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REGIONE
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PROVINCIA DI
POTENZA



COMUNE DI
PESCOPAGANO

OGGETTO:

PROGETTO DEFINITIVO

"IMPIANTO DI PRODUZIONE DI ENERGIA ELETTRICA DA FONTE EOLICA NEL
COMUNE DI PESCOPAGANO (PZ) DENOMINATO "SAETTA" DI POTENZA
NOMINALE PARI A 72 MW

ELABORATO:

RELAZIONE SPECIALISTICA - STUDIO SUGLI EFFETTI DI SHADOW - FLICKERING



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	<p align="center">PROGETTO DEFINITIVO</p> <p align="center">"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p align="center">Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p align="center">DATA: MAGGIO 2024 Pag. 1 di 42</p>
---	--	---

Sommario

1. PREMESSA	3
1.1 Scopo del documento	3
2. CONTENUTI DELLA RELAZIONE	4
2.1 Iniziativa	5
2.2 Attenzione per l'ambiente	5
3. DESCRIZIONE TECNICA DEI COMPONENTI DELL'IMPIANTO	6
4. CENNI SUL FENOMENO DELLO SHADOW FLICKERING	11
5. IL CASO DI STUDIO	15
5.1 Configurazione d'impianto	20
5.2 Individuazione ed analisi dei ricettori	21
6. MODELLO DI CALCOLO E SOFTWARE UTILIZZATO	25
6.1 Calcolo dello shadow flickering nel WORST CASE	26
6.2 Risultati	28
7. ANALISI DEI RISULTATI PER SINGOLO RICETTORE (WORST CASE)	31
8. ANALISI DEI RISULTATI PER SINGOLO AEROGENERATORE (WORST CASE)	33
9. "REAL CASE"	34
10. CONCLUSIONI	35



	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024</p> <p>Pag. 2 di 42</p>
---	---	---

Figura 1 – Esempio Aerogeneratore	9
Figura 2 - Schema di principio di un aerogeneratore	11
Figura 3 - Rappresentazione schematica del fenomeno dello shadow flickering	12
Figura 4 - Altezza e dell'azimut.....	13
Figura 5 - Inquadramento area parco eolico su base ortofoto	17
Figura 6 - Inquadramento area parco eolico su catastale	18
Figura 7 - Inquadramento area parco e sottostazione su CTR	19
Figura 8 - Inquadramento area parco e sottostazione su IGM	20
Figura 9 - Localizzazione geografica dei ricettori rispetto alle turbine	25
Figura 10 - Rappresentazione grafica dell'ombreggiamento delle turbine rispetto i ricettori	29
Figura 11 – Rappresentazione grafica WORST CASE.....	38
Figura 12 – Rappresentazione grafica REAL CASE	41
Tabella 1 - Caratteristiche principali dell'aerogeneratore previsto nel parco eolico.	21
Tabella 2 - Coordinate degli aerogeneratori oggetto di studio.....	21
Tabella 3 - Coordinate delle strutture considerate come ricettori sensibili.....	24
Tabella 4 - Risultati riepilogativi complessivi del calcolo del fenomeno di shadow flickering per ciascun ricettore nel WORST CASE	30
Tabella 5 - Tabella riepilogativa dei dati di Shadow per ogni aerogeneratore	33

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024</p> <p>Pag. 3 di 42</p>
---	---	---

1. PREMESSA

1.1 Scopo del documento

Con il Decreto Legislativo 29 dicembre 2003, n. 387, il Parlamento Italiano ha proceduto all'attuazione della direttiva 2001/77/CE relativa alla promozione dell'energia elettrica prodotta da fonti energetiche rinnovabili nel mercato interno dell'elettricità.

Con la nuova normativa introdotta dal D.lgs. 30 giugno 2016, n. 127 (legge Madia), la conferenza dei servizi si potrà svolgere in modalità "Sincrona" o "Asincrona", nei casi previsti dalla legge.

L'autorizzazione alla costruzione ed esercizio dell'impianto eolico e delle relative opere di connessione alla RTN è comunque assoggettata, previo parere favorevole di compatibilità ambientale, al rilascio di Autorizzazione Unica da parte della Regione Campania.


Il posizionamento degli aerogeneratori è stato definito e calibrato ai fini del rispetto dei criteri di inserimento territoriale di cui all'Allegato al Decreto Ministeriale 10 settembre 2010 "*Linee guida per l'autorizzazione degli impianti alimentati da fonti rinnovabili*".

Il provvedimento trae origine da un adeguamento nazionale alla normativa europea prevista dalla Direttiva 2014/52/UE del 16 aprile 2014, la quale ha modificato la Direttiva 2011/92/UE concernente la valutazione dell'impatto ambientale di determinati progetti pubblici e privati. Scopo del provvedimento in esame è quello di rendere più efficiente le procedure amministrative nonché di innalzare il livello di tutela ambientale.

