36	08:52 (18)	06:04	08:05 (18)	06:34	07:22 (18)	07:04	06:40	07:08		
	20:17	28	09:20 (18)	19:44	80	09:25 (18)	18:54	81	08:43 (18)	18:06	16:26
20	05:36	08:52 (18)	06:05	08:03 (18)	06:35	07:25 (18)	07:06	06:41	07:09		
	20:17	29	09:21 (18)	19:42	82	09:25 (18)	18:53	75	08:40 (18)	18:05	16:27
21	05:37	08:50 (18)	06:06	08:01 (18)	06:36	07:28 (18)	07:07	06:42	07:09		
	20:16	31	09:21 (18)	19:41	84	09:25 (18)	18:51	68	08:36 (18)	18:03	16:27
22	05:38	08:49 (18)	06:07	08:00 (18)	06:37	07:31 (18)	07:08	06:43	07:10		
	20:15	32	09:21 (18)	19:39	84	09:24 (18)	18:49	61	08:32 (18)	18:02	16:27
23	05:39	08:48 (18)	06:08	07:58 (18)	06:38	07:35 (18)	07:09	06:44	07:10		
	20:14	34	09:22 (18)	19:38	86	09:24 (18)	18:48	52	08:27 (18)	18:00	16:28
24	05:40	08:47 (18)	06:09	07:56 (18)	06:39	07:40 (18)	07:10	06:46	07:11		
	20:14	35	09:22 (18)	19:36	88	09:24 (18)	18:46	42	08:22 (18)	17:59	16:29
25	05:41	08:46 (18)	06:10	07:54 (18)	06:40	07:47 (18)	06:11	06:47	07:11		
	20:13	37	09:23 (18)	19:35	89	09:23 (18)	18:44	26	08:13 (18)	16:58	16:29
26	05:42	08:45 (18)	06:11	07:52 (18)	06:41		06:12	06:48	07:12		
	20:12	38	09:23 (18)	19:33	91	09:23 (18)	18:43		16:56	16:27	16:30
27	05:42	08:43 (18)	06:12	07:50 (18)	06:42		06:13	06:49	07:12		
	20:11	40	09:23 (18)	19:32	92	09:22 (18)	18:41		16:55	16:27	16:30
28	05:43	08:41 (18)	06:13	07:48 (18)	06:43		06:14	06:50	07:12		
	20:10	42	09:23 (18)	19:30	93	09:21 (18)	18:39		16:54	16:26	16:31
29	05:44	08:40 (18)	06:14	07:46 (18)	06:44		06:16	06:51	07:13		
	20:09	44	09:24 (18)	19:29	95	09:21 (18)	18:38		16:52	16:26	16:32
30	05:45	08:39 (18)	06:15	07:44 (18)	06:45		06:17	06:52	07:13		
	20:08	45	09:24 (18)	19:27	96	09:20 (18)	18:36		16:51	16:25	16:33
31	05:46	08:38 (18)	06:16	07:42 (18)			06:18		07:13		
	20:07	47	09:25 (18)	19:25	97	09:19 (18)			16:50		16:33
Potential sun hours	457		427		375		346		300		290
Total, worst case		786		2308		2213					
Sun reduction		0,72		0,71		0,63					
Oper. time red.		0,84		0,84		0,84					
Wind dir. red.		0,56		0,56		0,56					
Total reduction		0,34		0,33		0,30					
Total, real		264		759		654					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: I - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (9)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	07:13	07:01	06:26	06:36	07:25 (18)	05:51
	16:34	17:08	17:41	19:14	09:10 (18)	19:45
2	07:14	07:00	06:24	06:34	07:27 (18)	05:50
	16:35	17:09	17:42	19:15	09:12 (18)	19:46
3	07:14	06:59	06:23	06:33	07:28 (18)	05:49
	16:36	17:10	17:43	19:16	09:13 (18)	19:47
4	07:14	06:58	06:21	06:31	07:29 (18)	05:47
	16:37	17:12	17:44	19:17	09:13 (18)	19:48
5	07:14	06:57	06:20	06:30	07:32 (18)	05:46
	16:38	17:13	17:45	19:18	09:15 (18)	19:49
6	07:14	06:56	06:18	06:28	07:33 (18)	05:45
	16:39	17:14	17:47	19:19	09:15 (18)	19:50
7	07:14	06:55	06:17	06:26	07:35 (18)	05:44
	16:40	17:15	17:48	19:20	09:16 (18)	19:51
8	07:14	06:54	06:15	06:25	07:36 (18)	05:43
	16:41	17:16	17:49	19:21	09:17 (18)	19:52
9	07:13	06:52	06:13	06:23	07:37 (18)	05:42
	16:42	17:18	17:50	19:22	09:17 (18)	19:53
10	07:13	06:51	06:12	06:22	07:39 (18)	05:40
	16:43	17:19	17:51	19:23	09:18 (18)	19:54
11	07:13	06:50	06:10	06:20	07:40 (18)	05:39
	16:44	17:20	17:52	19:24	09:18 (18)	19:55
12	07:13	06:49	06:09	06:18	07:42 (18)	05:38
	16:45	17:21	17:53	19:25	09:19 (18)	19:56
13	07:13	06:48	06:07	06:17	07:43 (18)	05:37
	16:46	17:22	17:54	19:26	09:19 (18)	19:57
14	07:12	06:46	06:05	06:15	07:45 (18)	05:36
	16:47	17:24	17:55	19:27	09:20 (18)	19:58
15	07:12	06:45	06:04	06:14	07:46 (18)	05:35
	16:48	17:25	17:56	19:28	09:19 (18)	19:59
16	07:11	06:44	06:02	06:12	07:48 (18)	05:34
	16:49	17:26	17:57	19:29	09:20 (18)	20:00
17	07:11	06:43	06:01	06:11	07:49 (18)	05:33
	16:50	17:27	17:58	19:30	09:20 (18)	20:01
18	07:11	06:41	05:59	07:06 (18)	06:09	07:51 (18)
	16:51	17:28	17:59	19:32	89	09:20 (18)
19	07:10	06:40	05:57	06:58 (18)	06:08	07:52 (18)
	16:52	17:30	18:01	19:33	88	09:20 (18)
20	07:10	06:39	05:56	06:52 (18)	06:06	07:54 (18)
	16:54	17:31	18:02	19:34	86	09:20 (18)
21	07:09	06:37	05:54	06:47 (18)	06:05	07:55 (18)
	16:55	17:32	18:03	19:35	84	09:19 (18)
22	07:08	06:36	05:52	06:43 (18)	06:03	07:57 (18)
	16:56	17:33	18:04	19:36	83	09:20 (18)
23	07:08	06:34	05:51	06:39 (18)	06:02	07:59 (18)
	16:57	17:34	18:05	19:37	81	09:20 (18)
24	07:07	06:33	05:49	06:35 (18)	06:01	08:00 (18)
	16:58	17:35	18:06	19:38	79	09:19 (18)
25	07:06	06:32	05:47	06:33 (18)	05:59	08:01 (18)
	16:59	17:37	18:07	19:39	78	09:19 (18)
26	07:06	06:30	05:46	06:30 (18)	05:58	08:03 (18)
	17:01	17:38	18:08	19:40	77	09:20 (18)
27	07:05	06:29	05:44	06:27 (18)	05:56	08:04 (18)
	17:02	17:39	18:09	19:41	75	09:19 (18)
28	07:04	06:27	05:43	06:25 (18)	05:55	08:06 (18)
	17:03	17:40	18:10	19:42	73	09:19 (18)
29	07:03		06:41	07:23 (18)	05:54	08:08 (18)
	17:04		19:11	19:43	71	09:19 (18)
30	07:02		06:39	07:23 (18)	05:52	08:08 (18)
	17:05		19:12	19:44	70	09:18 (18)
31	07:02		06:38	07:24 (18)		05:24
	17:07		19:13	09:09 (18)		20:13
Potential sun hours	299	298	370	398	446	450
Total, worst case			1074	2721	1298	279
Sun reduction			0,44	0,50	0,58	0,65
Oper. time red.			0,84	0,84	0,84	0,84
Wind dir. red.			0,56	0,56	0,56	0,56
Total reduction			0,20	0,23	0,27	0,30
Total, real			219	639	352	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)
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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 099574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: I - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (9)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

July		August		September		October		November		December	
1	05:24	09:03 (18)	05:47	08:36 (18)	06:17	07:39 (18)	06:46	06:19	06:53		
	20:24	9	09:12 (18)	20:06	49	09:25 (18)	19:24	98	09:17 (18)	18:34	16:25
2	05:24	09:04 (18)	05:48	08:35 (18)	06:18	07:37 (18)	06:47	06:20	06:54		
	20:24	9	09:13 (18)	20:05	50	09:25 (18)	19:22	99	09:16 (18)	18:33	16:25
3	05:25	09:03 (18)	05:49	08:33 (18)	06:19	07:35 (18)	06:48	06:21	06:55		
	20:24	10	09:13 (18)	20:04	53	09:26 (18)	19:21	100	09:15 (18)	18:31	16:25
4	05:25	09:03 (18)	05:50	08:32 (18)	06:20	07:33 (18)	06:49	06:22	06:56		
	20:24	11	09:14 (18)	20:03	54	09:26 (18)	19:19	101	09:14 (18)	18:29	16:24
5	05:26	09:02 (18)	05:51	08:30 (18)	06:21	07:31 (18)	06:50	06:24	06:57		
	20:24	12	09:14 (18)	20:02	56	09:26 (18)	19:18	102	09:13 (18)	18:28	16:24
6	05:26	09:02 (18)	05:52	08:28 (18)	06:22	07:29 (18)	06:51	06:25	06:58		
	20:24	13	09:15 (18)	20:00	57	09:25 (18)	19:16	102	09:11 (18)	18:26	16:24
7	05:27	09:01 (18)	05:53	08:26 (18)	06:23	07:27 (18)	06:52	06:26	06:59		
	20:23	13	09:14 (18)	19:59	60	09:26 (18)	19:14	103	09:10 (18)	18:25	16:24
8	05:28	09:01 (18)	05:54	08:25 (18)	06:24	07:25 (18)	06:53	06:27	07:00		
	20:23	14	09:15 (18)	19:58	61	09:26 (18)	19:13	103	09:08 (18)	18:23	16:24
9	05:28	09:01 (18)	05:55	08:23 (18)	06:25	07:23 (18)	06:54	06:28	07:01		
	20:23	15	09:16 (18)	19:57	63	09:26 (18)	19:11	104	09:07 (18)	18:21	16:24
10	05:29	08:59 (18)	05:56	08:22 (18)	06:26	07:20 (18)	06:55	06:29	07:02		
	20:22	17	09:16 (18)	19:56	64	09:26 (18)	19:09	105	09:05 (18)	18:20	16:24
11	05:30	08:59 (18)	05:57	08:20 (18)	06:26	07:18 (18)	06:56	06:31	07:02		
	20:22	18	09:17 (18)	19:54	66	09:26 (18)	19:08	105	09:03 (18)	18:18	16:24
12	05:30	08:59 (18)	05:58	08:18 (18)	06:27	07:16 (18)	06:57	06:32	07:03		
	20:21	18	09:17 (18)	19:53	68	09:26 (18)	19:06	105	09:01 (18)	18:17	16:24
13	05:31	08:57 (18)	05:59	08:17 (18)	06:28	07:13 (18)	06:58	06:33	07:04		
	20:21	20	09:17 (18)	19:52	69	09:26 (18)	19:04	106	08:59 (18)	18:15	16:24
14	05:32	08:57 (18)	05:59	08:15 (18)	06:29	07:13 (18)	06:59	06:34	07:05		
	20:20	21	09:18 (18)	19:50	72	09:27 (18)	19:03	103	08:56 (18)	18:14	16:25
15	05:32	08:56 (18)	06:00	08:13 (18)	06:30	07:14 (18)	07:00	06:35	07:06		
	20:20	22	09:18 (18)	19:49	73	09:26 (18)	19:01	100	08:54 (18)	18:12	16:25
16	05:33	08:55 (18)	06:01	08:11 (18)	06:31	07:16 (18)	07:01	06:36	07:06		
	20:19	23	09:18 (18)	19:48	75	09:26 (18)	18:59	96	08:52 (18)	18:11	16:25
17	05:34	08:54 (18)	06:02	08:10 (18)	06:32	07:18 (18)	07:02	06:38	07:07		
	20:19	25	09:19 (18)	19:46	76	09:26 (18)	18:58	91	08:49 (18)	18:09	16:25
18	05:35	08:53 (18)	06:03	08:08 (18)	06:33	07:20 (18)	07:03	06:39	07:08		
	20:18	26	09:19 (18)	19:45	78	09:26 (18)	18:56	86	08:46 (18)	18:08	16:26
19	05:36	08:52 (18)	06:04	08:05 (18)	06:34	07:22 (18)	07:04	06:40	07:08		
	20:17	28	09:20 (18)	19:44	80	09:25 (18)	18:54	81	08:43 (18)	18:06	16:26
20	05:36	08:52 (18)	06:05	08:03 (18)	06:35	07:25 (18)	07:06	06:41	07:09		
	20:17	29	09:21 (18)	19:42	82	09:25 (18)	18:53	75	08:40 (18)	18:05	16:27
21	05:37	08:50 (18)	06:06	08:01 (18)	06:36	07:28 (18)	07:07	06:42	07:09		
	20:16	30	09:20 (18)	19:41	84	09:25 (18)	18:51	69	08:37 (18)	18:03	16:27
22	05:38	08:49 (18)	06:07	08:00 (18)	06:37	07:31 (18)	07:08	06:43	07:10		
	20:15	32	09:21 (18)	19:39	84	09:24 (18)	18:49	61	08:32 (18)	18:02	16:27
23	05:39	08:48 (18)	06:08	07:58 (18)	06:38	07:35 (18)	07:09	06:44	07:10		
	20:14	33	09:21 (18)	19:38	86	09:24 (18)	18:48	53	08:28 (18)	18:00	16:28
24	05:40	08:47 (18)	06:09	07:56 (18)	06:39	07:40 (18)	07:10	06:46	07:11		
	20:14	35	09:22 (18)	19:36	87	09:23 (18)	18:46	42	08:22 (18)	17:59	16:29
25	05:41	08:46 (18)	06:10	07:54 (18)	06:40	07:46 (18)	06:11	06:47	07:11		
	20:13	37	09:23 (18)	19:35	89	09:23 (18)	18:44	28	08:14 (18)	16:58	16:29
26	05:42	08:45 (18)	06:11	07:52 (18)	06:41		06:12	06:48	07:12		
	20:12	38	09:23 (18)	19:33	90	09:22 (18)	18:43		16:56	16:27	16:30
27	05:42	08:43 (18)	06:12	07:50 (18)	06:42		06:13	06:49	07:12		
	20:11	40	09:23 (18)	19:32	92	09:22 (18)	18:41		16:55	16:27	16:30
28	05:43	08:41 (18)	06:13	07:48 (18)	06:43		06:14	06:50	07:12		
	20:10	42	09:23 (18)	19:30	93	09:21 (18)	18:39		16:54	16:26	16:31
29	05:44	08:40 (18)	06:14	07:46 (18)	06:44		06:16	06:51	07:13		
	20:09	44	09:24 (18)	19:29	94	09:20 (18)	18:38		16:52	16:26	16:32
30	05:45	08:39 (18)	06:15	07:44 (18)	06:45		06:17	06:52	07:13		
	20:08	45	09:24 (18)	19:27	96	09:20 (18)	18:36		16:51	16:25	16:33
31	05:46	08:38 (18)	06:16	07:42 (18)			06:18		07:13		
	20:07	46	09:24 (18)	19:25	97	09:19 (18)			16:50		16:33
Potential sun hours	457		427		375		346		300		290
Total, worst case	775		2298		2218						
Sun reduction	0,72		0,71		0,63						
Oper. time red.	0,84		0,84		0,84						
Wind dir. red.	0,56		0,56		0,56						
Total reduction	0,34		0,33		0,30						
Total, real	260		756		656						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: J - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June	
1	07:13		09:53 (19)	07:01	10:08 (19)	06:26	06:36		05:51		05:23	
	16:34	168	12:41 (19)	17:08	12:44 (19)	17:41	19:14		19:45		20:14	
2	07:14		09:54 (19)	07:00	10:08 (19)	06:24	06:34		05:50		05:23	
	16:35	167	12:41 (19)	17:09	12:44 (19)	17:42	19:15		19:46		20:14	
3	07:14		09:54 (19)	06:59	10:09 (19)	06:23	06:33		05:49		05:22	
	16:36	168	12:42 (19)	17:10	12:43 (19)	17:43	19:16		19:47		20:15	
4	07:14		09:55 (19)	06:58	10:10 (19)	06:21	06:31		05:47		05:22	
	16:37	167	12:42 (19)	17:11	12:43 (19)	17:44	19:17		19:48		20:16	
5	07:14		09:55 (19)	06:57	10:10 (19)	06:20	06:29		05:46		05:21	
	16:38	167	12:42 (19)	17:13	12:42 (19)	17:45	19:18		19:49		20:16	
6	07:14		09:55 (19)	06:56	10:11 (19)	06:18	06:28		05:45		05:21	
	16:39	167	12:42 (19)	17:14	12:41 (19)	17:47	19:19		19:50		20:17	
7	07:14		09:55 (19)	06:55	10:12 (19)	06:16	06:26		05:44		05:21	
	16:39	167	12:42 (19)	17:15	12:41 (19)	17:48	19:20		19:51		20:18	
8	07:14		09:56 (19)	06:54	10:13 (19)	06:15	06:25		05:43		05:21	
	16:40	167	12:43 (19)	17:16	12:40 (19)	17:49	19:21		19:52		20:18	
9	07:13		09:57 (19)	06:52	10:14 (19)	06:13	06:23		05:41		05:20	
	16:41	167	12:44 (19)	17:17	12:39 (19)	17:50	19:22		19:53		20:19	
10	07:13		09:57 (19)	06:51	10:15 (19)	06:12	06:21		05:40		05:20	
	16:42	167	12:44 (19)	17:19	12:38 (19)	17:51	19:23		19:54		20:19	
11	07:13		09:57 (19)	06:50	10:15 (19)	06:10	06:20		05:39		05:20	
	16:43	167	12:44 (19)	17:20	12:36 (19)	17:52	19:24		19:55		20:20	
12	07:13		09:58 (19)	06:49	10:16 (19)	06:09	06:18		05:38		05:20	
	16:45	166	12:44 (19)	17:21	12:35 (19)	17:53	19:25		19:56		20:20	
13	07:13		09:59 (19)	06:48	10:17 (19)	06:07	06:17		05:37		05:20	
	16:46	166	12:45 (19)	17:22	12:34 (19)	17:54	19:26		19:57		20:21	
14	07:12		09:59 (19)	06:46	10:19 (19)	06:05	06:15		05:36		05:20	
	16:47	166	12:45 (19)	17:24	12:33 (19)	17:55	19:27		19:58		20:21	
15	07:12		09:59 (19)	06:45	10:19 (19)	06:04	06:14		05:35		05:20	
	16:48	166	12:45 (19)	17:25	12:30 (19)	17:56	19:28		19:59		20:22	
16	07:12		09:59 (19)	06:44	10:21 (19)	06:02	06:12		05:34		05:20	
	16:49	166	12:45 (19)	17:26	12:28 (19)	17:57	19:29		20:00		20:22	
17	07:11		10:00 (19)	06:43	10:22 (19)	06:00	06:11		05:33		05:20	
	16:50	166	12:46 (19)	17:27	12:26 (19)	17:58	19:30		20:01		20:23	
18	07:11		10:00 (19)	06:41	10:23 (19)	05:59	06:09		05:32		05:20	
	16:51	165	12:45 (19)	17:28	12:23 (19)	17:59	19:31		20:02		20:23	
19	07:10		10:01 (19)	06:40	10:25 (19)	05:57	06:08		05:32		05:20	
	16:52	165	12:46 (19)	17:29	12:21 (19)	18:00	19:33		20:03		20:23	
20	07:10		10:01 (19)	06:39	10:27 (19)	05:56	06:06		05:31		05:20	
	16:53	165	12:46 (19)	17:31	12:18 (19)	18:02	19:34		20:04		20:23	
21	07:09		10:03 (19)	06:37	10:28 (19)	05:54	06:05		05:30		05:20	
	16:55	164	12:47 (19)	17:32	12:13 (19)	18:03	19:35		20:04		20:24	
22	07:08		10:03 (19)	06:36	10:31 (19)	05:52	06:03		05:29		05:20	
	16:56	163	12:46 (19)	17:33	12:09 (19)	18:04	19:36		20:05		20:24	
23	07:08		10:03 (19)	06:34	10:33 (19)	05:51	06:02		05:28		05:21	
	16:57	163	12:46 (19)	17:34	12:03 (19)	18:05	19:37		20:06		20:24	
24	07:07		10:03 (19)	06:33	10:36 (19)	05:49	06:00		05:28		05:21	
	16:58	163	12:46 (19)	17:35	11:58 (19)	18:06	19:38		20:07		20:24	
25	07:06		10:04 (19)	06:32	10:39 (19)	05:47	05:59		05:27		05:21	
	16:59	162	12:46 (19)	17:36	11:50 (19)	18:07	19:39		20:08		20:24	
26	07:06		10:05 (19)	06:30	10:44 (19)	05:46	05:58		05:26		05:22	
	17:00	161	12:46 (19)	17:38	11:41 (19)	18:08	19:40		20:09		20:24	
27	07:05		10:05 (19)	06:29	10:51 (19)	05:44	05:56		05:26		05:22	
	17:02	161	12:46 (19)	17:39	11:28 (19)	18:09	19:41		20:10		20:25	
28	07:04		10:06 (19)	06:27		05:42	05:55		05:25		05:22	
	17:03	160	12:46 (19)	17:40		18:10	19:42		20:10		20:25	
29	07:03		10:06 (19)			06:41	05:54		05:25		05:23	
	17:04	159	12:45 (19)			19:11	19:43		20:11		20:25	
30	07:02		10:06 (19)			06:39	05:52		05:24		05:23	
	17:05	159	12:45 (19)			19:12	19:44		20:12		20:24	
31	07:02		10:07 (19)			06:38			05:23			
	17:07	157	12:44 (19)			19:13			20:13			
Potential sun hours	299			298		370	398		446		450	
Total, worst case		5102		3325								
Sun reduction		0,39		0,40								
Oper. time red.		0,84		0,84								
Wind dir. red.		0,73		0,73								
Total reduction		0,24		0,25								
Total, real		1210		824								

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: J - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

		July	August	September	October		November		December	
1	05:24	05:47	06:17	06:46		06:19	09:43 (19)	06:53	09:39 (19)	
	20:24	20:06	19:24	18:34		16:49	12:07 (19)	16:25	12:26 (19)	
2	05:24	05:48	06:18	06:47		06:20	09:43 (19)	06:54	09:39 (19)	
	20:24	20:05	19:22	18:33		16:47	12:09 (19)	16:25	12:26 (19)	
3	05:25	05:49	06:19	06:48		06:21	09:43 (19)	06:55	09:40 (19)	
	20:24	20:04	19:21	18:31		16:46	12:10 (19)	16:25	12:27 (19)	
4	05:25	05:50	06:20	06:49		06:22	09:42 (19)	06:56	09:40 (19)	
	20:24	20:03	19:19	18:29		16:45	12:11 (19)	16:24	12:27 (19)	
5	05:26	05:51	06:21	06:50		06:24	09:41 (19)	06:57	09:40 (19)	
	20:24	20:02	19:17	18:28		16:44	12:11 (19)	16:24	12:27 (19)	
6	05:26	05:52	06:22	06:51		06:25	09:40 (19)	06:58	09:41 (19)	
	20:24	20:00	19:16	18:26		16:43	12:12 (19)	16:24	12:28 (19)	
7	05:27	05:53	06:23	06:52		06:26	09:40 (19)	06:59	09:41 (19)	
	20:23	19:59	19:14	18:25		16:42	12:14 (19)	16:24	12:28 (19)	
8	05:27	05:54	06:23	06:53		06:27	09:40 (19)	07:00	09:42 (19)	
	20:23	19:58	19:13	18:23		16:41	12:14 (19)	16:24	12:29 (19)	
9	05:28	05:55	06:24	06:54		06:28	09:39 (19)	07:01	09:42 (19)	
	20:23	19:57	19:11	18:21		16:40	12:15 (19)	16:24	12:30 (19)	
10	05:29	05:55	06:25	06:55		06:29	09:38 (19)	07:02	09:43 (19)	
	20:22	19:56	19:09	18:20		16:39	12:15 (19)	16:24	12:30 (19)	
11	05:29	05:56	06:26	06:56		06:31	09:39 (19)	07:02	09:43 (19)	
	20:22	19:54	19:08	18:18		16:38	12:16 (19)	16:24	12:31 (19)	
12	05:30	05:57	06:27	06:57		06:32	09:38 (19)	07:03	09:44 (19)	
	20:21	19:53	19:06	18:17		16:37	12:17 (19)	16:24	12:31 (19)	
13	05:31	05:58	06:28	06:58		06:33	09:38 (19)	07:04	09:44 (19)	
	20:21	19:52	19:04	18:15		16:36	12:17 (19)	16:24	12:31 (19)	
14	05:32	05:59	06:29	06:59		11:32 (19)	06:34	09:37 (19)	07:05	09:44 (19)
	20:20	19:50	19:03	18:14	17	11:49 (19)	16:35	12:18 (19)	16:24	12:32 (19)
15	05:32	06:00	06:30	07:00		11:20 (19)	06:35	09:38 (19)	07:06	09:45 (19)
	20:20	19:49	19:01	18:12	46	12:06 (19)	16:34	12:19 (19)	16:25	12:33 (19)
16	05:33	06:01	06:31	07:01		11:14 (19)	06:36	09:38 (19)	07:06	09:46 (19)
	20:19	19:48	18:59	18:11	62	12:16 (19)	16:33	12:19 (19)	16:25	12:33 (19)
17	05:34	06:02	06:32	07:02		11:10 (19)	06:38	09:37 (19)	07:07	09:46 (19)
	20:19	19:46	18:58	18:09	75	12:25 (19)	16:32	12:19 (19)	16:25	12:33 (19)
18	05:35	06:03	06:33	07:03		11:06 (19)	06:39	09:37 (19)	07:08	09:46 (19)
	20:18	19:45	18:56	18:08	86	12:32 (19)	16:32	12:20 (19)	16:26	12:34 (19)
19	05:35	06:04	06:34	07:04		11:03 (19)	06:40	09:38 (19)	07:08	09:46 (19)
	20:17	19:44	18:54	18:06	94	12:37 (19)	16:31	12:21 (19)	16:26	12:34 (19)
20	05:36	06:05	06:35	07:06		11:01 (19)	06:41	09:38 (19)	07:09	09:47 (19)
	20:17	19:42	18:53	18:05	100	12:41 (19)	16:30	12:21 (19)	16:26	12:35 (19)
21	05:37	06:06	06:36	07:07		10:58 (19)	06:42	09:38 (19)	07:09	09:47 (19)
	20:16	19:41	18:51	18:03	107	12:45 (19)	16:30	12:22 (19)	16:27	12:35 (19)
22	05:38	06:07	06:37	07:08		10:56 (19)	06:43	09:37 (19)	07:10	09:48 (19)
	20:15	19:39	18:49	18:02	112	12:48 (19)	16:29	12:22 (19)	16:27	12:36 (19)
23	05:39	06:08	06:38	07:09		10:54 (19)	06:44	09:37 (19)	07:10	09:48 (19)
	20:14	19:38	18:48	18:00	117	12:51 (19)	16:28	12:22 (19)	16:28	12:36 (19)
24	05:40	06:09	06:39	07:10		10:53 (19)	06:46	09:38 (19)	07:11	09:49 (19)
	20:14	19:36	18:46	17:59	121	12:54 (19)	16:28	12:23 (19)	16:28	12:37 (19)
25	05:41	06:10	06:40	07:11		09:51 (19)	06:47	09:38 (19)	07:11	09:49 (19)
	20:13	19:35	18:44	16:58	126	11:57 (19)	16:27	12:24 (19)	16:29	12:37 (19)
26	05:41	06:11	06:41	06:12		09:50 (19)	06:48	09:38 (19)	07:12	09:50 (19)
	20:12	19:33	18:43	16:56	129	11:59 (19)	16:27	12:24 (19)	16:30	12:37 (19)
27	05:42	06:12	06:42	06:13		09:48 (19)	06:49	09:38 (19)	07:12	09:51 (19)
	20:11	19:32	18:41	16:55	132	12:00 (19)	16:26	12:24 (19)	16:30	12:38 (19)
28	05:43	06:13	06:43	06:14		09:47 (19)	06:50	09:39 (19)	07:12	09:51 (19)
	20:10	19:30	18:39	16:54	135	12:02 (19)	16:26	12:25 (19)	16:31	12:39 (19)
29	05:44	06:14	06:44	06:16		09:47 (19)	06:51	09:39 (19)	07:13	09:51 (19)
	20:09	19:29	18:38	16:52	137	12:04 (19)	16:26	12:25 (19)	16:32	12:39 (19)
30	05:45	06:15	06:45	06:17		09:46 (19)	06:52	09:39 (19)	07:13	09:51 (19)
	20:08	19:27	18:36	16:51	139	12:05 (19)	16:25	12:25 (19)	16:32	12:39 (19)
31	05:46	06:16		06:18		09:45 (19)			07:13	09:52 (19)
	20:07	19:25		16:50	141	12:06 (19)			16:33	12:39 (19)
Potential sun hours	457	427	375	346		300		290		
Total, worst case				1876		4773			5192	
Sun reduction				0,52		0,45			0,39	
Oper. time red.				0,84		0,84			0,84	
Wind dir. red.				0,73		0,73			0,73	
Total reduction				0,32		0,27			0,24	
Total, real				601		1311			1251	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: K - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

		January		February		March		April		May		June					
	1	07:13	13:40 (21)	07:01	13:56 (21)	06:26		06:36	07:25 (7)	05:51	08:10 (7)	05:23	08:51 (7)				
		16:34	116	15:36 (21)	17:08	107	15:43 (21)	17:41	19:14	89	08:54 (7)	19:45	55	09:05 (7)	20:13	6	08:57 (7)
	2	07:13	13:41 (21)	07:00	13:57 (21)	06:24		06:34	07:26 (7)	05:50	08:12 (7)	05:22	08:52 (7)				
		16:35	117	15:38 (21)	17:09	106	15:43 (21)	17:42	19:15	89	08:55 (7)	19:46	53	09:05 (7)	20:14	5	08:57 (7)
	3	07:14	13:41 (21)	06:59	13:58 (21)	06:23		06:33	07:28 (7)	05:48	08:14 (7)	05:22	08:52 (7)				
		16:36	117	15:38 (21)	17:10	105	15:43 (21)	17:43	19:16	89	08:57 (7)	19:47	51	09:05 (7)	20:15	5	08:57 (7)
	4	07:14	13:41 (21)	06:58	07:17 (15)	06:21		06:31	07:30 (7)	05:47	08:14 (7)	05:22	08:53 (7)				
		16:37	117	15:38 (21)	17:11	104	15:42 (21)	17:44	19:17	87	08:57 (7)	19:48	50	09:04 (7)	20:16	4	08:57 (7)
	5	07:14	13:41 (21)	06:57	07:16 (15)	06:19		06:29	07:32 (7)	05:46	08:16 (7)	05:21	08:55 (7)				
		16:38	117	15:38 (21)	17:13	110	15:42 (21)	17:45	19:18	87	08:59 (7)	19:49	48	09:04 (7)	20:16	2	08:57 (7)
	6	07:14	13:42 (21)	06:56	07:15 (15)	06:18		06:28	07:33 (7)	05:45	08:17 (7)	05:21	08:55 (7)				
		16:38	117	15:39 (21)	17:14	111	15:42 (21)	17:46	19:19	87	09:00 (7)	19:50	46	09:03 (7)	20:17	1	08:56 (7)
	7	07:14	13:43 (21)	06:55	07:14 (15)	06:16		06:26	07:34 (7)	05:44	08:19 (7)	05:21	08:52 (7)				
		16:39	116	15:39 (21)	17:15	112	15:41 (21)	17:48	19:20	86	09:00 (7)	19:51	44	09:03 (7)	20:18		
	8	07:13	13:43 (21)	06:53	07:13 (15)	06:15		06:25	07:36 (7)	05:42	08:21 (7)	05:20	08:51 (7)				
		16:40	117	15:40 (21)	17:16	114	15:41 (21)	17:49	19:21	86	09:02 (7)	19:52	42	09:03 (7)	20:18		
	9	07:13	13:44 (21)	06:52	07:12 (15)	06:13		06:23	07:37 (7)	05:41	08:22 (7)	05:20	08:50 (7)				
		16:41	117	15:41 (21)	17:17	114	15:40 (21)	17:50	19:22	85	09:02 (7)	19:53	41	09:03 (7)	20:19		
	10	07:13	13:44 (21)	06:51	07:11 (15)	06:12		06:21	07:39 (7)	05:40	08:23 (7)	05:20	08:51 (7)				
		16:42	117	15:41 (21)	17:19	114	15:40 (21)	17:51	19:23	84	09:03 (7)	19:54	40	09:03 (7)	20:19		
	11	07:13	13:44 (21)	06:50	07:09 (15)	06:10		06:20	07:40 (7)	05:39	08:25 (7)	05:20	08:50 (7)				
		16:43	117	15:41 (21)	17:20	113	15:38 (21)	17:52	19:24	83	09:03 (7)	19:55	37	09:02 (7)	20:20		
	12	07:13	13:45 (21)	06:49	07:08 (15)	06:08		06:18	07:42 (7)	05:38	08:26 (7)	05:20	08:50 (7)				
		16:44	117	15:42 (21)	17:21	113	15:37 (21)	17:53	19:25	82	09:04 (7)	19:56	36	09:02 (7)	20:20		
	13	07:12	13:46 (21)	06:48	07:07 (15)	06:07		06:17	07:43 (7)	05:37	08:28 (7)	05:20	08:50 (7)				
		16:45	116	15:42 (21)	17:22	112	15:37 (21)	17:54	19:26	81	09:04 (7)	19:57	34	09:02 (7)	20:21		
	14	07:12	13:46 (21)	06:46	07:06 (15)	06:05		06:15	07:45 (7)	05:36	08:29 (7)	05:20	08:50 (7)				
		16:47	116	15:42 (21)	17:23	111	15:36 (21)	17:55	19:27	80	09:05 (7)	19:58	32	09:01 (7)	20:21		
	15	07:12	13:47 (21)	06:45	07:04 (15)	06:04		06:14	07:46 (7)	05:35	08:30 (7)	05:20	08:50 (7)				
		16:48	116	15:43 (21)	17:25	109	15:34 (21)	17:56	19:28	79	09:05 (7)	19:59	31	09:01 (7)	20:22		
	16	07:11	13:47 (21)	06:44	07:03 (15)	06:02		06:12	07:48 (7)	05:34	08:31 (7)	05:20	08:50 (7)				
		16:49	116	15:43 (21)	17:26	108	15:33 (21)	17:57	19:29	78	09:06 (7)	20:00	29	09:00 (7)	20:22		
	17	07:11	13:48 (21)	06:42	07:03 (15)	06:00		06:11	07:49 (7)	05:33	08:33 (7)	05:20	08:50 (7)				
		16:50	115	15:43 (21)	17:27	105	15:32 (21)	17:58	19:30	77	09:06 (7)	20:01	27	09:00 (7)	20:22		
	18	07:11	13:48 (21)	06:41	07:03 (15)	05:59		06:09	07:51 (7)	05:32	08:35 (7)	05:20	08:50 (7)				
		16:51	115	15:43 (21)	17:28	100	15:30 (21)	17:59	19:31	75	09:06 (7)	20:02	26	09:01 (7)	20:23		
	19	07:10	13:49 (21)	06:40	07:03 (15)	05:57		06:08	07:52 (7)	05:31	08:36 (7)	05:20	08:50 (7)				
		16:52	115	15:44 (21)	17:29	96	15:28 (21)	18:00	19:32	74	09:06 (7)	20:03	24	09:00 (7)	20:23		
	20	07:09	13:49 (21)	06:38	07:03 (15)	05:55		06:06	07:54 (7)	05:31	08:37 (7)	05:20	08:50 (7)				
		16:53	115	15:44 (21)	17:31	91	15:26 (21)	18:01	19:33	72	09:06 (7)	20:03	23	09:00 (7)	20:23		
	21	07:09	13:49 (21)	06:37	07:04 (15)	05:54		06:05	07:55 (7)	05:30	08:38 (7)	05:20	08:50 (7)				
		16:54	115	15:44 (21)	17:32	84	15:24 (21)	18:02	19:34	71	09:06 (7)	20:04	21	08:59 (7)	20:24		
	22	07:08	13:50 (21)	06:36	07:05 (15)	05:52		06:04	07:57 (7)	05:29	08:39 (7)	05:20	08:50 (7)				
		16:56	114	15:44 (21)	17:33	77	15:22 (21)	18:04	19:35	69	09:06 (7)	20:05	19	08:58 (7)	20:24		
	23	07:08	13:50 (21)	06:34	07:06 (15)	05:51		06:03	07:58 (7)	05:28	08:41 (7)	05:21	08:50 (7)				
		16:57	114	15:44 (21)	17:34	69	15:19 (21)	18:05	19:37	68	09:06 (7)	20:06	18	08:59 (7)	20:24		
	24	07:07	13:51 (21)	06:33	07:08 (15)	05:49		06:04	08:00 (7)	05:28	08:42 (7)	05:21	08:50 (7)				
		16:58	113	15:44 (21)	17:35	57	15:16 (21)	18:06	19:38	66	09:06 (7)	20:07	16	08:58 (7)	20:24		
	25	07:06	13:52 (21)	06:31	07:09 (15)	05:47		06:31 (7)	08:02 (7)	05:27	08:43 (7)	05:21	08:50 (7)				
		16:59	113	15:45 (21)	17:36	45	15:12 (21)	18:07	19:39	64	09:06 (7)	20:08	16	08:59 (7)	20:24		
	26	07:06	13:53 (21)	06:30	07:14 (15)	05:46		06:27 (7)	08:02 (7)	05:26	08:44 (7)	05:21	08:50 (7)				
		17:00	112	15:45 (21)	17:37	24	15:06 (21)	18:08	19:40	63	09:05 (7)	20:09	14	08:58 (7)	20:24		
	27	07:05	13:53 (21)	06:29	07:15 (15)	05:44		06:24 (7)	08:04 (7)	05:26	08:45 (7)	05:22	08:50 (7)				
		17:02	112	15:45 (21)	17:39	80	18:09	07:44 (7)	19:41	62	09:06 (7)	20:10	12	08:57 (7)	20:24		
	28	07:04	13:54 (21)	06:27	07:16 (15)	05:42		06:22 (7)	08:06 (7)	05:25	08:47 (7)	05:22	08:50 (7)				
		17:03	110	15:44 (21)	17:40	85	18:10	07:47 (7)	19:42	60	09:06 (7)	20:11	11	08:58 (7)	20:24		
	29	07:03	13:54 (21)	06:26	07:17 (15)	05:41		07:21 (7)	08:08 (7)	05:24	08:47 (7)	05:23	08:50 (7)				
		17:04	110	15:44 (21)	17:41	88	19:11	08:49 (7)	19:43	58	09:06 (7)	20:11	10	08:57 (7)	20:24		
	30	07:02	13:55 (21)	06:25	07:18 (15)	05:40		07:22 (7)	08:09 (7)	05:24	08:49 (7)	05:23	08:50 (7)				
		17:05	109	15:44 (21)	17:42	88	19:12	08:50 (7)	19:44	56	09:05 (7)	20:12	8	08:57 (7)	20:24		
	31	07:01	13:56 (21)	06:24	07:19 (15)	05:39		07:24 (7)	08:10 (7)	05:23	08:49 (7)	05:23	08:50 (7)				
		17:06	108	15:44 (21)	17:43	89	19:13	08:53 (7)	19:45	55	09:05 (7)	20:12	8	08:57 (7)	20:24		
Potential sun hours	299		298		370		398		446		450						
Total, worst case	3556		2511		764		2287		922		23						
Sun reduction	0,39		0,40		0,44		0,50		0,58		0,65						
Oper. time red.	0,84		0,84		0,84		0,84		0,84		0,84						
Wind dir. red.	0,59		0,59		0,55		0,55		0,55		0,55						
Total reduction	0,19		0,20		0,20		0,23		0,27		0,30						
Total, real	680		507		155		534		248		7						