In linea con l'orientamento mondiale, la società WEB ITALIA ENERGIE RINNOVABILI S.R.L. intende realizzare nei comuni di Pescopagano (PZ), Santomena (SA), Castelnuovo di Conza (SA) e Conza della Campania (AV), un parco eolico della potenza nominale di 72 MW.

Il parco in progetto sarà costituito da 10 aerogeneratori e relative opere accessorie, ovvero la realizzazione della viabilità di accesso al parco, ove non esistente e/o non idonea al trasporto dei componenti delle torri, la posa del cavidotto interno di collegamento tra gli aerogeneratori, la posa del cavidotto di collegamento tra il parco eolico e la presente Stazione Elettrica (SE) di Terna che permetterà l'immissione dell'energia elettrica prodotta alla dorsale nazionale.

Il progetto è finalizzato alla produzione di energia elettrica da fonti rinnovabili, in linea con la Strategia Energetica Nazionale (SEN).

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024</p> <p>Pag. 4 di 42</p>
---	---	---

2. CONTENUTI DELLA RELAZIONE

Il presente elaborato ha lo scopo di valutare tecnicamente l'eventuale impatto generato dall'effetto di "shadow flickering" derivante dall'evoluzione dell'ombra per il progetto di realizzazione di un parco eolico i cui aerogeneratori ricadono nel territorio comunale di Pescopagano (PZ), in Basilicata, mentre il cavidotto per il collegamento del parco eolico alla SE, si estende anche nel territorio regionale della Campania e più precisamente nel Comune di Santomena (SA), Conza della Campania (AV) e Castelnuovo di Conza (SA), da parte della società WEB ITALIA ENERGIE RINNOVABILI S.R.L., relativamente all'installazione di n. 10 aerogeneratori proposti per una futura potenza complessiva del parco eolico di 72 MW.


Il presente progetto prevede di considerare per i 10 aerogeneratori proposti una turbina da 7,2 MW. Lo shadow flickering è l'espressione comunemente impiegata in ambito specialistico per descrivere l'effetto stroboscopico delle ombre proiettate dalle pale rotanti degli aerogeneratori eolici quando sussistono le condizioni meteorologiche opportune; infatti la possibilità e la durata di tali effetti dipendono da una serie di condizioni ambientali, tra cui:

- ✓ la posizione del sole;
- ✓ l'ora del giorno;
- ✓ il giorno dell'anno;
- ✓ le condizioni atmosferiche ambientali;
- ✓ la posizione della turbina eolica rispetto ad un ricevitore sensibile.

La valutazione tecnica è eseguita con l'ausilio del software di simulazione specifico per la progettazione degli impianti eolici WindPRO, costituito da un insieme di moduli di elaborazione orientati alla simulazione di una serie di aspetti che caratterizzano le diverse fasi progettuali.

Nella presente relazione è riportata:

- una breve descrizione tecnica del fenomeno di shadow flickering;
- la descrizione del caso studio con le posizioni delle turbine e loro caratteristiche tecniche;
- la descrizione dei recettori soggetti al fenomeno per i quali è stata richiesta questa analisi;
- la sintesi della metodologia di analisi seguita per lo studio;

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024</p> <p>Pag. 5 di 42</p>
---	---	---

- la sintesi dei risultati ottenuti, con allegati grafici analitici di dettaglio che descrivono il fenomeno su ognuno dei recettori e da parte di ognuna delle turbine per tutto l'anno solare.

2.1 Iniziativa

Con la realizzazione dell'impianto eolico "Saetta", si intende conseguire un significativo risparmio energetico, mediante il ricorso alla fonte energetica rinnovabile rappresentata dal vento, tale tecnologia nasce dall'esigenza di coniugare:

- ✓ la compatibilità con esigenze paesaggistiche e di tutela ambientale;
- ✓ nessun inquinamento acustico;
- ✓ un risparmio di combustibile fossile;
- ✓ una produzione di energia elettrica senza emissioni di sostanze inquinanti.

Il progetto mira a contribuire al soddisfacimento delle esigenze di "Energia Verde" e allo "Sviluppo Sostenibile" invocate dal Protocollo di Kyoto, dalla Conferenza sul clima e l'ambiente di Copenaghen 2009 e dalla Conferenza sul clima di Parigi del 2015.


2.2 Attenzione per l'ambiente

Ad oggi, la produzione di energia elettrica è per la quasi totalità proveniente da impianti termoelettrici che utilizzano combustibili sostanzialmente di origine fossile.

L'Italia non possiede riserve significative di fonti fossili, ma da esse ricava circa il 90% dell'energia che consuma, con una rilevante dipendenza dall'estero. I costi della bolletta energetica, già alti, per l'aumento della domanda internazionale rischiano di diventare insostenibili per la nostra economia con le sanzioni previste in caso di mancato rispetto degli impegni di Kyoto, Copenaghen e Parigi.