SHADOW - Calendar

Shadow receptor: K - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

		July		August		September		October		November		December			
1	05:23		05:47		08:36 (7)	06:17	07:39 (7)	06:46		06:19	06:40 (15)	06:53	13:26 (21)		
	20:24		20:06	37	09:13 (7)	19:24	83	09:02 (7)	18:34	114	15:09 (21)	16:25	117		
2	05:24		05:48		08:35 (7)	06:18		07:37 (7)	06:47		06:41 (15)	06:54	13:27 (21)		
	20:24		20:05	38	09:13 (7)	19:22	84	09:01 (7)	18:33	114	15:09 (21)	16:25	116		
3	05:24		05:49		08:33 (7)	06:19		07:35 (7)	06:48		06:43 (15)	06:55	13:27 (21)		
	20:24		20:04	39	09:12 (7)	19:21	85	09:00 (7)	18:31	113	15:11 (21)	16:24	117		
4	05:25		05:50		08:31 (7)	06:20		07:33 (7)	06:49		06:44 (15)	06:56	13:27 (21)		
	20:24		20:03	42	09:13 (7)	19:19	86	08:59 (7)	18:29	113	15:11 (21)	16:24	117		
5	05:26	09:02 (7)	05:51		08:30 (7)	06:21		07:31 (7)	06:50		06:45 (15)	06:57	13:28 (21)		
	20:24	1	09:03 (7)	20:02	43	09:13 (7)	19:17	86	08:57 (7)	18:28	112	15:12 (21)	16:24	116	
6	05:26		09:01 (7)	05:52		08:28 (7)	06:21		07:29 (7)	06:51		06:46 (15)	06:58	13:28 (21)	
	20:23	1	09:02 (7)	20:00	45	09:13 (7)	19:16	87	08:56 (7)	18:26	109	15:12 (21)	16:24	117	
7	05:27		09:01 (7)	05:53		08:27 (7)	06:22		07:27 (7)	06:52		13:30 (21)	06:59	13:28 (21)	
	20:23	2	09:03 (7)	19:59	46	09:13 (7)	19:14	87	08:54 (7)	18:24	103	15:13 (21)	16:24	117	
8	05:27		09:01 (7)	05:53		08:25 (7)	06:23		07:25 (7)	06:53		13:29 (21)	07:00	13:29 (21)	
	20:23	3	09:04 (7)	19:58	48	09:13 (7)	19:12	88	08:53 (7)	18:23	105	15:14 (21)	16:24	117	
9	05:28		09:00 (7)	05:54		08:23 (7)	06:24		07:23 (7)	06:54		13:28 (21)	07:01	13:30 (21)	
	20:23	4	09:04 (7)	19:57	50	09:13 (7)	19:11	88	08:51 (7)	18:21	106	15:14 (21)	16:24	116	
10	05:29		09:00 (7)	05:55		08:22 (7)	06:25		07:21 (7)	06:55		13:27 (21)	07:02	13:30 (21)	
	20:22	4	09:04 (7)	19:56	52	09:14 (7)	19:09	88	08:49 (7)	18:20	107	15:14 (21)	16:24	117	
11	05:29		08:59 (7)	05:56		08:20 (7)	06:26		07:18 (7)	06:56		13:28 (21)	07:02	13:31 (21)	
	20:22	6	09:05 (7)	19:54	54	09:14 (7)	19:08	88	08:46 (7)	18:18	108	15:16 (21)	16:24	116	
12	05:30		08:58 (7)	05:57		08:19 (7)	06:27		07:15 (7)	06:57		13:27 (21)	07:03	13:30 (21)	
	20:21	7	09:05 (7)	19:53	55	09:14 (7)	19:06	89	08:44 (7)	18:17	109	15:16 (21)	16:24	117	
13	05:31		08:57 (7)	05:58		08:17 (7)	06:28		07:13 (7)	06:58		13:26 (21)	07:04	13:31 (21)	
	20:21	9	09:06 (7)	19:52	57	09:14 (7)	19:04	89	08:42 (7)	18:15	110	15:16 (21)	16:24	117	
14	05:31		08:57 (7)	05:59		08:15 (7)	06:29		07:11 (7)	06:59		13:26 (21)	07:05	13:32 (21)	
	20:20	9	09:06 (7)	19:50	59	09:14 (7)	19:03	88	08:39 (7)	18:13	110	15:16 (21)	16:24	116	
15	05:32		08:55 (7)	06:00		08:13 (7)	06:30		07:10 (7)	07:00		13:26 (21)	07:05	13:32 (21)	
	20:20	11	09:06 (7)	19:49	60	09:13 (7)	19:01	87	08:37 (7)	18:12	111	15:17 (21)	16:25	117	
16	05:33		08:55 (7)	06:01		08:11 (7)	06:31		07:12 (7)	07:01		13:26 (21)	07:06	13:32 (21)	
	20:19	12	09:07 (7)	19:48	61	09:12 (7)	18:59	82	08:34 (7)	18:10	33	15:40 (21)	16:33	112	
17	05:34		08:54 (7)	06:02		08:09 (7)	06:32		07:15 (7)	07:02		13:25 (21)	07:07	13:33 (21)	
	20:19	13	09:07 (7)	19:46	63	09:12 (7)	18:58	76	08:31 (7)	18:09	51	15:45 (21)	16:32	113	
18	05:35		08:53 (7)	06:03		08:07 (7)	06:33		07:17 (7)	07:03		13:25 (21)	07:07	13:34 (21)	
	20:18	15	09:08 (7)	19:45	65	09:12 (7)	18:56	71	08:28 (7)	18:07	62	15:49 (21)	16:32	113	
19	05:35		08:53 (7)	06:04		08:05 (7)	06:34		07:20 (7)	07:04		13:25 (21)	07:08	13:34 (21)	
	20:17	16	09:09 (7)	19:43	67	09:12 (7)	18:54	64	08:24 (7)	18:06	72	15:52 (21)	16:31	114	
20	05:36		08:51 (7)	06:05		08:03 (7)	06:35		07:24 (7)	07:05		13:25 (21)	07:09	13:35 (21)	
	20:17	17	09:08 (7)	19:42	68	09:11 (7)	18:52	56	08:20 (7)	18:05	80	15:54 (21)	16:30	114	
21	05:37		08:50 (7)	06:06		08:02 (7)	06:36		07:28 (7)	07:07		13:25 (21)	07:09	13:35 (21)	
	20:16	19	09:09 (7)	19:41	69	09:11 (7)	18:51	47	08:15 (7)	18:03	87	15:56 (21)	16:30	115	
22	05:38		08:49 (7)	06:07		08:00 (7)	06:37		07:33 (7)	07:08		13:25 (21)	07:10	13:36 (21)	
	20:15	20	09:09 (7)	19:39	71	09:11 (7)	18:49	36	08:09 (7)	18:02	91	15:57 (21)	16:29	115	
23	05:39		08:48 (7)	06:08		07:58 (7)	06:38		07:43 (7)	07:09		13:25 (21)	07:10	13:36 (21)	
	20:14	22	09:10 (7)	19:38	72	09:10 (7)	18:47	15	07:58 (7)	18:00	98	15:59 (21)	16:28	115	
24	05:40		08:47 (7)	06:09		07:56 (7)	06:39			07:10		13:25 (21)	07:11	13:37 (21)	
	20:13	23	09:10 (7)	19:36	74	09:10 (7)	18:46		17:59	16:01 (21)	16:28	115	15:20 (21)	16:28	116
25	05:40		08:45 (7)	06:10		07:54 (7)	06:40		06:11	06:33 (15)	16:47		13:26 (21)	07:11	13:37 (21)
	20:13	25	09:10 (7)	19:35	75	09:09 (7)	18:44		16:58	15:02 (21)	16:27	115	15:21 (21)	16:29	116
26	05:41		08:44 (7)	06:11		07:52 (7)	06:41		06:12	06:33 (15)	16:48		13:26 (21)	07:12	13:37 (21)
	20:12	26	09:10 (7)	19:33	76	09:08 (7)	18:42		16:56	15:03 (21)	16:27	116	15:22 (21)	16:29	117
27	05:42		08:43 (7)	06:12		07:50 (7)	06:42		06:13	06:34 (15)	16:49		13:26 (21)	07:12	13:38 (21)
	20:11	28	09:11 (7)	19:32	78	09:08 (7)	18:41		16:55	15:04 (21)	16:26	116	15:22 (21)	16:30	117
28	05:43		08:41 (7)	06:13		07:48 (7)	06:43		06:14	06:35 (15)	16:50		13:26 (21)	07:12	13:38 (21)
	20:10	30	09:11 (7)	19:30	79	09:07 (7)	18:39		16:54	15:05 (21)	16:26	116	15:22 (21)	16:31	117
29	05:44		08:40 (7)	06:14		07:45 (7)	06:44		06:15	06:37 (15)	16:51		13:26 (21)	07:13	13:39 (21)
	20:09	32	09:12 (7)	19:28	80	09:05 (7)	18:37		16:52	15:07 (21)	16:26	116	15:22 (21)	16:32	116
30	05:45		08:39 (7)	06:15		07:43 (7)	06:45		06:17	06:38 (15)	16:52		13:26 (21)	07:13	13:39 (21)
	20:08	33	09:12 (7)	19:27	81	09:04 (7)	18:36		16:51	15:07 (21)	16:25	117	15:23 (21)	16:32	117
31	05:46		08:38 (7)	06:16		07:41 (7)			06:18	06:39 (15)			07:13	13:39 (21)	
	20:07	34	09:12 (7)	19:25	82	09:03 (7)			16:50	15:08 (21)			16:33	13:39 (21)	117
Potential sun hours	457		427			375		346		300		290			
Total, worst case		422		1886		1750		1451		3366		3614			
Sun reduction		0,72		0,71		0,63		0,52		0,45		0,39			
Oper. time red.		0,84		0,84		0,84		0,84		0,84		0,84			
Wind dir. red.		0,55		0,55		0,55		0,60		0,59		0,59			
Total reduction		0,33		0,33		0,29		0,26		0,22		0,19			
Total, real		141		617		515		381		747		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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SHADOW - Calendar

Shadow receptor: L - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January			February			March			April			May			June		
1	07:13		10:42 (19)	07:01		11:03 (19)	06:26		06:44 (21)	06:36		05:51			05:23		
	16:34	156	13:18 (19)	17:08	134	13:17 (19)	17:41	16	07:00 (21)	19:14		19:45			20:14		
2	07:14		10:42 (19)	07:00		11:04 (19)	06:24		06:43 (21)	06:34		05:50			05:23		
	16:35	157	13:19 (19)	17:09	132	13:16 (19)	17:42	17	07:00 (21)	19:15		19:46			20:14		
3	07:14		10:43 (19)	06:59		11:05 (19)	06:23		06:41 (21)	06:33		05:49			05:22		
	16:36	156	13:19 (19)	17:10	130	13:15 (19)	17:43	18	06:59 (21)	19:16		19:47			20:15		
4	07:14		10:43 (19)	06:58		11:07 (19)	06:21		06:41 (21)	06:31		05:47			05:22		
	16:37	156	13:19 (19)	17:11	127	13:14 (19)	17:44	18	06:59 (21)	19:17		19:48			20:16		
5	07:14		10:44 (19)	06:57		11:08 (19)	06:20		06:41 (21)	06:29		05:46			05:21		
	16:38	156	13:20 (19)	17:13	125	13:13 (19)	17:45	17	06:58 (21)	19:18		19:49			20:16		
6	07:14		10:43 (19)	06:56		11:10 (19)	06:18		06:43 (21)	06:28		05:45			05:21		
	16:39	156	13:19 (19)	17:14	122	13:12 (19)	17:47	14	06:57 (21)	19:19		19:50			20:17		
7	07:14		10:44 (19)	06:55		11:12 (19)	06:16		06:45 (21)	06:26		05:44			05:21		
	16:39	156	13:20 (19)	17:15	119	13:11 (19)	17:48	9	06:54 (21)	19:20		19:51			20:18		
8	07:14		10:45 (19)	06:54		11:14 (19)	06:15			06:25		05:43			05:21		
	16:40	155	13:20 (19)	17:16	115	13:09 (19)	17:49			19:21		19:52			20:18		
9	07:13		10:46 (19)	06:52		11:16 (19)	06:13			06:23		05:41			05:20		
	16:41	155	13:21 (19)	17:17	112	13:08 (19)	17:50			19:22		19:53			20:19		
10	07:13		10:47 (19)	06:51		11:18 (19)	06:12			06:21		05:40			05:20		
	16:42	154	13:21 (19)	17:19	108	13:06 (19)	17:51			19:23		19:54			20:19		
11	07:13		10:46 (19)	06:50		11:20 (19)	06:10			06:20		05:39			05:20		
	16:43	155	13:21 (19)	17:20	103	13:03 (19)	17:52			19:24		19:55			20:20		
12	07:13		10:47 (19)	06:49		11:23 (19)	06:09			06:18		05:38			05:20		
	16:45	154	13:21 (19)	17:21	98	13:01 (19)	17:53			19:25		19:56			20:20		
13	07:13		10:48 (19)	06:48		11:27 (19)	06:07			06:17		05:37			05:20		
	16:46	154	13:22 (19)	17:22	91	12:58 (19)	17:54			19:26		19:57			20:21		
14	07:12		10:48 (19)	06:46		11:31 (19)	06:05			06:15		05:36			05:20		
	16:47	153	13:21 (19)	17:24	84	12:55 (19)	17:55			19:27		19:58			20:21		
15	07:12		10:49 (19)	06:45		11:35 (19)	06:04			06:14		05:35			05:20		
	16:48	153	13:22 (19)	17:25	75	12:50 (19)	17:56			19:28		19:59			20:22		
16	07:12		10:49 (19)	06:44		11:41 (19)	06:02			06:12		05:34			05:20		
	16:49	152	13:21 (19)	17:26	64	12:45 (19)	17:57			19:29		20:00			20:22		
17	07:11		10:51 (19)	06:43		11:50 (19)	06:00			06:11		05:33			05:20		
	16:50	151	13:22 (19)	17:27	48	12:38 (19)	17:58			19:30		20:01			20:23		
18	07:11		10:51 (19)	06:41		12:09 (19)	05:59			06:09		05:32			05:20		
	16:51	150	13:21 (19)	17:28	11	12:20 (19)	17:59			19:31		20:02			20:23		
19	07:10		10:52 (19)	06:40			05:57			06:08		05:32			05:20		
	16:52	150	13:22 (19)	17:29			18:00			19:33		20:03			20:23		
20	07:10		10:52 (19)	06:39			05:56			06:06		05:31			05:20		
	16:53	149	13:21 (19)	17:31			18:02			19:34		20:04			20:23		
21	07:09		10:54 (19)	06:37			05:54			06:05		05:30			05:20		
	16:55	148	13:22 (19)	17:32			18:03			19:35		20:04			20:24		
22	07:08		10:54 (19)	06:36			05:52			06:03		05:29			05:20		
	16:56	147	13:21 (19)	17:33			18:04			19:36		20:05			20:24		
23	07:08		10:55 (19)	06:34			05:51			06:02		05:28			05:21		
	16:57	146	13:21 (19)	17:34			18:05			19:37		20:06			20:24		
24	07:07		10:55 (19)	06:33		06:52 (21)	05:49			06:00		05:28			05:21		
	16:58	146	13:21 (19)	17:35	4	06:56 (21)	18:06			19:38		20:07			20:24		
25	07:06		10:57 (19)	06:32		06:50 (21)	05:47			05:59		05:27			05:21		
	16:59	144	13:21 (19)	17:36	8	06:58 (21)	18:07			19:39		20:08			20:24		
26	07:06		10:57 (19)	06:30		06:49 (21)	05:46			05:58		05:26			05:22		
	17:00	143	13:20 (19)	17:38	10	06:59 (21)	18:08			19:40		20:09			20:24		
27	07:05		10:58 (19)	06:29		06:47 (21)	05:44			05:56		05:26			05:22		
	17:02	142	13:20 (19)	17:39	12	06:59 (21)	18:09			19:41		20:10			20:25		
28	07:04		10:59 (19)	06:27		06:46 (21)	05:42			05:55		05:25			05:22		
	17:03	140	13:19 (19)	17:40	14	07:00 (21)	18:10			19:42		20:10			20:25		
29	07:03		11:00 (19)				06:41			05:54		05:24			05:23		
	17:04	139	13:19 (19)				19:11			19:43		20:11			20:25		
30	07:02		11:01 (19)				06:39			05:52		05:24			05:23		
	17:05	137	13:18 (19)				19:12			19:44		20:12			20:24		
31	07:02		11:02 (19)				06:38					05:23					
	17:07	135	13:17 (19)				19:13					20:13					
Potential sun hours		299			298		370			398		446			450		
Total, worst case		4645			1846		109										
Sun reduction		0,39			0,40		0,44										
Oper. time red.		0,84			0,84		0,84										
Wind dir. red.		0,72			0,72		0,59										
Total reduction		0,23			0,24		0,22										
Total, real		1086			449		23										

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: L - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:24 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:49	10:47 (19) 12:35 (19)
2	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:33	108 16:47	12:35 (19) 12:38 (19)
3	05:25 20:24	05:49 20:04	06:19 19:21	06:48 18:31	113 16:47	12:38 (19) 12:39 (19)
4	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	116 16:46	12:39 (19) 12:41 (19)
5	05:26 20:24	05:51 20:02	06:21 19:17	06:50 18:28	120 16:45	12:41 (19) 12:42 (19)
6	05:26 20:24	05:52 20:00	06:22 19:16	06:51 18:26	122 16:44	12:42 (19) 12:43 (19)
7	05:27 20:23	05:53 19:59	06:23 19:14	06:52 18:25	125 16:43	12:43 (19) 12:45 (19)
8	05:27 20:23	05:54 19:58	06:23 19:13	06:53 18:23	128 16:42	12:45 (19) 12:46 (19)
9	05:28 20:23	05:55 19:57	06:24 19:11	06:54 18:21	130 16:41	12:46 (19) 12:47 (19)
10	05:29 20:22	05:55 19:56	06:25 19:09	06:55 18:20	132 16:40	12:47 (19) 12:48 (19)
11	05:29 20:22	05:56 19:54	06:26 19:08	06:56 18:18	134 16:39	12:48 (19) 12:49 (19)
12	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:17	135 16:38	12:49 (19) 12:50 (19)
13	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	137 16:37	12:50 (19) 12:51 (19)
14	05:32 20:20	05:59 19:50	06:29 19:03	06:59 18:14	139 16:36	12:51 (19) 12:52 (19)
15	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	140 16:35	12:52 (19) 12:53 (19)
16	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:11	142 16:34	12:53 (19) 12:54 (19)
17	05:34 20:19	06:02 19:46	06:32 18:58	07:02 18:09	143 16:33	12:54 (19) 12:55 (19)
18	05:35 20:18	06:03 19:45	06:33 18:56	07:03 18:08	144 16:32	12:55 (19) 12:56 (19)
19	05:35 20:17	06:04 19:44	06:34 18:54	07:04 18:06	145 16:31	12:56 (19) 12:57 (19)
20	05:36 20:17	06:05 19:42	06:35 18:53	07:06 18:05	146 16:30	12:57 (19) 12:58 (19)
21	05:37 20:16	06:06 19:41	06:36 18:51	07:07 18:03	147 16:29	12:58 (19) 12:59 (19)
22	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	148 16:28	12:59 (19) 13:00 (19)
23	05:39 20:14	06:08 19:38	06:38 18:48	07:09 18:00	149 16:27	13:00 (19) 13:01 (19)
24	05:40 20:14	06:09 19:36	06:39 18:46	07:10 17:59	150 16:26	13:01 (19) 13:02 (19)
25	05:41 20:13	06:10 19:35	06:40 18:44	07:11 16:58	151 16:25	13:02 (19) 13:03 (19)
26	05:41 20:12	06:11 19:33	06:41 18:43	07:12 16:56	152 16:24	13:03 (19) 13:04 (19)
27	05:42 20:11	06:12 19:32	06:42 18:41	07:13 16:55	153 16:23	13:04 (19) 13:05 (19)
28	05:43 20:10	06:13 19:30	06:43 18:39	07:14 16:54	154 16:22	13:05 (19) 13:06 (19)
29	05:44 20:09	06:14 19:29	06:44 18:38	07:15 16:52	155 16:21	13:06 (19) 13:07 (19)
30	05:45 20:08	06:15 19:27	06:45 18:36	07:16 16:51	156 16:20	13:07 (19) 13:08 (19)
31	05:46 20:07	06:16 19:25	06:46 18:35	07:17 16:50	157 16:19	13:08 (19) 13:09 (19)
Potential sun hours	457	427	375	346	300	290
Total, worst case				768	4159	4863
Sun reduction				0,52	0,45	0,39
Oper. time red.				0,84	0,84	0,84
Wind dir. red.				0,69	0,72	0,72
Total reduction				0,30	0,27	0,24
Total, real				233	1126	1155

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: M - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January		February		March		April		May		June	
1	07:13	14:00 (5)	07:00	13:57 (5)	06:25	14:01 (5)	06:36	07:25 (4)	05:51	05:23	
	16:34	15:51 (5)	17:08	16:15 (5)	17:41	16:17 (5)	19:14	16:32 (5)	19:45	20:13	
2	07:13	14:01 (5)	07:00	13:57 (5)	06:24	14:02 (5)	06:34	07:26 (4)	05:50	05:22	
	16:35	15:52 (5)	17:09	16:16 (5)	17:42	16:17 (5)	19:15	16:27 (5)	19:46	20:14	
3	07:13	14:01 (5)	06:59	13:56 (5)	06:22	14:02 (5)	06:32	07:29 (4)	05:48	05:22	
	16:36	15:53 (5)	17:10	16:16 (5)	17:43	17:22 (22)	19:16	16:21 (5)	19:47	20:15	
4	07:13	14:01 (5)	06:58	13:56 (5)	06:21	14:04 (5)	06:31	07:30 (4)	05:47	05:22	
	16:37	15:53 (5)	17:11	16:17 (5)	17:44	17:23 (22)	19:17	07:55 (4)	19:48	20:15	
5	07:13	14:01 (5)	06:57	13:56 (5)	06:19	14:04 (5)	06:29	07:31 (4)	05:46	05:21	
	16:37	15:54 (5)	17:12	16:17 (5)	17:45	17:24 (22)	19:18	07:54 (4)	19:49	20:16	
6	07:13	14:01 (5)	06:55	13:56 (5)	06:18	14:05 (5)	06:28	07:33 (4)	05:45	05:21	
	16:38	15:55 (5)	17:14	16:18 (5)	17:46	17:25 (22)	19:19	07:54 (4)	19:50	20:17	
7	07:13	14:01 (5)	06:54	13:56 (5)	06:16	14:06 (5)	06:26	07:34 (4)	05:44	05:21	
	16:39	15:56 (5)	17:15	16:18 (5)	17:47	17:27 (22)	19:20	07:54 (4)	19:51	20:17	
8	07:13	14:01 (5)	06:53	13:56 (5)	06:15	14:07 (5)	06:24	07:36 (4)	05:42	05:20	
	16:40	15:57 (5)	17:16	16:19 (5)	17:48	17:27 (22)	19:21	07:54 (4)	19:52	20:18	
9	07:13	14:01 (5)	06:52	13:56 (5)	06:13	14:09 (5)	06:23	07:37 (4)	05:41	05:20	
	16:41	15:58 (5)	17:17	16:19 (5)	17:50	17:29 (22)	19:22	07:52 (4)	19:53	20:19	
10	07:13	14:01 (5)	06:51	13:55 (5)	06:12	14:09 (5)	06:21	07:39 (4)	05:40	05:20	
	16:42	15:58 (5)	17:19	16:19 (5)	17:51	17:30 (22)	19:23	07:52 (4)	19:54	20:19	
11	07:13	14:01 (5)	06:50	13:56 (5)	06:10	14:10 (5)	06:20	07:40 (4)	05:39	05:20	
	16:43	15:59 (5)	17:20	16:19 (5)	17:52	17:30 (22)	19:24	07:51 (4)	19:55	20:20	
12	07:13	14:01 (5)	06:49	13:56 (5)	06:08	14:12 (5)	06:18	07:41 (4)	05:38	05:20	
	16:44	16:01 (5)	17:21	16:20 (5)	17:53	17:32 (22)	19:25	07:49 (4)	19:56	20:20	
13	07:12	14:00 (5)	06:47	13:56 (5)	06:07	14:13 (5)	06:17	07:43 (4)	05:37	05:20	
	16:45	16:01 (5)	17:22	16:20 (5)	17:54	17:29 (22)	19:26	07:49 (4)	19:57	20:21	
14	07:12	14:00 (5)	06:46	13:56 (5)	06:05	14:15 (5)	06:15	07:44 (4)	05:36	05:20	
	16:46	16:02 (5)	17:23	16:19 (5)	17:55	16:07 (5)	19:27	07:47 (4)	19:58	20:21	
15	07:12	14:01 (5)	06:45	13:56 (5)	06:03	14:16 (5)	06:14	07:46 (4)	05:35	05:20	
	16:48	16:03 (5)	17:25	16:20 (5)	17:56	16:05 (5)	19:28	07:47 (4)	19:59	20:22	
16	07:11	14:00 (5)	06:44	13:56 (5)	06:02	14:17 (5)	06:12		05:34	05:20	
	16:49	16:04 (5)	17:26	16:20 (5)	17:57	16:04 (5)	19:29		20:00	20:22	
17	07:11	14:00 (5)	06:42	13:56 (5)	06:00	06:31 (4)	06:10		05:33	05:20	
	16:50	16:05 (5)	17:27	16:19 (5)	17:58	16:03 (5)	19:30		20:01	20:22	
18	07:10	14:00 (5)	06:41	13:56 (5)	05:59	06:22 (4)	06:09		05:32	05:20	
	16:51	16:05 (5)	17:28	16:20 (5)	17:59	16:02 (5)	19:31		20:01	20:23	
19	07:10	14:00 (5)	06:40	13:57 (5)	05:57	06:18 (4)	06:08		05:31	05:20	
	16:52	16:07 (5)	17:29	16:20 (5)	18:00	16:00 (5)	19:32		20:02	20:23	
20	07:09	14:00 (5)	06:38	13:57 (5)	05:55	06:16 (4)	06:06		05:31	05:20	
	16:53	16:07 (5)	17:30	16:19 (5)	18:01	15:59 (5)	19:33		20:03	20:23	
21	07:09	13:59 (5)	06:37	13:57 (5)	05:54	06:12 (3)	06:05		05:30	05:20	
	16:54	16:08 (5)	17:32	16:20 (5)	18:02	15:57 (5)	19:34		20:04	20:23	
22	07:08	13:59 (5)	06:36	13:58 (5)	05:52	06:10 (4)	06:03		05:29	05:20	
	16:56	16:09 (5)	17:33	16:20 (5)	18:03	15:55 (5)	19:35		20:05	20:24	
23	07:08	13:59 (5)	06:34	13:58 (5)	05:50	06:12 (4)	06:02		05:28	05:21	
	16:57	16:10 (5)	17:34	16:19 (5)	18:04	15:54 (5)	19:36		20:06	20:24	
24	07:07	13:58 (5)	06:33	13:59 (5)	05:49	06:13 (4)	06:00		05:27	05:21	
	16:58	16:10 (5)	17:35	16:19 (5)	18:05	15:52 (5)	19:37		20:07	20:24	
25	07:06	13:58 (5)	06:31	13:59 (5)	05:47	06:14 (4)	05:59		05:27	05:21	
	16:59	16:11 (5)	17:36	16:18 (5)	18:07	15:50 (5)	19:38		20:08	20:24	
26	07:05	13:59 (5)	06:30	14:00 (5)	05:45	06:16 (4)	05:58		05:26	05:21	
	17:00	16:12 (5)	17:37	16:18 (5)	18:08	15:48 (5)	19:39		20:09	20:24	
27	07:05	13:58 (5)	06:28	14:00 (5)	05:44	06:17 (4)	05:56		05:25	05:22	
	17:01	16:13 (5)	17:38	16:18 (5)	18:09	15:46 (5)	19:41		20:09	20:24	
28	07:04	13:58 (5)	06:27	14:01 (5)	05:42	06:19 (4)	05:55		05:25	05:22	
	17:03	16:13 (5)	17:40	16:18 (5)	18:10	15:43 (5)	19:42		20:10	20:24	
29	07:03	13:57 (5)			06:41	07:21 (4)	05:53		05:24	05:23	
	17:04	16:14 (5)			19:11	16:42 (5)	19:43		20:11	20:24	
30	07:02	13:57 (5)			06:39	07:22 (4)	05:52		05:24	05:23	
	17:05	16:14 (5)			19:12	16:38 (5)	19:44		20:12	20:24	
31	07:01	13:57 (5)			06:37	07:24 (4)			05:23		
	17:06	16:15 (5)			19:13	16:36 (5)			20:13		
Potential sun hours	299		298		370		398		446		450
Total, worst case	3839		3965		3736		335				
Sun reduction	0,39		0,40		0,44		0,50				
Oper. time red.	0,84		0,84		0,84		0,84				
Wind dir. red.	0,55		0,55		0,55		0,56				
Total reduction	0,18		0,19		0,20		0,24				
Total, real	686		740		755		79				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: M - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

July		August		September		October		November		December	
1	05:23	05:47		06:17	07:39 (4)	06:46		14:51 (5)	06:19	13:25 (5)	06:53
	20:24	20:06		19:24	11 07:50 (4)	18:34	127	18:10 (22)	16:48	15:48 (5)	16:25
2	05:24	05:48		06:18	07:37 (4)	06:47		14:49 (5)	06:20	13:25 (5)	06:54
	20:24	20:05		19:22	13 07:50 (4)	18:32	131	18:10 (22)	16:47	15:48 (5)	16:25
3	05:24	05:49		06:18	07:35 (4)	06:48		14:48 (5)	06:21	13:26 (5)	06:55
	20:24	20:04		19:20	15 07:50 (4)	18:31	133	18:08 (22)	16:46	15:48 (5)	16:24
4	05:25	05:50		06:19	07:33 (4)	06:49		14:46 (5)	06:22	13:26 (5)	06:56
	20:24	20:03		19:19	18 07:51 (4)	18:29	134	18:06 (22)	16:45	15:48 (5)	16:24
5	05:25	05:51		06:20	07:31 (4)	06:50		14:44 (5)	06:23	13:26 (5)	06:57
	20:24	20:01		19:17	20 07:51 (4)	18:28	136	18:05 (22)	16:44	15:48 (5)	16:24
6	05:26	05:51		06:21	07:29 (4)	06:51		14:43 (5)	06:25	13:26 (5)	06:58
	20:23	20:00		19:16	22 07:51 (4)	18:26	136	18:03 (22)	16:43	15:47 (5)	16:24
7	05:27	05:52		06:22	07:27 (4)	06:52		14:42 (5)	06:26	13:26 (5)	06:59
	20:23	19:59		19:14	23 07:50 (4)	18:24	137	18:02 (22)	16:42	15:47 (5)	16:24
8	05:27	05:53		06:23	07:25 (4)	06:53		14:41 (5)	06:27	13:27 (5)	07:00
	20:23	19:58		19:12	25 07:50 (4)	18:23	137	18:01 (22)	16:41	15:47 (5)	16:24
9	05:28	05:54		06:24	07:22 (4)	06:54		14:39 (5)	06:28	13:27 (5)	07:01
	20:22	19:57		19:11	41 16:13 (5)	18:21	137	17:59 (22)	16:39	15:47 (5)	16:24
10	05:29	05:55		06:25	07:20 (4)	06:55		14:38 (5)	06:29	13:28 (5)	07:01
	20:22	19:55		19:09	58 16:20 (5)	18:20	135	17:57 (22)	16:38	15:46 (5)	16:24
11	05:29	05:56		06:26	07:18 (4)	06:56		14:36 (5)	06:30	13:28 (5)	07:02
	20:22	19:54		19:07	68 16:24 (5)	18:18	135	17:56 (22)	16:38	15:46 (5)	16:24
12	05:30	05:57		06:27	07:16 (4)	06:57		14:35 (5)	06:32	13:29 (5)	07:03
	20:21	19:53		19:06	77 16:27 (5)	18:16	135	16:50 (5)	16:37	15:46 (5)	16:24
13	05:31	05:58		06:28	07:13 (4)	06:58		14:34 (5)	06:33	13:29 (5)	07:04
	20:21	19:52		19:04	85 16:29 (5)	18:15	136	16:50 (5)	16:36	15:46 (5)	16:24
14	05:31	05:59		06:29	07:11 (4)	06:59		14:33 (5)	06:34	13:30 (5)	07:05
	20:20	19:50		19:02	92 16:31 (5)	18:13	137	16:50 (5)	16:35	15:45 (5)	16:24
15	05:32	06:00		06:30	07:09 (4)	07:00		14:32 (5)	06:35	13:30 (5)	07:05
	20:20	19:49		19:01	98 16:33 (5)	18:12	138	16:50 (5)	16:34	15:45 (5)	16:25
16	05:33	06:01		06:31	07:07 (4)	07:01		14:31 (5)	06:36	13:32 (5)	07:06
	20:19	19:47		18:59	104 16:35 (5)	18:10	139	16:50 (5)	16:33	15:45 (5)	16:25
17	05:34	06:02		06:32	07:05 (4)	07:02		14:30 (5)	06:37	13:32 (5)	07:07
	20:18	19:46		18:57	109 16:36 (5)	18:09	140	16:50 (5)	16:32	15:45 (5)	16:25
18	05:34	06:03		06:33	07:03 (4)	07:03		14:29 (5)	06:39	13:32 (5)	07:07
	20:18	19:45		18:56	115 16:38 (5)	18:07	141	16:50 (5)	16:32	15:44 (5)	16:25
19	05:35	06:04		06:34	07:01 (4)	07:04		14:29 (5)	06:40	13:33 (5)	07:08
	20:17	19:43		18:54	119 16:39 (5)	18:06	142	16:51 (5)	16:31	15:44 (5)	16:26
20	05:36	06:05		06:35	06:59 (4)	07:05		14:28 (5)	06:41	13:34 (5)	07:09
	20:16	19:42		18:52	123 16:40 (5)	18:04	142	16:50 (5)	16:30	15:44 (5)	16:26
21	05:37	06:06		06:36	06:56 (4)	07:06		14:28 (5)	06:42	13:35 (5)	07:09
	20:16	19:40		18:51	128 16:41 (5)	18:03	142	16:50 (5)	16:29	15:44 (5)	16:27
22	05:38	06:07		06:37	06:57 (3)	07:08		14:27 (5)	06:43	13:36 (5)	07:10
	20:15	19:39		18:49	128 16:42 (5)	18:02	143	16:50 (5)	16:29	15:43 (5)	16:27
23	05:39	06:08		06:38	06:59 (4)	07:09		14:26 (5)	06:44	13:36 (5)	07:10
	20:14	19:37		18:47	128 16:43 (5)	18:00	144	16:50 (5)	16:28	15:43 (5)	16:28
24	05:39	06:09		06:39	07:02 (4)	07:10		14:26 (5)	06:45	13:37 (5)	07:11
	20:13	19:36		18:46	125 16:44 (5)	17:59	143	16:49 (5)	16:28	15:42 (5)	16:28
25	05:40	06:10		06:40	07:03 (4)	06:11		13:26 (5)	06:46	13:37 (5)	07:11
	20:12	19:34		18:44	122 16:44 (5)	16:57	144	15:50 (5)	16:27	15:42 (5)	16:29
26	05:41	06:11		06:41	07:08 (4)	06:12		13:26 (5)	06:48	13:39 (5)	07:11
	20:12	19:33		18:42	115 16:44 (5)	16:56	144	15:50 (5)	16:27	15:43 (5)	16:29
27	05:42	06:12		06:42	14:59 (5)	06:13		13:26 (5)	06:49	13:40 (5)	07:12
	20:11	19:31		18:41	106 16:45 (5)	16:55	143	15:49 (5)	16:26	15:42 (5)	16:30
28	05:43	06:13		06:43	14:57 (5)	06:14		13:25 (5)	06:50	13:40 (5)	07:12
	20:10	19:30	1	07:48 (4)	18:39	16:46 (5)	16:53	15:49 (5)	16:26	15:42 (5)	16:31
29	05:44	06:14		06:44	14:55 (5)	06:15		13:25 (5)	06:51	13:41 (5)	07:12
	20:09	19:28	3	07:48 (4)	18:37	16:46 (5)	16:52	15:49 (5)	16:25	15:42 (5)	16:31
30	05:45	06:15		07:43 (4)	06:45	14:53 (5)	06:16	13:26 (5)	06:52	13:42 (5)	07:13
	20:08	19:27	6	07:49 (4)	18:36	16:47 (5)	16:51	15:49 (5)	16:25	15:42 (5)	16:32
31	05:46	06:16		07:41 (4)		06:18		13:25 (5)		07:13	
	20:07	19:25	8	07:49 (4)		16:50	144	15:49 (5)		16:33	110
Potential sun hours	457	427		375		346		300		290	15:50 (5)
Total, worst case			18		2422		4306		3995		3425
Sun reduction			0,71		0,63		0,52		0,45		0,39
Oper. time red.			0,84		0,84		0,84		0,84		0,84
Wind dir. red.			0,57		0,56		0,55		0,55		0,55
Total reduction			0,33		0,30		0,24		0,21		0,18
Total, real			6		715		1038		827		621

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: N - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January		February		March		April		May		June	
1	07:13	15:53 (7)	07:01	15:26 (6)	06:25	14:46 (6)	06:36	15:47 (6)	05:51	16:29 (6)	05:23
	16:34	15:08 (7)	17:08	16:17 (6)	17:41	16:56 (6)	19:14	17:50 (6)	19:45	17:07 (6)	20:13
2	07:13	15:54 (7)	07:00	15:23 (6)	06:24	14:46 (6)	06:34	15:48 (6)	05:50	16:32 (6)	05:22
	16:35	16:09 (7)	17:09	16:20 (6)	17:42	16:57 (6)	19:15	17:49 (6)	19:46	17:04 (6)	20:14
3	07:13	15:54 (7)	06:59	15:21 (6)	06:22	14:45 (6)	06:32	15:49 (6)	05:48	16:37 (6)	05:22
	16:36	16:10 (7)	17:10	16:23 (6)	17:43	16:57 (6)	19:16	17:49 (6)	19:47	17:01 (6)	20:15
4	07:14	15:55 (7)	06:58	15:18 (6)	06:21	14:45 (6)	06:31	15:49 (6)	05:47	16:42 (6)	05:22
	16:37	16:11 (7)	17:11	16:25 (6)	17:44	16:58 (6)	19:17	17:47 (6)	19:48	16:54 (6)	20:16
5	07:14	15:56 (7)	06:57	15:16 (6)	06:19	14:44 (6)	06:29	15:51 (6)	05:46		05:21
	16:37	16:12 (7)	17:12	16:28 (6)	17:45	16:58 (6)	19:18	17:47 (6)	19:49		20:16
6	07:14	15:56 (7)	06:56	15:14 (6)	06:18	14:43 (6)	06:28	15:51 (6)	05:45		05:21
	16:38	16:13 (7)	17:14	16:30 (6)	17:46	16:57 (6)	19:19	17:46 (6)	19:50		20:17
7	07:13	15:57 (7)	06:54	15:13 (6)	06:16	14:43 (6)	06:26	15:52 (6)	05:44		05:21
	16:39	16:14 (7)	17:15	16:32 (6)	17:47	16:58 (6)	19:20	17:44 (6)	19:51		20:18
8	07:13	15:58 (7)	06:53	15:11 (6)	06:15	14:42 (6)	06:24	15:53 (6)	05:42		05:20
	16:40	16:15 (7)	17:16	16:34 (6)	17:49	16:58 (6)	19:21	17:44 (6)	19:52		20:18
9	07:13	15:59 (7)	06:52	15:09 (6)	06:13	14:42 (6)	06:23	15:54 (6)	05:41		05:20
	16:41	16:16 (7)	17:17	16:36 (6)	17:50	16:59 (6)	19:22	17:42 (6)	19:53		20:19
10	07:13	16:00 (7)	06:51	15:07 (6)	06:12	14:42 (6)	06:21	15:56 (6)	05:40		05:20
	16:42	16:17 (7)	17:19	16:37 (6)	17:51	16:58 (6)	19:23	17:42 (6)	19:54		20:19
11	07:13	16:00 (7)	06:50	15:06 (6)	06:10	14:41 (6)	06:20	15:56 (6)	05:39		05:20
	16:43	16:18 (7)	17:20	16:39 (6)	17:52	16:58 (6)	19:24	17:40 (6)	19:55		20:20
12	07:13	16:01 (7)	06:49	15:04 (6)	06:08	14:42 (6)	06:18	15:57 (6)	05:38		05:20
	16:44	16:19 (7)	17:21	16:41 (6)	17:53	16:59 (6)	19:25	17:39 (6)	19:56		20:20
13	07:12	16:03 (7)	06:48	15:03 (6)	06:07	14:41 (6)	06:17	15:59 (6)	05:37		05:20
	16:45	16:21 (7)	17:22	16:42 (6)	17:54	16:58 (6)	19:26	17:38 (6)	19:57		20:21
14	07:12	16:03 (7)	06:46	15:01 (6)	06:05	14:42 (6)	06:15	15:59 (6)	05:36		05:20
	16:46	16:20 (7)	17:23	16:43 (6)	17:55	16:59 (6)	19:27	17:37 (6)	19:58		20:21
15	07:12	16:05 (7)	06:45	15:00 (6)	06:04	14:41 (6)	06:14	16:01 (6)	05:35		05:20
	16:48	16:20 (7)	17:25	16:45 (6)	17:56	16:58 (6)	19:28	17:36 (6)	19:59		20:22
16	07:11	16:06 (7)	06:44	14:59 (6)	06:02	06:20 (16)	06:12	16:02 (6)	05:34		05:20
	16:49	16:19 (7)	17:26	16:46 (6)	17:57	16:58 (6)	19:29	17:34 (6)	20:00		20:22
17	07:11	16:08 (7)	06:42	14:58 (6)	06:00	06:19 (16)	06:11	16:04 (6)	05:33		05:20
	16:50	16:18 (7)	17:27	16:48 (6)	17:58	16:58 (6)	19:30	17:33 (6)	20:01		20:22
18	07:10	16:11 (7)	06:41	14:56 (6)	05:59	06:17 (16)	06:09	16:04 (6)	05:32		05:20
	16:51	4	16:15 (7)	16:48 (6)	17:59	16:57 (6)	19:31	17:31 (6)	20:02		20:23
19	07:10		06:40	14:55 (6)	05:57	06:15 (16)	06:08	16:06 (6)	05:31		05:20
	16:52		17:29	16:49 (6)	18:00	16:57 (6)	19:32	17:30 (6)	20:02		20:23
20	07:09		06:38	14:54 (6)	05:55	06:14 (16)	06:06	16:08 (6)	05:31		05:20
	16:53		17:30	16:50 (6)	18:01	16:57 (6)	19:33	17:29 (6)	20:03		20:23
21	07:09		06:37	14:53 (6)	05:54	06:12 (16)	06:05	16:09 (6)	05:30		05:20
	16:54		17:32	16:51 (6)	18:02	16:56 (6)	19:34	17:27 (6)	20:04		20:24
22	07:08		06:36	14:53 (6)	05:52	06:10 (16)	06:03	16:11 (6)	05:29		05:20
	16:56		17:33	16:52 (6)	18:03	16:56 (6)	19:35	17:26 (6)	20:05		20:24
23	07:08		06:34	14:51 (6)	05:50	06:12 (16)	06:02	16:12 (6)	05:28		05:21
	16:57		17:34	16:53 (6)	18:04	16:56 (6)	19:36	17:24 (6)	20:06		20:24
24	07:07		06:33	14:50 (6)	05:49	06:13 (16)	06:00	16:14 (6)	05:27		05:21
	16:58		17:35	16:54 (6)	18:06	16:55 (6)	19:37	17:22 (6)	20:07		20:24
25	07:06		06:31	14:49 (6)	05:47	06:14 (16)	05:59	16:16 (6)	05:27		05:21
	16:59		17:36	16:54 (6)	18:07	16:54 (6)	19:39	17:21 (6)	20:08		20:24
26	07:06		06:30	14:49 (6)	05:46	06:16 (16)	05:58	16:17 (6)	05:26		05:21
	17:00		17:37	16:55 (6)	18:08	16:54 (6)	19:40	17:18 (6)	20:09		20:24
27	07:05		06:28	14:47 (6)	05:44	06:17 (16)	05:56	16:19 (6)	05:25		05:22
	17:01		17:38	16:55 (6)	18:09	16:53 (6)	19:41	17:17 (6)	20:10		20:24
28	07:04	15:48 (6)	06:27	14:47 (6)	05:42	06:20 (16)	05:55	16:22 (6)	05:25		05:22
	17:03	7	15:55 (6)	16:56 (6)	18:10	16:53 (6)	19:42	17:15 (6)	20:10		20:24
29	07:03	15:38 (6)		06:41		15:45 (6)	05:53	16:23 (6)	05:24		05:23
	17:04	26	16:04 (6)		19:11	17:52 (6)	19:43	17:12 (6)	20:11		20:24
30	07:02	15:33 (6)		06:39		15:46 (6)	05:52	16:26 (6)	05:24		05:23
	17:05	36	16:09 (6)		19:12	17:51 (6)	19:44	17:10 (6)	20:12		20:24
31	07:01	15:29 (6)		06:37		15:47 (6)			05:23		
	17:06	44	16:13 (6)		19:13	17:51 (6)			20:13		
Potential sun hours	299		298		370		398		446		450
Total, worst case	389		2770		4249		2704		106		
Sun reduction	0,39		0,40		0,44		0,50		0,58		
Oper. time red.	0,84		0,84		0,84		0,84		0,84		
Wind dir. red.	0,55		0,54		0,54		0,54		0,54		
Total reduction	0,18		0,18		0,20		0,23		0,26		
Total, real	69		503		834		611		28		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: N - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

July		August		September		October		November		December	
1	05:23	05:47		06:17	15:55 (6)	06:46	15:20 (6)	06:19	14:37 (6)	06:53	15:42 (7)
	20:24	20:06		19:24	104 17:39 (6)	18:34	137 17:37 (6)	16:48	90 16:07 (6)	16:25	16:00 (7)
2	05:24	05:48		06:18	15:54 (6)	06:47	15:20 (6)	06:20	14:38 (6)	06:54	15:42 (7)
	20:24	20:05		19:22	106 17:40 (6)	18:32	137 17:37 (6)	16:47	87 16:05 (6)	16:25	16:00 (7)
3	05:24	05:49		06:19	15:52 (6)	06:48	15:19 (6)	06:21	14:41 (6)	06:55	15:42 (7)
	20:24	20:04		19:21	108 17:40 (6)	18:31	137 17:36 (6)	16:46	83 16:04 (6)	16:24	17 15:59 (7)
4	05:25	05:50		06:19	15:51 (6)	06:49	15:19 (6)	06:22	14:43 (6)	06:56	15:42 (7)
	20:24	20:03		19:19	110 17:41 (6)	18:29	136 17:35 (6)	16:45	79 16:02 (6)	16:24	17 15:59 (7)
5	05:25	05:51		06:20	15:49 (6)	06:50	15:19 (6)	06:23	14:45 (6)	06:57	15:42 (7)
	20:24	20:01		19:17	112 17:41 (6)	18:28	136 17:35 (6)	16:44	74 15:59 (6)	16:24	17 15:59 (7)
6	05:26	05:51		06:21	15:48 (6)	06:51	15:20 (6)	06:25	14:46 (6)	06:58	15:42 (7)
	20:23	20:00		19:16	114 17:42 (6)	18:26	135 17:35 (6)	16:43	71 15:57 (6)	16:24	17 15:59 (7)
7	05:27	05:52		06:22	15:46 (6)	06:52	15:19 (6)	06:26	14:50 (6)	06:59	15:43 (7)
	20:23	19:59		19:14	116 17:42 (6)	18:24	135 17:34 (6)	16:42	66 15:56 (6)	16:24	16 15:59 (7)
8	05:27	05:53		06:23	15:45 (6)	06:53	15:19 (6)	06:27	14:52 (6)	07:00	15:43 (7)
	20:23	19:58		19:12	117 17:42 (6)	18:23	135 17:34 (6)	16:41	61 15:53 (6)	16:24	16 15:59 (7)
9	05:28	05:54		06:24	15:43 (6)	06:54	15:19 (6)	06:28	14:54 (6)	07:01	15:43 (7)
	20:22	19:57	17	17:06 (6)	19:11	120 17:43 (6)	18:21	134 17:33 (6)	16:39	57 15:51 (6)	16 15:59 (7)
10	05:29	05:55		06:25	15:41 (6)	06:55	15:19 (6)	06:29	14:57 (6)	07:01	15:44 (7)
	20:22	19:55	27	17:11 (6)	19:09	121 17:42 (6)	18:20	133 17:32 (6)	16:38	50 15:47 (6)	15 15:59 (7)
11	05:29	05:56		06:26	15:40 (6)	06:56	15:19 (6)	06:30	15:02 (6)	07:02	15:44 (7)
	20:22	19:54	34	17:14 (6)	19:07	122 17:42 (6)	18:18	132 17:31 (6)	16:38	43 15:45 (6)	15 15:59 (7)
12	05:30	05:57		06:27	15:38 (6)	06:57	15:19 (6)	06:32	15:05 (6)	07:03	15:44 (7)
	20:21	19:53	40	17:17 (6)	19:06	124 17:42 (6)	18:16	131 17:30 (6)	16:37	36 15:41 (6)	14 15:59 (7)
13	05:31	05:58		06:28	15:37 (6)	06:58	15:20 (6)	06:33	15:10 (6)	07:04	15:45 (7)
	20:21	19:52	45	17:19 (6)	19:04	125 17:42 (6)	18:15	129 17:29 (6)	16:36	26 15:36 (6)	14 15:59 (7)
14	05:31	05:59		06:29	15:36 (6)	06:59	15:20 (6)	06:34	15:21 (6)	07:05	15:45 (7)
	20:20	19:50	50	17:21 (6)	19:02	126 17:42 (6)	18:13	128 17:28 (6)	16:35	5 15:26 (6)	14 15:59 (7)
15	05:32	06:00		06:30	07:09 (16)	07:00	15:20 (6)	06:35	15:20 (6)	07:05	15:46 (7)
	20:20	19:49	54	17:22 (6)	19:01	129 17:42 (6)	18:12	127 17:27 (6)	16:34		14 16:00 (7)
16	05:33	06:01		06:31	07:07 (16)	07:01	15:20 (6)	06:36	15:20 (6)	07:06	15:46 (7)
	20:19	19:48	58	17:24 (6)	18:59	134 17:42 (6)	18:10	126 17:26 (6)	16:33		13 15:59 (7)
17	05:34	06:02		06:32	07:05 (16)	07:02	15:21 (6)	06:37	15:21 (6)	07:07	15:47 (7)
	20:19	19:46	63	17:26 (6)	18:57	137 17:42 (6)	18:09	124 17:25 (6)	16:32		13 16:00 (7)
18	05:34	06:03		06:33	07:03 (16)	07:03	15:22 (6)	06:39	15:22 (6)	07:07	15:48 (7)
	20:18	19:45	66	17:27 (6)	18:56	141 17:42 (6)	18:07	123 17:25 (6)	16:32		12 16:00 (7)
19	05:35	06:04		06:34	07:01 (16)	07:04	15:23 (6)	06:40	15:23 (6)	07:08	15:47 (7)
	20:17	19:43	69	17:28 (6)	18:54	144 17:42 (6)	18:06	121 17:24 (6)	16:31		13 16:00 (7)
20	05:36	06:05		06:35	06:58 (16)	07:05	15:23 (6)	06:41	15:23 (6)	07:09	15:48 (7)
	20:17	19:42	73	17:30 (6)	18:52	148 17:42 (6)	18:04	120 17:23 (6)	16:30		13 16:01 (7)
21	05:37	06:06		06:36	06:56 (16)	07:06	15:24 (6)	06:42	15:24 (6)	07:09	15:48 (7)
	20:16	19:40	76	17:31 (6)	18:51	150 17:42 (6)	18:03	117 17:21 (6)	16:29		13 16:01 (7)
22	05:38	06:07		06:37	06:57 (16)	07:08	15:25 (6)	06:43	15:25 (6)	07:10	15:49 (7)
	20:15	19:39	79	17:32 (6)	18:49	150 17:42 (6)	18:02	115 17:20 (6)	16:29		13 16:02 (7)
23	05:39	06:08		06:38	06:58 (16)	07:09	15:25 (6)	06:44	15:25 (6)	07:10	15:49 (7)
	20:14	19:38	81	17:33 (6)	18:47	148 17:41 (6)	18:00	114 17:19 (6)	16:28		13 16:02 (7)
24	05:39	06:09		06:39	06:59 (16)	07:10	15:26 (6)	06:45	15:26 (6)	07:11	15:50 (7)
	20:13	19:36	84	17:34 (6)	18:46	146 17:41 (6)	17:59	111 17:17 (6)	16:28	3 15:52 (7)	13 16:03 (7)
25	05:40	06:10		06:40	07:00 (16)	06:11	14:28 (6)	06:47	15:46 (7)	07:11	15:50 (7)
	20:13	19:35	87	17:35 (6)	18:44	145 17:41 (6)	16:57	109 16:17 (6)	16:27	10 15:56 (7)	13 16:03 (7)
26	05:41	06:11		06:41	07:00 (16)	06:12	14:29 (6)	06:48	15:45 (7)	07:12	15:51 (7)
	20:12	19:33	90	17:36 (6)	18:42	142 17:39 (6)	16:56	107 16:16 (6)	16:27	13 15:58 (7)	13 16:04 (7)
27	05:42	06:12		06:42	07:01 (16)	06:13	14:30 (6)	06:49	15:44 (7)	07:12	15:52 (7)
	20:11	19:32	93	17:37 (6)	18:41	140 17:39 (6)	16:55	104 16:14 (6)	16:26	15 15:59 (7)	13 16:05 (7)
28	05:43	06:13		06:43	15:22 (6)	06:14	14:31 (6)	06:50	15:43 (7)	07:12	15:52 (7)
	20:10	19:30	95	17:37 (6)	18:39	137 17:39 (6)	16:53	101 16:12 (6)	16:26	17 16:00 (7)	13 16:05 (7)
29	05:44	06:14		06:44	15:21 (6)	06:15	14:32 (6)	06:51	15:43 (7)	07:13	15:52 (7)
	20:09	19:28	97	17:37 (6)	18:37	137 17:38 (6)	16:52	99 16:11 (6)	16:25	18 16:01 (7)	14 16:06 (7)
30	05:45	06:15		06:45	15:21 (6)	06:17	14:34 (6)	06:52	15:42 (7)	07:13	15:53 (7)
	20:08	19:27	100	17:38 (6)	18:36	137 17:38 (6)	16:51	96 16:10 (6)	16:25	18 16:00 (7)	13 16:06 (7)
31	05:46	06:16		06:46	15:57 (6)	06:18	14:36 (6)			07:13	15:53 (7)
	20:07	19:25	102	17:39 (6)		16:50	92 16:08 (6)			16:33	14 16:07 (7)
Potential sun hours	457	427		375		346		300		290	
Total, worst case			1580		3890		3781		922		447
Sun reduction			0,71		0,63		0,52		0,45		0,39
Oper. time red.			0,84		0,84		0,84		0,84		0,84
Wind dir. red.			0,54		0,54		0,54		0,54		0,55
Total reduction			0,32		0,29		0,23		0,20		0,18
Total, real			501		1110		888		186		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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SHADOW - Calendar

Shadow receptor: O - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	07:13 16:34	07:00 17:07	06:25 17:41	06:59 (2) 08:55 (2)	07:48 (2) 18:36 (3)	05:51 19:44
2	07:13 16:35	06:59 17:09	06:24 17:42	06:58 (2) 08:56 (2)	07:48 (2) 18:35 (3)	05:49 19:46
3	07:13 16:36	06:58 17:10	07:46 (2) 08:08 (2)	06:57 (2) 08:56 (2)	07:49 (2) 18:35 (3)	05:48 19:47
4	07:13 16:36	06:57 17:11	07:41 (2) 08:14 (2)	06:56 (2) 08:55 (2)	07:49 (2) 18:34 (3)	05:47 19:48
5	07:13 16:37	06:56 17:12	07:37 (2) 08:18 (2)	06:56 (2) 08:56 (2)	07:49 (2) 18:32 (3)	05:46 19:49
6	07:13 16:38	06:55 17:14	07:34 (2) 08:22 (2)	06:54 (2) 08:56 (2)	07:50 (2) 18:32 (3)	05:45 19:50
7	07:13 16:39	06:54 17:15	07:31 (2) 08:25 (2)	06:54 (2) 08:56 (2)	07:50 (2) 18:30 (3)	05:43 19:51
8	07:13 16:40	06:53 17:16	07:29 (2) 08:28 (2)	06:53 (2) 08:56 (2)	07:51 (2) 18:28 (3)	05:42 19:52
9	07:13 16:41	06:52 17:17	07:25 (2) 08:30 (2)	06:53 (2) 17:23 (3)	07:51 (2) 18:25 (3)	05:41 19:53
10	07:13 16:42	06:51 17:18	07:23 (2) 08:32 (2)	06:52 (2) 17:26 (3)	07:51 (2) 18:23 (3)	05:40 19:54
11	07:13 16:43	06:50 17:20	07:22 (2) 08:34 (2)	06:51 (2) 17:28 (3)	07:53 (2) 18:21 (3)	05:39 19:55
12	07:12 16:44	06:49 17:21	07:20 (2) 08:37 (2)	06:52 (2) 17:31 (3)	07:53 (2) 18:19 (3)	05:38 19:56
13	07:12 16:45	06:47 17:22	07:19 (2) 08:39 (2)	06:51 (2) 17:32 (3)	07:54 (2) 18:17 (3)	05:37 19:57
14	07:12 16:46	06:46 17:23	07:16 (2) 08:40 (2)	06:50 (2) 17:33 (3)	07:55 (2) 18:15 (3)	05:36 19:58
15	07:12 16:47	06:45 17:24	07:15 (2) 08:42 (2)	06:50 (2) 17:35 (3)	07:56 (2) 18:13 (3)	05:35 19:59
16	07:11 16:49	06:44 17:26	07:14 (2) 08:43 (2)	06:49 (2) 17:36 (3)	07:57 (2) 18:10 (3)	05:34 19:59
17	07:11 16:50	06:42 17:27	07:12 (2) 08:44 (2)	06:50 (2) 17:38 (4)	07:58 (2) 09:13 (2)	05:33 20:00
18	07:10 16:51	06:41 17:28	07:11 (2) 08:46 (2)	06:49 (2) 17:38 (4)	07:59 (2) 09:11 (2)	05:32 20:01
19	07:10 16:52	06:40 17:29	07:10 (2) 08:47 (2)	06:48 (2) 17:39 (4)	08:00 (2) 09:09 (2)	05:31 20:02
20	07:09 16:53	06:38 17:30	07:08 (2) 08:48 (2)	06:49 (2) 17:41 (4)	08:01 (2) 09:07 (2)	05:30 20:03
21	07:09 16:54	06:37 17:31	07:07 (2) 08:49 (2)	06:48 (2) 17:42 (4)	08:03 (2) 09:05 (2)	05:30 20:04
22	07:08 16:55	06:35 17:33	07:05 (2) 08:50 (2)	06:48 (2) 17:42 (4)	08:05 (2) 09:03 (2)	05:29 20:05
23	07:07 16:57	06:34 17:34	07:05 (2) 08:51 (2)	06:48 (2) 17:44 (4)	08:06 (2) 09:00 (2)	05:28 20:06
24	07:07 16:58	06:33 17:35	07:04 (2) 08:52 (2)	06:48 (2) 17:45 (4)	08:09 (2) 08:58 (2)	05:27 20:07
25	07:06 16:59	06:31 17:36	07:02 (2) 08:52 (2)	06:47 (2) 17:45 (4)	08:11 (2) 08:55 (2)	05:27 20:08
26	07:05 17:00	06:30 17:37	07:02 (2) 08:54 (2)	06:48 (2) 17:47 (4)	08:13 (2) 08:51 (2)	05:26 20:08
27	07:05 17:01	06:28 17:38	07:00 (2) 08:54 (2)	06:48 (2) 17:46 (4)	08:16 (2) 08:48 (2)	05:25 20:09
28	07:04 17:03	06:27 17:39	07:00 (2) 08:55 (2)	06:47 (2) 17:42 (4)	08:21 (2) 08:44 (2)	05:25 20:10
29	07:03 17:04		06:40 19:11	07:48 (2) 18:38 (3)	08:27 (2) 08:35 (2)	05:24 20:11
30	07:02 17:05		06:39 19:12	07:48 (2) 18:37 (3)		05:24 20:12
31	07:01 17:06		06:37 19:13	07:48 (2) 18:36 (3)		05:23 20:12
Potential sun hours	299	298	370	398	446	450
Total, worst case		2136	4953	2860		
Sun reduction		0,40	0,44	0,50		
Oper. time red.		0,84	0,84	0,84		
Wind dir. red.		0,61	0,59	0,59		
Total reduction		0,21	0,22	0,25		
Total, real		443	1078	719		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: O - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23 20:24	05:47 20:06	06:16 19:24	07:52 (2) 18:20 (3)	06:45 18:34	07:30 (2) 18:11 (3)
2	05:24 20:24	05:48 20:05	06:17 19:22	07:50 (2) 18:22 (3)	06:46 18:32	07:30 (2) 18:08 (3)
3	05:24 20:24	05:48 20:04	06:18 19:20	07:49 (2) 18:23 (3)	06:47 18:31	07:30 (2) 18:05 (3)
4	05:25 20:24	05:49 20:02	06:19 19:19	07:48 (2) 18:25 (3)	06:48 18:29	07:30 (2) 18:01 (3)
5	05:25 20:23	05:50 20:01	06:20 19:17	07:47 (2) 18:26 (3)	06:49 18:27	07:30 (2) 17:55 (3)
6	05:26 20:23	05:51 20:00	06:21 19:15	07:46 (2) 18:28 (3)	06:50 18:26	07:30 (2) 09:32 (2)
7	05:27 20:23	05:52 19:59	06:22 19:14	07:45 (2) 18:29 (3)	06:51 18:24	07:30 (2) 09:32 (2)
8	05:27 20:23	05:53 19:58	06:23 19:12	07:43 (2) 18:28 (3)	06:53 18:23	07:30 (2) 09:31 (2)
9	05:28 20:22	05:54 19:57	06:24 19:11	07:42 (2) 18:28 (3)	06:54 18:21	07:30 (2) 09:30 (2)
10	05:28 20:22	05:55 19:55	06:25 19:09	07:41 (2) 18:28 (3)	06:55 18:19	07:31 (2) 09:31 (2)
11	05:29 20:21	05:56 19:54	06:26 19:07	07:41 (2) 18:29 (3)	06:56 18:18	07:32 (2) 09:30 (2)
12	05:30 20:21	05:57 19:53	06:27 19:06	07:40 (2) 18:29 (3)	06:57 18:16	07:32 (2) 09:29 (2)
13	05:31 20:21	05:58 19:51	06:28 19:04	07:39 (2) 18:28 (3)	06:58 18:15	07:32 (2) 09:28 (2)
14	05:31 20:20	05:59 19:50	08:32 (2) 08:46 (2)	07:38 (2) 18:28 (3)	06:59 18:13	07:33 (2) 09:27 (2)
15	05:32 20:19	06:00 19:49	06:30 08:52 (2)	07:38 (2) 18:30 (4)	07:00 18:12	07:33 (2) 09:26 (2)
16	05:33 20:19	06:01 19:47	06:31 08:22 (2)	07:37 (2) 18:34 (4)	07:01 18:10	07:34 (2) 09:25 (2)
17	05:34 20:18	06:02 19:46	06:32 08:19 (2)	07:36 (2) 18:35 (4)	07:02 18:09	07:34 (2) 09:24 (2)
18	05:34 20:18	06:03 19:45	06:33 08:16 (2)	07:36 (2) 18:34 (4)	07:03 18:07	07:35 (2) 09:22 (2)
19	05:35 20:17	06:04 19:43	06:34 08:14 (2)	07:35 (2) 18:32 (4)	07:04 18:06	07:35 (2) 09:21 (2)
20	05:36 20:16	06:05 19:42	06:35 08:12 (2)	07:35 (2) 18:31 (4)	07:05 18:04	07:37 (2) 09:21 (2)
21	05:37 20:16	06:06 19:40	06:36 08:10 (2)	07:34 (2) 18:29 (4)	07:06 18:03	07:38 (2) 09:19 (2)
22	05:38 20:15	06:07 19:39	06:37 08:08 (2)	07:33 (2) 18:26 (4)	07:07 18:01	07:39 (2) 09:18 (2)
23	05:38 20:14	06:08 19:37	06:38 08:06 (2)	07:32 (2) 18:25 (4)	07:08 18:00	07:40 (2) 09:17 (2)
24	05:39 20:13	06:09 19:36	06:39 08:04 (2)	07:32 (2) 18:23 (4)	07:10 17:59	07:41 (2) 09:15 (2)
25	05:40 20:12	06:10 19:34	06:40 08:02 (2)	07:31 (2) 18:21 (4)	06:11 16:57	06:42 (2) 08:13 (2)
26	05:41 20:11	06:11 19:33	06:40 08:00 (2)	07:31 (2) 18:20 (4)	06:12 16:56	06:44 (2) 08:13 (2)
27	05:42 20:11	06:12 19:31	06:41 07:58 (2)	07:31 (2) 18:18 (3)	06:13 16:55	06:45 (2) 08:11 (2)
28	05:43 20:10	06:13 19:30	06:42 07:57 (2)	07:31 (2) 18:16 (3)	06:14 16:53	06:46 (2) 08:09 (2)
29	05:44 20:09	06:14 19:28	06:43 07:56 (2)	07:30 (2) 18:15 (3)	06:15 16:52	06:48 (2) 08:07 (2)
30	05:45 20:08	06:15 19:27	06:44 07:54 (2)	07:30 (2) 18:13 (3)	06:16 16:51	06:49 (2) 08:05 (2)
31	05:46 20:07	06:15 19:25	06:45 07:53 (2)	06:18 16:50	06:52 (2) 08:04 (2)	07:13 16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case		1212	5058	3438	380	
Sun reduction		0,71	0,63	0,52	0,45	
Oper. time red.		0,84	0,84	0,84	0,84	
Wind dir. red.		0,60	0,59	0,61	0,61	
Total reduction		0,36	0,31	0,27	0,23	
Total, real		433	1584	918	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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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: P - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	15:50 (7) 16:08 (21)	07:01 16:23 (7)	06:25 17:41	05:51 19:14	05:23 20:13	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:48	06:53 16:25
2	07:13 16:35	15:50 (7) 16:09 (21)	07:00 16:24 (7)	06:24 17:42	05:50 19:15	05:22 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:32	06:20 16:47	06:54 16:25
3	07:13 16:36	15:50 (7) 16:10 (21)	06:59 17:10	06:22 17:43	05:48 19:16	05:22 20:15	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46	06:55 16:24
4	07:14 16:37	15:50 (7) 16:11 (21)	06:58 17:11	06:21 17:44	05:47 19:17	05:22 20:16	05:25 20:24	05:50 20:03	06:19 19:19	06:49 18:29	06:22 16:45	06:56 16:24
5	07:14 16:37	15:51 (7) 16:12 (21)	06:57 17:12	06:19 17:45	05:46 19:18	05:21 20:16	05:25 20:24	05:51 20:01	06:20 19:17	06:50 18:28	06:23 16:44	06:57 16:24
6	07:14 16:38	15:51 (7) 16:13 (21)	06:56 17:14	06:18 17:46	05:45 19:19	05:21 20:17	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	06:25 16:43	06:58 16:24
7	07:14 16:39	15:51 (7) 16:14 (21)	06:54 17:15	06:16 17:47	05:44 19:20	05:21 20:18	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	06:26 16:42	06:59 16:24
8	07:13 16:40	15:52 (7) 16:15 (21)	06:53 17:16	06:15 17:49	05:42 19:21	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:41	07:00 16:24
9	07:13 16:41	15:52 (7) 16:16 (21)	06:52 17:17	06:13 17:50	05:41 19:22	05:20 20:19	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	06:28 16:40	15:44 (7) 16:24
10	07:13 16:42	15:53 (7) 16:17 (21)	06:51 17:19	06:12 17:51	05:40 19:23	05:20 20:19	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	06:29 16:39	15:40 (7) 16:24
11	07:13 16:43	15:52 (7) 16:18 (21)	06:50 17:20	06:10 17:52	05:39 19:24	05:20 20:20	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	06:30 16:38	15:39 (7) 16:24
12	07:13 16:44	15:53 (7) 16:19 (21)	06:49 17:21	06:08 17:53	05:38 19:25	05:20 20:20	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	06:32 16:37	15:37 (7) 16:24
13	07:12 16:45	15:54 (7) 16:21 (21)	06:48 17:22	06:07 17:54	05:37 19:26	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36	15:36 (7) 16:24
14	07:12 16:46	15:53 (7) 16:21 (21)	06:46 17:23	06:05 17:55	05:36 19:27	05:20 20:21	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	06:34 16:35	15:34 (7) 16:24
15	07:12 16:48	15:54 (7) 16:23 (21)	06:45 17:25	06:04 17:56	05:35 19:28	05:20 20:22	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	15:34 (7) 16:25
16	07:11 16:49	15:54 (7) 16:23 (21)	06:44 17:26	06:02 17:57	05:34 19:29	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:10	06:36 16:33	15:34 (7) 16:25
17	07:11 16:50	15:55 (7) 16:25 (21)	06:42 17:27	06:00 17:58	05:33 19:30	05:20 20:22	05:34 20:19	06:02 19:46	06:32 18:57	07:02 18:09	06:37 16:32	15:33 (7) 16:25
18	07:10 16:51	15:55 (7) 16:26 (21)	06:41 17:28	05:59 17:59	05:32 19:31	05:20 20:23	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:39 16:32	15:32 (7) 16:25
19	07:10 16:52	15:56 (7) 16:28 (21)	06:40 17:29	05:57 18:00	05:31 19:32	05:20 20:23	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31	15:32 (7) 16:26
20	07:09 16:53	15:56 (7) 16:29 (21)	06:38 17:30	05:55 18:01	05:31 19:33	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30	15:32 (7) 16:26
21	07:09 16:54	15:56 (7) 16:29 (21)	06:37 17:32	05:54 18:02	05:30 19:34	05:20 20:24	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	06:42 16:29	15:32 (7) 16:27
22	07:08 16:56	15:57 (7) 16:31 (21)	06:36 17:33	05:52 18:03	05:29 19:35	05:20 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29	15:32 (7) 16:27
23	07:08 16:57	15:58 (7) 16:32 (21)	06:34 17:34	05:50 18:04	05:28 19:36	05:21 20:24	05:39 20:14	06:08 19:38	06:38 18:47	07:09 18:00	06:44 16:28	15:32 (7) 16:28
24	07:07 16:58	15:58 (7) 16:31 (21)	06:33 17:35	05:49 18:06	05:27 19:38	05:21 20:24	05:39 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:28	15:32 (7) 16:28
25	07:06 16:59	16:00 (7) 16:32 (21)	06:31 17:36	05:47 18:07	05:27 19:39	05:21 20:24	05:40 20:13	06:10 19:35	06:40 18:44	06:11 16:57	06:47 16:27	15:33 (7) 16:29
26	07:06 17:00	16:01 (7) 16:31 (21)	06:30 17:37	05:46 18:08	05:26 19:40	05:21 20:24	05:41 20:12	06:11 19:33	06:41 18:42	06:12 16:56	06:48 16:27	15:33 (7) 16:29
27	07:05 17:01	16:01 (7) 16:30 (21)	06:28 17:39	05:44 18:09	05:26 19:41	05:22 20:24	05:42 20:11	06:12 19:32	06:42 18:41	06:13 16:55	06:49 16:26	15:33 (7) 16:30
28	07:04 17:03	16:03 (7) 16:29 (21)	06:27 17:40	05:42 18:10	05:25 19:42	05:22 20:24	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:53	06:50 16:26	15:33 (7) 16:31
29	07:03 17:04	16:04 (7) 16:28 (21)		05:41 19:11	05:24 19:43	05:23 20:24	05:44 20:09	06:14 19:28	06:44 18:37	06:15 16:52	06:51 16:25	15:34 (7) 16:31
30	07:02 17:05	16:05 (7) 16:27 (21)		06:39 19:12	05:52 19:44	05:24 20:24	05:45 20:08	06:15 19:27	06:45 18:36	06:17 16:51	06:52 16:25	15:34 (7) 16:32
31	07:01 17:06	16:07 (7) 16:26 (21)		06:37 19:13	05:23 20:13	05:23 20:13	05:46 20:07	06:16 19:25	06:46 19:25	06:18 16:50	06:53 16:25	15:34 (7) 16:33
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case	822	18									605	564
Sun reduction	0,39	0,40									0,45	0,39
Oper. time red.	0,84	0,84									0,84	0,84
Wind dir. red.	0,55	0,55									0,55	0,55
Total reduction	0,18	0,19									0,21	0,18
Total, real	147	3									125	102

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: Q - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	07:01 17:08	06:26 17:41	06:36 19:14	05:51 19:45	05:23 20:14	05:24 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:49	06:53 16:25
2	07:13 16:35	07:00 17:09	06:24 17:42	06:34 19:15	05:50 19:46	05:23 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:33	06:20 16:47	06:54 16:25
3	07:14 16:36	06:59 17:10	06:23 17:43	06:33 19:16	05:49 19:47	05:22 20:15	05:25 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46	06:55 16:25
4	07:14 16:37	06:58 17:12	06:21 17:44	06:31 19:17	05:47 19:48	05:22 20:16	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	06:22 16:45	06:56 16:24
5	07:14 16:38	06:57 17:13	06:20 17:45	06:29 19:18	05:46 19:49	05:22 20:16	05:26 20:24	05:51 20:02	06:21 19:17	06:50 18:28	06:24 16:44	06:57 16:24
6	07:14 16:39	06:56 17:14	06:18 17:47	06:28 19:19	05:45 19:50	05:21 20:17	05:26 20:23	05:52 20:00	06:22 19:16	06:51 18:26	06:25 16:43	06:58 16:24
7	07:14 16:40	06:55 17:15	06:16 17:48	06:26 19:20	05:44 19:51	05:21 20:18	05:27 20:23	05:53 19:59	06:23 19:14	06:52 18:25	06:26 16:42	06:59 16:24
8	07:14 16:41	06:54 17:16	06:15 17:49	06:25 19:21	05:43 19:52	05:21 20:18	05:28 20:23	05:54 19:58	06:24 19:13	06:53 18:23	06:27 16:41	07:00 16:24
9	07:13 16:42	06:52 17:18	06:13 17:50	06:23 19:22	05:42 19:53	05:20 20:19	05:28 20:23	05:55 19:57	06:25 19:11	06:54 18:21	06:28 16:40	07:01 16:24
10	07:13 16:43	06:51 17:19	06:12 17:51	06:22 19:23	05:40 19:54	05:20 20:19	05:29 20:22	05:56 19:56	06:25 19:09	06:55 18:20	06:29 16:39	07:02 16:24
11	07:13 16:44	06:50 17:20	06:10 17:52	06:20 19:24	05:39 19:55	05:20 20:20	05:30 20:22	05:57 19:54	06:26 19:08	06:56 18:18	06:31 16:38	07:02 16:24
12	07:13 16:45	06:49 17:21	06:09 17:53	06:18 19:25	05:38 19:56	05:20 20:20	05:30 20:21	05:58 19:53	06:27 19:06	06:57 18:17	06:32 16:37	07:03 16:24
13	07:13 16:46	06:48 17:22	06:07 17:54	06:17 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36	07:04 16:24
14	07:12 16:47	06:46 17:24	06:05 17:55	06:15 19:27	05:36 19:58	05:20 20:21	05:32 20:20	05:59 19:50	06:29 19:03	06:59 18:14	06:34 16:35	07:05 16:25
15	07:12 16:48	06:45 17:25	06:04 17:56	06:14 19:28	05:35 19:59	05:20 20:22	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	07:06 16:25
16	07:11 16:49	06:44 17:26	06:02 17:57	06:12 19:29	05:34 20:00	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:11	06:36 16:33	07:06 16:25
17	07:11 16:50	06:43 17:27	06:00 17:58	06:11 19:30	05:33 20:01	05:20 20:22	05:34 20:19	06:02 19:46	06:32 18:58	07:02 18:09	06:38 16:33	07:07 16:25
18	07:11 16:51	06:41 17:28	05:59 17:59	06:09 19:31	05:33 20:02	05:20 20:23	05:35 20:18	06:03 19:45	06:33 18:56	07:03 18:08	06:39 16:32	07:08 16:26
19	07:10 16:52	06:40 17:30	05:57 18:01	06:08 19:33	05:32 20:03	05:20 20:23	05:36 20:17	06:04 19:44	06:34 18:54	07:04 18:06	06:40 16:31	07:08 16:26
20	07:10 16:54	06:39 17:31	05:56 18:02	06:06 19:34	05:31 20:04	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:53	07:06 18:05	06:41 16:30	07:09 16:27
21	07:09 16:55	06:37 17:32	05:54 18:03	06:05 19:35	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:41	06:36 18:51	07:07 18:03	06:42 16:30	07:09 16:27
22	07:08 16:56	06:36 17:33	05:52 18:04	06:03 19:36	05:29 20:05	05:21 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29	07:10 16:27
23	07:08 16:57	06:34 17:34	05:51 18:05	06:02 19:37	05:29 20:06	05:21 20:24	05:39 20:14	06:08 19:38	06:38 18:48	07:09 18:00	06:44 16:29	07:10 16:28
24	07:07 16:58	06:33 17:35	05:49 18:06	06:01 19:38	05:28 20:07	05:21 20:24	05:40 20:14	06:09 19:36	06:39 18:46	07:10 17:59	06:46 16:28	07:11 16:29
25	07:06 16:59	06:32 17:36	05:47 18:07	05:59 19:39	05:27 20:08	05:21 20:24	05:41 20:13	06:10 19:35	06:40 18:44	06:11 16:58	06:47 16:27	07:11 16:29
26	07:06 17:01	06:30 17:38	05:46 18:08	05:58 19:40	05:26 20:09	05:22 20:24	05:42 20:12	06:11 19:33	06:41 18:43	06:12 16:56	06:48 16:27	07:12 16:30
27	07:05 17:02	06:29 17:39	05:44 18:09	05:56 19:41	05:26 20:10	05:22 20:24	05:42 20:11	06:12 19:32	06:42 18:41	06:13 16:55	06:49 16:27	07:12 16:30
28	07:04 17:03	06:27 17:40	05:42 18:10	05:55 19:42	05:25 20:10	05:22 20:24	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:54	06:50 16:26	07:12 16:31
29	07:03 17:04		06:41 19:11	05:54 19:43	05:25 20:11	05:23 20:24	05:44 20:09	06:14 19:29	06:44 18:38	06:16 16:52	06:51 16:26	07:13 16:32
30	07:02 17:05		06:39 19:12	05:52 19:44	05:24 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:45 18:36	06:17 16:51	06:52 16:25	07:13 16:32
31	07:02 17:07		06:38 19:13		05:24 20:13		05:46 20:07	06:16 19:25		06:18 16:50		07:13 16:33
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
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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SHADOW - Calendar