La transizione verso un mix di fonti di energia e con un peso sempre maggiore di rinnovabili è, pertanto, strategica per un Paese come il nostro dove, tuttavia, le risorse idrauliche e geotermiche sono già sfruttate appieno.

Negli ultimi 10 anni grazie agli incentivi sulle fonti rinnovabili lo sviluppo delle energie verdi nel nostro paese ha subito un notevole incremento soprattutto nel fotovoltaico e nell'eolico, portando l'Italia tra i paesi più sviluppati dal punto di vista dell'innovazione energetica e ambientale.

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---	---	---

La conclusione di detti incentivi ha frenato lo sviluppo soprattutto dell'eolico, creando notevoli problemi all'economia del settore.

La società proponente WEB ITALIA ENERGIE RINNOVABILI S.R.L., con sede a Bolzano (BZ) in via Leonardo da Vinci 15, si pone come obiettivo di attuare la "grid parity" nell'eolico, grazie all'installazione di impianti di elevata potenza, nuovi aerogeneratori, che abbattano i costi fissi e rendono l'energia prodotta dell'eolico conveniente e sullo stesso livello delle energie prodotte dalle fonti fossili.

3. DESCRIZIONE TECNICA DEI COMPONENTI DELL'IMPIANTO

Le pale di un aerogeneratore sono fissate al mozzo e vi è un sistema di controllo che ne modifica costantemente l'orientamento rispetto alla direzione del vento, per offrire allo stesso sempre il medesimo profilo alare garantendo, indipendentemente dalla direzione del vento, un verso orario di rotazione.

L'aerogeneratore previsto per la realizzazione del parco eolico è una turbina da 7,2 MW e la scelta sul modello di macchina da adottare ricade tra le seguenti tipologie:

- Vestas V172 hh 138 – 7.2MW
- Nordex N175 hh 132 – 7.2MW
- Enercon E175 hh132 – 7.2MW

In merito al presente studio sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori, è stato considerato il modello di turbina Vestas V172 hh 138 da 7,2 MW.

- **Rotore-Navicella**


Il rotore è una costruzione a tre pale, montata sopravento rispetto alla torre. L'uscita di potenza è controllata da pitch e regolazione della domanda di coppia. La velocità del rotore è variabile ed è progettata per massimizzare la potenza durante mantenendo i carichi e il livello di rumore.

La navicella è stata progettata per un accesso sicuro a tutti i punti di servizio durante il servizio programmato. Inoltre, la navicella è stata progettata per la presenza sicura dei tecnici dell'assistenza nella navicella durante le prove di servizio con la turbina eolica in piena attività.

Ciò consente un servizio di alta qualità della turbina eolica e fornisce ottimali condizioni di risoluzione dei problemi.

- **Lame**

Le lame sono generalmente costituite da infusione di fibra di vetro e componenti stampati pultrusi in

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carbonio. La struttura della lama utilizza gusci aerodinamici contenenti cappucci di longheroni incorporati, legati a due reti di taglio principali in balsa epossidica / fibra di vetro.

- **Mozzo del rotore**

Il mozzo del rotore è solitamente fuso in ghisa sferoidale ed è montato sull'albero lento della trasmissione con un collegamento a flangia. Il mozzo è sufficientemente grande da fornire spazio ai tecnici dell'assistenza durante la manutenzione delle radici e del passo delle pale cuscinetti dall'interno della struttura.

- **Copertura della navicella**

Lo schermo meteorologico e l'alloggiamento attorno ai macchinari nella navicella sono realizzati con pannelli laminati rinforzati con fibra di vetro.

- **Torre**

La turbina eolica è montata di serie su una torre d'acciaio tubolare rastremata. Altre tecnologie di torri sono disponibili per altezze del mozzo più elevate. La torre ha salita interna e accesso diretto al sistema di imbardata e navicella. È dotata di pedane e illuminazione elettrica interna.

- **Controllore**

Il controller per turbine eoliche è un controller industriale basato su microprocessore. Il controllore è completo di quadro e dispositivi di protezione ed è autodiagnostico.

- **Convertitore**

Collegato direttamente al rotore, il convertitore di frequenza è un sistema di conversione 4Q back to back con 2 VSC in un collegamento CC comune.

Il Convertitore di Frequenza consente il funzionamento del generatore a velocità e tensione variabili, fornendo potenza a frequenza e tensione costanti al trasformatore MT.


- **SCADA**

L'aerogeneratore fornisce la connessione al sistema SGRE SCADA. Questo sistema offre il controllo remoto e una varietà di visualizzazioni di stato e report utili da un browser Web Internet standard.

Le viste di stato presentano informazioni tra cui dati elettrici e meccanici, stato operativo e di guasto, dati meteorologici e dati della stazione di rete.

- **Monitoraggio delle condizioni della turbina**

Oltre al sistema SCADA SGRE, la turbina eolica può essere dotata dell'esclusiva configurazione di

	<p style="text-align: center;">PROGETTO DEFINITIVO</p> <p style="text-align: center;">"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p style="text-align: center;">Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p style="text-align: center;">DATA: MAGGIO 2024</p> <p style="text-align: center;">Pag. 8 di 42</p>
---	---	---

monitoraggio delle condizioni SGRE. Questo sistema monitora il livello di vibrazione dei componenti principali e confronta gli spettri di vibrazione effettivi con una serie di spettri di riferimento stabiliti. Revisione dei risultati, analisi dettagliata e la riprogrammazione può essere eseguita utilizzando un browser web standard.

- **Sistemi operativi**

La turbina eolica funziona automaticamente. Si avvia automaticamente quando la coppia aerodinamica raggiunge un certo valore.

Al di sotto della velocità del vento nominale, il controller della turbina eolica fissa i riferimenti di passo e coppia per operare nel punto aerodinamico ottimale (massima produzione) tenendo conto della capacità del generatore.

Una volta superata la velocità del vento nominale, la richiesta di posizione del passo viene regolata per mantenere una produzione di energia stabile pari al valore nominale.

Se è abilitata la modalità declassamento per vento forte, la produzione di energia viene limitata una volta che la velocità del vento supera un valore di soglia definito dalla progettazione, fino a quando non viene raggiunta la velocità del vento di interruzione e la turbina eolica smette di produrre energia.

Se la velocità media del vento supera il limite operativo massimo, l'aerogeneratore viene spento per beccheggio delle pale.

Quando la velocità media del vento scende al di sotto della velocità media del vento di riavvio, i sistemi si ripristinano automaticamente.

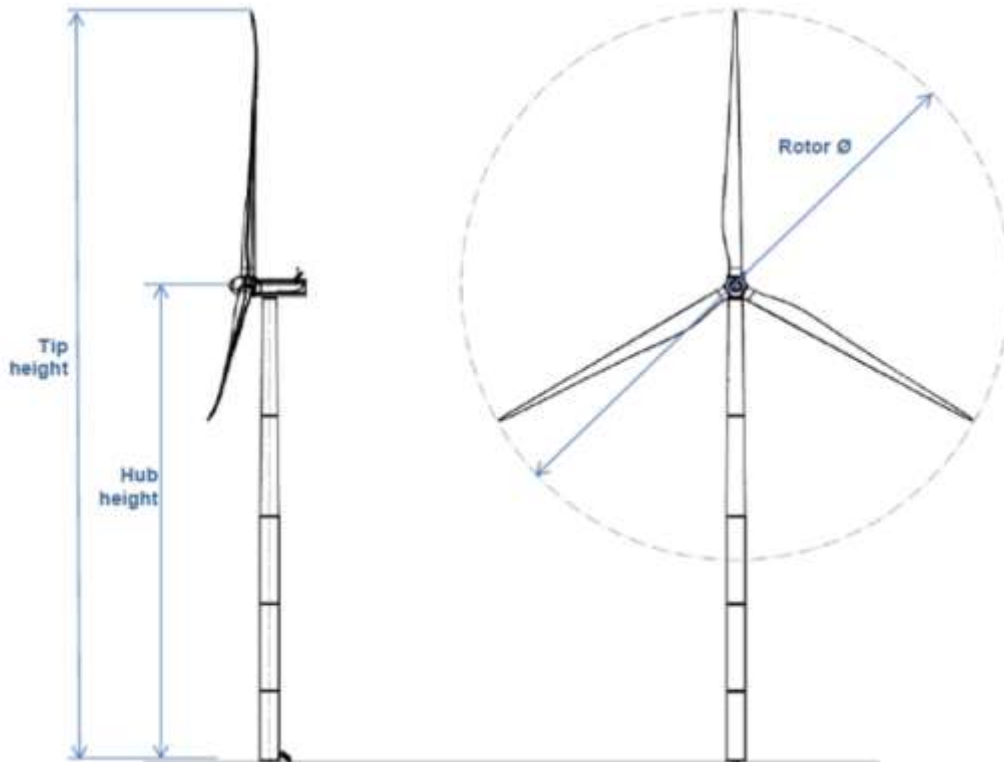


Figura 1 – Esempio Aerogeneratore

La navicella ospita i principali componenti del generatore eolico.

La navicella è ventilata e illuminata da luci elettriche. Un portello fornisce l'accesso alle pale e mozzo. Inoltre all'interno della navicella si trova anche una gru che può essere utilizzata per il sollevamento di strumenti e di altri materiali.


L'accesso dalla torre alla navicella avviene attraverso il fondo della navicella.

La turbina eolica è montata su una torre tubolare in acciaio, con un'altezza al mozzo di circa 138 m, e ospita alla sua base il sistema di controllo.