Shadow receptor: R - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	07:01 17:08	06:26 17:41	06:36 19:14	05:51 19:45	05:23 20:14	05:24 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:49	06:53 16:25
2	07:13 16:35	07:00 17:09	06:24 17:42	06:34 19:15	05:50 19:46	05:23 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:33	06:20 16:47	06:54 16:25
3	07:14 16:36	06:59 17:10	06:23 17:43	06:33 19:16	05:49 19:47	05:22 20:15	05:25 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46	06:55 16:25
4	07:14 16:37	06:58 17:12	06:21 17:44	06:31 19:17	05:47 19:48	05:22 20:16	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	06:22 16:45	06:56 16:24
5	07:14 16:38	06:57 17:13	06:20 17:45	06:29 19:18	05:46 19:49	05:22 20:16	05:26 20:24	05:51 20:02	06:21 19:17	06:50 18:28	06:24 16:44	06:57 16:24
6	07:14 16:39	06:56 17:14	06:18 17:47	06:28 19:19	05:45 19:50	05:21 20:17	05:26 20:23	05:52 20:00	06:22 19:16	06:51 18:26	06:25 16:43	06:58 16:24
7	07:14 16:40	06:55 17:15	06:16 17:48	06:26 19:20	05:44 19:51	05:21 20:18	05:27 20:23	05:53 19:59	06:23 19:14	06:52 18:25	06:26 16:42	06:59 16:24
8	07:14 16:41	06:54 17:16	06:15 17:49	06:25 19:21	05:43 19:52	05:21 20:18	05:28 20:23	05:54 19:58	06:24 19:13	06:53 18:23	06:27 16:41	07:00 16:24
9	07:13 16:42	06:52 17:18	06:13 17:50	06:23 19:22	05:42 19:53	05:20 20:19	05:28 20:23	05:55 19:57	06:25 19:11	06:54 18:21	06:28 16:40	07:01 16:24
10	07:13 16:43	06:51 17:19	06:12 17:51	06:22 19:23	05:40 19:54	05:20 20:19	05:29 20:22	05:56 19:56	06:25 19:09	06:55 18:20	06:29 16:39	07:02 16:24
11	07:13 16:44	06:50 17:20	06:10 17:52	06:20 19:24	05:39 19:55	05:20 20:20	05:30 20:22	05:57 19:54	06:26 19:08	06:56 18:18	06:31 16:38	07:02 16:24
12	07:13 16:45	06:49 17:21	06:09 17:53	06:18 19:25	05:38 19:56	05:20 20:20	05:30 20:21	05:58 19:53	06:27 19:06	06:57 18:17	06:32 16:37	07:03 16:24
13	07:13 16:46	06:48 17:22	06:07 17:54	06:17 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36	07:04 16:24
14	07:12 16:47	06:46 17:24	06:05 17:55	06:15 19:27	05:36 19:58	05:20 20:21	05:32 20:20	05:59 19:50	06:29 19:03	06:59 18:14	06:34 16:35	07:05 16:25
15	07:12 16:48	06:45 17:25	06:04 17:56	06:14 19:28	05:35 19:59	05:20 20:22	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	07:06 16:25
16	07:11 16:49	06:44 17:26	06:02 17:57	06:12 19:29	05:34 20:00	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:11	06:36 16:33	07:06 16:25
17	07:11 16:50	06:43 17:27	06:00 17:58	06:11 19:30	05:33 20:01	05:20 20:22	05:34 20:19	06:02 19:46	06:32 18:58	07:02 18:09	06:38 16:33	07:07 16:25
18	07:11 16:51	06:41 17:28	05:59 17:59	06:09 19:31	05:33 20:02	05:20 20:23	05:35 20:18	06:03 19:45	06:33 18:56	07:03 18:08	06:39 16:32	07:08 16:26
19	07:10 16:52	06:40 17:30	05:57 18:01	06:08 19:33	05:32 20:03	05:20 20:23	05:36 20:17	06:04 19:44	06:34 18:54	07:04 18:06	06:40 16:31	07:08 16:26
20	07:10 16:54	06:39 17:31	05:56 18:02	06:06 19:34	05:31 20:04	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:53	07:06 18:05	06:41 16:30	07:09 16:27
21	07:09 16:55	06:37 17:32	05:54 18:03	06:05 19:35	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:41	06:36 18:51	07:07 18:03	06:42 16:30	07:09 16:27
22	07:08 16:56	06:36 17:33	05:52 18:04	06:03 19:36	05:29 20:05	05:21 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29	07:10 16:27
23	07:08 16:57	06:34 17:34	05:51 18:05	06:02 19:37	05:29 20:06	05:21 20:24	05:39 20:14	06:08 19:38	06:38 18:48	07:09 18:00	06:44 16:29	07:10 16:28
24	07:07 16:58	06:33 17:35	05:49 18:06	06:01 19:38	05:28 20:07	05:21 20:24	05:40 20:14	06:09 19:36	06:39 18:46	07:10 17:59	06:46 16:28	07:11 16:29
25	07:06 16:59	06:32 17:36	05:47 18:07	05:59 19:39	05:27 20:08	05:21 20:24	05:41 20:13	06:10 19:35	06:40 18:44	06:11 16:58	06:47 16:27	07:11 16:29
26	07:06 17:01	06:30 17:38	05:46 18:08	05:58 19:40	05:26 20:09	05:22 20:24	05:42 20:12	06:11 19:33	06:41 18:43	06:12 16:56	06:48 16:27	07:12 16:30
27	07:05 17:02	06:29 17:39	05:44 18:09	05:56 19:41	05:26 20:10	05:22 20:24	05:42 20:11	06:12 19:32	06:42 18:41	06:13 16:55	06:49 16:27	07:12 16:30
28	07:04 17:03	06:27 17:40	05:42 18:10	05:55 19:42	05:25 20:10	05:22 20:24	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:54	06:50 16:26	07:12 16:31
29	07:03 17:04		06:41 19:11	05:54 19:43	05:25 20:11	05:23 20:24	05:44 20:09	06:14 19:29	06:44 18:38	06:16 16:52	06:51 16:26	07:13 16:32
30	07:02 17:05		06:39 19:12	05:52 19:44	05:24 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:45 18:36	06:17 16:51	06:52 16:25	07:13 16:32
31	07:02 17:07		06:38 19:13		05:24 20:13		05:46 20:07	06:16 19:25		06:18 16:50		07:13 16:33
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
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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SHADOW - Calendar

Shadow receptor: S - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January			February			March			April			May			June		
1	07:13		11:09 (4)	07:00		16:10 (5)	06:25		06:44 (3)	06:36		05:51			05:23		
	16:34	113	13:02 (4)	17:07	34	16:44 (5)	17:41	21	07:05 (3)	19:14		19:45			20:13		
2	07:13		11:10 (4)	06:59		16:10 (5)	06:24		06:43 (3)	06:34		05:50			05:22		
	16:35	112	13:02 (4)	17:09	35	16:45 (5)	17:42	22	07:05 (3)	19:15		19:46			20:14		
3	07:13		11:11 (4)	06:59		16:10 (5)	06:22		06:41 (3)	06:32		05:48			05:22		
	16:36	111	13:02 (4)	17:10	36	16:46 (5)	17:43	24	07:05 (3)	19:16		19:47			20:15		
4	07:13		11:12 (4)	06:58		16:10 (5)	06:21		06:40 (3)	06:31		05:47			05:22		
	16:36	110	13:02 (4)	17:11	38	16:48 (5)	17:44	25	07:05 (3)	19:17		19:48			20:15		
5	07:13		11:13 (4)	06:56		16:11 (5)	06:19		06:38 (3)	06:29		05:46			05:21		
	16:37	109	13:02 (4)	17:12	38	16:49 (5)	17:45	26	07:04 (3)	19:18		19:49			20:16		
6	07:13		11:14 (4)	06:55		16:11 (5)	06:18		06:36 (3)	06:28		05:45			05:21		
	16:38	108	13:02 (4)	17:14	40	16:51 (5)	17:46	27	07:03 (3)	19:19		19:50			20:17		
7	07:13		11:15 (4)	06:54		16:12 (5)	06:16		06:36 (3)	06:26		05:44			05:21		
	16:39	107	13:02 (4)	17:15	38	16:50 (5)	17:47	27	07:03 (3)	19:20		19:51			20:17		
8	07:13		11:16 (4)	06:53		16:13 (5)	06:15		06:37 (3)	06:24		05:42			05:20		
	16:40	107	13:03 (4)	17:16	37	16:50 (5)	17:48	25	07:02 (3)	19:21		19:52			20:18		
9	07:13		11:17 (4)	06:52		16:14 (5)	06:13		06:38 (3)	06:23		05:41			05:20		
	16:41	106	13:03 (4)	17:17	36	16:50 (5)	17:50	23	07:01 (3)	19:22		19:53			20:19		
10	07:13		11:17 (4)	06:51		16:14 (5)	06:11		06:39 (3)	06:21		05:40			05:20		
	16:42	105	13:02 (4)	17:18	34	16:48 (5)	17:51	20	06:59 (3)	19:23		19:54			20:19		
11	07:13		11:19 (4)	06:50		16:15 (5)	06:10		06:40 (3)	06:20		05:39			05:20		
	16:43	103	13:02 (4)	17:20	33	16:48 (5)	17:52	16	06:56 (3)	19:24		19:55			20:20		
12	07:13		11:20 (4)	06:49		16:16 (5)	06:08		06:43 (3)	06:18		05:38			05:20		
	16:44	102	13:02 (4)	17:21	31	16:47 (5)	17:53	11	06:54 (3)	19:25		19:56			20:20		
13	07:12		11:21 (4)	06:47		16:18 (5)	06:07			06:17		05:37			05:20		
	16:45	103	16:20 (5)	17:22	28	16:46 (5)	17:54			19:26		19:57			20:21		
14	07:12		11:23 (4)	06:46		16:19 (5)	06:05			06:15		05:36			05:20		
	16:46	102	16:21 (5)	17:23	24	16:43 (5)	17:55			19:27		19:58			20:21		
15	07:12		11:25 (4)	06:45		16:22 (5)	06:03			06:13		05:35			05:20		
	16:48	102	16:23 (5)	17:24	19	16:41 (5)	17:56			19:28		19:59			20:22		
16	07:11		11:26 (4)	06:44		16:25 (5)	06:02			06:12		05:34			05:20		
	16:49	103	16:24 (5)	17:26	14	16:39 (5)	17:57			19:29		20:00			20:22		
17	07:11		11:28 (4)	06:42			06:00			06:10		05:33			05:20		
	16:50	102	16:25 (5)	17:27			17:58			19:30		20:01			20:22		
18	07:10		11:29 (4)	06:41			05:59			06:09		05:32			05:20		
	16:51	101	16:26 (5)	17:28			17:59			19:31		20:01			20:23		
19	07:10		11:31 (4)	06:40			05:57			06:07		05:31			05:20		
	16:52	101	16:28 (5)	17:29			18:00			19:32		20:02			20:23		
20	07:09		11:33 (4)	06:38			05:55			06:06		05:31			05:20		
	16:53	99	16:29 (5)	17:30			18:01			19:33		20:03			20:23		
21	07:09		11:35 (4)	06:37			05:54			06:05		05:30			05:20		
	16:54	96	16:29 (5)	17:32			18:02			19:34		20:04			20:23		
22	07:08		11:38 (4)	06:36			05:52			06:03		05:29			05:20		
	16:55	95	16:31 (5)	17:33			18:03			19:35		20:05			20:24		
23	07:08		11:40 (4)	06:34		06:53 (3)	05:50			06:02		05:28			05:20		
	16:57	91	16:32 (5)	17:34	6	06:59 (3)	18:04			19:36		20:06			20:24		
24	07:07		11:43 (4)	06:33		06:52 (3)	05:49			06:00		05:27			05:21		
	16:58	88	16:33 (5)	17:35	9	07:01 (3)	18:05			19:37		20:07			20:24		
25	07:06		11:46 (4)	06:31		06:50 (3)	05:47			05:59		05:27			05:21		
	16:59	83	16:34 (5)	17:36	12	07:02 (3)	18:06			19:38		20:08			20:24		
26	07:05		11:51 (4)	06:30		06:49 (3)	05:45			05:57		05:26			05:21		
	17:00	78	16:36 (5)	17:37	15	07:04 (3)	18:08			19:39		20:09			20:24		
27	07:05		11:56 (4)	06:28		06:47 (3)	05:44			05:56		05:25			05:22		
	17:01	70	16:38 (5)	17:38	17	07:04 (3)	18:09			19:40		20:09			20:24		
28	07:04		12:02 (4)	06:27		06:46 (3)	05:42			05:55		05:25			05:22		
	17:03	59	16:39 (5)	17:40	19	07:05 (3)	18:10			19:42		20:10			20:24		
29	07:03		16:10 (5)				06:41			05:53		05:24			05:22		
	17:04	30	16:40 (5)				19:11			19:43		20:11			20:24		
30	07:02		16:10 (5)				06:39			05:52		05:24			05:23		
	17:05	31	16:41 (5)				19:12			19:44		20:12			20:24		
31	07:01		16:10 (5)				06:37					05:23					
	17:06	32	16:42 (5)				19:13					20:13					
Potential sun hours		299			298		370			398		446			450		
Total, worst case			2859			593		267									
Sun reduction			0,39			0,40		0,44									
Oper. time red.			0,84			0,84		0,84									
Wind dir. red.			0,70			0,55		0,59									
Total reduction			0,23			0,19		0,22									
Total, real			648			111		58									

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: S - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

		July	August	September	October		November		December		
1	05:23	05:47	06:17	06:46	07:24 (3)	06:19	15:43 (5)	06:53	11:01 (4)		
	20:24	20:06	19:24	18:34	6	07:30 (3)	16:48	16:18 (5)	16:25	103	12:44 (4)
2	05:24	05:48	06:17	06:47	07:20 (3)	06:20	15:42 (5)	06:54	11:01 (4)		
	20:24	20:05	19:22	18:32	14	07:34 (3)	16:47	16:19 (5)	16:25	104	12:45 (4)
3	05:24	05:49	06:18	06:48	07:17 (3)	06:21	15:42 (5)	06:55	11:00 (4)		
	20:24	20:04	19:20	18:31	19	07:36 (3)	16:46	16:19 (5)	16:24	106	12:46 (4)
4	05:25	05:50	06:19	06:49	07:15 (3)	06:22	15:42 (5)	06:56	11:00 (4)		
	20:24	20:03	19:19	18:29	22	07:37 (3)	16:45	16:20 (5)	16:24	107	12:47 (4)
5	05:25	05:50	06:20	06:50	07:14 (3)	06:23	15:41 (5)	06:57	11:00 (4)		
	20:24	20:01	19:17	18:28	24	07:38 (3)	16:44	16:20 (5)	16:24	108	12:48 (4)
6	05:26	05:51	06:21	06:51	07:12 (3)	06:25	15:41 (5)	06:58	11:00 (4)		
	20:23	20:00	19:16	18:26	26	07:38 (3)	16:43	16:19 (5)	16:24	108	12:48 (4)
7	05:27	05:52	06:22	06:52	07:11 (3)	06:26	15:40 (5)	06:59	11:00 (4)		
	20:23	19:59	19:14	18:24	28	07:39 (3)	16:42	16:17 (5)	16:24	109	12:49 (4)
8	05:27	05:53	06:23	06:53	07:13 (3)	06:27	15:41 (5)	07:00	11:00 (4)		
	20:23	19:58	19:12	18:23	27	07:40 (3)	16:40	16:17 (5)	16:24	110	12:50 (4)
9	05:28	05:54	06:24	06:54	07:14 (3)	06:28	15:41 (5)	07:00	11:00 (4)		
	20:22	19:57	19:11	18:21	26	07:40 (3)	16:39	16:16 (5)	16:24	111	12:51 (4)
10	05:29	05:55	06:25	06:55	07:15 (3)	06:29	15:41 (5)	07:01	11:00 (4)		
	20:22	19:55	19:09	18:20	25	07:40 (3)	16:38	16:15 (5)	16:24	112	12:52 (4)
11	05:29	05:56	06:26	06:56	07:16 (3)	06:30	15:40 (5)	07:02	11:00 (4)		
	20:22	19:54	19:07	18:18	23	07:39 (3)	16:37	16:13 (5)	16:24	113	12:53 (4)
12	05:30	05:57	06:27	06:57	07:17 (3)	06:32	15:41 (5)	07:03	11:00 (4)		
	20:21	19:53	19:06	18:16	22	07:39 (3)	16:37	16:13 (5)	16:24	113	12:53 (4)
13	05:31	05:58	06:28	06:58	07:18 (3)	06:33	15:42 (5)	07:04	11:00 (4)		
	20:21	19:51	19:04	18:15	20	07:38 (3)	16:36	16:12 (5)	16:24	114	12:54 (4)
14	05:31	05:59	06:29	06:59	07:19 (3)	06:34	11:34 (4)	07:05	11:01 (4)		
	20:20	19:50	19:02	18:13	18	07:37 (3)	16:35	16:11 (5)	16:24	114	12:55 (4)
15	05:32	06:00	06:30	07:00	07:20 (3)	06:35	11:27 (4)	07:05	11:01 (4)		
	20:20	19:49	19:01	18:12	16	07:36 (3)	16:34	16:10 (5)	16:24	115	12:56 (4)
16	05:33	06:01	06:31	07:01	07:21 (3)	06:36	11:24 (4)	07:06	11:01 (4)		
	20:19	19:47	18:59	18:10	14	07:35 (3)	16:33	16:09 (5)	16:25	115	12:56 (4)
17	05:34	06:02	06:32	07:02	07:22 (3)	06:37	11:20 (4)	07:07	11:01 (4)		
	20:18	19:46	18:57	18:09	11	07:33 (3)	16:32	16:08 (5)	16:25	116	12:57 (4)
18	05:34	06:03	06:33	07:03	07:23 (3)	06:38	11:17 (4)	07:07	11:01 (4)		
	20:18	19:45	18:56	18:07	8	07:31 (3)	16:32	16:07 (5)	16:25	115	12:56 (4)
19	05:35	06:04	06:34	07:04	07:25 (3)	06:40	11:14 (4)	07:08	11:02 (4)		
	20:17	19:43	18:54	18:06	4	07:29 (3)	16:31	16:06 (5)	16:26	115	12:57 (4)
20	05:36	06:05	06:35	07:05		06:41	11:13 (4)	07:09	11:03 (4)		
	20:16	19:42	18:52	18:04		16:30	95	16:06 (5)	16:26	115	12:58 (4)
21	05:37	06:06	06:36	07:06		06:42		11:11 (4)	07:09		11:03 (4)
	20:16	19:40	18:51	18:03		16:29	96	16:05 (5)	16:27	115	12:58 (4)
22	05:38	06:07	06:37	07:07		06:43		11:09 (4)	07:10		11:04 (4)
	20:15	19:39	18:49	18:02		16:29	99	16:05 (5)	16:27	115	12:59 (4)
23	05:39	06:08	06:38	07:09		06:44		11:07 (4)	07:10		11:04 (4)
	20:14	19:37	18:47	18:00		16:28	101	16:04 (5)	16:28	115	12:59 (4)
24	05:39	06:09	06:39	07:10		06:45		11:06 (4)	07:11		11:04 (4)
	20:13	19:36	18:46	17:59		16:28	101	16:03 (5)	16:28	115	12:59 (4)
25	05:40	06:10	06:40	06:11	15:59 (5)	06:46	11:05 (4)	07:11	11:05 (4)		
	20:12	19:34	18:44	16:57	6	16:05 (5)	16:27	16:02 (5)	16:29	115	13:00 (4)
26	05:41	06:11	06:41	06:12	15:54 (5)	06:48	11:05 (4)	07:11	11:05 (4)		
	20:12	19:33	18:42	16:56	15	16:09 (5)	16:27	16:03 (5)	16:29	116	13:01 (4)
27	05:42	06:12	06:42	06:13	15:51 (5)	06:49	11:04 (4)	07:12	11:06 (4)		
	20:11	19:31	18:41	16:55	21	16:12 (5)	16:26	16:02 (5)	16:30	115	13:01 (4)
28	05:43	06:13	06:43	06:14	15:48 (5)	06:50	11:03 (4)	07:12	11:07 (4)		
	20:10	19:30	18:39	16:53	25	16:13 (5)	16:26	16:01 (5)	16:31	115	13:02 (4)
29	05:44	06:14	06:44	06:15	15:47 (5)	06:51	11:02 (4)	07:12	11:07 (4)		
	20:09	19:28	18:37	16:52	28	16:15 (5)	16:25	16:01 (5)	16:31	115	13:02 (4)
30	05:45	06:15	06:45	06:16	15:46 (5)	06:52	11:02 (4)	07:13	11:08 (4)		
	20:08	19:27	18:36	16:51	31	16:17 (5)	16:25	12:43 (4)	16:32	114	13:02 (4)
31	05:46	06:16		06:18	15:45 (5)			07:13	11:08 (4)		
	20:07	19:25		16:50	33	16:18 (5)		16:33	114	13:02 (4)	
Potential sun hours	457	427	375	346		300		290			
Total, worst case				512		2038		3487			
Sun reduction				0,52		0,45		0,39			
Oper. time red.				0,84		0,84		0,84			
Wind dir. red.				0,57		0,66		0,72			
Total reduction				0,25		0,25		0,24			
Total, real				129		504		828			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: T - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January		February		March		April		May		June	
1	07:13	11:02 (4)	07:00	16:07 (5)	06:25	06:44 (3)	06:36	05:51	05:23		
	16:34	107	12:49 (4)	17:08	37	16:44 (5)	17:41	21	07:05 (3)	19:14	19:45
2	07:13	11:03 (4)	06:59	16:08 (5)	06:24	06:43 (3)	06:34	05:50	05:22		
	16:35	106	12:49 (4)	17:09	37	16:45 (5)	17:42	23	07:06 (3)	19:15	19:46
3	07:13	11:03 (4)	06:59	16:08 (5)	06:22	06:41 (3)	06:32	05:48	05:22		
	16:36	106	12:49 (4)	17:10	38	16:46 (5)	17:43	24	07:05 (3)	19:16	19:47
4	07:13	11:04 (4)	06:58	16:09 (5)	06:21	06:40 (3)	06:31	05:47	05:22		
	16:36	105	12:49 (4)	17:11	39	16:48 (5)	17:44	25	07:05 (3)	19:17	19:48
5	07:13	11:05 (4)	06:56	16:09 (5)	06:19	06:38 (3)	06:29	05:46	05:21		
	16:37	104	12:49 (4)	17:12	39	16:48 (5)	17:45	26	07:04 (3)	19:18	19:49
6	07:13	11:06 (4)	06:55	16:10 (5)	06:18	06:36 (3)	06:28	05:45	05:21		
	16:38	103	12:49 (4)	17:14	38	16:48 (5)	17:46	27	07:03 (3)	19:19	19:50
7	07:13	11:07 (4)	06:54	16:11 (5)	06:16	06:37 (3)	06:26	05:44	05:21		
	16:39	102	12:49 (4)	17:15	37	16:48 (5)	17:47	26	07:03 (3)	19:20	19:51
8	07:13	11:09 (4)	06:53	16:12 (5)	06:15	06:37 (3)	06:24	05:42	05:20		
	16:40	100	12:49 (4)	17:16	35	16:47 (5)	17:48	24	07:01 (3)	19:21	19:52
9	07:13	11:10 (4)	06:52	16:13 (5)	06:13	06:39 (3)	06:23	05:41	05:20		
	16:41	99	12:49 (4)	17:17	34	16:47 (5)	17:50	22	07:01 (3)	19:22	19:53
10	07:13	11:10 (4)	06:51	16:13 (5)	06:11	06:40 (3)	06:21	05:40	05:20		
	16:42	101	16:17 (5)	17:18	32	16:45 (5)	17:51	18	06:58 (3)	19:23	19:54
11	07:13	11:12 (4)	06:50	16:14 (5)	06:10	06:41 (3)	06:20	05:39	05:20		
	16:43	101	16:18 (5)	17:20	30	16:44 (5)	17:52	14	06:55 (3)	19:24	19:55
12	07:13	11:14 (4)	06:49	16:16 (5)	06:08	06:46 (3)	06:18	05:38	05:20		
	16:44	100	16:19 (5)	17:21	27	16:43 (5)	17:53	6	06:52 (3)	19:25	19:56
13	07:12	11:14 (4)	06:47	16:18 (5)	06:07		06:17	05:37	05:20		
	16:45	101	16:20 (5)	17:22	24	16:42 (5)	17:54	19:26	19:57	20:21	
14	07:12	11:16 (4)	06:46	16:20 (5)	06:05		06:15	05:36	05:20		
	16:46	100	16:21 (5)	17:23	19	16:39 (5)	17:55	19:27	19:58	20:21	
15	07:12	11:18 (4)	06:45	16:23 (5)	06:03		06:13	05:35	05:20		
	16:48	100	16:23 (5)	17:24	13	16:36 (5)	17:56	19:28	19:59	20:22	
16	07:11	11:19 (4)	06:44		06:02		06:12	05:34	05:20		
	16:49	99	16:24 (5)	17:26			17:57	19:29	20:00	20:22	
17	07:11	11:22 (4)	06:42		06:00		06:10	05:33	05:20		
	16:50	97	16:25 (5)	17:27			17:58	19:30	20:01	20:22	
18	07:10	11:23 (4)	06:41		05:59		06:09	05:32	05:20		
	16:51	96	16:26 (5)	17:28			17:59	19:31	20:01	20:23	
19	07:10	11:26 (4)	06:40		05:57		06:07	05:31	05:20		
	16:52	94	16:28 (5)	17:29			18:00	19:32	20:02	20:23	
20	07:09	11:28 (4)	06:38		05:55		06:06	05:31	05:20		
	16:53	92	16:29 (5)	17:30			18:01	19:33	20:03	20:23	
21	07:09	11:30 (4)	06:37		05:54		06:05	05:30	05:20		
	16:54	88	16:29 (5)	17:32			18:02	19:34	20:04	20:23	
22	07:08	11:33 (4)	06:36	06:55 (3)	05:52		06:03	05:29	05:20		
	16:55	85	16:31 (5)	17:33	2	06:57 (3)	18:03	19:35	20:05	20:24	
23	07:08	11:36 (4)	06:34	06:53 (3)	05:50		06:02	05:28	05:20		
	16:57	80	16:32 (5)	17:34	6	06:59 (3)	18:04	19:36	20:06	20:24	
24	07:07	11:40 (4)	06:33	06:52 (3)	05:49		06:00	05:27	05:21		
	16:58	75	16:33 (5)	17:35	10	07:02 (3)	18:05	19:37	20:07	20:24	
25	07:06	11:45 (4)	06:31	06:50 (3)	05:47		05:59	05:27	05:21		
	16:59	66	16:34 (5)	17:36	13	07:03 (3)	18:06	19:38	20:08	20:24	
26	07:05	11:53 (4)	06:30	06:49 (3)	05:45		05:57	05:26	05:21		
	17:00	55	16:36 (5)	17:37	15	07:04 (3)	18:08	19:39	20:09	20:24	
27	07:05	16:07 (5)	06:28	06:47 (3)	05:44		05:56	05:25	05:22		
	17:01	31	16:38 (5)	17:38	17	07:04 (3)	18:09	19:40	20:09	20:24	
28	07:04	16:07 (5)	06:27	06:46 (3)	05:42		05:55	05:25	05:22		
	17:03	32	16:39 (5)	17:40	19	07:05 (3)	18:10	19:42	20:10	20:24	
29	07:03	16:07 (5)			06:41		05:53	05:24	05:22		
	17:04	33	16:40 (5)		19:11		19:43	20:11	20:24		
30	07:02	16:07 (5)			06:39		05:52	05:24	05:23		
	17:05	34	16:41 (5)		19:12		19:44	20:12	20:24		
31	07:01	16:07 (5)			06:37			05:23			
	17:06	35	16:42 (5)		19:13			20:13			
Potential sun hours	299		298		370		398	446	450		
Total, worst case	2627		561		256						
Sun reduction	0,39		0,40		0,44						
Oper. time red.	0,84		0,84		0,84						
Wind dir. red.	0,69		0,55		0,59						
Total reduction	0,23		0,19		0,22						
Total, real	593		105		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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SHADOW - Calendar

Shadow receptor: T - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:48	15:42 (5) 16:15 (5)
2	05:24 20:24	05:48 20:05	06:17 19:22	06:47 18:32	07:21 (3) 07:33 (3)	16:20 16:47
3	05:24 20:24	05:49 20:04	06:18 19:20	06:48 18:31	07:18 (3) 07:35 (3)	06:21 16:46
4	05:25 20:24	05:50 20:03	06:19 19:19	06:49 18:29	07:16 (3) 07:37 (3)	06:22 16:45
5	05:25 20:24	05:50 20:01	06:20 19:17	06:50 18:28	07:14 (3) 07:38 (3)	06:23 16:44
6	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	07:13 (3) 07:38 (3)	06:25 16:43
7	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	07:12 (3) 07:39 (3)	06:26 16:42
8	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	07:13 (3) 07:40 (3)	06:27 16:40
9	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	07:14 (3) 07:40 (3)	06:28 16:39
10	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	07:15 (3) 07:40 (3)	06:29 16:38
11	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	07:16 (3) 07:39 (3)	06:30 16:37
12	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	07:17 (3) 07:39 (3)	06:32 16:37
13	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	07:18 (3) 07:38 (3)	06:33 16:36
14	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	07:19 (3) 07:37 (3)	06:34 16:35
15	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	07:20 (3) 07:36 (3)	06:35 16:34
16	05:33 20:19	06:01 19:47	06:31 18:59	07:01 18:10	07:21 (3) 07:35 (3)	06:36 16:33
17	05:34 20:18	06:02 19:46	06:32 18:57	07:02 18:09	07:22 (3) 07:34 (3)	06:37 16:32
18	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	07:23 (3) 07:32 (3)	06:38 16:32
19	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	07:25 (3) 07:30 (3)	06:40 16:31
20	05:36 20:16	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30	11:08 (4) 16:26
21	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	06:42 16:29	11:06 (4) 16:27
22	05:38 20:15	06:07 19:39	06:37 18:49	07:07 18:02	06:43 16:29	11:04 (4) 16:27
23	05:39 20:14	06:08 19:37	06:38 18:47	07:09 18:00	06:44 16:28	11:02 (4) 16:28
24	05:39 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:28	11:00 (4) 16:28
25	05:40 20:12	06:10 19:34	06:40 18:44	07:11 16:57	06:46 16:27	10:59 (4) 16:29
26	05:41 20:12	06:11 19:33	06:41 18:42	07:12 16:56	06:48 16:27	10:58 (4) 16:29
27	05:42 20:11	06:12 19:31	06:42 18:41	07:13 16:55	15:52 (5) 16:07 (5)	10:57 (4) 16:30
28	05:43 20:10	06:13 19:30	06:43 18:39	07:14 16:53	15:49 (5) 16:09 (5)	10:56 (4) 16:31
29	05:44 20:09	06:14 19:28	06:44 18:37	07:15 16:52	15:46 (5) 16:11 (5)	10:55 (4) 16:31
30	05:45 20:08	06:15 19:27	06:45 18:36	07:16 16:51	15:45 (5) 16:13 (5)	10:55 (4) 16:32
31	05:46 20:07	06:16 19:25	06:46 18:35	07:17 16:50	15:44 (5) 16:14 (5)	10:54 (4) 16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case				461	1864	3331
Sun reduction				0,52	0,45	0,39
Oper. time red.				0,84	0,84	0,84
Wind dir. red.				0,58	0,65	0,72
Total reduction				0,25	0,24	0,24
Total, real				117	454	796

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: U - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	07:13 16:34	07:00 17:07	07:32 (2) 08:21 (2)	06:25 07:41 (2)	07:01 (2) 08:51 (2)	06:36 18:26 (3)
2	07:13 16:35	06:59 17:09	07:30 (2) 08:24 (2)	06:24 07:42 (2)	07:01 (2) 08:51 (2)	06:34 18:24 (3)
3	07:13 16:36	06:58 17:10	07:28 (2) 08:26 (2)	06:22 07:43 (2)	07:00 (2) 08:51 (2)	06:32 18:24 (3)
4	07:13 16:36	06:57 17:11	07:26 (2) 08:28 (2)	06:21 07:44 (2)	06:59 (2) 08:51 (2)	06:31 18:22 (3)
5	07:13 16:37	06:56 17:12	07:24 (2) 08:30 (2)	06:19 07:45 (2)	06:59 (2) 07:21 (3)	06:29 18:20 (3)
6	07:13 16:38	06:55 17:14	07:23 (2) 08:32 (2)	06:18 07:46 (2)	06:59 (2) 07:23 (3)	06:27 18:19 (3)
7	07:13 16:39	06:54 17:15	07:21 (2) 08:34 (2)	06:16 07:47 (2)	06:59 (2) 07:25 (3)	06:26 18:17 (3)
8	07:13 16:40	06:53 17:16	07:20 (2) 08:36 (2)	06:15 07:48 (2)	06:58 (2) 07:26 (3)	06:24 18:15 (3)
9	07:13 16:41	06:52 17:17	07:18 (2) 08:38 (2)	06:13 07:49 (2)	06:59 (2) 07:28 (3)	06:23 18:12 (3)
10	07:13 16:42	06:51 17:18	07:17 (2) 08:38 (2)	06:11 07:51 (2)	06:58 (2) 07:29 (3)	06:21 18:09 (3)
11	07:13 16:43	06:50 17:20	07:16 (2) 08:40 (2)	06:10 07:52 (2)	06:57 (2) 07:30 (3)	06:20 18:06 (3)
12	07:12 16:44	06:49 17:21	07:15 (2) 08:41 (2)	06:08 07:53 (2)	06:58 (2) 07:31 (3)	06:18 18:03 (2)
13	07:12 16:45	06:47 17:22	07:14 (2) 08:43 (2)	06:07 07:54 (2)	06:57 (2) 07:31 (3)	06:16 18:02 (2)
14	07:12 16:46	06:46 17:23	07:12 (2) 08:43 (2)	06:05 07:55 (2)	06:57 (2) 07:31 (3)	06:15 18:00 (3)
15	07:12 16:47	06:45 17:24	07:12 (2) 08:44 (2)	06:03 07:56 (2)	06:58 (2) 07:32 (3)	06:13 18:00 (3)
16	07:11 16:49	06:44 17:26	07:11 (2) 08:45 (2)	06:02 07:57 (2)	06:57 (2) 07:36 (4)	06:12 18:00 (3)
17	07:11 16:50	06:42 17:27	07:09 (2) 08:46 (2)	06:00 07:58 (2)	06:58 (2) 07:38 (4)	06:10 18:00 (3)
18	07:10 16:51	06:41 17:28	07:09 (2) 08:47 (2)	05:58 07:59 (2)	06:58 (2) 07:38 (4)	06:09 18:00 (3)
19	07:10 16:52	06:40 17:29	07:08 (2) 08:48 (2)	05:57 08:00 (2)	06:57 (2) 07:39 (4)	06:07 18:00 (3)
20	07:09 16:53	06:38 17:30	07:07 (2) 08:48 (2)	05:55 08:01 (2)	06:58 (2) 07:41 (4)	06:06 18:00 (3)
21	07:09 16:54	06:37 17:31	07:06 (2) 08:49 (2)	05:54 08:02 (2)	06:58 (2) 07:42 (4)	06:04 18:00 (3)
22	07:08 16:55	06:35 17:33	07:05 (2) 08:49 (2)	05:52 08:03 (2)	06:58 (2) 07:42 (4)	06:03 18:00 (3)
23	07:07 16:57	06:34 17:34	07:05 (2) 08:50 (2)	05:50 08:04 (2)	06:59 (2) 07:44 (4)	06:02 18:00 (3)
24	07:07 16:58	06:33 17:35	07:05 (2) 08:51 (2)	05:49 08:05 (2)	06:59 (2) 07:45 (4)	06:00 18:00 (3)
25	07:06 16:59	06:31 17:36	07:03 (2) 08:50 (2)	05:47 08:06 (2)	06:59 (2) 07:44 (4)	05:59 18:00 (3)
26	07:05 17:00	06:30 17:37	07:03 (2) 08:51 (2)	05:45 08:07 (2)	07:00 (2) 07:43 (4)	05:57 18:00 (3)
27	07:05 17:01	06:28 17:38	07:02 (2) 08:51 (2)	05:44 08:08 (2)	07:00 (2) 07:43 (4)	05:56 18:00 (3)
28	07:04 17:03	06:27 08:07 (2)	07:02 (2) 08:51 (2)	05:42 08:09 (2)	07:00 (2) 07:43 (4)	05:55 18:00 (3)
29	07:03 17:04	06:26 08:11 (2)	07:02 (2) 08:51 (2)	05:41 08:10 (2)	07:00 (2) 07:43 (4)	05:54 18:00 (3)
30	07:02 17:05	06:25 08:15 (2)	07:02 (2) 08:51 (2)	05:40 08:11 (2)	07:00 (2) 07:43 (4)	05:53 18:00 (3)
31	07:01 17:06	06:24 08:18 (2)	07:02 (2) 08:51 (2)	05:39 08:12 (2)	07:00 (2) 07:43 (4)	05:52 18:00 (3)
Potential sun hours	299	298	370	398	446	450
Total, worst case	134	2449	4841	1173		
Sun reduction	0,39	0,40	0,44	0,50		
Oper. time red.	0,84	0,84	0,84	0,84		
Wind dir. red.	0,63	0,63	0,59	0,59		
Total reduction	0,20	0,21	0,22	0,25		
Total, real	27	521	1053	291		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: U - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23	05:47	06:16	08:19 (2)	06:45	07:36 (2)
	20:24	20:06	19:24	58 18:05 (3)	18:34	165 18:10 (3)
2	05:24	05:48	06:17	08:16 (2)	06:46	07:36 (2)
	20:24	20:05	19:22	70 18:08 (3)	18:32	164 18:09 (3)
3	05:24	05:48	06:18	08:13 (2)	06:47	07:36 (2)
	20:24	20:04	19:20	80 18:10 (3)	18:31	161 18:07 (3)
4	05:25	05:49	06:19	08:10 (2)	06:48	07:35 (2)
	20:24	20:02	19:19	90 18:12 (3)	18:29	160 18:06 (3)
5	05:25	05:50	06:20	08:08 (2)	06:49	07:35 (2)
	20:23	20:01	19:17	98 18:14 (3)	18:27	157 18:04 (3)
6	05:26	05:51	06:21	08:06 (2)	06:50	07:35 (2)
	20:23	20:00	19:15	105 18:15 (3)	18:26	154 18:02 (3)
7	05:27	05:52	06:22	08:04 (2)	06:52	07:34 (2)
	20:23	19:59	19:14	112 18:16 (3)	18:24	151 18:00 (3)
8	05:27	05:53	06:23	08:01 (2)	06:53	07:34 (2)
	20:23	19:58	19:12	118 18:16 (3)	18:23	145 17:57 (3)
9	05:28	05:54	06:24	07:59 (2)	06:54	07:35 (2)
	20:22	19:57	19:11	124 18:17 (3)	18:21	140 17:55 (3)
10	05:28	05:55	06:25	07:58 (2)	06:55	07:35 (2)
	20:22	19:55	19:09	128 18:17 (3)	18:19	133 17:51 (3)
11	05:29	05:56	06:26	07:56 (2)	06:56	07:35 (2)
	20:21	19:54	19:07	133 18:18 (3)	18:18	120 17:45 (3)
12	05:30	05:57	06:27	07:55 (2)	06:57	07:35 (2)
	20:21	19:53	19:06	136 18:18 (3)	18:16	110 09:25 (2)
13	05:31	05:58	06:28	07:53 (2)	06:58	07:35 (2)
	20:21	19:51	19:04	141 18:19 (3)	18:15	109 09:24 (2)
14	05:31	05:59	06:29	07:52 (2)	06:59	07:35 (2)
	20:20	19:50	19:02	145 18:19 (3)	18:13	109 09:24 (2)
15	05:32	06:00	06:30	07:51 (2)	07:00	07:35 (2)
	20:19	19:49	19:01	148 18:19 (3)	18:12	108 09:23 (2)
16	05:33	06:01	06:31	07:50 (2)	07:01	07:35 (2)
	20:19	19:47	18:59	151 18:19 (3)	18:10	107 09:22 (2)
17	05:34	06:02	06:32	07:48 (2)	07:02	07:35 (2)
	20:18	19:46	18:57	162 18:30 (4)	18:09	107 09:22 (2)
18	05:34	06:03	06:33	07:47 (2)	07:03	07:35 (2)
	20:18	19:45	18:56	168 18:32 (4)	18:07	106 09:21 (2)
19	05:35	06:04	06:34	07:46 (2)	07:04	07:36 (2)
	20:17	19:43	18:54	172 18:32 (4)	18:06	104 09:20 (2)
20	05:36	06:05	06:35	07:45 (2)	07:05	07:37 (2)
	20:16	19:42	18:52	173 18:31 (4)	18:04	103 09:20 (2)
21	05:37	06:06	06:36	07:44 (2)	07:06	07:37 (2)
	20:16	19:40	18:51	173 18:29 (4)	18:03	102 09:19 (2)
22	05:38	06:07	06:37	07:43 (2)	07:07	07:38 (2)
	20:15	19:39	18:49	172 18:26 (4)	18:01	100 09:18 (2)
23	05:38	06:08	06:38	07:42 (2)	07:08	07:38 (2)
	20:14	19:37	18:47	173 18:25 (4)	18:00	99 09:17 (2)
24	05:39	06:09	06:39	07:41 (2)	07:10	07:39 (2)
	20:13	19:36	18:46	173 18:23 (4)	17:59	97 09:16 (2)
25	05:40	06:10	06:40	07:40 (2)	06:11	06:39 (2)
	20:12	19:34	18:44	173 18:21 (4)	16:57	96 08:15 (2)
26	05:41	06:11	06:41	07:39 (2)	06:12	06:41 (2)
	20:11	19:33	18:42	173 18:20 (4)	16:56	94 08:15 (2)
27	05:42	06:12	06:41	07:39 (2)	06:13	06:41 (2)
	20:11	19:31	18:41	171 18:18 (4)	16:55	93 08:14 (2)
28	05:43	06:13	06:42	07:38 (2)	06:14	06:42 (2)
	20:10	19:30	18:39	168 18:16 (4)	16:53	90 08:12 (2)
29	05:44	06:14	06:43	07:38 (2)	06:15	06:43 (2)
	20:09	19:28	18:37	166 18:12 (3)	16:52	88 08:11 (2)
30	05:45	06:15	06:44	07:37 (2)	06:16	06:44 (2)
	20:08	19:27	18:36	166 18:11 (3)	16:51	86 08:10 (2)
31	05:46	06:15	06:45	07:36 (2)	06:17	06:45 (2)
	20:07	19:25	18:00 (3)	16:50	83 08:09 (2)	16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case		58	4220	3641	795	
Sun reduction		0,71	0,63	0,52	0,45	
Oper. time red.		0,84	0,84	0,84	0,84	
Wind dir. red.		0,61	0,59	0,61	0,63	
Total reduction		0,36	0,31	0,27	0,24	
Total, real		21	1320	982	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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SHADOW - Calendar