È costituita da più sezioni tronco-coniche che verranno assemblate in sito. Al suo interno saranno inserite la scala di accesso alla navicella e il cavedio in cui saranno posizionati i cavi elettrici necessari al trasporto dell'energia elettrica prodotta.

L'accesso alla turbina avviene attraverso una porta alla base della torre che consentirà l'accesso al personale addetto alla manutenzione.

La torre, il generatore e la cabina di trasformazione andranno a scaricare su una struttura di fondazione in cemento armato di tipo diretto che verrà dimensionata sulla base degli studi geologici e dell'analisi dei

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---	---	---

carichi trasmessi dalla torre.

L'aerogeneratore ad asse orizzontale è costituito da una torre tubolare che porta alla sua sommità la navicella che supporta le pale e contenente i dispositivi di trasmissione dell'energia meccanica, il generatore elettrico e i dispositivi ausiliari.

La navicella può ruotare rispetto al sostegno in modo tale da tenere l'asse della macchina sempre parallela alla direzione del vento (movimento di imbardata).


Opportuni cavi convogliano al suolo, in un quadro all'interno della torre, l'energia elettrica prodotta e trasmettono i segnali necessari per il controllo remoto del sistema aerogeneratore.

Tutte le funzioni dell'aerogeneratore sono monitorate e controllate da un'unità di controllo basata su microprocessori. Le pale possono essere manovrate singolarmente per una regolazione ottimale della potenza prodotta, questo fa sì che anche a velocità del vento elevate, la produzione d'energia viene mantenuta alla potenza nominale.

La turbina è anche dotata di un sistema meccanico di frenatura che, all'occorrenza, può arrestarne la rotazione. In caso di ventosità pericolosa, per la tenuta meccanica delle pale, l'aerogeneratore dispone anche di un freno aerodinamico, un sistema in grado di ruotare le pale fino a 90° attorno al proprio asse che le posiziona in maniera tale da offrire la minima superficie possibile all'azione del vento.

Le verifiche di stabilità del terreno e delle strutture di fondazione saranno eseguite con i metodi ed i procedimenti della geotecnica, tenendo conto delle massime sollecitazioni sul terreno che la struttura trasmette.

Le massime sollecitazioni sul terreno saranno calcolate con riferimento ai valori nominali delle azioni. Il piano di posa delle fondazioni sarà ad una profondità tale da non ricadere in zona ove risultino apprezzabili le variazioni stagionali del contenuto d'acqua.

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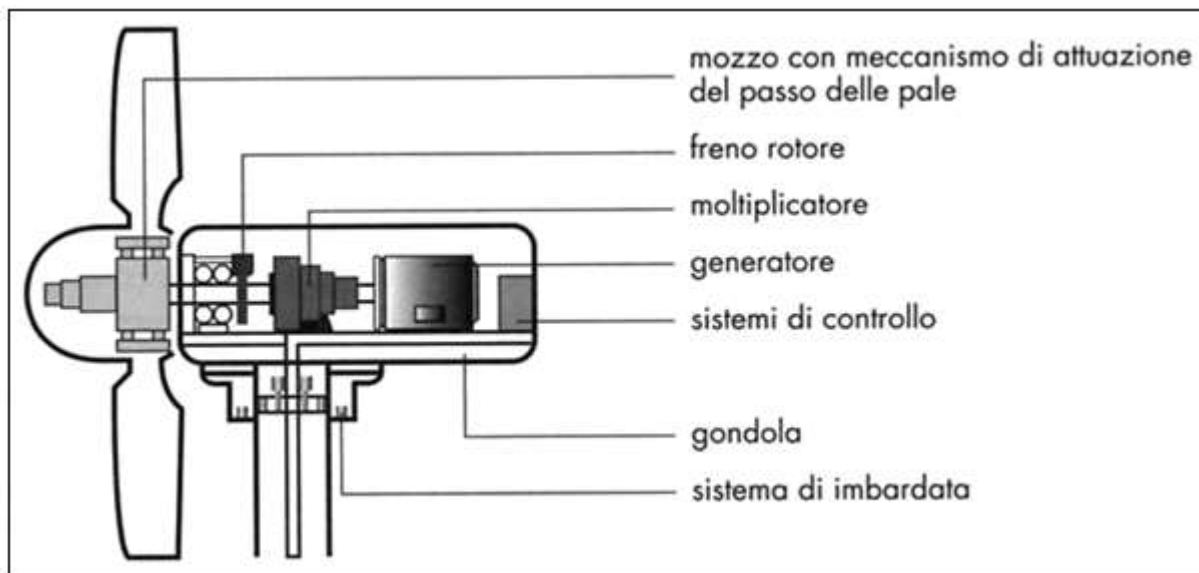


Figura 2 - Schema di principio di un aerogeneratore

4. CENNI SUL FENOMENO DELLO SHADOW FLICKERING

Lo “shadow flickering” (letteralmente “ombreggiamento intermittente”) è l’espressione comunemente impiegata per descrivere l’effetto stroboscopico delle ombre proiettate dalle pale rotanti degli aerogeneratori eolici allorquando il sole si trova alle loro spalle.