Shadow receptor: V - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	07:13	14:54 (22)	07:01	06:25	06:59 (5)	06:36
	16:34	34 15:28 (22)	17:08	17:41	17:16 (5)	19:14
2	07:13	14:55 (22)	07:00	06:24	07:02 (5)	06:34
	16:35	32 15:27 (22)	17:09	17:42	07:13 (5)	19:15
3	07:13	14:56 (22)	06:59	06:22		06:33
	16:36	31 15:27 (22)	17:10	17:43		19:16
4	07:14	14:57 (22)	06:58	06:21		06:31
	16:37	30 15:27 (22)	17:11	17:44		19:17
5	07:14	14:59 (22)	06:57	06:19		06:29
	16:37	28 15:27 (22)	17:12	17:45		19:18
6	07:14	15:00 (22)	06:56	06:18		06:28
	16:38	26 15:26 (22)	17:14	17:46		19:19
7	07:13	15:02 (22)	06:54	06:16		06:26
	16:39	24 15:26 (22)	17:15	17:47		19:20
8	07:13	15:04 (22)	06:53	06:15		06:24
	16:40	21 15:25 (22)	17:16	17:49		19:21
9	07:13	15:06 (22)	06:52	06:13		06:23
	16:41	18 15:24 (22)	17:17	17:50		19:22
10	07:13	15:08 (22)	06:51	06:12		19:22
	16:42	14 15:22 (22)	17:19	17:51		19:23
11	07:13	15:12 (22)	06:50	06:10		19:23
	16:43	8 15:20 (22)	17:20	17:52		19:24
12	07:13		06:49	07:08 (5)		19:24
	16:44		17:21	17:53		19:25
13	07:12		06:48	07:07 (5)		19:25
	16:45		17:22	17:54		19:26
14	07:12		06:46	07:05 (5)		19:26
	16:47		17:23	17:55		19:27
15	07:12		06:45	07:04 (5)		19:27
	16:48		17:25	17:56		19:28
16	07:11		06:44	07:03 (5)		19:28
	16:49		17:26	17:57		19:29
17	07:11		06:42	07:02 (5)		19:29
	16:50		17:27	17:58		19:30
18	07:10		06:41	07:00 (5)		19:30
	16:51		17:28	17:59		19:31
19	07:10		06:40	06:59 (5)		19:31
	16:52		17:29	18:00		19:32
20	07:09		06:38	06:57 (5)		19:32
	16:53		17:30	18:01		19:33
21	07:09		06:37	06:56 (5)		19:33
	16:54		17:32	18:02		19:34
22	07:08		06:36	06:55 (5)		19:34
	16:56		17:33	18:03		19:35
23	07:08		06:34	06:53 (5)		19:35
	16:57		17:34	18:05		19:36
24	07:07		06:33	06:54 (5)		19:36
	16:58		17:35	18:06		19:37
25	07:06		06:31	06:54 (5)		19:37
	16:59		17:36	18:07		19:39
26	07:06		06:30	06:55 (5)		19:39
	17:00		17:37	18:08		19:40
27	07:05		06:28	06:56 (5)		19:40
	17:02		17:39	18:09		19:41
28	07:04		06:27	06:57 (5)		19:41
	17:03		17:40	18:10		19:42
29	07:03			06:41		19:42
	17:04			19:11		19:43
30	07:02			06:39		19:43
	17:05			19:12		19:44
31	07:01			06:37		19:44
	17:06			19:13		20:13
Potential sun hours	299	298	370	398	446	450
Total, worst case	266	411	28			
Sun reduction	0,39	0,40	0,44			
Oper. time red.	0,84	0,84	0,84			
Wind dir. red.	0,57	0,60	0,60			
Total reduction	0,19	0,20	0,22			
Total, real	49	84	6			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: V - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:48	06:40 (5) 16:25
2	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:32	06:20 16:47	06:44 (5) 16:25
3	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46	16:25 16:24
4	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	06:22 16:45	06:56 16:24
5	05:26 20:24	05:51 20:01	06:20 19:17	06:50 18:28	06:23 16:44	16:25 16:24
6	05:26 20:23	05:52 20:00	06:21 19:16	06:51 18:26	06:25 16:43	06:58 16:24
7	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	06:26 16:42	06:59 16:24
8	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:41	07:00 16:24
9	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	06:28 16:40	07:01 16:24
10	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	06:29 16:39	07:01 16:24
11	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	07:39 (5) 07:43 (5)	06:30 16:38
12	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	07:34 (5) 07:48 (5)	06:32 16:37
13	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	07:31 (5) 07:50 (5)	06:33 16:36
14	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	07:29 (5) 07:51 (5)	06:34 16:35
15	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	07:28 (5) 07:52 (5)	06:35 16:34
16	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:10	07:26 (5) 07:53 (5)	06:36 16:33
17	05:34 20:18	06:02 19:46	06:32 18:57	07:02 18:09	07:25 (5) 07:54 (5)	06:37 16:32
18	05:35 20:18	06:03 19:45	06:33 18:56	07:03 18:07	07:25 (5) 07:55 (5)	06:39 16:32
19	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	07:25 (5) 07:55 (5)	06:40 16:31
20	05:36 20:16	06:05 19:42	06:35 18:52	07:05 18:04	07:26 (5) 07:55 (5)	06:41 16:30
21	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	07:27 (5) 07:55 (5)	06:42 16:30
22	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	07:28 (5) 07:55 (5)	06:43 16:29
23	05:39 20:14	06:08 19:38	06:38 18:47	07:09 18:00	07:29 (5) 07:54 (5)	06:44 16:28
24	05:40 20:13	06:09 19:36	06:39 18:46	07:10 17:59	07:30 (5) 07:54 (5)	06:45 16:28
25	05:40 20:13	06:10 19:35	06:40 18:44	06:11 16:57	06:32 (5) 06:54 (5)	06:47 16:27
26	05:41 20:12	06:11 19:33	06:41 18:42	06:12 16:56	06:33 (5) 06:53 (5)	06:48 16:27
27	05:42 20:11	06:12 19:32	06:42 18:41	06:13 16:55	06:34 (5) 06:52 (5)	06:49 16:26
28	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:53	06:35 (5) 06:51 (5)	06:50 16:26
29	05:44 20:09	06:14 19:28	06:44 18:37	06:15 16:52	06:36 (5) 06:50 (5)	06:51 16:26
30	05:45 20:08	06:15 19:27	06:45 18:36	06:17 16:51	06:38 (5) 06:49 (5)	06:52 16:25
31	05:46 20:07	06:16 19:25	06:46 18:35	06:18 16:50	06:39 (5) 06:47 (5)	07:13 16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case				441	4	1000
Sun reduction				0,52	0,45	0,39
Oper. time red.				0,84	0,84	0,84
Wind dir. red.				0,60	0,60	0,57
Total reduction				0,26	0,23	0,19
Total, real				116	1	188

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: W - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
3,74 4,31 5,21 6,68 8,38 9,76 10,61 9,72 7,93 5,84 4,48 3,68

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum

1.010 780 356 292 406 724 917 547 457 439 520 890 7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June		July		August		September		October		November		December	
1	07:13 16:34	92	11:43 (8) 13:15 (8)	07:01 17:08	06:26 17:41	06:36 19:14	05:51 19:45	05:23 20:14	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:49					06:53 16:25	78	11:36 (8) 12:54 (8)				
2	07:14 16:35	91	11:44 (8) 13:15 (8)	07:00 17:09	06:24 17:42	06:34 19:15	05:50 19:46	05:22 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:33	06:20 16:47					06:54 16:25	79	11:36 (8) 12:55 (8)				
3	07:14 16:36	90	11:45 (8) 13:15 (8)	06:59 17:10	06:23 17:43	06:33 19:16	05:48 19:47	05:22 20:15	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46					06:55 16:24	81	11:35 (8) 12:56 (8)				
4	07:14 16:37	89	11:46 (8) 13:15 (8)	06:58 17:11	06:21 17:44	06:31 19:17	05:47 19:48	05:22 20:16	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	06:22 16:45					06:56 16:24	83	11:34 (8) 12:57 (8)				
5	07:14 16:37	88	11:47 (8) 13:15 (8)	06:57 17:13	06:20 17:45	06:29 19:18	05:46 19:49	05:21 20:16	05:26 20:24	05:51 20:02	06:21 19:17	06:50 18:28	06:24 16:44					06:57 16:24	84	11:34 (8) 12:58 (8)				
6	07:14 16:38	87	11:47 (8) 13:14 (8)	06:56 17:14	06:18 17:46	06:28 19:19	05:45 19:50	05:21 20:17	05:26 20:24	05:52 20:00	06:22 19:16	06:51 18:26	06:25 16:43					06:58 16:24	86	11:34 (8) 13:00 (8)				
7	07:14 16:39	85	11:49 (8) 13:14 (8)	06:55 17:15	06:16 17:48	06:26 19:20	05:44 19:51	05:21 20:18	05:27 20:23	05:53 19:59	06:22 19:14	06:52 18:24	06:26 16:42					06:59 16:24	88	11:33 (8) 13:01 (8)				
8	07:14 16:40	83	11:50 (8) 13:13 (8)	06:54 17:16	06:15 17:49	06:25 19:21	05:42 19:52	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:13	06:53 18:23	06:27 16:41					07:00 16:24	89	11:33 (8) 13:02 (8)				
9	07:13 16:41	81	11:52 (8) 13:13 (8)	06:52 17:17	06:13 17:50	06:23 19:22	05:41 19:53	05:20 20:19	05:28 20:23	05:54 19:57	06:24 19:11	06:54 18:21	06:28 16:40					07:01 16:24	90	11:33 (8) 13:03 (8)				
10	07:13 16:42	80	11:53 (8) 13:13 (8)	06:51 17:19	06:12 17:51	06:21 19:23	05:40 19:54	05:20 20:19	05:29 20:22	05:55 19:56	06:25 19:09	06:55 18:20	06:29 16:39					07:02 16:24	91	11:33 (8) 13:04 (8)				
11	07:13 16:43	78	11:54 (8) 13:12 (8)	06:50 17:20	06:10 17:52	06:20 19:24	05:39 19:55	05:20 20:22	05:29 20:22	05:56 19:54	06:26 19:08	06:56 18:18	06:31 16:38					07:02 16:24	92	11:33 (8) 13:05 (8)				
12	07:13 16:44	75	11:56 (8) 13:11 (8)	06:49 17:21	06:08 17:53	06:18 19:25	05:38 19:56	05:20 20:21	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:17	06:32 16:37					07:03 16:24	93	11:33 (8) 13:06 (8)				
13	07:13 16:45	73	11:58 (8) 13:11 (8)	06:48 17:22	06:07 17:54	06:17 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36					07:04 16:24	93	11:33 (8) 13:06 (8)				
14	07:12 16:47	70	12:00 (8) 13:10 (8)	06:46 17:23	06:05 17:55	06:15 19:27	05:36 19:58	05:20 20:21	05:31 20:20	05:59 19:50	06:29 19:03	06:59 18:13	06:34 16:35					07:05 16:24	94	11:33 (8) 13:07 (8)				
15	07:12 16:48	67	12:02 (8) 13:09 (8)	06:45 17:25	06:04 17:56	06:14 19:28	05:35 19:59	05:20 20:22	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34					07:06 16:25	94	11:34 (8) 13:08 (8)				
16	07:11 16:49	63	12:04 (8) 13:07 (8)	06:44 17:26	06:02 17:57	06:12 19:29	05:34 20:00	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:10	06:36 16:33					07:06 16:25	95	11:33 (8) 13:08 (8)				
17	07:11 16:50	59	12:07 (8) 13:06 (8)	06:43 17:27	06:00 17:58	06:11 19:30	05:33 20:01	05:20 20:23	05:34 20:19	06:02 19:46	06:32 18:58	07:02 18:09	06:38 16:32					07:07 16:25	95	11:34 (8) 13:09 (8)				
18	07:11 16:51	55	12:09 (8) 13:04 (8)	06:41 17:28	05:59 17:59	06:09 19:31	05:32 20:02	05:20 20:23	05:35 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:39 16:32					07:08 16:26	96	11:34 (8) 13:10 (8)				
19	07:10 16:52	50	12:13 (8) 13:03 (8)	06:40 17:29	05:57 18:00	06:08 19:32	05:31 20:03	05:20 20:23	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31					07:08 16:26	96	11:34 (8) 13:10 (8)				
20	07:10 16:53	44	12:16 (8) 13:00 (8)	06:39 17:31	05:55 18:01	06:06 19:33	05:31 20:04	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:53	07:06 18:05	06:41 16:30	12:02 (8)				07:09 16:26	96	11:35 (8) 13:11 (8)				
21	07:09 16:54	36	12:21 (8) 12:57 (8)	06:37 17:32	05:54 18:03	06:05 19:35	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:41	06:36 18:51	07:07 18:03	06:42 16:30	12:27 (8)				07:09 16:27	96	11:35 (8) 13:11 (8)				
22	07:08 16:56	25	12:27 (8) 12:52 (8)	06:36 17:33	05:52 18:04	06:03 19:36	05:29 20:05	05:20 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29	11:56 (8)				07:10 16:27	96	11:36 (8) 13:12 (8)				
23	07:08 16:57			06:34 17:34	05:51 18:05	06:02 19:37	05:28 20:06	05:21 20:24	05:39 20:14	06:08 19:38	06:38 18:48	07:09 18:00	06:44 16:28	11:52 (8)				07:10 16:28	96	11:36 (8) 13:12 (8)				
24	07:07 16:58			06:33 17:35	05:49 18:06	06:00 19:38	05:28 20:07	05:21 20:24	05:40 20:14	06:09 19:36	06:39 18:46	07:10 17:59	06:46 16:28	12:36 (8)				07:11 16:28	96	11:37 (8) 13:13 (8)				
25	07:06 16:59			06:31 17:36	05:47 18:07	05:59 19:39	05:27 20:08	05:21 20:24	05:40 20:13	06:10 19:35	06:40 18:44	06:11 16:58	06:47 16:27	12:42 (8)				07:11 16:29	96	11:37 (8) 13:13 (8)				
26	07:06 17:00			06:30 17:37	05:46 18:08	05:58 19:40	05:26 20:09	05:21 20:24	05:41 20:12	06:11 19:33	06:41 18:42	06:12 16:56	06:48 16:27	12:48 (8)				07:12 16:29	95	11:38 (8) 13:13 (8)				
27	07:05 17:02			06:29 17:39	05:44 18:09	05:56 19:41	05:26 20:10	05:22 20:25	05:42 20:11	06:12 19:32	06:42 18:41	06:13 16:55	06:49 16:26	12:54 (8)				07:12 16:30	95	11:39 (8) 13:14 (8)				
28	07:04 17:03			06:27 17:40	05:42 18:10	05:55 19:42	05:25 20:10	05:22 20:25	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:54	06:50 16:26	13:00 (8)				07:12 16:31	95	11:39 (8) 13:14 (8)				
29	07:03 17:04				06:41 19:11	05:54 19:43	05:24 20:11	05:23 20:25	05:44 20:09	06:14 19:29	06:44 18:38	06:16 16:52	06:51 16:26	13:06 (8)				07:13 16:31	94	11:40 (8) 13:14 (8)				
30	07:02 17:05				06:39 19:12	05:52 19:44	05:24 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:45 18:36	06:17 16:51	06:52 16:25	13:12 (8)				07:13 16:32	94	11:40 (8) 13:14 (8)				
31	07:02 17:06				06:37 19:13		05:23 20:13		05:46 20:07	06:16 19:25	06:18 16:50	06:18 16:50		13:18 (8)				07:13 16:33	93	11:41 (8) 13:14 (8)				
Potential sun hours	299			298	370	398	447	450	457	427	375	346	300											
Total, worst case	1561																						2839	
Sun reduction	0,39																						0,39	
Oper. time red.	0,84																						0,84	
Wind dir. red.	0,70																						0,70	
Total reduction	0,23																						0,23	
Total, real	356																						658	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: X - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January		February		March		April		May		June	
1	07:13	07:35 (5)	07:01	07:27 (15)	06:25	07:05 (15)	06:36	08:25 (15)	05:51	05:23	
	16:34	4 07:39 (5)	17:08	55 08:22 (15)	17:41	98 08:43 (15)	19:14	47 18:42 (21)	19:45	20:13	
2	07:13	07:35 (5)	07:00	07:26 (15)	06:24	07:05 (15)	06:34	08:29 (15)	05:50	05:22	
	16:35	5 07:40 (5)	17:09	58 08:24 (15)	17:42	98 08:43 (15)	19:15	36 18:40 (21)	19:46	20:14	
3	07:13	07:35 (5)	06:59	07:24 (15)	06:22	07:04 (15)	06:33	08:39 (15)	05:48	05:22	
	16:36	6 07:41 (5)	17:10	62 08:26 (15)	17:43	98 08:42 (15)	19:16	14 18:38 (21)	19:47	20:15	
4	07:14	07:35 (5)	06:58	07:23 (15)	06:21	07:05 (15)	06:31	18:26 (21)	05:47	05:22	
	16:37	6 07:41 (5)	17:11	65 08:28 (15)	17:44	98 08:43 (15)	19:17	10 18:36 (21)	19:48	20:16	
5	07:14	07:35 (5)	06:57	07:22 (15)	06:19	07:04 (15)	06:29	18:27 (21)	05:46	05:21	
	16:37	7 07:42 (5)	17:12	67 08:29 (15)	17:45	98 08:42 (15)	19:18	7 18:34 (21)	19:49	20:16	
6	07:14	07:35 (5)	06:56	07:21 (15)	06:18	07:05 (15)	06:28	18:26 (21)	05:45	05:21	
	16:38	8 07:43 (5)	17:14	70 08:31 (15)	17:46	97 08:42 (15)	19:19	6 18:32 (21)	19:50	20:17	
7	07:13	07:35 (5)	06:54	07:20 (15)	06:16	07:04 (15)	06:26	18:26 (21)	05:44	05:21	
	16:39	9 07:44 (5)	17:15	72 08:32 (15)	17:47	97 08:41 (15)	19:20	3 18:29 (21)	19:51	20:18	
8	07:13	07:35 (5)	06:53	07:19 (15)	06:15	07:04 (15)	06:24	18:27 (21)	05:42	05:20	
	16:40	10 07:45 (5)	17:16	75 08:34 (15)	17:49	96 08:40 (15)	19:21	1 18:28 (21)	19:52	20:18	
9	07:13	07:35 (5)	06:52	07:18 (15)	06:13	07:04 (15)	06:23		05:41	05:20	
	16:41	10 07:45 (5)	17:17	77 08:35 (15)	17:50	95 08:39 (15)	19:22		19:53	20:19	
10	07:13	07:35 (5)	06:51	07:16 (15)	06:12	07:04 (15)	06:21		05:40	05:20	
	16:42	11 07:46 (5)	17:19	79 08:35 (15)	17:51	94 08:38 (15)	19:23		19:54	20:19	
11	07:13	07:34 (5)	06:50	07:15 (15)	06:10	07:05 (15)	06:20		05:39	05:20	
	16:43	12 07:46 (5)	17:20	82 08:37 (15)	17:52	93 08:38 (15)	19:24		19:55	20:20	
12	07:13	07:34 (5)	06:49	07:14 (15)	06:08	07:05 (15)	06:18		05:38	05:20	
	16:44	13 07:47 (5)	17:21	84 08:38 (15)	17:53	92 08:37 (15)	19:25		19:56	20:20	
13	07:12	07:34 (5)	06:48	07:14 (15)	06:07	07:04 (15)	06:17		05:37	05:20	
	16:45	14 07:48 (5)	17:22	85 08:39 (15)	17:54	91 08:35 (15)	19:26		19:57	20:21	
14	07:12	07:33 (5)	06:46	07:12 (15)	06:05	07:05 (15)	06:15		05:36	05:20	
	16:47	15 07:48 (5)	17:23	87 08:39 (15)	17:55	90 08:35 (15)	19:27		19:58	20:21	
15	07:12	07:33 (5)	06:45	07:12 (15)	06:04	07:05 (15)	06:14		05:35	05:20	
	16:48	16 07:49 (5)	17:25	88 08:40 (15)	17:56	88 08:33 (15)	19:28		19:59	20:22	
16	07:11	07:32 (5)	06:44	07:11 (15)	06:02	07:05 (15)	06:12		05:34	05:20	
	16:49	16 07:48 (5)	17:26	90 08:41 (15)	17:57	87 08:32 (15)	19:29		20:00	20:22	
17	07:11	07:32 (5)	06:42	07:11 (15)	06:00	07:06 (15)	06:11		05:33	05:20	
	16:50	17 07:49 (5)	17:27	91 08:42 (15)	17:58	85 08:31 (15)	19:30		20:01	20:22	
18	07:10	07:31 (5)	06:41	07:10 (15)	05:59	07:06 (15)	06:09		05:32	05:20	
	16:51	18 07:49 (5)	17:28	92 08:42 (15)	17:59	83 08:29 (15)	19:31		20:02	20:23	
19	07:10	07:31 (5)	06:40	07:10 (15)	05:57	07:07 (15)	06:08		05:31	05:20	
	16:52	18 07:49 (5)	17:29	93 08:43 (15)	18:00	80 08:27 (15)	19:32		20:02	20:23	
20	07:09	07:30 (5)	06:38	07:08 (15)	05:55	07:08 (15)	06:06		05:31	05:20	
	16:53	19 07:49 (5)	17:30	94 08:42 (15)	18:01	79 08:27 (15)	19:33		20:03	20:23	
21	07:09	07:29 (5)	06:37	07:08 (15)	05:54	07:08 (15)	06:05		05:30	05:20	
	16:54	20 07:49 (5)	17:32	95 08:43 (15)	18:02	77 08:25 (15)	19:34		20:04	20:24	
22	07:08	07:29 (5)	06:36	07:08 (15)	05:52	07:09 (15)	06:03		05:29	05:20	
	16:56	20 07:49 (5)	17:33	96 08:44 (15)	18:03	73 08:22 (15)	19:35		20:05	20:24	
23	07:08	07:28 (5)	06:34	07:07 (15)	05:50	07:10 (15)	06:02		05:28	05:21	
	16:57	20 07:48 (5)	17:34	96 08:43 (15)	18:05	73 17:44 (21)	19:36		20:06	20:24	
24	07:07	07:29 (5)	06:33	07:07 (15)	05:49	07:11 (15)	06:00		05:28	05:21	
	16:58	19 07:48 (5)	17:35	97 08:44 (15)	18:06	75 17:45 (21)	19:38		20:07	20:24	
25	07:06	07:31 (5)	06:31	07:06 (15)	05:47	07:13 (15)	05:59		05:27	05:21	
	16:59	29 08:00 (15)	17:36	98 08:44 (15)	18:07	75 17:46 (21)	19:39		20:08	20:24	
26	07:06	07:32 (5)	06:30	07:06 (15)	05:46	07:14 (15)	05:58		05:26	05:21	
	17:00	34 08:06 (15)	17:37	98 08:44 (15)	18:08	74 17:47 (21)	19:40		20:09	20:24	
27	07:05	07:34 (5)	06:28	07:05 (15)	05:44	07:15 (15)	05:56		05:26	05:22	
	17:02	36 08:10 (15)	17:39	98 08:43 (15)	18:09	73 17:48 (21)	19:41		20:10	20:24	
28	07:04	07:36 (15)	06:27	07:05 (15)	05:42	07:17 (15)	05:55		05:25	05:22	
	17:03	37 08:13 (15)	17:40	99 08:44 (15)	18:10	72 17:49 (21)	19:42		20:10	20:24	
29	07:03	07:33 (15)			06:41	08:18 (15)	05:54		05:24	05:23	
	17:04	42 08:15 (15)			19:11	69 18:49 (21)	19:43		20:11	20:24	
30	07:02	07:31 (15)			06:39	08:20 (15)	05:52		05:24	05:23	
	17:05	47 08:18 (15)			19:12	62 18:47 (21)	19:44		20:12	20:24	
31	07:01	07:29 (15)			06:37	08:23 (15)			05:23		
	17:06	51 08:20 (15)			19:13	55 18:45 (21)			20:13		
Potential sun hours	299		298		370		398		446	450	
Total, worst case	589		2343		2615		124				
Sun reduction	0,39		0,40		0,44		0,50				
Oper. time red.	0,84		0,84		0,84		0,84				
Wind dir. red.	0,65		0,63		0,63		0,60				
Total reduction	0,21		0,21		0,23		0,25				
Total, real	125		503		604		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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SHADOW - Calendar

Shadow receptor: X - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23	05:47	06:17	06:46	07:43 (15)	06:19
	20:24	20:06	19:24	18:34	09:15 (15)	16:48
2	05:24	05:48	06:18	06:47	07:43 (15)	06:20
	20:24	20:05	19:22	18:33	09:15 (15)	16:47
3	05:24	05:49	06:19	06:48	07:42 (15)	06:21
	20:24	20:04	19:21	18:31	09:16 (15)	16:46
4	05:25	05:50	06:20	18:24 (21)	07:41 (15)	06:22
	20:24	20:03	19:19	18:25 (21)	09:16 (15)	16:45
5	05:26	05:51	06:20	18:23 (21)	07:42 (15)	06:23
	20:24	20:01	19:17	18:26 (21)	09:17 (15)	16:44
6	05:26	05:52	06:21	18:22 (21)	07:41 (15)	06:25
	20:23	20:00	19:16	18:28 (21)	09:17 (15)	16:43
7	05:27	05:52	06:22	18:22 (21)	07:40 (15)	06:26
	20:23	19:59	19:14	18:29 (21)	09:17 (15)	16:42
8	05:27	05:53	06:23	18:21 (21)	07:40 (15)	06:27
	20:23	19:58	19:12	18:31 (21)	09:17 (15)	16:41
9	05:28	05:54	06:24	18:21 (21)	07:39 (15)	06:28
	20:22	19:57	19:11	18:32 (21)	09:17 (15)	16:40
10	05:29	05:55	06:25	18:23 (15)	07:39 (15)	06:29
	20:22	19:55	19:09	18:33 (21)	09:17 (15)	16:39
11	05:29	05:56	06:26	18:18 (15)	07:39 (15)	06:30
	20:22	19:54	19:07	18:34 (21)	09:17 (15)	16:38
12	05:30	05:57	06:27	18:14 (15)	07:38 (15)	06:32
	20:21	19:53	19:06	18:36 (21)	09:17 (15)	16:37
13	05:31	05:58	06:28	18:11 (15)	07:38 (15)	06:33
	20:21	19:52	19:04	18:37 (21)	09:17 (15)	16:36
14	05:31	05:59	06:29	18:09 (15)	07:38 (15)	06:34
	20:20	19:50	19:02	18:39 (21)	09:16 (15)	16:35
15	05:32	06:00	06:30	18:06 (15)	07:38 (15)	06:35
	20:20	19:49	19:01	18:39 (21)	09:16 (15)	16:34
16	05:33	06:01	06:31	18:04 (15)	07:38 (15)	06:36
	20:19	19:48	18:59	18:37 (21)	09:15 (15)	16:33
17	05:34	06:02	06:32	18:02 (15)	07:38 (15)	06:37
	20:19	19:46	18:57	18:35 (21)	09:15 (15)	16:32
18	05:35	06:03	06:33	18:00 (15)	07:39 (15)	06:39
	20:18	19:45	18:56	18:34 (21)	09:15 (15)	16:32
19	05:35	06:04	06:34	17:59 (15)	07:39 (15)	06:40
	20:17	19:43	18:54	18:32 (21)	09:15 (15)	16:31
20	05:36	06:05	06:35	17:57 (15)	07:39 (15)	06:41
	20:17	19:42	18:52	18:31 (21)	09:14 (15)	16:30
21	05:37	06:06	06:36	17:55 (15)	07:39 (15)	06:42
	20:16	19:41	18:51	18:08 (15)	09:14 (15)	16:30
22	05:38	06:07	06:37	17:54 (15)	07:39 (15)	06:43
	20:15	19:39	18:49	18:09 (15)	09:13 (15)	16:29
23	05:39	06:08	06:38	17:53 (15)	07:39 (15)	06:44
	20:14	19:38	18:47	18:09 (15)	09:12 (15)	16:28
24	05:40	06:09	06:39	17:51 (15)	07:41 (15)	06:45
	20:13	19:36	18:46	18:09 (15)	09:12 (15)	16:28
25	05:40	06:10	06:40	17:50 (15)	06:41 (15)	06:47
	20:13	19:35	18:44	18:09 (15)	09:12 (15)	16:27
26	05:41	06:11	06:41	17:49 (15)	06:41 (15)	06:48
	20:12	19:33	18:42	18:09 (15)	09:11 (15)	16:27
27	05:42	06:12	06:42	17:48 (15)	06:42 (15)	06:49
	20:11	19:32	18:41	18:09 (15)	09:11 (15)	16:26
28	05:43	06:13	06:43	17:46 (15)	06:42 (15)	06:50
	20:10	19:30	18:39	18:08 (15)	09:10 (15)	16:26
29	05:44	06:14	06:44	17:45 (15)	06:43 (15)	06:51
	20:09	19:28	18:37	18:07 (15)	09:09 (15)	16:26
30	05:45	06:15	06:45	17:44 (15)	06:44 (15)	06:52
	20:08	19:27	18:36	18:07 (15)	09:08 (15)	16:25
31	05:46	06:16		16:50	06:45 (15)	07:13
	20:07	19:25		16:50	08:06 (15)	16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case			1565	2900	1174	116
Sun reduction			0,63	0,52	0,45	0,39
Oper. time red.			0,84	0,84	0,84	0,84
Wind dir. red.			0,63	0,63	0,64	0,67
Total reduction			0,33	0,28	0,24	0,22
Total, real			521	805	283	25

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: Y - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (25)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:13 16:34	07:01 17:07	06:25 17:41	06:36 19:14	05:51 19:45	05:23 20:13	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:48	06:53 16:25	
2	07:13 16:35	07:00 17:09	06:24 17:42	06:34 19:15	05:50 19:46	05:22 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:32	06:20 16:47	06:54 16:24	
3	07:13 16:36	06:59 17:10	06:22 17:43	06:32 19:16	05:48 19:47	05:22 20:15	05:24 20:24	05:49 20:04	06:18 19:20	06:48 18:31	06:21 16:46	06:55 16:24	
4	07:14 16:36	06:58 17:11	06:21 17:44	06:31 19:17	05:47 19:48	05:21 20:16	05:25 20:24	05:49 20:03	06:19 19:19	06:49 18:29	06:22 16:45	06:56 16:24	
5	07:14 16:37	06:57 17:12	06:19 17:45	06:29 19:18	05:46 19:49	05:21 20:16	05:25 20:24	05:50 20:01	06:20 19:17	06:50 18:28	06:23 16:44	06:57 16:24	
6	07:14 16:38	06:56 17:14	06:18 17:46	06:28 19:19	05:45 19:50	05:21 20:17	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	06:25 16:43	06:58 16:24	
7	07:13 16:39	06:54 17:15	06:16 17:47	06:26 19:20	05:43 19:51	05:21 20:18	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	06:26 16:42	06:59 16:24	
8	07:13 16:40	06:53 17:16	06:15 17:48	06:24 19:21	05:42 19:52	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:40	07:00 16:24	
9	07:13 16:41	06:52 17:17	06:13 17:50	06:23 19:22	05:41 19:53	05:20 20:19	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	06:28 16:39	07:01 16:24	
10	07:13 16:42	06:51 17:18	06:12 17:51	06:21 19:23	05:40 19:54	05:20 20:19	05:28 20:22	05:55 19:55	06:25 19:09	06:55 18:20	06:29 16:38	07:01 16:24	
11	07:13 16:43	06:50 17:20	06:10 17:52	06:20 19:24	05:39 19:55	05:20 20:20	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	06:30 16:37	07:02 16:24	
12	07:13 16:44	06:49 17:21	06:08 17:53	06:18 19:25	05:38 19:56	05:20 20:20	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	06:32 16:37	07:03 16:24	
13	07:12 16:45	06:47 17:22	06:07 17:54	06:17 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36	07:04 16:24	
14	07:12 16:46	06:46 17:23	06:05 17:55	06:15 19:27	05:36 19:58	05:19 20:21	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	06:34 16:35	07:05 16:24	
15	07:12 16:47	06:45 17:24	06:03 17:56	06:13 19:28	05:35 19:59	05:19 20:22	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	07:05 16:24	
16	07:11 16:49	06:44 17:26	06:02 17:57	06:12 19:29	05:34 20:00	05:19 20:22	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:10	06:36 16:33	07:06 16:25	
17	07:11 16:50	06:42 17:27	06:00 17:58	06:10 19:30	05:33 20:01	05:20 20:22	05:34 20:19	06:02 19:46	06:32 18:57	07:02 18:09	06:37 16:32	07:07 16:25	
18	07:10 16:51	06:41 17:28	05:59 17:59	06:09 19:31	05:32 20:02	05:20 20:23	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:39 16:31	07:07 16:25	10:50 (1)
19	07:10 16:52	06:40 17:29	05:57 18:00	06:07 19:32	05:31 20:02	05:20 20:23	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31	07:08 16:26	8 10:58 (1)
20	07:09 16:53	06:38 17:30	05:55 18:01	06:06 19:33	05:30 20:03	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30	07:09 16:26	11 10:59 (1)
21	07:09 16:54	06:37 17:32	05:54 18:02	06:05 19:34	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	06:42 16:29	07:09 16:27	13 11:01 (1)
22	07:08 16:55	06:36 17:33	05:52 18:03	06:03 19:35	05:29 20:05	05:20 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29	07:10 16:27	13 11:02 (1)
23	07:08 16:57	06:34 17:34	05:50 18:04	06:02 19:36	05:28 20:06	05:20 20:24	05:39 20:14	06:08 19:38	06:38 18:47	07:09 18:00	06:44 16:28	07:10 16:28	13 11:02 (1)
24	07:07 16:58	06:33 17:35	05:49 18:05	06:00 19:37	05:27 20:07	05:21 20:24	05:39 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:28	07:11 16:28	12 11:03 (1)
25	07:06 16:59	06:31 17:36	05:47 18:07	05:59 19:39	05:27 20:08	05:21 20:24	05:40 20:13	06:10 19:35	06:40 18:44	06:11 16:57	06:47 16:27	07:11 16:29	9 11:01 (1)
26	07:06 17:00	06:30 17:37	05:45 18:08	05:57 19:40	05:26 20:09	05:21 20:24	05:41 20:12	06:11 19:33	06:41 18:42	06:12 16:56	06:48 16:27	07:12 16:29	4 10:59 (1)
27	07:05 17:01	06:28 17:38	05:44 18:09	05:56 19:41	05:25 20:10	05:22 20:24	05:42 20:11	06:12 19:31	06:42 18:41	06:13 16:55	06:49 16:26	07:12 16:30	
28	07:04 17:03	06:27 17:40	05:42 18:10	05:55 19:42	05:25 20:10	05:22 20:24	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:53	06:50 16:26	07:12 16:31	
29	07:03 17:04		06:41 19:11	05:53 19:43	05:24 20:11	05:22 20:24	05:44 20:09	06:14 19:28	06:44 18:37	06:15 16:52	06:51 16:25	07:13 16:31	
30	07:02 17:05		06:39 19:12	05:52 19:44	05:24 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:45 18:36	06:17 16:51	06:52 16:25	07:13 16:32	
31	07:01 17:06		06:37 19:13		05:23 20:13		05:46 20:07	06:16 19:25		06:18 16:50		07:13 16:33	
Potential sun hours	299	298	370	398	447	450	457	427	375	346	300	290	
Total, worst case													96
Sun reduction													0,39
Oper. time red.													0,84
Wind dir. red.													0,73
Total reduction													0,24
Total, real													23

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: Z - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (26)**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June		July		August		September		October		November		December	
1	07:13		13:47 (10)	07:01		14:15 (10)	06:26	06:36	05:51	05:23	05:24	05:47	06:17	06:46	06:19		14:16 (10)	06:53		13:34 (10)				
	16:34	93	15:20 (10)	17:08	61	15:16 (10)	17:41	19:14	19:45	20:14	20:24	20:06	19:24	18:34	16:49	5	14:21 (10)	16:25	90	15:04 (10)				
2	07:14		13:48 (10)	07:00		14:17 (10)	06:24	06:34	05:50	05:23	05:24	05:48	06:18	06:47	06:20		14:08 (10)	06:54		13:34 (10)				
	16:35	93	15:21 (10)	17:09	58	15:15 (10)	17:42	19:15	19:46	20:14	20:24	20:05	19:22	18:33	16:47	22	14:30 (10)	16:25	91	15:05 (10)				
3	07:14		13:48 (10)	06:59		14:19 (10)	06:23	06:33	05:49	05:22	05:25	05:49	06:19	06:48	06:21		14:03 (10)	06:55		13:35 (10)				
	16:36	93	15:21 (10)	17:10	55	15:14 (10)	17:43	19:16	19:47	20:15	20:24	20:04	19:21	18:31	16:46	31	14:34 (10)	16:25	90	15:05 (10)				
4	07:14		13:49 (10)	06:58		14:21 (10)	06:21	06:31	05:47	05:22	05:25	05:50	06:20	06:49	06:22		13:59 (10)	06:56		13:35 (10)				
	16:37	92	15:21 (10)	17:11	51	15:12 (10)	17:44	19:17	19:48	20:16	20:24	20:03	19:19	18:29	16:45	37	14:36 (10)	16:24	91	15:06 (10)				
5	07:14		13:48 (10)	06:57		14:23 (10)	06:20	06:29	05:46	05:21	05:26	05:51	06:21	06:50	06:24		13:56 (10)	06:57		13:35 (10)				
	16:38	93	15:21 (10)	17:13	47	15:10 (10)	17:45	19:18	19:49	20:16	20:24	20:02	19:17	18:28	16:44	43	14:39 (10)	16:24	92	15:07 (10)				
6	07:14		13:49 (10)	06:56		14:26 (10)	06:18	06:28	05:45	05:21	05:26	05:52	06:22	06:51	06:25		13:53 (10)	06:58		13:35 (10)				
	16:39	92	15:21 (10)	17:14	43	15:09 (10)	17:47	19:19	19:50	20:17	20:24	20:00	19:16	18:26	16:43	48	14:41 (10)	16:24	92	15:07 (10)				
7	07:14		13:50 (10)	06:55		14:30 (10)	06:16	06:26	05:44	05:21	05:27	05:53	06:23	06:52	06:26		13:52 (10)	06:59		13:35 (10)				
	16:40	91	15:21 (10)	17:15	36	15:06 (10)	17:48	19:20	19:51	20:18	20:23	19:59	19:14	18:25	16:42	51	14:43 (10)	16:24	93	15:08 (10)				
8	07:14		13:51 (10)	06:54		14:34 (10)	06:15	06:25	05:43	05:21	05:28	05:54	06:24	06:53	06:27		13:49 (10)	07:00		13:36 (10)				
	16:41	91	15:22 (10)	17:16	29	15:03 (10)	17:49	19:21	19:52	20:18	20:23	19:58	19:13	18:23	16:41	56	14:45 (10)	16:24	92	15:08 (10)				
9	07:13		13:51 (10)	06:52		14:39 (10)	06:13	06:23	05:42	05:20	05:28	05:55	06:24	06:54	06:28		13:47 (10)	07:01		13:36 (10)				
	16:42	91	15:22 (10)	17:18	20	14:59 (10)	17:50	19:22	19:53	20:19	20:23	19:57	19:11	18:21	16:40	59	14:46 (10)	16:24	93	15:09 (10)				
10	07:13		13:52 (10)	06:51		15:01 (10)	06:12	06:22	05:40	05:20	05:29	05:56	06:25	06:55	06:29		13:46 (10)	07:02		13:37 (10)				
	16:43	91	15:23 (10)	17:19		17:51	19:23	19:54	20:19	20:22	19:56	19:09	18:20	16:39		61	14:47 (10)	16:24	93	15:10 (10)				
11	07:13		13:52 (10)	06:50		15:02 (10)	06:10	06:20	05:39	05:20	05:30	05:57	06:26	06:56	06:31		13:45 (10)	07:02		13:37 (10)				
	16:44	90	15:22 (10)	17:20		17:52	19:24	19:55	20:20	20:22	19:54	19:08	18:18	16:38		64	14:49 (10)	16:24	93	15:10 (10)				
12	07:13		13:53 (10)	06:49		15:03 (10)	06:09	06:18	05:38	05:20	05:30	05:57	06:27	06:57	06:32		13:43 (10)	07:03		13:38 (10)				
	16:45	90	15:23 (10)	17:21		17:53	19:25	19:56	20:20	20:21	19:53	19:06	18:17	16:37		67	14:50 (10)	16:24	93	15:11 (10)				
13	07:13		13:54 (10)	06:48		15:04 (10)	06:07	06:17	05:37	05:20	05:31	05:58	06:28	06:58	06:33		13:42 (10)	07:04		13:37 (10)				
	16:46	89	15:23 (10)	17:22		17:54	19:26	19:57	20:21	20:21	19:52	19:04	18:15	16:36		69	14:51 (10)	16:24	94	15:11 (10)				
14	07:12		13:55 (10)	06:46		15:05 (10)	06:05	06:15	05:36	05:20	05:32	05:59	06:29	06:59	06:34		13:41 (10)	07:05		13:38 (10)				
	16:47	88	15:23 (10)	17:24		17:55	19:27	19:58	20:21	20:20	19:50	19:03	18:14	16:35		71	14:52 (10)	16:25	93	15:11 (10)				
15	07:12		13:56 (10)	06:45		15:06 (10)	06:04	06:14	05:35	05:20	05:32	06:00	06:30	07:00	06:35		13:41 (10)	07:06		13:39 (10)				
	16:48	87	15:23 (10)	17:25		17:56	19:28	19:59	20:22	20:20	19:49	19:01	18:12	16:34		72	14:53 (10)	16:25	93	15:12 (10)				
16	07:11		13:56 (10)	06:44		15:07 (10)	06:02	06:12	05:34	05:20	05:33	06:01	06:31	07:01	06:36		13:39 (10)	07:06		13:38 (10)				
	16:49	87	15:23 (10)	17:26		17:57	19:29	20:00	20:22	20:19	19:48	18:59	18:11	16:33		75	14:54 (10)	16:25	94	15:12 (10)				
17	07:11		13:57 (10)	06:43		15:08 (10)	06:00	06:11	05:33	05:20	05:34	06:02	06:32	07:02	06:38		13:38 (10)	07:07		13:39 (10)				
	16:50	86	15:23 (10)	17:27		17:58	19:30	20:01	20:23	20:19	19:46	18:58	18:09	16:33		77	14:55 (10)	16:25	94	15:13 (10)				
18	07:11		13:58 (10)	06:41		15:09 (10)	05:59	06:09	05:33	05:20	05:35	06:03	06:33	07:03	06:39		13:38 (10)	07:08		13:40 (10)				
	16:51	85	15:23 (10)	17:28		17:59	19:31	20:02	20:23	20:18	19:45	18:56	18:08	16:32		77	14:55 (10)	16:26	94	15:14 (10)				
19	07:10		13:59 (10)	06:40		15:10 (10)	05:57	06:08	05:32	05:20	05:36	06:04	06:34	07:04	06:40		13:38 (10)	07:08		13:40 (10)				
	16:52	84	15:23 (10)	17:29		18:01	19:33	20:03	20:23	20:17	19:44	18:54	18:06	16:31		79	14:57 (10)	16:26	94	15:14 (10)				
20	07:10		14:00 (10)	06:39		15:11 (10)	05:56	06:06	05:31	05:20	05:36	06:05	06:35	07:06	06:41		13:37 (10)	07:09		13:41 (10)				
	16:53	83	15:23 (10)	17:31		18:02	19:34	20:04	20:23	20:17	19:42	18:53	18:05	16:30		81	14:58 (10)	16:26	94	15:15 (10)				
21	07:09		14:01 (10)	06:37		15:12 (10)	05:54	06:05	05:30	05:20	05:37	06:06	06:36	07:07	06:42		13:36 (10)	07:09		13:41 (10)				
	16:55	82	15:23 (10)	17:32		18:03	19:35	20:04	20:24	20:16	19:41	18:51	18:03	16:30		82	14:58 (10)	16:27	94	15:15 (10)				
22	07:08		14:02 (10)	06:36		15:13 (10)	05:52	06:03	05:29	05:21	05:38	06:07	06:37	07:08	06:43		13:36 (10)	07:10		13:42 (10)				
	16:56	81	15:23 (10)	17:33		18:04	19:36	20:05	20:24	20:15	19:39	18:49	18:02	16:29		83	14:59 (10)	16:27	94	15:16 (10)				
23	07:08		14:03 (10)	06:34		15:14 (10)	05:51	06:02	05:28	05:21	05:39	06:08	06:38	07:09	06:44		13:35 (10)	07:10		13:42 (10)				
	16:57	79	15:22 (10)	17:34		18:05	19:37	20:06	20:24	20:14	19:38	18:48	18:00	16:29		84	14:59 (10)	16:28	94	15:16 (10)				
24	07:07		14:04 (10)	06:33		15:15 (10)	05:49	06:01	05:28	05:21	05:40	06:09	06:39	07:10	06:46		13:36 (10)	07:11		13:43 (10)				
	16:58	77	15:21 (10)	17:35		18:06	19:38	20:07	20:24	20:14	19:36	18:46	17:59	16:28		85	15:01 (10)	16:28	94	15:17 (10)				
25	07:06		14:06 (10)	06:32		15:16 (10)	05:47	05:59	05:27	05:21	05:41	06:10	06:40	06:11	06:47		13:35 (10)	07:11		13:43 (10)				
	16:59	76	15:22 (10)	17:36		18:07	19:39	20:08	20:24	20:13	19:35	18:44	16:58	16:27		86	15:01 (10)	16:29	94	15:17 (10)				
26	07:06		14:07 (10)	06:30		15:17 (10)	05:46	05:58	05:26	05:22	05:42	06:11	06:41	06:12	06:48		13:35 (10)	07:12		13:43 (10)				
	17:01	74	15:21 (10)	17:38		18:08	19:40	20:09	20:24	20:12	19:33	18:43	16:56	16:27		87	15:02 (10)	16:30	94	15:17 (10)				
27	07:05		14:08 (10)	06:29		15:18 (10)	05:44	05:56	05:26	05:22	05:42	06:12	06:42	06:13	06:49		13:35 (10)	07:12		13:44 (10)				
	17:02	72	15:20 (10)	17:39		18:09	19:41	20:10	20:24	20:11	19:32	18:41	16:55	16:27		87	15:02 (10)	16:30	94	15:18 (10)				
28	07:04		14:09 (10)	06:27		15:19 (10)	05:42	05:55	05:25	05:22	05:43	06:13	06:43	06:14	06:50		13:35 (10)	07:12		13:44 (10)				