Il fenomeno si traduce in una variazione alternata di intensità luminosa che, a lungo andare, può provocare fastidio agli occupanti delle abitazioni le cui finestre risultano esposte al fenomeno stesso.

Ovviamente, tale fenomeno risulta assente sia quando il sole è oscurato da nuvole o nebbia, sia quando, in specifiche condizioni di vento, le pale del generatore non sono in rotazione.

Lo shadow flickering consiste in una variazione periodica dell’intensità luminosa osservata causata dalla proiezione, su una superficie, dell’ombra indotta da oggetti in movimento.

Per un impianto eolico tale fenomeno è generato dalla proiezione, al suolo o su un ricettore, dell’ombra prodotta dalle pale in rotazione degli aerogeneratori.

In particolare, le frequenze che possono provocare un senso di fastidio sono comprese tra i 2,5 ed i 20 Hz (Verkuijlen and Westra, 1984), e, l’effetto sugli individui è simile a quello che si sperimenterebbe in seguito alle variazioni di intensità luminosa di una lampada ad incandescenza a causa di continui sbalzi della tensione della rete di alimentazione elettrica.

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024</p> <p>Pag. 12 di 42</p>
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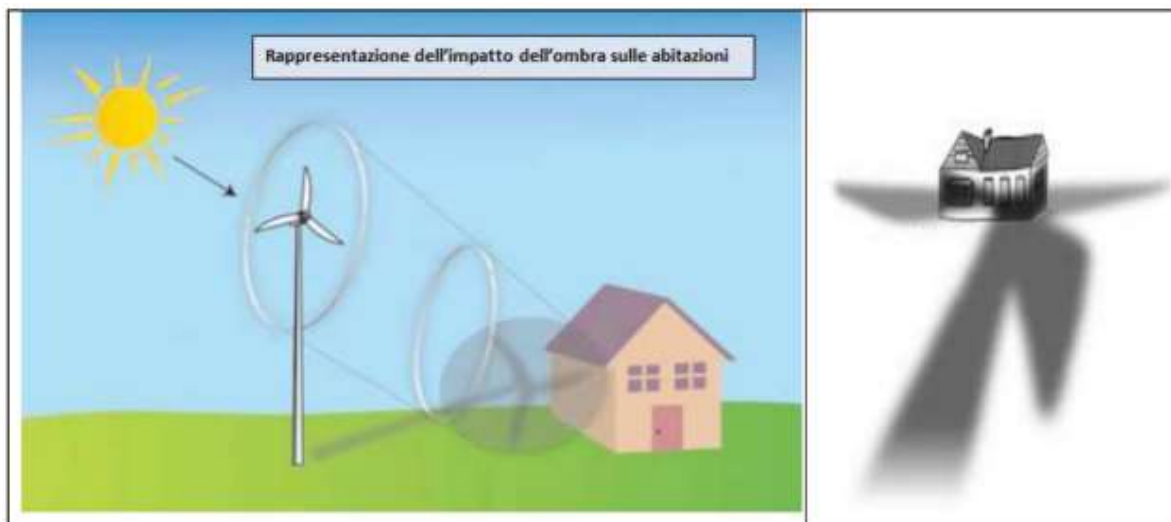



Figura 3 - Rappresentazione schematica del fenomeno dello shadow flickering

La posizione occupata dal sole può essere univocamente individuata con due coordinate angolari: l'azimut, che si misura in senso orario sul piano orizzontale a partire dal nord geografico fino al punto sull'orizzonte direttamente al di sotto dell'oggetto, e l'elevazione (o altezza), che si misura sul piano verticale, partendo dal citato punto, su fino all'oggetto.

Per il movimento della Terra rispetto al sole, l'azimut e l'elevazione cambiano continuamente nel tempo. Pertanto, il percorso seguito dal sole nel cielo durante il giorno appare come un arco che si discosta leggermente, per geometria, sia da quello del giorno precedente, sia da quello che del giorno seguente. Ogni giorno dell'anno, tra l'alba e il tramonto, si ripete quasi esattamente.

In realtà, la durata del giorno non coincide perfettamente con la durata della luce naturale.

Infatti prima dell'alba e dopo il tramonto ci sono intervalli di tempo (denominati rispettivamente crepuscolo mattutino e crepuscolo serale o serotino) durante i quali giunge a terra una luce diffusa naturale fornita dai livelli atmosferici superiori, che ricevono luce solare diretta per un tempo più lungo e ne riflettono una quota verso la sottostante terra.