SHADOW - Calendar

Shadow receptor: AA - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (27)

Assumptions for shadow calculations

Sunshine probability 'S' (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January		February		March		April		May		June	
1	07:13	14:56 (15)	07:00	07:20 (4)	06:25	15:25 (15)	06:36	05:51	05:23		
	16:34	72	16:08 (15)	17:08	108	16:29 (15)	17:41	43	16:08 (15)	19:14	20:13
2	07:13	14:56 (15)	07:00	07:19 (4)	06:24	15:28 (15)	06:34	05:50	05:22		
	16:35	73	16:09 (15)	17:09	108	16:29 (15)	17:42	38	16:06 (15)	19:15	20:14
3	07:13	14:56 (15)	06:59	07:20 (4)	06:22	15:31 (15)	06:32	05:48	05:22		
	16:36	74	16:10 (15)	17:10	106	16:29 (15)	17:43	31	16:02 (15)	19:16	20:15
4	07:14	14:56 (15)	06:58	07:21 (4)	06:21	15:36 (15)	06:31	05:47	05:22		
	16:37	75	16:11 (15)	17:11	103	16:29 (15)	17:44	22	15:58 (15)	19:17	20:16
5	07:14	14:57 (15)	06:57	07:23 (4)	06:19	16:29 (15)	17:45		06:29	19:18	20:16
	16:37	75	16:12 (15)	17:12	99	16:29 (15)	17:45		19:18	19:49	20:16
6	07:14	14:57 (15)	06:56	15:00 (15)	06:18	16:29 (15)	17:46		06:28	19:50	20:17
	16:38	76	16:13 (15)	17:14	89	16:29 (15)	17:46		19:19	19:50	20:17
7	07:13	14:57 (15)	06:54	15:01 (15)	06:16	16:29 (15)	17:47		06:26	19:51	20:17
	16:39	77	16:14 (15)	17:15	88	16:29 (15)	17:47		19:20	19:51	20:17
8	07:13	14:57 (15)	06:53	15:02 (15)	06:15	16:29 (15)	17:49		06:24	19:52	20:18
	16:40	78	16:15 (15)	17:16	87	16:29 (15)	17:49		19:21	19:52	20:18
9	07:13	14:58 (15)	06:52	15:02 (15)	06:13	16:29 (15)	17:50		06:23	19:53	20:19
	16:41	78	16:16 (15)	17:17	87	16:29 (15)	17:50		19:22	19:53	20:19
10	07:13	14:57 (15)	06:51	15:02 (15)	06:12	16:29 (15)	17:51		06:21	19:54	20:19
	16:42	79	16:16 (15)	17:19	86	16:28 (15)	17:51		19:23	19:54	20:19
11	07:13	14:57 (15)	06:50	15:03 (15)	06:10	16:28 (15)	17:52		06:20	19:55	20:20
	16:43	81	16:18 (15)	17:20	85	16:28 (15)	17:52		19:24	19:55	20:20
12	07:13	14:58 (15)	06:49	15:03 (15)	06:08	16:28 (15)	17:53		06:18	19:56	20:20
	16:44	81	16:19 (15)	17:21	85	16:28 (15)	17:53		19:25	19:56	20:20
13	07:12	14:57 (15)	06:47	15:04 (15)	06:07	16:27 (15)	17:54		06:17	19:57	20:21
	16:45	82	16:19 (15)	17:22	84	16:28 (15)	17:54		19:26	19:57	20:21
14	07:12	14:57 (15)	06:46	15:04 (15)	06:05	16:27 (15)	17:55		06:15	19:58	20:21
	16:46	83	16:20 (15)	17:23	83	16:27 (15)	17:55		19:27	19:58	20:21
15	07:12	14:58 (15)	06:45	15:05 (15)	06:04	16:26 (15)	17:56		06:14	19:59	20:22
	16:48	83	16:21 (15)	17:25	82	16:27 (15)	17:56		19:28	19:59	20:22
16	07:11	14:57 (15)	06:44	15:06 (15)	06:02	16:26 (15)	17:57		06:12	20:00	20:22
	16:49	84	16:21 (15)	17:26	80	16:26 (15)	17:57		19:29	20:00	20:22
17	07:11	14:58 (15)	06:42	15:08 (15)	06:00	16:25 (15)	17:58		06:11	20:01	20:22
	16:50	85	16:23 (15)	17:27	78	16:26 (15)	17:58		19:30	20:01	20:22
18	07:10	14:57 (15)	06:41	15:08 (15)	05:59	17:36 (21)	06:09		05:32	20:02	20:23
	16:51	86	16:23 (15)	17:28	76	16:24 (15)	17:59	2	17:38 (21)	19:31	20:23
19	07:10	07:31 (4)	06:40	15:09 (15)	05:57	17:34 (21)	06:08		05:31	20:03	20:23
	16:52	88	16:24 (15)	17:29	75	16:24 (15)	18:00	5	17:39 (21)	19:32	20:23
20	07:09	07:30 (4)	06:38	15:10 (15)	05:55	17:34 (21)	06:06		05:31	20:04	20:24
	16:53	90	16:24 (15)	17:30	72	16:22 (15)	18:01	7	17:41 (21)	19:33	20:23
21	07:09	07:29 (4)	06:37	15:11 (15)	05:54	17:33 (21)	06:05		05:30	20:05	20:24
	16:54	93	16:24 (15)	17:32	71	16:22 (15)	18:02	9	17:42 (21)	19:34	20:24
22	07:08	07:29 (4)	06:36	15:13 (15)	05:52	17:33 (21)	06:03		05:29	20:06	20:24
	16:56	95	16:26 (15)	17:33	68	16:21 (15)	18:03	9	17:42 (21)	19:35	20:24
23	07:08	07:28 (4)	06:34	15:14 (15)	05:50	17:33 (21)	06:02		05:28	20:07	20:24
	16:57	97	16:26 (15)	17:34	65	16:19 (15)	18:04	11	17:44 (21)	19:36	20:24
24	07:07	07:27 (4)	06:33	15:15 (15)	05:49	17:33 (21)	06:00		05:27	20:08	20:24
	16:58	98	16:26 (15)	17:35	63	16:18 (15)	18:06	12	17:45 (21)	19:37	20:24
25	07:06	07:26 (4)	06:31	15:17 (15)	05:47	17:33 (21)	05:59		05:27	20:09	20:24
	16:59	99	16:26 (15)	17:36	59	16:16 (15)	18:07	12	17:45 (21)	19:39	20:24
26	07:06	07:26 (4)	06:30	15:19 (15)	05:46	17:34 (21)	05:58		05:26	20:10	20:24
	17:00	102	16:28 (15)	17:37	56	16:15 (15)	18:08	13	17:47 (21)	19:40	20:24
27	07:05	07:25 (4)	06:28	15:20 (15)	05:44	17:35 (21)	05:56		05:26	20:11	20:24
	17:01	104	16:28 (15)	17:39	53	16:13 (15)	18:09	13	17:48 (21)	19:41	20:24
28	07:04	07:24 (4)	06:27	15:23 (15)	05:42	17:38 (21)	05:55		05:25	20:12	20:24
	17:03	105	16:28 (15)	17:40	48	16:11 (15)	18:10	9	17:47 (21)	19:42	20:24
29	07:03	07:23 (4)	06:26	15:24 (15)	05:41	17:37 (21)	05:53		05:24	20:13	20:24
	17:04	106	16:28 (15)	17:41	46	16:11 (15)	18:11		19:43	20:14	20:24
30	07:02	07:22 (4)	06:25	15:25 (15)	05:40	17:36 (21)	05:52		05:24	20:15	20:24
	17:05	106	16:28 (15)	17:42	45	16:11 (15)	18:12		19:44	20:16	20:24
31	07:01	07:21 (4)	06:24	15:26 (15)	05:39	17:34 (21)	05:51		05:23	20:17	20:24
	17:06	107	16:29 (15)	17:43	44	16:11 (15)	18:13		20:18	20:18	20:24
Potential sun hours	299		298		370		398		446		450
Total, worst case	2712		2244		236						
Sun reduction	0,39		0,40		0,44						
Oper. time red.	0,84		0,84		0,84						
Wind dir. red.	0,56		0,55		0,55						
Total reduction	0,18		0,19		0,20						
Total, real	490		422		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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SHADOW - Calendar

Shadow receptor: AA - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (27)

Assumptions for shadow calculations

Sunshine probability 'S' (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:48	14:32 (15) 15:58 (15)
2	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:32	06:20 16:47	14:31 (15) 15:58 (15)
3	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	06:21 16:46	14:31 (15) 15:59 (15)
4	05:25 20:24	05:50 20:03	06:19 19:19	06:49 18:29	06:22 16:45	14:31 (15) 15:59 (15)
5	05:25 20:24	05:51 20:01	06:20 19:17	06:50 18:28	06:23 16:44	14:32 (15) 15:59 (15)
6	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	06:25 16:43	14:33 (15) 15:59 (15)
7	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	06:26 16:42	14:34 (15) 15:59 (15)
8	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:41	14:34 (15) 15:59 (15)
9	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	16:14 (15) 16:29 (15)	06:50 (4) 16:00 (15)
10	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	16:08 (15) 16:35 (15)	06:51 (4) 16:39
11	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	16:04 (15) 16:38 (15)	06:53 (4) 16:00 (15)
12	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	16:00 (15) 16:40 (15)	06:54 (4) 16:37
13	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	15:57 (15) 16:43 (15)	06:55 (4) 16:36
14	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	15:54 (15) 16:44 (15)	06:56 (4) 16:35
15	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	15:52 (15) 16:46 (15)	06:58 (4) 16:34
16	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:10	15:49 (15) 16:47 (15)	06:59 (4) 16:33
17	05:34 20:18	06:02 19:46	06:32 18:57	07:02 18:09	15:47 (15) 16:48 (15)	07:00 (4) 16:32
18	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:34	15:46 (15) 16:50 (15)	07:01 (4) 16:32
19	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:32	15:45 (15) 16:51 (15)	07:02 (4) 16:31
20	05:36 20:16	06:05 19:42	06:35 18:52	07:05 18:31	15:43 (15) 16:52 (15)	07:04 (4) 16:30
21	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:29	15:41 (15) 16:53 (15)	07:05 (4) 16:29
22	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:27	15:40 (15) 16:53 (15)	07:06 (4) 16:29
23	05:39 20:14	06:08 19:38	06:38 18:47	07:09 18:26	15:39 (15) 16:54 (15)	07:07 (4) 16:28
24	05:40 20:13	06:09 19:36	06:39 18:46	07:10 18:24	15:37 (15) 16:54 (15)	14:34 (15) 16:28
25	05:40 20:13	06:10 19:35	06:40 18:44	07:11 18:22	14:37 (15) 15:56 (15)	14:36 (15) 16:27
26	05:41 20:12	06:11 19:33	06:41 18:42	07:12 18:20	14:36 (15) 15:56 (15)	14:36 (15) 16:27
27	05:42 20:11	06:12 19:32	06:42 18:41	07:13 16:55	14:35 (15) 15:56 (15)	14:37 (15) 16:26
28	05:43 20:10	06:13 19:30	06:43 18:39	07:14 16:53	14:34 (15) 15:57 (15)	14:37 (15) 16:26
29	05:44 20:09	06:14 19:28	06:44 18:37	07:15 16:52	14:33 (15) 15:57 (15)	14:38 (15) 16:25
30	05:45 20:08	06:15 19:27	06:45 18:36	07:16 16:51	14:33 (15) 15:58 (15)	14:39 (15) 16:25
31	05:46 20:07	06:16 19:25		07:17 16:50	14:32 (15) 15:58 (15)	16:00 (15) 16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case			104	1459	2836	2235
Sun reduction			0,63	0,52	0,45	0,39
Oper. time red.			0,84	0,84	0,84	0,84
Wind dir. red.			0,56	0,55	0,56	0,55
Total reduction			0,30	0,24	0,21	0,18
Total, real			31	353	596	406

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: AB - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (28)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June	
1	07:13		15:59 (7)	07:01	16:05 (6)	06:25	15:37 (6)	06:36	05:51		05:23	
	16:34	9	16:08 (7)	17:08	16:33 (6)	17:41	85	17:02 (6)	19:14		19:45	20:13
2	07:13		16:00 (7)	07:00	16:02 (6)	06:24		15:37 (6)	06:34		05:50	05:22
	16:35	9	16:09 (7)	17:09	16:36 (6)	17:42	85	17:02 (6)	19:15		19:46	20:14
3	07:13		16:00 (7)	06:59	16:00 (6)	06:22		15:37 (6)	06:32		05:48	05:22
	16:36	10	16:10 (7)	17:10	16:39 (6)	17:43	84	17:01 (6)	19:16		19:47	20:15
4	07:14		16:01 (7)	06:58	15:58 (6)	06:21		15:37 (6)	06:31		05:47	05:22
	16:36	10	16:11 (7)	17:11	16:41 (6)	17:44	85	17:02 (6)	19:17		19:48	20:16
5	07:14		16:01 (7)	06:57	15:56 (6)	06:19		15:37 (6)	06:29		05:46	05:21
	16:37	10	16:11 (7)	17:12	16:43 (6)	17:45	84	17:01 (6)	19:18		19:49	20:16
6	07:14		16:02 (7)	06:56	15:54 (6)	06:18		15:37 (6)	06:28		05:45	05:21
	16:38	11	16:13 (7)	17:14	16:45 (6)	17:46	83	17:00 (6)	19:19		19:50	20:17
7	07:13		16:02 (7)	06:54	15:53 (6)	06:16		15:38 (6)	06:26		05:44	05:21
	16:39	12	16:14 (7)	17:15	16:47 (6)	17:47	82	17:00 (6)	19:20		19:51	20:18
8	07:13		16:03 (7)	06:53	15:51 (6)	06:15		15:37 (6)	06:24		05:42	05:20
	16:40	12	16:15 (7)	17:16	16:49 (6)	17:49	82	16:59 (6)	19:21		19:52	20:18
9	07:13		16:04 (7)	06:52	15:50 (6)	06:13		15:38 (6)	06:23		05:41	05:20
	16:41	12	16:16 (7)	17:17	16:51 (6)	17:50	81	16:59 (6)	19:22		19:53	20:19
10	07:13		16:04 (7)	06:51	15:48 (6)	06:12		06:30 (16)	06:21		05:40	05:20
	16:42	12	16:16 (7)	17:19	16:51 (6)	17:51	83	16:58 (6)	19:23		19:54	20:19
11	07:13		16:05 (7)	06:50	15:47 (6)	06:10		06:28 (16)	06:20		05:39	05:20
	16:43	13	16:18 (7)	17:20	16:53 (6)	17:52	86	16:57 (6)	19:24		19:55	20:20
12	07:13		16:06 (7)	06:49	15:46 (6)	06:08		06:27 (16)	06:18		05:38	05:20
	16:44	13	16:19 (7)	17:21	16:54 (6)	17:53	87	16:57 (6)	19:25		19:56	20:20
13	07:12		16:07 (7)	06:48	15:46 (6)	06:07		06:25 (16)	06:17		05:37	05:20
	16:45	14	16:21 (7)	17:22	16:55 (6)	17:54	88	16:55 (6)	19:26		19:57	20:21
14	07:12		16:07 (7)	06:46	15:44 (6)	06:05		06:24 (16)	06:15		05:36	05:20
	16:46	14	16:21 (7)	17:23	16:56 (6)	17:55	89	16:55 (6)	19:27		19:58	20:21
15	07:12		16:08 (7)	06:45	15:43 (6)	06:04		06:22 (16)	06:14		05:35	05:20
	16:48	15	16:23 (7)	17:25	16:57 (6)	17:56	90	16:54 (6)	19:28		19:59	20:22
16	07:11		16:09 (7)	06:44	15:43 (6)	06:02		06:20 (16)	06:12		05:34	05:20
	16:49	14	16:23 (7)	17:26	16:58 (6)	17:57	89	16:52 (6)	19:29		20:00	20:22
17	07:11		16:11 (7)	06:42	15:43 (6)	06:00		06:19 (16)	06:10		05:33	05:20
	16:50	14	16:25 (7)	17:27	16:59 (6)	17:58	89	16:52 (6)	19:30		20:01	20:22
18	07:10		16:12 (7)	06:41	15:41 (6)	05:59		06:17 (16)	06:09		05:32	05:20
	16:51	12	16:24 (7)	17:28	16:59 (6)	17:59	88	16:50 (6)	19:31		20:02	20:23
19	07:10		16:14 (7)	06:40	15:41 (6)	05:57		06:15 (16)	06:08		05:31	05:20
	16:52	9	16:23 (7)	17:29	17:00 (6)	18:00	86	16:48 (6)	19:32		20:02	20:23
20	07:09		16:17 (7)	06:38	15:40 (6)	05:55		06:14 (16)	06:06		05:31	05:20
	16:53	3	16:20 (7)	17:30	17:00 (6)	18:01	84	16:47 (6)	19:33		20:03	20:23
21	07:09			06:37	15:40 (6)	05:54		06:12 (16)	06:05		05:30	05:20
	16:54			17:32	17:01 (6)	18:02	82	16:45 (6)	19:34		20:04	20:24
22	07:08			06:36	15:39 (6)	05:52		06:12 (16)	06:03		05:29	05:20
	16:56			17:33	17:01 (6)	18:03	77	16:43 (6)	19:35		20:05	20:24
23	07:08			06:34	15:38 (6)	05:50		06:13 (16)	06:02		05:28	05:21
	16:57			17:34	17:01 (6)	18:04	72	16:41 (6)	19:36		20:06	20:24
24	07:07			06:33	15:39 (6)	05:49		06:14 (16)	06:00		05:27	05:21
	16:58			17:35	17:02 (6)	18:06	65	16:39 (6)	19:37		20:07	20:24
25	07:06			06:31	15:38 (6)	05:47		06:15 (16)	05:59		05:27	05:21
	16:59			17:36	17:02 (6)	18:07	57	16:36 (6)	19:39		20:08	20:24
26	07:06			06:30	15:38 (6)	05:46		06:19 (16)	05:58		05:26	05:21
	17:00			17:37	17:02 (6)	18:08	44	16:34 (6)	19:40		20:09	20:24
27	07:05			06:28	15:37 (6)	05:44		16:01 (6)	05:56		05:25	05:22
	17:01			17:38	17:02 (6)	18:09	29	16:30 (6)	19:41		20:10	20:24
28	07:04			06:27	15:37 (6)	05:42		16:06 (6)	05:55		05:25	05:22
	17:03			17:40	17:02 (6)	18:10	20	16:26 (6)	19:42		20:10	20:24
29	07:03					06:41			05:53		05:24	05:22
	17:04					19:11			19:43		20:11	20:24
30	07:02					06:39			05:52		05:24	05:23
	17:05					19:12			19:44		20:12	20:24
31	07:01					06:37					05:23	
	17:06	20	16:09 (6)			19:13					20:13	
			16:29 (6)								446	450
Potential sun hours		299		298		370		398		446		450
Total, worst case		248		1882		2156						
Sun reduction		0,39		0,40		0,44						
Oper. time red.		0,84		0,84		0,84						
Wind dir. red.		0,55		0,53		0,54						
Total reduction		0,18		0,18		0,20						
Total, real		44		341		426						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: AB - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (28)

Assumptions for shadow calculations

Sunshine probability 'S' (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23	05:47	06:17	06:46	07:05 (16)	06:19
	20:24	20:06	19:24	18:34	17:35 (6)	16:48
2	05:24	05:48	06:18	06:47	07:06 (16)	06:20
	20:24	20:05	19:22	18:32	17:35 (6)	16:47
3	05:24	05:49	06:19	06:48	07:07 (16)	06:21
	20:24	20:04	19:21	18:31	17:35 (6)	16:46
4	05:25	05:50	06:19	06:49	16:15 (6)	06:22
	20:24	20:03	19:19	18:29	17:36 (6)	16:45
5	05:25	05:50	06:20	06:50	16:14 (6)	06:23
	20:24	20:01	19:17	18:28	17:36 (6)	16:44
6	05:26	05:51	06:21	06:51	16:14 (6)	06:25
	20:23	20:00	19:16	18:26	17:37 (6)	16:43
7	05:27	05:52	06:22	06:52	16:14 (6)	06:26
	20:23	19:59	19:14	18:24	17:37 (6)	16:42
8	05:27	05:53	06:23	06:53	16:13 (6)	06:27
	20:23	19:58	19:12	18:23	17:36 (6)	16:40
9	05:28	05:54	06:24	06:54	16:12 (6)	06:28
	20:22	19:57	19:11	18:21	17:36 (6)	16:39
10	05:29	05:55	06:25	06:55	16:12 (6)	06:29
	20:22	19:55	19:09	18:20	17:36 (6)	16:38
11	05:29	05:56	06:26	06:56	16:11 (6)	06:30
	20:22	19:54	19:07	18:18	17:36 (6)	16:37
12	05:30	05:57	06:27	06:57	16:11 (6)	06:32
	20:21	19:53	19:06	18:16	17:35 (6)	16:37
13	05:31	05:58	06:28	06:58	16:10 (6)	06:33
	20:21	19:52	19:04	18:15	17:35 (6)	16:36
14	05:31	05:59	06:29	06:59	16:10 (6)	06:34
	20:20	19:50	19:02	18:13	17:35 (6)	16:35
15	05:32	06:00	06:30	16:56 (6)	07:00	16:10 (6)
	20:20	19:49	19:01	18:12	17:34 (6)	16:34
16	05:33	06:01	06:31	16:51 (6)	07:01	16:09 (6)
	20:19	19:48	18:59	17:18 (6)	18:10	17:34 (6)
17	05:34	06:02	06:32	07:08 (16)	07:02	16:09 (6)
	20:19	19:46	18:57	17:21 (6)	18:09	17:33 (6)
18	05:34	06:03	06:33	07:04 (16)	07:03	16:10 (6)
	20:18	19:45	18:56	17:24 (6)	18:07	17:33 (6)
19	05:35	06:04	06:34	07:01 (16)	07:04	16:10 (6)
	20:17	19:43	18:54	17:26 (6)	18:06	17:33 (6)
20	05:36	06:05	06:35	07:00 (16)	07:05	16:10 (6)
	20:17	19:42	18:52	17:27 (6)	18:04	17:32 (6)
21	05:37	06:06	06:36	06:58 (16)	07:06	16:10 (6)
	20:16	19:40	18:51	17:29 (6)	18:03	17:31 (6)
22	05:38	06:07	06:37	06:57 (16)	07:08	16:10 (6)
	20:15	19:39	18:49	17:30 (6)	18:02	17:30 (6)
23	05:39	06:08	06:38	06:58 (16)	07:09	16:11 (6)
	20:14	19:38	18:47	17:31 (6)	18:00	17:29 (6)
24	05:39	06:09	06:39	06:59 (16)	07:10	16:11 (6)
	20:13	19:36	18:46	17:32 (6)	17:59	17:28 (6)
25	05:40	06:10	06:40	07:00 (16)	06:11	15:12 (6)
	20:13	19:35	18:44	17:33 (6)	16:57	16:28 (6)
26	05:41	06:11	06:41	07:00 (16)	06:12	15:13 (6)
	20:12	19:33	18:42	17:33 (6)	16:56	16:27 (6)
27	05:42	06:12	06:42	07:01 (16)	06:13	15:13 (6)
	20:11	19:32	18:41	17:33 (6)	16:55	16:26 (6)
28	05:43	06:13	06:43	07:02 (16)	06:14	15:14 (6)
	20:10	19:30	18:39	17:34 (6)	16:53	16:25 (6)
29	05:44	06:14	06:44	07:03 (16)	06:15	15:15 (6)
	20:09	19:28	18:37	17:34 (6)	16:52	16:24 (6)
30	05:45	06:15	06:45	07:04 (16)	06:17	15:16 (6)
	20:08	19:27	18:36	17:35 (6)	16:51	16:24 (6)
31	05:46	06:16		06:18	15:17 (6)	
	20:07	19:25		16:50	16:22 (6)	
Potential sun hours	457	427	375	346	300	290
Total, worst case			1133	2490	602	258
Sun reduction			0,63	0,52	0,45	0,39
Oper. time red.			0,84	0,84	0,84	0,84
Wind dir. red.			0,54	0,53	0,54	0,55
Total reduction			0,29	0,23	0,20	0,18
Total, real			328	584	122	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)
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SHADOW - Calendar

Shadow receptor: AC - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (29)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	07:13 16:34	07:01 17:08	06:26 17:41	15:51 (20) 17:13 (20)	17:10 (20) 19:45	05:23 20:13
2	07:13 16:35	07:00 17:09	06:24 17:42	15:51 (20) 17:13 (20)	17:13 (20) 19:46	05:22 20:14
3	07:14 16:36	06:59 17:10	06:23 17:43	15:50 (20) 17:13 (20)	17:19 (20) 19:47	05:22 20:15
4	07:14 16:37	06:58 17:11	06:21 17:44	15:50 (20) 17:14 (20)	17:33 (20) 19:48	05:22 20:16
5	07:14 16:38	06:57 17:13	06:19 17:45	15:50 (20) 17:13 (20)	19:49	05:21 20:16
6	07:14 16:38	06:56 17:14	07:15 (22) 17:46	15:50 (20) 17:14 (20)	19:49	05:21 20:17
7	07:14 16:39	06:55 17:15	07:14 (22) 17:48	15:49 (20) 17:13 (20)	19:50	05:21 20:18
8	07:13 16:40	06:53 17:16	07:13 (22) 17:49	15:49 (20) 17:12 (20)	19:51	05:21 20:18
9	07:13 16:41	06:52 17:17	07:12 (22) 17:50	15:49 (20) 17:13 (20)	19:52	05:20 20:19
10	07:13 16:42	06:51 17:19	07:11 (22) 17:51	15:49 (20) 17:12 (20)	19:53	05:20 20:19
11	07:13 16:43	06:50 17:20	07:09 (22) 17:52	15:50 (20) 17:12 (20)	19:54	05:20 20:20
12	07:13 16:44	06:49 17:21	07:08 (22) 17:53	15:49 (20) 17:11 (20)	19:55	05:20 20:20
13	07:12 16:46	06:48 17:22	07:07 (22) 17:54	15:49 (20) 17:10 (20)	19:56	05:20 20:21
14	07:12 16:47	06:46 17:23	07:06 (22) 17:55	15:50 (20) 17:10 (20)	19:57	05:20 20:21
15	07:12 16:48	06:45 17:25	07:04 (22) 17:56	15:50 (20) 17:09 (20)	19:58	05:20 20:22
16	07:11 16:49	06:44 17:26	07:03 (22) 17:57	15:50 (20) 17:08 (20)	19:59	05:20 20:22
17	07:11 16:50	06:43 17:27	07:02 (22) 17:58	15:51 (20) 17:08 (20)	20:00	05:20 20:22
18	07:11 16:51	06:41 17:28	07:01 (22) 17:59	15:51 (20) 17:07 (20)	20:01	05:20 20:23
19	07:10 16:52	06:40 17:29	07:02 (22) 18:00	15:52 (20) 17:07 (20)	20:02	05:20 20:23
20	07:10 16:53	06:38 17:31	07:02 (22) 18:01	15:53 (20) 17:05 (20)	20:03	05:20 20:23
21	07:09 16:54	06:37 17:32	07:02 (22) 18:03	15:53 (20) 17:04 (20)	20:04	05:20 20:24
22	07:08 16:56	06:36 17:33	07:03 (22) 18:04	15:55 (20) 17:03 (20)	20:05	05:20 20:24
23	07:08 16:57	06:34 17:34	07:03 (22) 18:05	15:55 (20) 17:01 (20)	20:06	05:21 20:24
24	07:07 16:58	06:33 17:35	07:05 (22) 18:06	15:56 (20) 17:00 (20)	20:07	05:21 20:24
25	07:06 16:59	06:31 17:36	07:06 (22) 18:07	15:58 (20) 16:59 (20)	20:08	05:21 20:24
26	07:06 17:00	06:30 17:37	07:09 (22) 18:08	15:58 (20) 16:57 (20)	20:09	05:22 20:24
27	07:05 17:02	06:29 17:39	07:13 (22) 18:09	15:59 (20) 16:55 (20)	20:10	05:22 20:24
28	07:04 17:03	06:27 17:40	15:52 (20) 18:10	16:02 (20) 16:53 (20)	20:11	05:22 20:24
29	07:03 17:04		06:41 19:11	17:03 (20) 17:51 (20)	20:12	05:23 20:24
30	07:02 17:05		06:39 19:12	17:05 (20) 17:48 (20)	20:13	05:23 20:24
31	07:02 17:06		06:37 19:13	17:08 (20) 17:46 (20)	20:14	05:23 20:24
Potential sun hours	299	298	370	398	446	450
Total, worst case		1760	2239		71	
Sun reduction		0,40	0,44		0,50	
Oper. time red.		0,84	0,84		0,84	
Wind dir. red.		0,55	0,52		0,52	
Total reduction		0,19	0,19		0,22	
Total, real		327	430		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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SHADOW - Calendar

Shadow receptor: AC - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (29)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:24	05:47	06:17	06:46	16:29 (20)	06:19
	20:24	20:06	19:24	18:34	82	16:21 (20)
2	05:24	05:48	06:18	06:47	16:28 (20)	06:20
	20:24	20:05	19:22	18:33	83	16:17 (20)
3	05:25	05:49	06:19	06:48	16:28 (20)	06:21
	20:24	20:04	19:21	18:31	83	16:14 (20)
4	05:25	05:50	06:20	06:49	16:27 (20)	06:22
	20:24	20:03	19:19	18:29	83	16:07 (20)
5	05:26	05:51	06:21	06:50	16:27 (20)	06:24
	20:24	20:02	19:17	18:28	83	16:04 (22)
6	05:26	05:52	06:22	06:51	16:26 (20)	06:25
	20:23	20:00	19:16	18:26	84	16:03 (22)
7	05:27	05:53	06:22	06:52	16:26 (20)	06:26
	20:23	19:59	19:14	18:24	83	16:02 (22)
8	05:27	05:54	06:23	06:53	16:25 (20)	06:27
	20:23	19:58	19:12	18:23	84	16:01 (22)
9	05:28	05:54	06:24	17:14 (20)	16:25 (20)	06:28
	20:23	19:57	19:11	18:21	83	16:00 (22)
10	05:29	05:55	06:25	17:08 (20)	16:25 (20)	06:29
	20:22	19:56	19:09	18:20	83	16:00 (22)
11	05:29	05:56	06:26	17:02 (20)	16:25 (20)	06:31
	20:22	19:54	19:08	18:18	82	16:00 (22)
12	05:30	05:57	06:27	16:59 (20)	16:25 (20)	06:32
	20:21	19:53	19:06	18:17	82	16:00 (22)
13	05:31	05:58	06:28	16:56 (20)	16:24 (20)	06:33
	20:21	19:52	19:04	18:15	82	16:00 (22)
14	05:32	05:59	06:29	16:54 (20)	16:25 (20)	06:34
	20:20	19:50	19:03	18:13	80	16:00 (22)
15	05:32	06:00	06:30	16:51 (20)	07:00	06:35
	20:20	19:49	19:01	18:12	88	16:00 (22)
16	05:33	06:01	06:31	16:49 (20)	07:01	06:36
	20:19	19:48	18:59	18:10	94	16:00 (22)
17	05:34	06:02	06:32	16:47 (20)	07:02	06:38
	20:19	19:46	18:58	18:09	97	16:00 (22)
18	05:35	06:03	06:33	16:45 (20)	07:03	06:39
	20:18	19:45	18:56	18:07	99	16:00 (22)
19	05:35	06:04	06:34	16:43 (20)	07:04	06:40
	20:17	19:43	18:54	18:06	99	16:00 (22)
20	05:36	06:05	06:35	16:42 (20)	07:05	06:41
	20:17	19:42	18:53	18:05	100	16:00 (22)
21	05:37	06:06	06:36	16:40 (20)	07:07	06:42
	20:16	19:41	18:51	18:03	100	16:00 (22)
22	05:38	06:07	06:37	16:39 (20)	07:08	06:43
	20:15	19:39	18:49	18:02	99	16:00 (22)
23	05:39	06:08	06:38	16:37 (20)	07:09	06:44
	20:14	19:38	18:47	18:00	97	16:00 (22)
24	05:40	06:09	06:39	16:36 (20)	07:10	06:45
	20:13	19:36	18:46	17:50 (20)	17:59	16:28
25	05:41	06:10	06:40	16:35 (20)	06:11	06:47
	20:13	19:35	18:44	17:50 (20)	16:58	16:27
26	05:41	06:11	06:41	16:34 (20)	06:12	06:48
	20:12	19:33	18:42	17:50 (20)	16:56	16:27
27	05:42	06:12	06:42	16:33 (20)	06:13	06:49
	20:11	19:32	18:41	17:51 (20)	16:55	16:26
28	05:43	06:13	06:43	16:32 (20)	06:14	06:50
	20:10	19:30	18:39	17:51 (20)	16:54	16:26
29	05:44	06:14	06:44	16:31 (20)	06:15	06:51
	20:09	19:29	18:38	17:51 (20)	16:52	16:26
30	05:45	06:15	06:45	16:30 (20)	06:17	06:52
	20:08	19:27	18:36	17:51 (20)	16:51	16:25
31	05:46	06:16		06:18	06:39 (22)	07:13
	20:07	19:25		16:50	61	16:23 (20)
Potential sun hours	457	427	375	346	300	290
Total, worst case			1303	2669	154	
Sun reduction			0,63	0,52	0,45	
Oper. time red.			0,84	0,84	0,84	
Wind dir. red.			0,52	0,54	0,56	
Total reduction			0,28	0,24	0,21	
Total, real			363	630	32	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: AD - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (30)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

January			February			March			April			May			June		
1	07:13	15:17 (7)	07:01	15:17 (7)	06:25				06:36	05:51	05:23						
	16:34	48	16:05 (21)	17:08	17:41				19:14	19:45	20:13						
2	07:13		15:18 (7)	07:00	06:24				06:34	05:50	05:22						
	16:35	47	16:05 (21)	17:09	17:42				19:15	19:46	20:14						
3	07:14		15:19 (7)	06:59	06:22				06:32	05:48	05:22						
	16:36	46	16:05 (21)	17:10	17:43				19:16	19:47	20:15						
4	07:14		15:19 (7)	06:58	06:21			17:22 (14)	06:31	05:47	05:22						
	16:37	46	16:05 (21)	17:11	17:44	1		17:23 (14)	19:17	19:48	20:16						
5	07:14		15:20 (7)	06:57	06:19			17:20 (14)	06:29	05:46	05:21						
	16:37	44	16:04 (21)	17:12	17:45	4		17:24 (14)	19:18	19:49	20:16						
6	07:14		15:21 (7)	06:56	06:18			17:20 (14)	06:28	05:45	05:21						
	16:38	43	16:04 (21)	17:14	17:46	6		17:26 (14)	19:19	19:50	20:17						
7	07:14		15:23 (7)	06:54	06:16			17:19 (14)	06:26	05:44	05:21						
	16:39	41	16:04 (21)	17:15	17:47	8		17:27 (14)	19:20	19:51	20:18						
8	07:13		15:24 (7)	06:53	06:15			17:18 (14)	06:24	05:42	05:20						
	16:40	39	16:03 (21)	17:16	17:49	9		17:27 (14)	19:21	19:52	20:18						
9	07:13		15:25 (7)	06:52	06:13			17:18 (14)	06:23	05:41	05:20						
	16:41	35	16:02 (21)	17:17	17:50	11		17:29 (14)	19:22	19:53	20:19						
10	07:13		15:27 (7)	06:51	06:12			17:18 (14)	06:21	05:40	05:20						
	16:42	25	15:52 (7)	17:19	17:51	12		17:30 (14)	19:23	19:54	20:19						
11	07:13		15:28 (7)	06:50	06:10			17:19 (14)	06:20	05:39	05:20						
	16:43	23	15:51 (7)	17:20	17:52	12		17:31 (14)	19:24	19:55	20:20						
12	07:13		15:29 (7)	06:49	06:08			17:19 (14)	06:18	05:38	05:20						
	16:44	21	15:50 (7)	17:21	17:53	13		17:32 (14)	19:25	19:56	20:20						
13	07:12		15:32 (7)	06:48	06:07			17:20 (14)	06:17	05:37	05:20						
	16:45	17	15:49 (7)	17:22	17:54	13		17:33 (14)	19:26	19:57	20:21						
14	07:12		15:33 (7)	06:46	06:05			17:22 (14)	06:15	05:36	05:20						
	16:46	14	15:47 (7)	17:23	17:55	11		17:33 (14)	19:27	19:58	20:21						
15	07:12		15:37 (7)	06:45	06:04				06:14	05:35	05:20						
	16:48	8	15:45 (7)	17:25	17:56				19:28	19:59	20:22						
16	07:11			06:44	06:02				06:12	05:34	05:20						
	16:49			17:26	17:57				19:29	20:00	20:22						
17	07:11			06:42	06:00				06:11	05:33	05:20						
	16:50			17:27	17:58				19:30	20:01	20:22						
18	07:10			06:41	05:59				06:09	05:32	05:20						
	16:51			17:28	17:59				19:31	20:02	20:23						
19	07:10			06:40	05:57				06:08	05:31	05:20						
	16:52			17:29	18:00				19:32	20:03	20:23						
20	07:09			06:38	05:55				06:06	05:31	05:20						
	16:53			17:30	18:01				19:33	20:03	20:23						
21	07:09			06:37	05:54				06:05	05:30	05:20						
	16:54			17:32	18:02				19:34	20:04	20:24						
22	07:08			06:36	05:52				06:03	05:29	05:20						
	16:56			17:33	18:03				19:35	20:05	20:24						
23	07:08			06:34	05:50				06:02	05:28	05:21						
	16:57			17:34	18:05				19:36	20:06	20:24						
24	07:07			06:33	05:49				06:00	05:28	05:21						
	16:58			17:35	18:06				19:38	20:07	20:24						
25	07:06			06:31	05:47				05:59	05:27	05:21						
	16:59			17:36	18:07				19:39	20:08	20:24						
26	07:06			06:30	05:46				05:58	05:26	05:21						
	17:00			17:37	18:08				19:40	20:09	20:24						
27	07:05			06:28	05:44				05:56	05:26	05:22						
	17:02			17:39	18:09				19:41	20:10	20:24						
28	07:04			06:27	05:42				05:55	05:25	05:22						
	17:03			17:40	18:10				19:42	20:10	20:24						
29	07:03				06:41				05:54	05:24	05:23						
	17:04				19:11				19:43	20:11	20:24						
30	07:02				06:39				05:52	05:24	05:23						
	17:05				19:12				19:44	20:12	20:24						
31	07:01				06:37					05:23							
	17:06				19:13					20:13							
Potential sun hours	299		298		370			398		446		450					
Total, worst case		497			100												
Sun reduction		0,39			0,44												
Oper. time red.		0,84			0,84												
Wind dir. red.		0,55			0,53												
Total reduction		0,18			0,19												
Total, real		89			19												

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: AD - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (30)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	17:58 (14) 18:11 (14)	06:19 16:48
2	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:32	17:57 (14) 18:10 (14)	06:20 16:47
3	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	17:56 (14) 18:08 (14)	06:21 16:46
4	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	17:56 (14) 18:07 (14)	06:22 16:45
5	05:25 20:24	05:51 20:02	06:20 19:17	06:50 18:28	17:55 (14) 18:06 (14)	06:23 16:44
6	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	17:55 (14) 18:04 (14)	06:25 16:43
7	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	17:55 (14) 18:02 (14)	06:26 16:42
8	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	17:55 (14) 18:01 (14)	06:27 16:41
9	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	17:56 (14) 17:59 (14)	06:28 16:40
10	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	16:39	06:29 16:39
11	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	06:30 16:38	06:30 16:38
12	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	06:32 16:37	06:32 16:37
13	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36	06:33 16:36
14	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	06:34 16:35	06:34 16:35
15	05:32 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	06:35 16:34
16	05:33 20:19	06:01 19:48	06:31 18:59	07:01 18:10	06:36 16:33	06:36 16:33
17	05:34 20:19	06:02 19:46	06:32 18:57	07:02 18:09	06:37 16:32	06:37 16:32
18	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:39 16:32	06:39 16:32
19	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31	06:40 16:31
20	05:36 20:17	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30	06:41 16:30
21	05:37 20:16	06:06 19:41	06:36 18:51	07:06 18:03	06:42 16:29	06:42 16:29
22	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29	06:43 16:29
23	05:39 20:14	06:08 19:38	06:38 18:47	07:09 18:00	06:44 16:28	06:44 16:28
24	05:40 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:28	06:45 16:28
25	05:40 20:13	06:10 19:35	06:40 18:44	06:11 16:57	06:47 16:27	06:47 16:27
26	05:41 20:12	06:11 19:33	06:41 18:42	06:12 16:56	06:48 16:27	06:48 16:27
27	05:42 20:11	06:12 19:32	06:42 18:41	06:13 16:55	06:49 16:26	06:49 16:26
28	05:43 20:10	06:13 19:30	06:43 18:39	06:14 16:53	06:50 16:26	06:50 16:26
29	05:44 20:09	06:14 19:28	06:44 18:37	18:03 (14) 18:12 (14)	06:15 16:52	15:17 (7) 15:24 (7)
30	05:45 20:08	06:15 19:27	06:45 18:36	18:00 (14) 18:13 (14)	06:17 16:51	15:14 (7) 15:21 (7)
31	05:46 20:07	06:16 19:25			16:25 16:25	15:18 (7) 15:25 (7)
Potential sun hours	457	427	375	346	300	290
Total, worst case			22	85	57	1421
Sun reduction			0,63	0,52	0,45	0,39
Oper. time red.			0,84	0,84	0,84	0,84
Wind dir. red.			0,53	0,53	0,55	0,55
Total reduction			0,28	0,23	0,21	0,18
Total, real			6	20	12	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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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: AE - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (31)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	07:01 17:08	07:29 (16) 17:41	06:25 19:14	06:36 19:45	05:51 20:13	05:23 20:24	05:47 20:06	06:17 19:24	06:46 18:34	06:19 16:48	06:53 16:25
2	07:13 16:35	07:00 17:09	07:31 (16) 17:42	06:24 19:15	06:34 19:46	05:50 20:14	05:22 20:24	05:48 20:05	06:18 19:22	06:47 18:32	06:20 16:47	06:54 16:24
3	07:13 16:36	06:59 17:10	07:32 (16) 17:43	06:22 19:16	06:32 19:47	05:48 20:15	05:22 20:24	05:49 20:04	06:18 19:20	06:48 18:31	06:21 16:46	06:55 16:24
4	07:14 16:36	07:35 (16) 17:11	07:35 (16) 17:44	06:21 19:17	06:31 19:48	05:47 20:16	05:22 20:24	05:50 20:03	06:19 19:19	06:49 18:29	06:22 16:45	06:56 16:24
5	07:14 16:37	07:35 (16) 17:12	07:39 (16) 17:45	06:19 19:18	06:29 19:49	05:46 20:16	05:25 20:24	05:50 20:01	06:20 19:17	06:50 18:28	06:23 16:44	06:57 16:24
6	07:14 16:38	07:35 (16) 17:14	07:40 (16) 17:14	06:18 19:19	06:28 19:50	05:45 20:17	05:26 20:23	05:51 20:00	06:21 19:16	06:51 18:26	06:25 16:43	06:58 16:24
7	07:13 16:39	07:35 (16) 17:15	07:41 (16) 17:15	06:16 19:20	06:26 19:51	05:44 20:18	05:27 20:23	05:52 19:59	06:22 19:14	06:52 18:24	06:26 16:42	06:59 16:24
8	07:13 16:40	07:35 (16) 17:16	07:43 (16) 17:16	06:15 19:21	06:24 19:52	05:42 20:18	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:40	07:00 16:24
9	07:13 16:41	07:35 (16) 17:17	07:43 (16) 17:17	06:13 19:22	06:23 19:53	05:41 20:19	05:28 20:22	05:54 19:57	06:24 19:11	06:54 18:21	06:28 16:39	07:01 16:24
10	07:13 16:42	07:35 (16) 17:18	07:44 (16) 17:18	06:12 19:23	06:21 19:54	05:40 20:19	05:29 20:22	05:55 19:55	06:25 19:09	06:55 18:20	06:29 16:38	07:00 16:24
11	07:13 16:43	07:34 (16) 17:20	07:45 (16) 17:20	06:10 19:24	06:20 19:55	05:39 20:20	05:29 20:22	05:56 19:54	06:26 19:07	06:56 18:18	06:30 16:37	07:00 16:24
12	07:13 16:44	07:34 (16) 17:21	07:46 (16) 17:21	06:08 19:25	06:18 19:56	05:38 20:20	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	06:32 16:37	07:03 16:24
13	07:12 16:45	07:34 (16) 17:22	07:47 (16) 17:22	06:07 19:26	06:17 19:57	05:37 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	06:33 16:36	07:04 16:24
14	07:12 16:46	07:33 (16) 17:23	07:48 (16) 17:23	06:05 19:27	06:15 19:58	05:36 20:20	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	06:34 16:35	07:05 16:24
15	07:12 16:48	07:33 (16) 17:24	07:49 (16) 17:24	06:04 19:28	06:14 19:59	05:35 20:22	05:30 20:20	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	07:05 16:24
16	07:11 16:49	07:32 (16) 17:26	07:50 (16) 17:26	06:02 19:29	06:12 20:00	05:34 20:22	05:30 20:19	06:01 19:48	06:31 18:59	07:01 18:10	06:36 16:33	07:06 16:25
17	07:11 16:50	07:32 (16) 17:27	07:51 (16) 17:27	06:00 19:30	06:10 20:01	05:33 20:22	05:30 20:19	06:02 19:46	06:32 18:57	07:02 18:09	06:37 16:32	07:07 16:25
18	07:10 16:51	07:31 (16) 17:28	07:51 (16) 17:28	05:59 19:31	06:09 20:02	05:32 20:23	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:39 16:32	07:07 16:25
19	07:10 16:52	07:31 (16) 17:29	07:51 (16) 17:29	05:57 19:32	06:07 20:02	05:31 20:23	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31	07:08 16:26
20	07:09 16:53	07:30 (16) 17:30	07:53 (16) 17:30	05:55 19:33	06:06 20:03	05:31 20:23	05:36 20:17	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30	07:09 16:26
21	07:09 16:54	07:29 (16) 17:32	07:53 (16) 17:32	05:54 19:34	06:05 20:04	05:30 20:24	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	06:42 16:29	07:09 16:27
22	07:08 16:55	07:29 (16) 17:33	07:54 (16) 17:33	05:52 19:35	06:03 20:05	05:29 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:08 18:02	06:43 16:29	07:10 16:27
23	07:08 16:57	07:28 (16) 17:34	07:54 (16) 17:34	05:50 19:36	06:02 20:06	05:28 20:24	05:39 20:14	06:08 19:38	06:38 18:47	07:09 18:00	06:44 16:28	07:10 16:28
24	07:07 16:58	07:27 (16) 17:35	07:54 (16) 17:35	05:49 19:37	06:00 20:07	05:27 20:24	05:39 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:28	07:11 16:28
25	07:06 16:59	07:27 (16) 17:36	07:55 (16) 17:36	05:47 19:39	05:59 20:08	05:27 20:24	05:40 20:13	06:10 19:35	06:11 18:44	06:11 16:57	06:47 16:27	07:11 16:29
26	07:06 17:00	07:26 (16) 17:37	07:56 (16) 17:37	05:46 19:40	05:57 20:09	05:26 20:24	05:41 20:12	06:11 19:33	06:12 18:42	06:12 16:56	06:48 16:27	07:12 16:29
27	07:05 17:01	07:25 (16) 17:38	07:56 (16) 17:38	05:44 19:41	05:56 20:10	05:25 20:24	05:42 20:11	06:12 19:31	06:13 18:41	06:13 16:55	06:49 16:26	07:12 16:30
28	07:04 17:03	07:26 (16) 17:40	07:57 (16) 17:40	05:42 19:42	05:55 20:10	05:25 20:24	05:43 20:10	06:13 19:30	06:14 18:39	06:14 16:53	06:50 16:26	07:13 16:31
29	07:03 17:04	07:27 (16) 17:41	07:58 (16) 17:41	06:41 19:43	05:53 20:11	05:24 20:24	05:44 20:09	06:14 19:28	06:15 18:37	06:15 16:52	06:51 16:25	07:14 16:31
30	07:02 17:05	07:27 (16) 17:42	07:59 (16) 17:42	06:39 19:44	05:52 20:12	05:24 20:24	05:45 20:08	06:15 19:27	06:16 18:36	06:16 16:51	06:52 16:25	07:15 16:32
31	07:01 17:06	07:28 (16) 17:43	08:00 (16) 17:43	06:37 19:45	05:53 20:13	05:23 20:24	05:46 20:07	06:16 19:25	06:17 18:37	06:17 16:50	06:53 16:26	07:16 16:33
Potential sun hours	299	298	370	398	447	450	457	427	375	346	300	290
Total, worst case	510	75								535		59
Sun reduction	0,39	0,40								0,45		0,39
Oper. time red.	0,84	0,84								0,84		0,84
Wind dir. red.	0,66	0,66								0,66		0,66
Total reduction	0,21	0,22								0,25		0,22
Total, real	110	17								133		13

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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Project:

Sava Maruggio 09.05.22

Description:

19_20_EO_ENE - Sava Maruggio vers. 09/05/22

Licensed user:

ProJetto Engineering s.r.l.

Via dei Mille, 5

IT-74024 Manduria

+39 0999574694

Ing. Pietro Rodia / studio@projetto.eu

Calculated:

10/05/2022 13:05/3.4.424

SHADOW - Calendar

Shadow receptor: AF - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (32)**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	07:01 17:08	06:26 17:41	06:59 (8) 17:41	05:51 19:14	05:23 20:14	05:24 20:24	05:47 20:06	06:17 19:24	06:46 18:34	07:38 (8) 16:49	06:45 (8) 16:25
2	07:14 16:35	07:00 17:09	06:24 17:42	06:59 (8) 17:42	05:50 19:15	05:22 20:14	05:24 20:24	05:48 20:05	06:18 19:22	06:47 18:33	07:37 (8) 16:47	06:47 (8) 16:25
3	07:14 16:36	06:59 17:10	07:39 (8) 17:43	06:58 (8) 17:43	05:48 19:16	05:22 20:15	05:24 20:24	05:49 20:04	06:19 19:21	06:48 18:31	07:37 (8) 16:46	06:49 (8) 16:24
4	07:14 16:37	06:58 17:11	07:30 (8) 17:44	06:59 (8) 17:44	05:47 19:17	05:22 20:16	05:25 20:24	05:50 20:03	06:20 19:19	06:49 18:29	07:36 (8) 16:45	06:51 (8) 16:24
5	07:14 16:38	06:57 17:13	07:26 (8) 17:45	06:58 (8) 17:45	05:46 19:18	05:21 20:16	05:26 20:24	05:51 20:02	06:21 19:17	06:50 18:28	07:35 (8) 16:44	06:53 (8) 16:24
6	07:14 16:38	06:56 17:14	07:23 (8) 17:46	06:58 (8) 17:46	05:45 19:19	05:21 20:17	05:26 20:24	05:52 20:00	06:22 19:16	06:51 18:26	07:35 (8) 16:43	06:56 (8) 16:24
7	07:14 16:39	06:55 17:15	07:21 (8) 17:48	06:58 (8) 17:48	05:44 19:20	05:21 20:18	05:27 20:23	05:53 19:59	06:22 19:14	06:52 18:24	07:34 (8) 16:42	07:01 (8) 16:24
8	07:14 16:40	06:54 17:16	07:19 (8) 17:49	06:58 (8) 17:49	05:43 19:21	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:13	06:53 18:23	07:34 (8) 16:41	07:00 16:24
9	07:13 16:41	06:52 17:17	07:17 (8) 17:50	06:58 (8) 17:50	05:41 19:22	05:20 20:19	05:28 20:23	05:54 19:57	06:24 19:11	06:54 18:21	07:33 (8) 16:40	07:01 16:24
10	07:13 16:42	06:51 17:19	07:16 (8) 17:51	06:58 (8) 17:51	05:40 19:23	05:20 20:19	05:29 20:22	05:55 19:56	06:25 19:09	06:55 18:20	07:33 (8) 16:39	07:02 16:24
11	07:13 16:43	06:50 17:20	07:13 (8) 17:52	06:59 (8) 17:52	05:39 19:24	05:20 20:22	05:29 20:22	05:56 19:54	06:26 19:08	06:56 18:18	07:33 (8) 16:38	07:02 16:24
12	07:13 16:44	06:49 17:21	07:12 (8) 17:53	06:59 (8) 17:53	05:38 19:25	05:20 20:21	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:17	07:32 (8) 16:37	07:03 16:24
13	07:13 16:45	06:48 17:22	07:11 (8) 17:54	06:58 (8) 17:54	05:37 19:26	05:20 20:21	05:31 20:21	05:58 19:52	06:28 19:04	06:58 18:15	07:32 (8) 16:36	07:04 16:24
14	07:12 16:47	06:46 17:23	07:10 (8) 17:55	06:59 (8) 17:55	05:36 19:27	05:20 20:21	05:31 20:20	05:59 19:50	06:29 19:03	06:59 18:14	07:32 (8) 16:35	07:05 16:24
15	07:12 16:48	06:45 17:25	07:08 (8) 17:56	06:59 (8) 17:56	05:35 19:28	05:20 20:22	05:32 20:20	06:00 19:49	06:30 19:01	06:08 (8) 18:12	07:32 (8) 16:34	07:06 16:25
16	07:12 16:49	06:44 17:26	07:08 (8) 17:57	07:00 (8) 17:57	05:34 19:29	05:20 20:22	05:33 20:19	06:01 19:48	06:31 18:59	08:04 (8) 18:10	07:32 (8) 16:33	07:06 16:25
17	07:11 16:50	06:43 17:27	07:07 (8) 17:58	07:01 (8) 17:58	05:33 20:01	05:20 20:23	05:34 20:19	06:02 19:46	06:32 18:58	08:00 (8) 18:09	07:33 (8) 16:32	07:07 16:25
18	07:11 16:51	06:41 17:28	07:05 (8) 17:59	07:01 (8) 17:59	05:32 20:02	05:20 20:23	05:35 20:18	06:03 19:45	06:33 18:56	07:58 (8) 18:07	07:33 (8) 16:31	07:08 16:26
19	07:10 16:52	06:40 17:29	07:05 (8) 18:00	07:03 (8) 18:00	05:32 20:03	05:20 20:23	05:35 20:17	06:04 19:44	06:34 18:54	07:55 (8) 18:06	07:33 (8) 16:31	07:08 16:26
20	07:10 16:53	06:39 17:31	07:05 (8) 18:01	07:03 (8) 18:01	05:31 20:04	05:20 20:23	05:36 20:17	06:05 19:42	06:35 18:53	07:53 (8) 18:05	07:34 (8) 16:30	07:09 16:26
21	07:09 16:54	06:37 17:32	07:03 (8) 18:03	07:04 (8) 18:03	05:30 20:04	05:20 20:24	05:37 20:16	06:06 19:41	06:36 18:51	07:51 (8) 18:03	07:34 (8) 16:30	07:09 16:27
22	07:08 16:56	06:36 17:33	07:03 (8) 18:04	07:05 (8) 18:04	05:29 20:05	05:20 20:24	05:38 20:15	06:07 19:39	06:37 18:49	08:45 (8) 18:02	07:34 (8) 16:29	07:10 16:27
23	07:08 16:57	06:34 17:34	07:02 (8) 18:05	07:06 (8) 18:05	05:28 20:06	05:21 20:24	05:39 20:14	06:08 19:38	06:38 18:48	07:48 (8) 18:00	07:35 (8) 16:28	07:10 16:28
24	07:07 16:58	06:33 17:35	07:02 (8) 18:06	07:08 (8) 18:06	05:27 20:07	05:20 20:24	05:40 20:14	06:09 19:36	06:39 18:46	08:47 (8) 17:59	07:36 (8) 16:27	07:11 16:28
25	07:06 16:59	06:32 17:36	07:00 (8) 18:07	07:10 (8) 18:07	05:25 20:08	05:21 20:24	05:40 20:13	06:10 19:35	06:40 18:44	07:45 (8) 16:58	07:37 (8) 16:27	07:11 16:29
26	07:06 17:00	06:30 17:37	07:00 (8) 18:08	07:12 (8) 18:08	05:26 20:09	05:21 20:24	05:41 20:12	06:11 19:33	06:41 18:43	07:44 (8) 16:56	07:38 (8) 16:27	07:12 16:29
27	07:05 17:02	06:29 17:39	07:00 (8) 18:09	07:14 (8) 18:09	05:26 20:10	05:22 20:25	05:42 20:11	06:12 19:32	06:42 18:41	07:42 (8) 16:55	07:39 (8) 16:26	07:12 16:30
28	07:04 17:03	06:27 17:40	07:00 (8) 18:10	07:18 (8) 18:10	05:25 20:10	05:22 20:25	05:43 20:10	06:13 19:30	06:43 18:39	07:41 (8) 16:54	07:39 (8) 16:26	07:12 16:31
29	07:03 17:04	06:26 19:11	06:23 (8) 19:11	08:23 (8) 19:11	05:24 20:11	05:23 20:25	05:44 20:09	06:14 19:29	06:44 18:38	07:40 (8) 16:52	07:41 (8) 16:26	07:13 16:32
30	07:02 17:05	06:25 19:12	06:39 19:12	08:36 (8) 19:12	05:23 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:45 18:36	07:39 (8) 16:51	07:42 (8) 16:25	07:13 16:32
31	07:02 17:06	06:24 19:13	06:37 19:13	08:36 (8) 19:13	05:23 20:13	05:23 20:24	05:46 20:07	06:16 19:25	06:46 19:25	08:53 (8) 16:50	07:43 (8) 16:25	07:13 16:33
Potential sun hours	299	298	370	398	447	450	457	427	375	346	300	290
Total, worst case		1544	1852						889	2295	262	
Sun reduction		0,40	0,44						0,63	0,52	0,45	
Oper. time red.		0,84	0,84						0,84	0,84	0,84	
Wind dir. red.		0,62	0,62						0,62	0,62	0,62	
Total reduction		0,21	0,23						0,23	0,27	0,23	
Total, real		323	418						292	621	61	

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	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)

SHADOW - Calendar

Shadow receptor: AG - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (33)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January			February			March			April			May		June
1	07:13		08:19 (15)	07:01			06:26		16:39 (21)	06:36		17:23 (7)	05:51		05:23
	16:34	46	09:05 (15)	17:08			17:41	31	17:10 (21)	19:14	79	18:42 (7)	19:45		20:13
2	07:13		08:20 (15)	07:00			06:24		16:41 (21)	06:34		17:22 (7)	05:50		05:22
	16:35	45	09:05 (15)	17:09			17:42	28	17:09 (21)	19:15	78	18:40 (7)	19:46		20:14
3	07:13		08:21 (15)	06:59			06:22		16:42 (21)	06:33		17:23 (7)	05:48		05:22
	16:36	44	09:05 (15)	17:10			17:43	24	17:06 (21)	19:16	75	18:38 (7)	19:47		20:15
4	07:14		08:22 (15)	06:58			06:21		16:45 (21)	06:31		17:23 (7)	05:47		05:22
	16:37	43	09:05 (15)	17:11			17:44	29	17:15 (7)	19:17	73	18:36 (7)	19:48		20:16
5	07:14		08:23 (15)	06:57			06:19		16:47 (21)	06:29		17:24 (7)	05:46		05:21
	16:37	42	09:05 (15)	17:12			17:45	35	17:22 (7)	19:18	70	18:34 (7)	19:49		20:16
6	07:14		08:24 (15)	06:56			06:18		16:53 (7)	06:28		17:23 (7)	05:45		05:21
	16:38	41	09:05 (15)	17:14			17:46	33	17:26 (7)	19:19	69	18:32 (7)	19:50		20:17
7	07:14		08:25 (15)	06:54		16:49 (21)	06:16		16:49 (7)	06:26		17:23 (7)	05:44		05:21
	16:39	40	09:05 (15)	17:15	3	16:52 (21)	17:47	38	17:27 (7)	19:20	66	18:29 (7)	19:51		20:18
8	07:13		08:26 (15)	06:53			16:47 (21)	06:15		16:46 (7)	06:24		17:24 (7)	05:42	05:20
	16:40	39	09:05 (15)	17:16	6	16:53 (21)	17:49	41	17:27 (7)	19:21	64	18:28 (7)	19:52		20:18
9	07:13		08:27 (15)	06:52			16:45 (21)	06:13		16:44 (7)	06:23		17:24 (7)	05:41	05:20
	16:41	38	09:05 (15)	17:17	10	16:55 (21)	17:50	45	17:29 (7)	19:22	61	18:25 (7)	19:53		20:19
10	07:13		08:29 (15)	06:51			16:42 (21)	06:12		16:42 (7)	06:21		17:25 (7)	05:40	05:20
	16:42	36	09:05 (15)	17:19	13	16:55 (21)	17:51	48	17:30 (7)	19:23	59	18:24 (7)	19:54		20:19
11	07:13		08:29 (15)	06:50			16:41 (21)	06:10		16:40 (7)	06:20		17:26 (7)	05:39	05:20
	16:43	35	09:04 (15)	17:20	16	16:57 (21)	17:52	51	17:31 (7)	19:24	55	18:21 (7)	19:55		20:20
12	07:13		08:31 (15)	06:49			16:40 (21)	06:08		16:38 (7)	06:18		17:27 (7)	05:38	05:20
	16:44	32	09:03 (15)	17:21	18	16:58 (21)	17:53	54	17:32 (7)	19:25	53	18:20 (7)	19:56		20:20
13	07:12		08:33 (15)	06:48			16:39 (21)	06:07		16:36 (7)	06:17		17:27 (7)	05:37	05:20
	16:45	30	09:03 (15)	17:22	21	17:00 (21)	17:54	57	17:33 (7)	19:26	50	18:17 (7)	19:57		20:21
14	07:12		08:34 (15)	06:46			16:39 (21)	06:05		16:35 (7)	06:15		17:27 (7)	05:36	05:20
	16:47	27	09:01 (15)	17:23	23	17:02 (21)	17:55	60	17:35 (7)	19:27	48	18:15 (7)	19:58		20:21
15	07:12		08:36 (15)	06:45			16:37 (21)	06:04		16:33 (7)	06:14		17:29 (7)	05:35	05:20
	16:48	24	09:00 (15)	17:25	25	17:02 (21)	17:56	62	17:35 (7)	19:28	44	18:13 (7)	19:59		20:22
16	07:11		08:38 (15)	06:44			16:37 (21)	06:02		16:32 (7)	06:12		17:29 (7)	05:34	05:20
	16:49	20	08:58 (15)	17:26	27	17:04 (21)	17:57	64	17:36 (7)	19:29	42	18:11 (7)	20:00		20:22
17	07:11		08:42 (15)	06:42			16:37 (21)	06:00		16:31 (7)	06:11		17:31 (7)	05:33	05:20
	16:50	13	08:55 (15)	17:27	28	17:05 (21)	17:58	67	17:38 (7)	19:30	38	18:09 (7)	20:01		20:22
18	07:10			06:41			16:36 (21)	05:59		16:30 (7)	06:09		17:33 (7)	05:32	05:20
	16:51			17:28	30	17:06 (21)	17:59	68	17:38 (7)	19:31	35	18:08 (7)	20:02		20:23
19	07:10			06:40			16:36 (21)	05:57		16:29 (7)	06:08		17:34 (7)	05:31	05:20
	16:52			17:29	32	17:08 (21)	18:00	70	17:39 (7)	19:32	31	18:05 (7)	20:03		20:23
20	07:09			06:38			16:35 (21)	05:55		16:28 (7)	06:06		17:36 (7)	05:31	05:20
	16:53			17:30	33	17:08 (21)	18:01	73	17:41 (7)	19:33	27	18:03 (7)	20:03		20:23
21	07:09			06:37			16:36 (21)	05:54		16:27 (7)	06:05		17:37 (7)	05:30	05:20
	16:54			17:32	34	17:10 (21)	18:02	75	17:42 (7)	19:34	24	18:01 (7)	20:04		20:24
22	07:08			06:36			16:36 (21)	05:52		16:26 (7)	06:03		17:39 (7)	05:29	05:20
	16:56			17:33	36	17:12 (21)	18:03	76	17:42 (7)	19:35	20	17:59 (7)	20:05		20:24
23	07:08			06:34			16:36 (21)	05:51		16:26 (7)	06:02		17:41 (7)	05:28	05:21
	16:57			17:34	36	17:12 (21)	18:05	78	17:44 (7)	19:36	16	17:57 (7)	20:06		20:24
24	07:07			06:33			16:36 (21)	05:49		16:25 (7)	06:00		17:44 (7)	05:28	05:21
	16:58			17:35	38	17:14 (21)	18:06	78	17:43 (7)	19:38	11	17:55 (7)	20:07		20:24
25	07:06			06:31			16:36 (21)	05:47		16:25 (7)	05:59		17:49 (7)	05:27	05:21
	16:59			17:36	38	17:14 (21)	18:07	79	17:44 (7)	19:39	5	17:54 (7)	20:08		20:24
26	07:06			06:30			16:37 (21)	05:46		16:24 (7)	05:58			05:26	05:21
	17:00			17:37	36	17:13 (21)	18:08	80	17:44 (7)	19:40			20:09		20:24
27	07:05			06:28			16:37 (21)	05:44		16:24 (7)	05:56			05:26	05:22
	17:02			17:39	35	17:12 (21)	18:09	79	17:43 (7)	19:41			20:10		20:24
28	07:04			06:27			16:39 (21)	05:42		16:24 (7)	05:55			05:25	05:22
	17:03			17:40	32	17:11 (21)	18:10	80	17:44 (7)	19:42			20:10		20:24
29	07:03						06:41			17:23 (7)	05:54			05:24	05:23
	17:04						19:11	80	18:43 (7)	19:43			20:11		20:24
30	07:02						06:39			17:23 (7)	05:52			05:24	05:23
	17:05						19:12	79	18:42 (7)	19:44			20:12		20:24
31	07:01						06:37			17:23 (7)				05:23	
	17:06						19:13	80	18:43 (7)				20:13		
Potential sun hours	299			298			370			398			446		450
Total, worst case		595		570			1842			1193					
Sun reduction		0,39		0,40			0,44			0,50					
Oper. time red.		0,84		0,84			0,84			0,84					
Wind dir. red.		0,70		0,52			0,54			0,54					
Total reduction		0,23		0,18			0,20			0,23					
Total, real		138		103			369			276					

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: AG - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (33)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July		August		September		October		November		December					
1	05:23	05:47			06:17	17:24 (7)	06:46		17:16 (7)	06:19	16:12 (21)	06:53	08:11 (15)			
	20:24	20:06			19:24	56	18:20 (7)	18:34	55	18:11 (7)	16:48	13	16:25 (21)	16:25	35	08:46 (15)
2	05:24	05:48			06:18	17:23 (7)	06:47		17:17 (7)	06:20	16:14 (21)	06:54	08:11 (15)			
	20:24	20:05			19:22	59	18:22 (7)	18:33	53	18:10 (7)	16:47	9	16:23 (21)	16:25	36	08:47 (15)
3	05:24	05:49			06:19		17:22 (7)	06:48		17:19 (7)	06:21		16:17 (21)	06:55		08:10 (15)
	20:24	20:04			19:21	61	18:23 (7)	18:31	49	18:08 (7)	16:46	6	16:23 (21)	16:24	38	08:48 (15)
4	05:25	05:50			06:20		17:21 (7)	06:49		17:21 (7)	06:22		16:20 (21)	06:56		08:10 (15)
	20:24	20:03			19:19	64	18:25 (7)	18:29	46	18:07 (7)	16:45	2	16:22 (21)	16:24	39	08:49 (15)
5	05:26	05:51			06:20		17:20 (7)	06:50		17:23 (7)	06:23			06:57		08:10 (15)
	20:24	20:02			19:17	66	18:26 (7)	18:28	43	18:06 (7)	16:44			16:24	40	08:50 (15)
6	05:26	05:52			06:21		17:19 (7)	06:51		17:25 (7)	06:25			06:58		08:10 (15)
	20:23	20:00			19:16	69	18:28 (7)	18:26	39	18:04 (7)	16:43			16:24	41	08:51 (15)
7	05:27	05:52			06:22		17:19 (7)	06:52		17:27 (7)	06:26			06:59		08:10 (15)
	20:23	19:59			19:14	70	18:29 (7)	18:24	35	18:02 (7)	16:42			16:24	42	08:52 (15)
8	05:27	05:53			06:23		17:18 (7)	06:53		17:26 (21)	06:27			07:00		08:10 (15)
	20:23	19:58			19:12	73	18:31 (7)	18:23	34	18:00 (7)	16:41			16:24	43	08:53 (15)
9	05:28	05:54			06:24		17:17 (7)	06:54		17:21 (21)	06:28			07:01		08:10 (15)
	20:22	19:57			19:11	75	18:32 (7)	18:21	33	17:54 (7)	16:40			16:24	44	08:54 (15)
10	05:29	05:55			06:25		17:16 (7)	06:55		17:18 (21)	06:29			07:01		08:10 (15)
	20:22	19:55			19:09	77	18:33 (7)	18:20	22	17:40 (21)	16:39			16:24	45	08:55 (15)
11	05:29	05:56			06:26		17:15 (7)	06:56		17:15 (21)	06:30			07:02		08:10 (15)
	20:22	19:54			19:07	79	18:34 (7)	18:18	27	17:42 (21)	16:38			16:24	46	08:56 (15)
12	05:30	05:57			06:27		17:14 (7)	06:57		17:14 (21)	06:32			07:03		08:10 (15)
	20:21	19:53			19:06	80	18:34 (7)	18:17	29	17:43 (21)	16:37			16:24	46	08:56 (15)
13	05:31	05:58			06:28		17:14 (7)	06:58		17:12 (21)	06:33			07:04		08:10 (15)
	20:21	19:52			19:04	79	18:33 (7)	18:15	32	17:44 (21)	16:36			16:24	47	08:57 (15)
14	05:31	05:59			06:29		17:13 (7)	06:59		17:11 (21)	06:34			07:05		08:11 (15)
	20:20	19:50			19:02	80	18:33 (7)	18:13	33	17:44 (21)	16:35			16:24	47	08:58 (15)
15	05:32	06:00			06:30		17:13 (7)	07:00		17:09 (21)	06:35			07:05		08:11 (15)
	20:20	19:49			19:01	80	18:33 (7)	18:12	36	17:45 (21)	16:34			16:25	48	08:59 (15)
16	05:33	06:01			06:31		17:13 (7)	07:01		17:08 (21)	06:36			07:06		08:11 (15)
	20:19	19:48			18:59	79	18:32 (7)	18:10	37	17:45 (21)	16:33			16:25	48	08:59 (15)
17	05:34	06:02			06:32		17:13 (7)	07:02		17:08 (21)	06:37			07:07		08:12 (15)
	20:19	19:46			18:57	79	18:32 (7)	18:09	37	17:45 (21)	16:32			16:25	48	09:00 (15)
18	05:35	06:03		17:53 (7)	06:33		17:12 (7)	07:03		17:08 (21)	06:39			07:07		08:12 (15)
	20:18	19:45	7	18:00 (7)	18:56	79	18:31 (7)	18:07	37	17:45 (21)	16:32			16:25	49	09:01 (15)
19	05:35	06:04		17:49 (7)	06:34		17:12 (7)	07:04		17:07 (21)	06:40			07:08		08:12 (15)
	20:17	19:43	12	18:01 (7)	18:54	79	18:31 (7)	18:06	36	17:43 (21)	16:31			16:26	49	09:01 (15)
20	05:36	06:05		17:46 (7)	06:35		17:12 (7)	07:05		17:07 (21)	06:41			07:09		08:13 (15)
	20:17	19:42	17	18:03 (7)	18:52	78	18:30 (7)	18:04	35	17:42 (21)	16:30			16:26	49	09:02 (15)
21	05:37	06:06		17:44 (7)	06:36		17:12 (7)	07:06		17:06 (21)	06:42			07:09		08:13 (15)
	20:16	19:41	20	18:04 (7)	18:51	77	18:29 (7)	18:03	34	17:40 (21)	16:30			16:27	49	09:02 (15)
22	05:38	06:07		17:41 (7)	06:37		17:12 (7)	07:08		17:06 (21)	06:43			07:10		08:14 (15)
	20:15	19:39	25	18:06 (7)	18:49	75	18:27 (7)	18:02	32	17:38 (21)	16:29			16:27	49	09:03 (15)
23	05:39	06:08		17:39 (7)	06:38		17:12 (7)	07:09		17:06 (21)	06:44			07:10		08:14 (15)
	20:14	19:38	29	18:08 (7)	18:47	74	18:26 (7)	18:00	31	17:37 (21)	16:28			16:28	49	09:03 (15)
24	05:40	06:09		17:37 (7)	06:39		17:13 (7)	07:10		17:07 (21)	06:45			07:11		08:15 (15)
	20:13	19:36	32	18:09 (7)	18:46	71	18:24 (7)	17:59	29	17:36 (21)	16:28			16:28	49	09:04 (15)
25	05:40	06:10		17:35 (7)	06:40		17:13 (7)	06:11		16:07 (21)	06:47		08:20 (15)	07:11		08:15 (15)
	20:13	19:35	36	18:11 (7)	18:44	69	18:22 (7)	16:57	28	16:35 (21)	16:27	13	08:33 (15)	16:29	49	09:04 (15)
26	05:41	06:11		17:34 (7)	06:41		17:13 (7)	06:12		16:07 (21)	06:48		08:17 (15)	07:12		08:15 (15)
	20:12	19:33	38	18:12 (7)	18:42	68	18:21 (7)	16:56	26	16:33 (21)	16:27	20	08:37 (15)	16:29	49	09:04 (15)
27	05:42	06:12		17:32 (7)	06:42		17:14 (7)	06:13		16:07 (21)	06:49		08:16 (15)	07:12		08:17 (15)
	20:11	19:32	42	18:14 (7)	18:41	65	18:19 (7)	16:55	25	16:32 (21)	16:26	23	08:39 (15)	16:30	48	09:05 (15)
28	05:43	06:13		17:31 (7)	06:43		17:14 (7)	06:14		16:08 (21)	06:50		08:14 (15)	07:12		08:17 (15)
	20:10	19:30	44	18:15 (7)	18:39	62	18:16 (7)	16:53	22	16:30 (21)	16:26	27	08:41 (15)	16:31	48	09:05 (15)
29	05:44	06:14		17:28 (7)	06:44		17:14 (7)	06:15		16:08 (21)	06:51		08:13 (15)	07:13		08:17 (15)
	20:09	19:28	48	18:16 (7)	18:37	61	18:15 (7)	16:52	20	16:28 (21)	16:26	30	08:43 (15)	16:31	48	09:05 (15)
30	05:45	06:15		17:27 (7)	06:45		17:15 (7)	06:17		16:10 (21)	06:52		08:12 (15)	07:13		08:18 (15)
	20:08	19:27	50	18:17 (7)	18:36	58	18:13 (7)	16:51	18	16:28 (21)	16:25	32	08:44 (15)	16:32	47	09:05 (15)
31	05:46	06:16		17:26 (7)				06:18		16:11 (21)				07:13		08:19 (15)
	20:07	19:25	53	18:19 (7)				16:50	15	16:26 (21)				16:33	46	09:05 (15)
Potential sun hours	457	427			375			346		300				290		
Total, worst case			453		2142			1028		175				1411		
Sun reduction			0,71		0,63			0,52		0,45				0,39		
Oper. time red.			0,84		0,84			0,84		0,84				0,84		
Wind dir. red.			0,54		0,54			0,53		0,67				0,70		
Total reduction			0,32		0,29			0,24		0,26				0,24		
Total, real			147		625			242		45				332		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: AH - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (34)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
3,74 4,31 5,21 6,68 8,38 9,76 10,61 9,72 7,93 5,84 4,48 3,68