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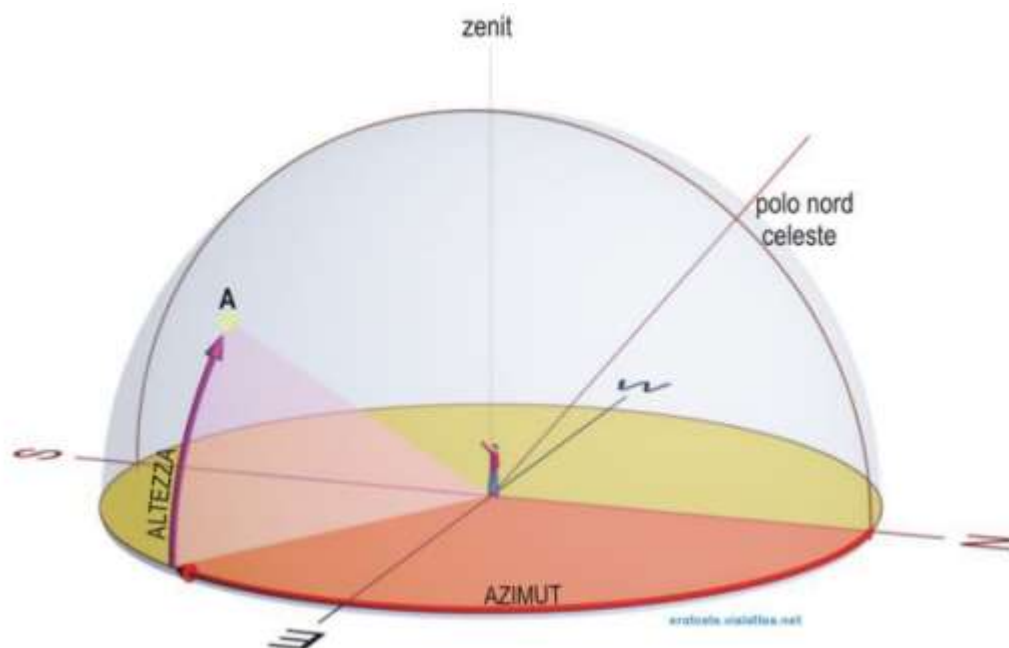


Figura 4 - Altezza e dell'azimut.


Le torri eoliche, essendo strutture fortemente sviluppate in altezza, proiettano ombre sulle aree adiacenti in presenza della luce solare diretta.

Rispetto alle altre strutture sviluppate in altezza (edifici, tralicci della alta tensione, pali della illuminazione, ecc), le turbine eoliche presentano un problema extra, ovvero, oltre alla proiezione dell'ombra sul terreno e/o su strutture esistenti, un impianto eolico può proiettare anche l'ombra in movimento dovuto alla rotazione delle pale.

Le ombre in movimento (periodico a intermittenza), se vissuto dal recettore per periodi di tempo non trascurabile, possono creare disturbo e, in casi rari, danni alla salute.

Questo accade quando vi sono le seguenti condizioni:

- si è in presenza di un livello sufficiente di intensità luminosa, ossia in condizioni di cielo sereno, sgombro da nubi ed in assenza di nebbia e con sole alto rispetto all'orizzonte; questo accade, in riferimento alla latitudine di progetto, in un'altezza del sole pari ad almeno 15-20°;
- le pale sono in movimento;
- la turbina e il recettore sono vicini: le ombre proiettate in prossimità dell'aerogeneratore risultano di maggiore intensità e nitidezza rispetto a quelle proiettate lontano; con l'aumentare della distanza tra turbina e recettore, le pale coprono una porzione sempre più piccola del sole, inducendo un

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fastidio di minore entità; inoltre il fenomeno risulta di trascurabile entità quando l'ombra proiettata sul recettore è indotta dall'estremità delle pale (rotor tip); raggiunge il massimo dell'intensità in corrispondenza dell'attacco di pala all'hub;

- la linea recettore-aerogeneratore non incontra ostacoli; in presenza di vegetazione o edifici interposti l'ombra generata da quest'ultimi ridimensiona o annulla il fenomeno.

I più recenti aerogeneratori tripala operano ad una velocità di rotazione inferiore ai 35 giri al minuto, corrispondente ad una frequenza di passaggio delle pale sulla verticale inferiore a 1,75 Hz, minore, quindi, della frequenza critica di 2,5 Hz.

Inoltre, i generatori di grande potenza (dai 2 MW in su) raramente superano la velocità di rotazione di 20 giri al minuto, nel caso in oggetto addirittura ci si ferma a circa 8 giri al minuto, corrispondente a frequenze di passaggio delle pale ampiamente minori di quelle ritenute fastidiose per la maggioranza degli individui.