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
1.010 780 356 292 406 724 917 547 457 439 520 890 7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:13 16:34	07:00 17:07	06:25 17:41	06:36 19:14	05:51 19:44	05:23 20:13	05:23 20:24	05:47 20:06	06:16 19:23	06:45 18:34	06:19 16:48	06:53 16:25
2	07:13 16:35	06:59 17:09	06:24 17:42	06:34 19:15	05:49 19:45	05:22 20:14	05:24 20:24	05:48 20:05	06:17 19:22	06:46 18:32	06:20 16:47	06:54 16:24
3	07:13 16:36	06:58 17:10	06:22 17:43	06:32 19:16	05:48 19:47	05:22 20:15	05:24 20:24	05:48 20:03	06:18 19:20	06:47 18:31	06:21 16:46	06:55 16:24
4	07:13 16:36	06:57 17:11	06:21 17:44	06:31 19:17	05:47 19:48	05:21 20:15	05:25 20:24	05:49 20:02	06:19 19:19	06:48 18:29	06:22 16:45	06:56 16:24
5	07:13 16:37	06:56 17:12	06:19 17:45	06:29 19:18	05:46 19:49	05:21 20:16	05:25 20:23	05:50 20:01	06:20 19:17	06:49 18:27	06:23 16:44	06:57 16:24
6	07:13 16:38	06:55 17:14	06:18 17:46	06:27 19:19	05:45 19:50	05:21 20:17	05:26 20:23	05:51 20:00	06:21 19:15	06:50 18:26	06:24 16:43	06:58 16:24
7	07:13 16:39	06:54 17:15	06:16 17:47	06:26 19:20	05:43 19:51	05:21 20:17	05:27 20:23	05:52 19:59	06:22 19:14	06:51 18:24	06:26 16:41	06:59 16:24
8	07:13 16:40	06:53 17:16	06:15 17:48	06:24 19:21	05:42 19:52	05:20 20:18	05:27 20:23	05:53 19:58	06:23 19:12	06:53 18:23	06:27 16:40	06:59 16:24
9	07:13 16:41	06:52 17:17	06:13 17:49	06:23 19:22	05:41 19:53	05:20 20:18	05:28 20:22	05:54 19:56	06:24 19:11	06:54 18:21	06:28 16:39	07:00 16:24
10	07:13 16:42	06:51 17:18	06:11 17:51	06:21 19:23	05:40 19:54	05:20 20:19	05:28 20:22	05:55 19:55	06:25 19:09	06:55 18:19	06:29 16:38	07:01 16:24
11	07:13 16:43	06:50 17:20	06:10 17:52	06:20 19:24	05:39 19:55	05:20 20:20	05:29 20:21	05:56 19:54	06:26 19:07	06:56 18:18	06:30 16:37	07:02 16:24
12	07:12 16:44	06:49 17:21	06:08 17:53	06:18 19:25	05:38 19:56	05:20 20:20	05:30 20:21	05:57 19:53	06:27 19:06	06:57 18:16	06:31 16:36	07:03 16:24
13	07:12 16:45	06:47 17:22	06:07 17:54	06:16 19:26	05:37 19:57	05:20 20:21	05:31 20:21	05:58 19:51	06:28 19:04	06:58 18:15	06:33 16:36	07:04 16:24
14	07:12 16:46	06:46 17:23	06:05 17:55	06:15 19:27	05:36 19:58	05:19 20:21	05:31 20:20	05:59 19:50	06:29 19:02	06:59 18:13	06:34 16:35	07:04 16:24
15	07:11 16:47	06:45 17:24	06:03 17:56	06:13 19:28	05:35 19:58	05:19 20:21	05:32 20:19	06:00 19:49	06:30 19:01	07:00 18:12	06:35 16:34	07:05 16:24
16	07:11 16:49	06:44 17:26	06:02 17:57	06:12 19:29	05:34 19:59	05:19 20:22	05:33 20:19	06:01 19:47	06:31 18:59	07:01 18:10	06:36 16:33	07:06 16:25
17	07:11 16:50	06:42 17:27	06:00 17:58	06:10 19:30	05:33 20:00	05:19 20:22	05:34 20:18	06:02 19:46	06:32 18:57	07:02 18:09	06:37 16:32	07:07 16:25
18	07:10 16:51	06:41 17:28	05:58 17:59	06:09 19:31	05:32 20:01	05:20 20:22	05:34 20:18	06:03 19:45	06:33 18:56	07:03 18:07	06:38 16:31	07:07 16:25
19	07:10 16:52	06:40 17:29	05:57 18:00	06:07 19:32	05:31 20:02	05:20 20:23	05:35 20:17	06:04 19:43	06:34 18:54	07:04 18:06	06:40 16:31	07:08 16:26
20	07:09 16:53	06:38 17:30	05:55 18:01	06:06 19:33	05:30 20:03	05:20 20:23	05:36 20:16	06:05 19:42	06:35 18:52	07:05 18:04	06:41 16:30	07:08 16:26
21	07:09 16:54	06:37 17:31	05:54 18:02	06:04 19:34	05:30 20:04	05:20 20:23	05:37 20:16	06:06 19:40	06:36 18:51	07:06 18:03	06:42 16:29	07:09 16:27
22	07:08 16:55	06:35 17:33	05:52 18:03	06:03 19:35	05:29 20:05	05:20 20:24	05:38 20:15	06:07 19:39	06:37 18:49	07:07 18:01	06:43 16:29	07:09 16:27
23	07:07 16:57	06:34 17:34	05:50 18:04	06:02 19:36	05:28 20:06	05:20 20:24	05:38 20:14	06:08 19:37	06:38 18:47	07:08 18:00	06:44 16:28	07:10 16:28
24	07:07 16:58	06:33 17:35	05:49 18:05	06:00 19:37	05:27 20:07	05:21 20:24	05:39 20:13	06:09 19:36	06:39 18:46	07:10 17:59	06:45 16:28	07:10 16:28
25	07:06 16:59	06:31 17:36	05:47 18:06	05:59 19:38	05:27 20:08	05:21 20:24	05:40 20:12	06:10 19:34	06:40 18:44	06:11 16:57	06:46 16:27	07:11 16:29
26	07:05 17:00	06:30 17:37	05:45 18:07	05:57 19:39	05:26 20:08	05:21 20:24	05:41 20:11	06:11 19:33	06:40 18:42	06:12 16:56	06:47 16:27	07:11 16:29
27	07:05 17:01	06:28 17:38	05:44 18:08	05:56 19:40	05:25 20:09	05:22 20:24	05:42 20:11	06:12 19:31	06:41 18:41	06:13 16:55	06:48 16:26	07:12 16:30
28	07:04 17:03	06:27 17:39	05:42 18:09	05:55 19:41	05:25 20:10	05:22 20:24	05:43 20:10	06:13 19:30	06:42 18:39	06:14 16:53	06:50 16:26	07:12 16:31
29	07:03 17:04		06:40 19:11	05:53 19:42	05:24 20:11	05:22 20:24	05:44 20:09	06:14 19:28	06:43 18:37	06:15 16:52	06:51 16:25	07:12 16:31
30	07:02 17:05		06:39 19:12	05:52 19:43	05:24 20:12	05:23 20:24	05:45 20:08	06:15 19:27	06:44 18:36	06:16 16:51	06:52 16:25	07:13 16:32
31	07:01 17:06		06:37 19:13		05:23 20:12		05:46 20:07	06:15 19:25		06:17 16:49		07:13 16:33
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

SHADOW - Calendar

Shadow receptor: AI - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (35)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June	
1	07:13		07:35 (15)	07:01	09:02 (7)	06:26	06:36		18:05 (14)	05:51	05:23	
	16:34	104	09:46 (7)	17:08	09:23 (7)	17:41	19:14	37	18:42 (14)	19:45	20:14	
2	07:13		07:36 (15)	07:00	09:11 (7)	06:24	06:34		18:04 (14)	05:50	05:22	
	16:35	104	09:47 (7)	17:09	09:14 (7)	17:42	19:15	36	18:40 (14)	19:46	20:14	
3	07:14		07:36 (15)	06:59		06:23	06:33		18:05 (14)	05:48	05:22	
	16:36	104	09:47 (7)	17:10		17:43	19:16	33	18:38 (14)	19:47	20:15	
4	07:14		07:36 (15)	06:58		06:21	06:31		18:05 (14)	05:47	05:22	
	16:37	104	09:47 (7)	17:11		17:44	19:17	31	18:36 (14)	19:48	20:16	
5	07:14		07:35 (15)	06:57		06:19	06:29		18:05 (14)	05:46	05:21	
	16:38	104	09:47 (7)	17:13		17:45	19:18	29	18:34 (14)	19:49	20:16	
6	07:14		07:35 (15)	06:56		06:18	06:28		18:05 (14)	05:45	05:21	
	16:38	105	09:47 (7)	17:14		17:46	19:19	27	18:32 (14)	19:50	20:17	
7	07:14		07:35 (15)	06:55		06:16	06:26		18:06 (14)	05:44	05:21	
	16:39	104	09:47 (7)	17:15		17:48	19:20	23	18:29 (14)	19:51	20:18	
8	07:13		07:35 (15)	06:53		06:15	06:25		18:07 (14)	05:42	05:20	
	16:40	104	09:47 (7)	17:16		17:49	19:21	21	18:28 (14)	19:52	20:18	
9	07:13		07:35 (15)	06:52		06:13	06:23		18:07 (14)	05:41	05:20	
	16:41	104	09:48 (7)	17:17		17:50	19:22	18	18:25 (14)	19:53	20:19	
10	07:13		07:35 (15)	06:51		06:12	06:21		18:09 (14)	05:40	05:20	
	16:42	104	09:48 (7)	17:19		17:51	19:23	15	18:24 (14)	19:54	20:19	
11	07:13		07:34 (15)	06:50		06:10	06:20		18:10 (14)	05:39	05:20	
	16:43	104	09:47 (7)	17:20		17:52	19:24	11	18:21 (14)	19:55	20:20	
12	07:13		07:35 (15)	06:49		06:08	06:18		18:12 (14)	05:38	05:20	
	16:44	102	09:47 (7)	17:21		17:53	19:25	8	18:20 (14)	19:56	20:20	
13	07:12		07:36 (15)	06:48		06:07	06:17		18:13 (14)	05:37	05:20	
	16:45	101	09:47 (7)	17:22		17:54	19:26	4	18:17 (14)	19:57	20:21	
14	07:12		07:36 (15)	06:46		06:05	06:15			05:36	05:20	
	16:47	99	09:47 (7)	17:23		17:55	19:27			19:58	20:21	
15	07:12		07:37 (15)	06:45		06:04	06:14			05:35	05:20	
	16:48	98	09:47 (7)	17:25		17:56	19:28			19:59	20:22	
16	07:11		07:37 (15)	06:44		06:02	17:25 (14)	06:12		05:34	05:20	
	16:49	96	09:46 (7)	17:26		17:57	17:36 (14)	19:29		20:00	20:22	
17	07:11		07:39 (15)	06:42		06:00	17:22 (14)	06:11		05:33	05:20	
	16:50	92	09:46 (7)	17:27		17:58	17:38 (14)	19:30		20:01	20:22	
18	07:11		07:39 (15)	06:41		05:59	17:19 (14)	06:09		05:32	05:20	
	16:51	91	09:45 (7)	17:28		17:59	17:38 (14)	19:31		20:02	20:23	
19	07:10		07:41 (15)	06:40		05:57	17:16 (14)	06:08		05:31	05:20	
	16:52	87	09:45 (7)	17:29		18:00	17:39 (14)	19:32		20:03	20:23	
20	07:10		07:42 (15)	06:38		05:55	17:15 (14)	06:06		05:31	05:20	
	16:53	83	09:44 (7)	17:31		18:01	17:41 (14)	19:33		20:03	20:23	
21	07:09		07:43 (15)	06:37		05:54	17:13 (14)	06:05		05:30	05:20	
	16:54	80	09:43 (7)	17:32		18:02	17:42 (14)	19:34		20:04	20:24	
22	07:08		07:45 (15)	06:36		05:52	17:12 (14)	06:03		05:29	05:20	
	16:56	75	09:43 (7)	17:33		18:04	17:43 (14)	19:35		20:05	20:24	
23	07:08		07:47 (15)	06:34		05:51	17:10 (14)	06:02		05:28	05:21	
	16:57	69	09:42 (7)	17:34		18:05	17:44 (14)	19:37		20:06	20:24	
24	07:07		08:44 (7)	06:33		05:49	17:09 (14)	06:00		05:28	05:21	
	16:58	56	09:40 (7)	17:35		18:06	17:45 (14)	19:38		20:07	20:24	
25	07:06		08:46 (7)	06:31		05:47	17:08 (14)	05:59		05:27	05:21	
	16:59	54	09:40 (7)	17:36		18:07	17:46 (14)	19:39		20:08	20:24	
26	07:06		08:48 (7)	06:30		05:46	17:07 (14)	05:58		05:26	05:21	
	17:00	50	09:38 (7)	17:37		18:08	17:47 (14)	19:40		20:09	20:24	
27	07:05		08:49 (7)	06:29		05:44	17:06 (14)	05:56		05:26	05:22	
	17:02	48	09:37 (7)	17:39		18:09	17:48 (14)	19:41		20:10	20:24	
28	07:04		08:51 (7)	06:27		05:42	17:06 (14)	05:55		05:25	05:22	
	17:03	44	09:35 (7)	17:40		18:10	17:49 (14)	19:42		20:10	20:24	
29	07:03		08:53 (7)			06:41	18:05 (14)	05:54		05:24	05:23	
	17:04	39	09:32 (7)			19:11	18:49 (14)	19:43		20:11	20:24	
30	07:02		08:55 (7)			06:39	18:05 (14)	05:52		05:24	05:23	
	17:05	35	09:30 (7)			19:12	18:46 (14)	19:44		20:12	20:24	
31	07:01		08:58 (7)			06:37	18:05 (14)			05:23		
	17:06	29	09:27 (7)			19:13	18:45 (14)			20:13		
Potential sun hours	299		298			370		398		446		450
Total, worst case	2573		24			513		293				
Sun reduction	0,39		0,40			0,44		0,50				
Oper. time red.	0,84		0,84			0,84		0,84				
Wind dir. red.	0,71		0,72			0,56		0,56				
Total reduction	0,23		0,25			0,21		0,24				
Total, real	600		6			106		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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SHADOW - Calendar

Shadow receptor: AI - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (35)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23 20:24	05:47 20:06	06:17 19:24	18:09 (14) 18:20 (14)	06:46 16:48	06:19 16:25
2	05:24 20:24	05:48 20:05	06:18 19:22	18:07 (14) 18:22 (14)	06:47 16:47	06:20 16:25
3	05:24 20:24	05:49 20:04	06:19 19:21	18:05 (14) 18:23 (14)	06:48 16:46	06:21 16:24
4	05:25 20:24	05:50 20:03	06:20 19:19	18:04 (14) 18:25 (14)	06:49 16:45	06:22 16:24
5	05:26 20:24	05:51 20:02	06:21 19:17	18:03 (14) 18:26 (14)	06:50 16:44	06:24 16:24
6	05:26 20:23	05:52 20:00	06:21 19:16	18:02 (14) 18:28 (14)	06:51 16:43	06:25 16:24
7	05:27 20:23	05:53 19:59	06:22 19:14	18:01 (14) 18:29 (14)	06:52 16:42	06:26 16:24
8	05:27 20:23	05:53 19:58	06:23 19:12	18:00 (14) 18:31 (14)	06:53 16:41	06:27 16:24
9	05:28 20:23	05:54 19:57	06:24 19:11	17:59 (14) 18:32 (14)	06:54 16:40	06:28 16:24
10	05:29 20:22	05:55 19:56	06:25 19:09	17:58 (14) 18:34 (14)	06:55 16:39	06:29 16:24
11	05:29 20:22	05:56 19:54	06:26 19:08	17:57 (14) 18:34 (14)	06:56 16:38	06:31 16:24
12	05:30 20:21	05:57 19:53	06:27 19:06	17:56 (14) 18:36 (14)	06:57 16:37	06:32 16:24
13	05:31 20:21	05:58 19:52	06:28 19:04	17:56 (14) 18:37 (14)	06:58 16:36	06:33 16:24
14	05:31 20:20	05:59 19:50	06:29 19:03	17:56 (14) 18:39 (14)	06:59 16:35	06:34 16:24
15	05:32 20:20	06:00 19:49	06:30 19:01	17:56 (14) 18:39 (14)	07:00 16:34	06:35 16:25
16	05:33 20:19	06:01 19:48	06:31 18:59	17:55 (14) 18:37 (14)	07:01 16:33	06:36 16:25
17	05:34 20:19	06:02 19:46	06:32 18:58	17:55 (14) 18:35 (14)	07:02 16:32	06:38 16:25
18	05:35 20:18	06:03 19:45	06:33 18:56	17:56 (14) 18:34 (14)	07:03 16:32	06:39 16:26
19	05:35 20:17	06:04 19:43	06:34 18:54	17:56 (14) 18:32 (14)	07:04 16:31	06:40 16:26
20	05:36 20:17	06:05 19:42	06:35 18:52	17:56 (14) 18:31 (14)	07:05 16:30	06:41 16:26
21	05:37 20:16	06:06 19:41	06:36 18:51	17:57 (14) 18:29 (14)	07:07 16:30	06:42 16:27
22	05:38 20:15	06:07 19:39	06:37 18:49	17:58 (14) 18:27 (14)	07:08 16:29	06:43 16:27
23	05:39 20:14	06:08 19:38	06:38 18:47	17:59 (14) 18:26 (14)	07:09 16:28	06:44 16:28
24	05:40 20:13	06:09 19:36	06:39 18:46	18:00 (14) 18:24 (14)	07:10 16:28	06:45 16:28
25	05:40 20:13	06:10 19:35	06:40 18:44	18:01 (14) 18:22 (14)	06:47 16:27	07:11 16:29
26	05:41 20:12	06:11 19:33	06:41 18:42	18:03 (14) 18:21 (14)	06:48 16:27	07:12 16:29
27	05:42 20:11	06:12 19:32	06:42 18:41	18:06 (14) 18:19 (14)	06:49 16:26	07:13 16:30
28	05:43 20:10	06:13 19:30	06:43 18:39	18:11 (14) 18:17 (14)	06:50 16:26	07:14 16:31
29	05:44 20:09	06:14 19:28	06:44 18:37	18:15 (14) 16:52	06:51 16:26	07:15 16:32
30	05:45 20:08	06:15 19:27	06:45 18:36	18:17 (14) 16:51	06:52 16:25	07:16 16:33
31	05:46 20:07	06:16 19:25	06:46 18:35	18:18 (14) 16:50	06:53 16:25	07:17 16:33
Potential sun hours	457	427	375	346	300	290
Total, worst case		12	807		1457	3210
Sun reduction		0,71	0,63		0,45	0,39
Oper. time red.		0,84	0,84		0,84	0,84
Wind dir. red.		0,56	0,56		0,71	0,71
Total reduction		0,33	0,30		0,27	0,24
Total, real		4	242		394	759

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: AJ - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (36)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June
1	07:13 16:34	07:01 17:08	07:24 (8) 08:12 (8)	06:26 07:09 (8)	05:51 06:36	05:23 06:14
2	07:14 16:35	07:00 17:09	07:23 (8) 08:14 (8)	06:24 07:09 (8)	05:50 06:34	05:22 06:14
3	07:14 16:36	06:59 17:10	07:22 (8) 08:15 (8)	06:23 07:09 (8)	05:48 06:33	05:22 06:14
4	07:14 16:37	06:58 17:11	07:21 (8) 08:17 (8)	06:21 07:10 (8)	05:47 06:31	05:22 06:16
5	07:14 16:38	06:57 17:13	07:20 (8) 08:18 (8)	06:20 07:11 (8)	05:46 06:29	05:21 06:16
6	07:14 16:38	06:56 17:14	07:19 (8) 08:20 (8)	06:18 07:11 (8)	05:45 06:28	05:21 06:17
7	07:14 16:39	06:55 17:15	07:18 (8) 08:21 (8)	06:16 07:11 (8)	05:44 06:26	05:21 06:18
8	07:14 16:40	06:54 17:16	07:17 (8) 08:22 (8)	06:15 07:11 (8)	05:43 06:25	05:20 06:18
9	07:13 16:41	06:52 17:17	07:16 (8) 08:23 (8)	06:13 07:12 (8)	05:41 06:23	05:20 06:19
10	07:13 16:42	06:51 17:19	07:16 (8) 08:24 (8)	06:12 07:13 (8)	05:40 06:20	05:20 06:19
11	07:13 16:43	06:50 17:20	07:14 (8) 08:24 (8)	06:10 08:17 (8)	05:39 06:24	05:20 06:20
12	07:13 16:44	06:49 17:21	07:14 (8) 08:25 (8)	06:09 07:14 (8)	05:38 06:18	05:20 06:20
13	07:13 16:45	06:48 17:22	07:13 (8) 08:26 (8)	06:07 07:14 (8)	05:37 06:17	05:20 06:21
14	07:12 16:47	06:46 17:23	07:13 (8) 08:27 (8)	06:05 07:15 (8)	05:36 06:15	05:20 06:21
15	07:12 16:48	06:45 17:25	07:12 (8) 08:27 (8)	06:04 07:18 (8)	05:35 06:12	05:20 06:22
16	07:12 16:49	06:44 17:26	07:12 (8) 08:28 (8)	06:02 07:18 (8)	05:34 06:12	05:20 06:22
17	07:11 16:50	06:43 17:27	07:12 (8) 08:28 (8)	06:00 07:20 (8)	05:33 06:11	05:20 06:23
18	07:11 16:51	06:41 17:28	07:11 (8) 08:28 (8)	05:59 07:22 (8)	05:32 06:09	05:20 06:23
19	07:10 16:52	06:40 17:29	07:11 (8) 08:28 (8)	05:57 07:25 (8)	05:32 06:08	05:20 06:23
20	07:10 16:53	06:39 17:31	07:11 (8) 08:29 (8)	05:56 07:27 (8)	05:31 06:06	05:20 06:23
21	07:09 16:54	06:37 17:32	07:10 (8) 08:28 (8)	05:54 07:31 (8)	05:30 06:05	05:20 06:24
22	07:08 16:56	06:36 17:33	07:10 (8) 08:29 (8)	05:52 07:30 (8)	05:29 06:03	05:20 06:24
23	07:08 16:57	06:34 17:34	07:09 (8) 08:28 (8)	05:51 07:29 (8)	05:28 06:02	05:21 06:24
24	07:07 16:58	06:33 17:35	07:09 (8) 08:28 (8)	05:49 07:28 (8)	05:28 06:00	05:21 06:24
25	07:06 16:59	06:32 07:45 (8)	07:09 (8) 08:28 (8)	05:47 07:27 (8)	05:27 05:59	05:21 06:24
26	07:06 17:00	06:30 07:38 (8)	07:09 (8) 08:28 (8)	05:46 07:26 (8)	05:26 05:58	05:21 06:24
27	07:05 17:02	06:29 08:01 (8)	07:09 (8) 08:27 (8)	05:44 07:25 (8)	05:26 05:56	05:22 06:25
28	07:04 17:03	06:27 08:04 (8)	07:09 (8) 08:27 (8)	05:42 07:24 (8)	05:25 05:55	05:22 06:25
29	07:03 17:04	06:26 08:06 (8)	07:09 (8) 08:27 (8)	05:41 07:23 (8)	05:24 05:54	05:23 06:25
30	07:02 17:05	06:25 08:08 (8)	07:09 (8) 08:27 (8)	05:40 07:22 (8)	05:24 05:53	05:23 06:25
31	07:02 17:06	06:24 08:10 (8)	07:09 (8) 08:27 (8)	05:39 07:21 (8)	05:23 05:52	05:23 06:25
Potential sun hours	299	298	370	398	447	450
Total, worst case	202	1966	1225			
Sun reduction	0,39	0,40	0,44			
Oper. time red.	0,84	0,84	0,84			
Wind dir. red.	0,64	0,64	0,64			
Total reduction	0,21	0,22	0,23			
Total, real	42	424	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)
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SHADOW - Calendar

Shadow receptor: AJ - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (36)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23	05:47	06:17	06:46	07:54 (8)	06:19
	20:24	20:06	19:24	18:34	60 08:54 (8)	16:49
2	05:24	05:48	06:18	06:47	07:52 (8)	06:20
	20:24	20:05	19:22	18:33	63 08:55 (8)	16:47
3	05:24	05:49	06:19	06:48	07:51 (8)	06:21
	20:24	20:04	19:21	18:31	65 08:56 (8)	16:46
4	05:25	05:50	06:20	06:49	07:50 (8)	06:22
	20:24	20:03	19:19	18:29	66 08:56 (8)	16:45
5	05:26	05:51	06:21	06:50	07:49 (8)	06:24
	20:24	20:02	19:17	18:28	68 08:57 (8)	16:44
6	05:26	05:52	06:22	06:51	07:48 (8)	06:25
	20:24	20:00	19:16	18:26	70 08:58 (8)	16:43
7	05:27	05:53	06:22	06:52	07:47 (8)	06:26
	20:23	19:59	19:14	18:24	71 08:58 (8)	16:42
8	05:27	05:53	06:23	06:53	07:46 (8)	06:27
	20:23	19:58	19:13	18:23	73 08:59 (8)	16:41
9	05:28	05:54	06:24	06:54	07:45 (8)	06:28
	20:23	19:57	19:11	18:21	74 08:59 (8)	16:40
10	05:29	05:55	06:25	06:55	07:44 (8)	06:29
	20:22	19:56	19:09	18:20	75 08:59 (8)	16:39
11	05:29	05:56	06:26	06:56	07:43 (8)	06:31
	20:22	19:54	19:08	18:18	76 08:59 (8)	16:38
12	05:30	05:57	06:27	06:57	07:43 (8)	06:32
	20:21	19:53	19:06	18:17	77 09:00 (8)	16:37
13	05:31	05:58	06:28	06:58	07:42 (8)	06:33
	20:21	19:52	19:04	18:15	78 09:00 (8)	16:36
14	05:31	05:59	06:29	06:59	07:41 (8)	06:34
	20:20	19:50	19:03	18:14	79 09:00 (8)	16:35
15	05:32	06:00	06:30	07:00	07:41 (8)	06:35
	20:20	19:49	19:01	18:12	79 09:00 (8)	16:34
16	05:33	06:01	06:31	07:01	07:41 (8)	06:36
	20:19	19:48	18:59	18:10	78 08:59 (8)	16:33
17	05:34	06:02	06:32	07:02	07:41 (8)	06:38
	20:19	19:46	18:58	18:09	79 09:00 (8)	16:32
18	05:35	06:03	06:33	07:03	07:41 (8)	06:39
	20:18	19:45	18:56	18:07	79 09:00 (8)	16:32
19	05:35	06:04	06:34	07:04	07:41 (8)	06:40
	20:17	19:44	18:54	18:06	79 09:00 (8)	16:31
20	05:36	06:05	06:35	07:06	07:40 (8)	06:41
	20:17	19:42	18:53	18:05	79 08:59 (8)	16:30
21	05:37	06:06	06:36	07:07	07:40 (8)	06:42
	20:16	19:41	18:51	18:03	79 08:59 (8)	16:30
22	05:38	06:07	06:37	08:19 (8)	07:08	07:40 (8)
	20:15	19:39	18:49	14 08:33 (8)	18:02	79 08:59 (8)
23	05:39	06:08	06:38	08:13 (8)	07:09	79 07:40 (8)
	20:14	19:38	18:48	25 08:38 (8)	18:00	78 08:58 (8)
24	05:40	06:09	06:39	08:09 (8)	07:10	77 07:41 (8)
	20:14	19:36	18:46	32 08:41 (8)	17:59	77 08:58 (8)
25	05:40	06:10	06:40	08:06 (8)	06:11	77 06:41 (8)
	20:13	19:35	18:44	38 08:44 (8)	16:58	77 07:58 (8)
26	05:41	06:11	06:41	08:03 (8)	06:12	77 06:42 (8)
	20:12	19:33	18:43	43 08:46 (8)	16:56	75 07:57 (8)
27	05:42	06:12	06:42	08:01 (8)	06:13	74 06:42 (8)
	20:11	19:32	18:41	47 08:48 (8)	16:55	74 07:56 (8)
28	05:43	06:13	06:43	07:59 (8)	06:14	74 06:42 (8)
	20:10	19:30	18:39	51 08:50 (8)	16:54	74 07:56 (8)
29	05:44	06:14	06:44	07:57 (8)	06:16	73 06:43 (8)
	20:09	19:29	18:38	54 08:51 (8)	16:52	73 07:56 (8)
30	05:45	06:15	06:45	07:55 (8)	06:17	71 06:44 (8)
	20:08	19:27	18:36	58 08:53 (8)	16:51	71 07:55 (8)
31	05:46	06:16			06:18	
	20:07	19:25			16:50	70 07:54 (8)
Potential sun hours	457	427	375	346		300
Total, worst case			362	2295		789
Sun reduction			0,63	0,52		0,45
Oper. time red.			0,84	0,84		0,84
Wind dir. red.			0,64	0,64		0,64
Total reduction			0,34	0,28		0,24
Total, real			122	640		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)
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SHADOW - Calendar

Shadow receptor: AK - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (37)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	January		February		March		April		May		June	
1	07:13	15:57 (7)	07:01	15:35 (6)	06:25	15:34 (6)	06:36	05:51	05:23			
	16:34	11	16:08 (7)	17:08	66	16:41 (6)	17:41	70	16:44 (6)	19:14	19:45	20:13
2	07:13	15:57 (7)	07:00	15:35 (6)	06:24	15:35 (6)	06:34	05:50	05:22			
	16:35	12	16:09 (7)	17:09	66	16:41 (6)	17:42	69	16:44 (6)	19:15	19:46	20:14
3	07:13	15:58 (7)	06:59	15:34 (6)	06:22	15:36 (6)	06:32	05:48	05:22			
	16:36	12	16:10 (7)	17:10	68	16:42 (6)	17:43	66	16:42 (6)	19:16	19:47	20:15
4	07:14	15:58 (7)	06:58	15:34 (6)	06:21	15:37 (6)	06:31	05:47	05:22			
	16:36	13	16:11 (7)	17:11	69	16:43 (6)	17:44	65	16:42 (6)	19:17	19:48	20:16
5	07:14	15:59 (7)	06:57	15:33 (6)	06:19	06:38 (16)	06:29	05:46	05:21			
	16:37	12	16:11 (7)	17:12	71	16:44 (6)	17:45	64	16:40 (6)	19:18	19:49	20:16
6	07:14	16:00 (7)	06:56	15:33 (6)	06:18	06:36 (16)	06:28	05:45	05:21			
	16:38	13	16:13 (7)	17:14	72	16:45 (6)	17:46	66	16:38 (6)	19:19	19:50	20:17
7	07:13	16:01 (7)	06:54	15:33 (6)	06:16	06:35 (16)	06:26	05:44	05:21			
	16:39	13	16:14 (7)	17:15	73	16:46 (6)	17:47	66	16:37 (6)	19:20	19:51	20:18
8	07:13	16:02 (7)	06:53	15:32 (6)	06:15	06:33 (16)	06:24	05:42	05:20			
	16:40	13	16:15 (7)	17:16	74	16:46 (6)	17:49	66	16:35 (6)	19:21	19:52	20:18
9	07:13	16:03 (7)	06:52	15:32 (6)	06:13	06:32 (16)	06:23	05:41	05:20			
	16:41	13	16:16 (7)	17:17	75	16:47 (6)	17:50	65	16:34 (6)	19:22	19:53	20:19
10	07:13	16:03 (7)	06:51	15:31 (6)	06:12	06:30 (16)	06:21	05:40	05:20			
	16:42	13	16:16 (7)	17:19	76	16:47 (6)	17:51	65	16:32 (6)	19:23	19:54	20:19
11	07:13	16:04 (7)	06:50	15:31 (6)	06:10	06:28 (16)	06:20	05:39	05:20			
	16:43	14	16:18 (7)	17:20	76	16:47 (6)	17:52	61	16:29 (6)	19:24	19:55	20:20
12	07:13	16:05 (7)	06:49	15:31 (6)	06:08	06:27 (16)	06:18	05:38	05:20			
	16:44	14	16:19 (7)	17:21	77	16:48 (6)	17:53	58	16:27 (6)	19:25	19:56	20:20
13	07:12	16:07 (7)	06:48	15:31 (6)	06:07	06:25 (16)	06:17	05:37	05:20			
	16:45	13	16:20 (7)	17:22	78	16:49 (6)	17:54	55	16:24 (6)	19:26	19:57	20:21
14	07:12	16:08 (7)	06:46	15:30 (6)	06:05	06:24 (16)	06:15	05:36	05:20			
	16:46	11	16:19 (7)	17:23	78	16:48 (6)	17:55	49	16:21 (6)	19:27	19:58	20:21
15	07:12	16:10 (7)	06:45	15:30 (6)	06:04	06:22 (16)	06:14	05:35	05:20			
	16:48	8	16:18 (7)	17:25	79	16:49 (6)	17:56	39	16:15 (6)	19:28	19:59	20:22
16	07:11	15:56 (6)	06:44	15:31 (6)	06:02	06:20 (16)	06:12	05:34	05:20			
	16:49	16	16:12 (6)	17:26	78	16:49 (6)	17:57	25	06:45 (16)	19:29	20:00	20:22
17	07:11	15:54 (6)	06:42	15:31 (6)	06:00	06:20 (16)	06:10	05:33	05:20			
	16:50	22	16:16 (6)	17:27	78	16:49 (6)	17:58	25	06:45 (16)	19:30	20:01	20:22
18	07:10	15:51 (6)	06:41	15:30 (6)	05:59	06:20 (16)	06:09	05:32	05:20			
	16:51	27	16:18 (6)	17:28	79	16:49 (6)	17:59	23	06:43 (16)	19:31	20:02	20:23
19	07:10	15:50 (6)	06:40	15:31 (6)	05:57	06:20 (16)	06:08	05:31	05:20			
	16:52	31	16:21 (6)	17:29	78	16:49 (6)	18:00	21	06:41 (16)	19:32	20:02	20:23
20	07:09	15:48 (6)	06:38	15:30 (6)	05:55	06:22 (16)	06:06	05:31	05:20			
	16:53	35	16:23 (6)	17:30	78	16:48 (6)	18:01	18	06:40 (16)	19:33	20:03	20:23
21	07:09	15:46 (6)	06:37	15:31 (6)	05:54	06:24 (16)	06:05	05:30	05:20			
	16:54	39	16:25 (6)	17:32	77	16:48 (6)	18:02	13	06:37 (16)	19:34	20:04	20:24
22	07:08	15:45 (6)	06:36	15:31 (6)	05:52	06:29 (16)	06:03	05:29	05:20			
	16:56	43	16:28 (6)	17:33	78	16:49 (6)	18:03	2	06:31 (16)	19:35	20:05	20:24
23	07:08	15:44 (6)	06:34	15:31 (6)	05:50		06:02	05:28	05:21			
	16:57	45	16:29 (6)	17:34	77	16:48 (6)	18:04	19:36	20:06			20:24
24	07:07	15:42 (6)	06:33	15:32 (6)	05:49		06:00	05:27	05:21			
	16:58	48	16:30 (6)	17:35	76	16:48 (6)	18:06	19:37	20:07			20:24
25	07:06	15:42 (6)	06:31	15:32 (6)	05:47		05:59	05:27	05:21			
	16:59	51	16:33 (6)	17:36	75	16:47 (6)	18:07	19:39	20:08			20:24
26	07:06	15:41 (6)	06:30	15:33 (6)	05:46		05:58	05:26	05:21			
	17:00	53	16:34 (6)	17:37	74	16:47 (6)	18:08	19:40	20:09			20:24
27	07:05	15:40 (6)	06:28	15:33 (6)	05:44		05:56	05:25	05:22			
	17:01	55	16:35 (6)	17:38	72	16:45 (6)	18:09	19:41	20:10			20:24
28	07:04	15:39 (6)	06:27	15:34 (6)	05:42		05:55	05:25	05:22			
	17:03	57	16:36 (6)	17:40	71	16:45 (6)	18:10	19:42	20:10			20:24
29	07:03	15:38 (6)			06:41		05:53	05:24	05:22			
	17:04	59	16:37 (6)		19:11		19:43	20:11	20:24			
30	07:02	15:37 (6)			06:39		05:52	05:24	05:23			
	17:05	61	16:38 (6)		19:12		19:44	20:12	20:24			
31	07:01	15:36 (6)			06:37			05:23				
	17:06	64	16:40 (6)		19:13			20:13				
Potential sun hours	299		298		370		398	446	450			
Total, worst case	891		2089		1051							
Sun reduction	0,39		0,40		0,44							
Oper. time red.	0,84		0,84		0,84							
Wind dir. red.	0,55		0,54		0,55							
Total reduction	0,18		0,18		0,20							
Total, real	158		385		213							

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: AK - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (37)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [BRINDISI]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
3,74	4,31	5,21	6,68	8,38	9,76	10,61	9,72	7,93	5,84	4,48	3,68

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1.010	780	356	292	406	724	917	547	457	439	520	890	7.337

Idle start wind speed: Cut in wind speed from power curve

	July	August	September	October	November	December
1	05:23	05:47	06:17	06:46	07:05 (16)	06:19
	20:24	20:06	19:24	18:34	17:05 (6)	16:48
2	05:24	05:48	06:18	06:47	07:06 (16)	06:20
	20:24	20:05	19:22	18:32	17:07 (6)	16:47
3	05:24	05:49	06:19	06:48	07:07 (16)	06:21
	20:24	20:04	19:21	18:31	17:09 (6)	16:46
4	05:25	05:50	06:19	06:49	07:08 (16)	06:22
	20:24	20:03	19:19	18:29	17:10 (6)	16:45
5	05:25	05:50	06:20	06:50	07:09 (16)	06:23
	20:24	20:01	19:17	18:28	17:11 (6)	16:44
6	05:26	05:51	06:21	06:51	07:11 (16)	06:25
	20:23	20:00	19:16	18:26	17:13 (6)	16:43
7	05:27	05:52	06:22	06:52	07:12 (16)	06:26
	20:23	19:59	19:14	18:24	17:14 (6)	16:42
8	05:27	05:53	06:23	06:53	07:13 (16)	06:27
	20:23	19:58	19:12	18:23	17:15 (6)	16:40
9	05:28	05:54	06:24	06:54	16:12 (6)	06:28
	20:22	19:57	19:11	18:21	17:16 (6)	16:39
10	05:29	05:55	06:25	06:55	16:11 (6)	06:29
	20:22	19:55	19:09	18:20	17:16 (6)	16:38
11	05:29	05:56	06:26	06:56	16:09 (6)	06:30
	20:22	19:54	19:07	18:18	17:17 (6)	16:37
12	05:30	05:57	06:27	06:57	16:08 (6)	06:32
	20:21	19:53	19:06	18:16	17:17 (6)	16:37
13	05:31	05:58	06:28	06:58	16:07 (6)	06:33
	20:21	19:52	19:04	18:15	17:18 (6)	16:36
14	05:31	05:59	06:29	06:59	16:06 (6)	06:34
	20:20	19:50	19:02	18:13	17:18 (6)	16:35
15	05:32	06:00	06:30	07:00	16:05 (6)	06:35
	20:20	19:49	19:01	18:12	17:18 (6)	16:34
16	05:33	06:01	06:31	07:01	16:04 (6)	06:36
	20:19	19:48	18:59	18:10	17:18 (6)	16:33
17	05:34	06:02	06:32	07:02	16:03 (6)	06:37
	20:19	19:46	18:57	18:09	17:18 (6)	16:32
18	05:34	06:03	06:33	07:03	16:03 (6)	06:39
	20:18	19:45	18:56	18:07	17:19 (6)	16:32
19	05:35	06:04	06:34	07:04	16:03 (6)	06:40
	20:17	19:43	18:54	18:06	17:19 (6)	16:31
20	05:36	06:05	06:35	07:05	16:02 (6)	06:41
	20:17	19:42	18:52	18:04	17:19 (6)	16:30
21	05:37	06:06	06:36	07:06	16:01 (6)	06:42
	20:16	19:40	18:51	18:03	17:19 (6)	16:29
22	05:38	06:07	06:37	07:07	16:01 (6)	06:43
	20:15	19:39	18:49	18:02	17:19 (6)	16:29
23	05:39	06:08	06:38	07:08	16:00 (6)	06:44
	20:14	19:38	18:47	18:00	17:19 (6)	16:28
24	05:39	06:09	06:39	07:09	16:00 (6)	06:45
	20:13	19:36	18:46	17:59	17:18 (6)	16:28
25	05:40	06:10	06:40	07:10	15:00 (6)	06:47
	20:13	19:35	18:44	16:57	16:19 (6)	16:27
26	05:41	06:11	06:41	07:11	15:00 (6)	06:48
	20:12	19:33	18:42	16:56	16:19 (6)	16:27
27	05:42	06:12	06:42	07:12	15:00 (6)	06:49
	20:11	19:32	18:41	16:55	16:18 (6)	16:26
28	05:43	06:13	06:43	07:13	15:00 (6)	06:50
	20:10	19:30	18:39	16:53	16:18 (6)	16:26
29	05:44	06:14	06:44	07:14	15:00 (6)	06:51
	20:09	19:28	18:37	16:52	16:17 (6)	16:25
30	05:45	06:15	06:45	07:15	15:01 (6)	06:52
	20:08	19:27	18:36	16:51	16:18 (6)	16:25
31	05:46	06:16		06:18	15:01 (6)	
	20:07	19:25		16:50	16:17 (6)	
Potential sun hours	457	427	375	346	300	290
Total, worst case			248	2225	1468	339
Sun reduction			0,63	0,52	0,45	0,39
Oper. time red.			0,84	0,84	0,84	0,84
Wind dir. red.			0,57	0,55	0,54	0,55
Total reduction			0,30	0,24	0,20	0,18
Total, real			75	532	300	62

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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