Studi condotti sui possibili effetti dello shadow flickering sulla salute umana raccomandano, al fine di ridurre al minimo i fastidi, una velocità di flickering non superiore a 3 tagli al secondo (Harding, 4 Aprile 2008). Nel caso di aerogeneratori tripala, tale frequenza si traduce in una velocità massima di rotazione del rotore di 60 rpm (rotazioni per minuto).


Le relazioni spaziali tra un aerogeneratore ed un ricettore (abitazione), così come la direzione del vento risultano essere fattori chiave per la durata del fenomeno di shadow flickering.

Con i moderni aerogeneratori di grandi dimensioni per distanze superiori ai 500 m, il fenomeno in esame potrebbe verificarsi all'alba, oppure al tramonto, ovvero in quelle ore in cui le ombre risultano molto lunghe per effetto della piccola elevazione solare.

Al di là di una certa distanza, comunque, l'ombra smette di essere un problema perché il rapporto tra lo spessore della pala ed il diametro del sole diventa molto piccolo.

Quindi, come è facile immaginare, la condizione più penalizzante corrisponde al caso in cui il piano del rotore risulta ortogonale alla congiungente ricettore-sole; infatti, in tali condizioni, l'ombra proiettata darà origine ad un cerchio di diametro pari al rotore del generatore eolico.

In generale, l'area soggetta a shadow flickering non si estende oltre i 500÷1.000 m dall'aerogeneratore e le zone a maggiore impatto ricadono entro i 300 m di distanza dalle macchine con durata del fenomeno dell'ordine delle 300 ore all'anno.

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024 Pag. 15 di 42</p>
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L'intensità del fenomeno è definita come la differenza di luminosità che si percepisce in presenza ed in assenza di flickering in una data posizione. In generale, si può affermare che:

- avendo le pale una forma rastremata con lo spessore che cresce verso il mozzo, il fenomeno risulterà tanto più intenso quanto maggiore sarà la porzione di disco solare coperta dalla pala stessa e quanto minore la distanza dal ricettore;
- l'intensità del flickering sarà minima quando l'ombra prodotta è generata all'estremità delle pale;
- maggiori distanze tra generatore e ricettore determinano ombre meno nette; in tal caso l'effetto flickering risulterà meno intenso e distinto.

Se ci riferissimo all'Europa, ad oggi, solo la Germania ha emesso dettagliate linee guida contenenti limiti e condizioni per il calcolo dell'impatto derivante dallo Shadow Flickering.

Le linee guida Tedesche fissano i parametri per il calcolo dell'ombreggiamento, come di seguito riportati:

- ✓ L'angolo minimo del sole rispetto all'orizzonte da cui calcolare l'ombreggiamento deve essere pari a 3°;
- ✓ La percentuale di copertura del sole dalla pala deve essere almeno del 20%.

Inoltre vengono definiti, anche i valori limite espressi in ore/anno di ombreggiamento presso un recettore prossimo ad una centrale eolica:


- ✓ Massimo 30 ore/annue di massima ombra astronomica (caso peggiore);
- ✓ Massimo 30 min/giorno di massima ombra astronomica (caso peggiore);
- ✓ Se si utilizza una regolazione automatica sono previste come impatto d'ombra massimo 8 ore/annue.

5. IL CASO DI STUDIO

Il sito oggetto dello studio è situato nei comuni di Pescopagano (PZ), Santomena (SA), Castelnuovo di Conza (SA) e Conza della Campania (AV).

L'area di progetto su cui verrà realizzato il parco eolico è caratterizzata da orografia tipica delle zone montane e sub-montane locali, con un'altezza media compresa tra 940 e 1140 metri sul livello del mare.

L'area in cui è prevista l'installazione del parco eolico rappresenta un mosaico composto da aree agricole utilizzate per la coltivazione di seminativi, tra cui cereali per la produzione di granella, legumi

	<p style="text-align: center;">PROGETTO DEFINITIVO</p> <p style="text-align: center;">"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p style="text-align: center;">Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p style="text-align: center;">DATA: MAGGIO 2024 Pag. 16 di 42</p>
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secchi, patate e foraggere avvicendate. Si alternano a tali aree ampie zone di pascoli ed incolti che si fondono con arbusteti e macchia, incorniciati da querceti e boschi di altre latifoglie mesofile e mesotermofile e piantagioni di conifere.

Le turbine saranno posizionate lungo la direzione prevalente del vento ossia SSW.

Per effettuare una localizzazione univoca dei terreni sui quali insiste il parco eolico, di seguito si riportano le cartografie riguardanti:

- sovrapposizione del campo eolico su ortofoto (figura 5);
- sovrapposizione del campo eolico su catastale (figura 6);
- sovrapposizione del campo eolico su CTR (figura 7);
- sovrapposizione del campo eolico su IGM (figura 8).



PROGETTO DEFINITIVO

"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"

Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)

DATA:
MAGGIO 2024
Pag. 17 di 42

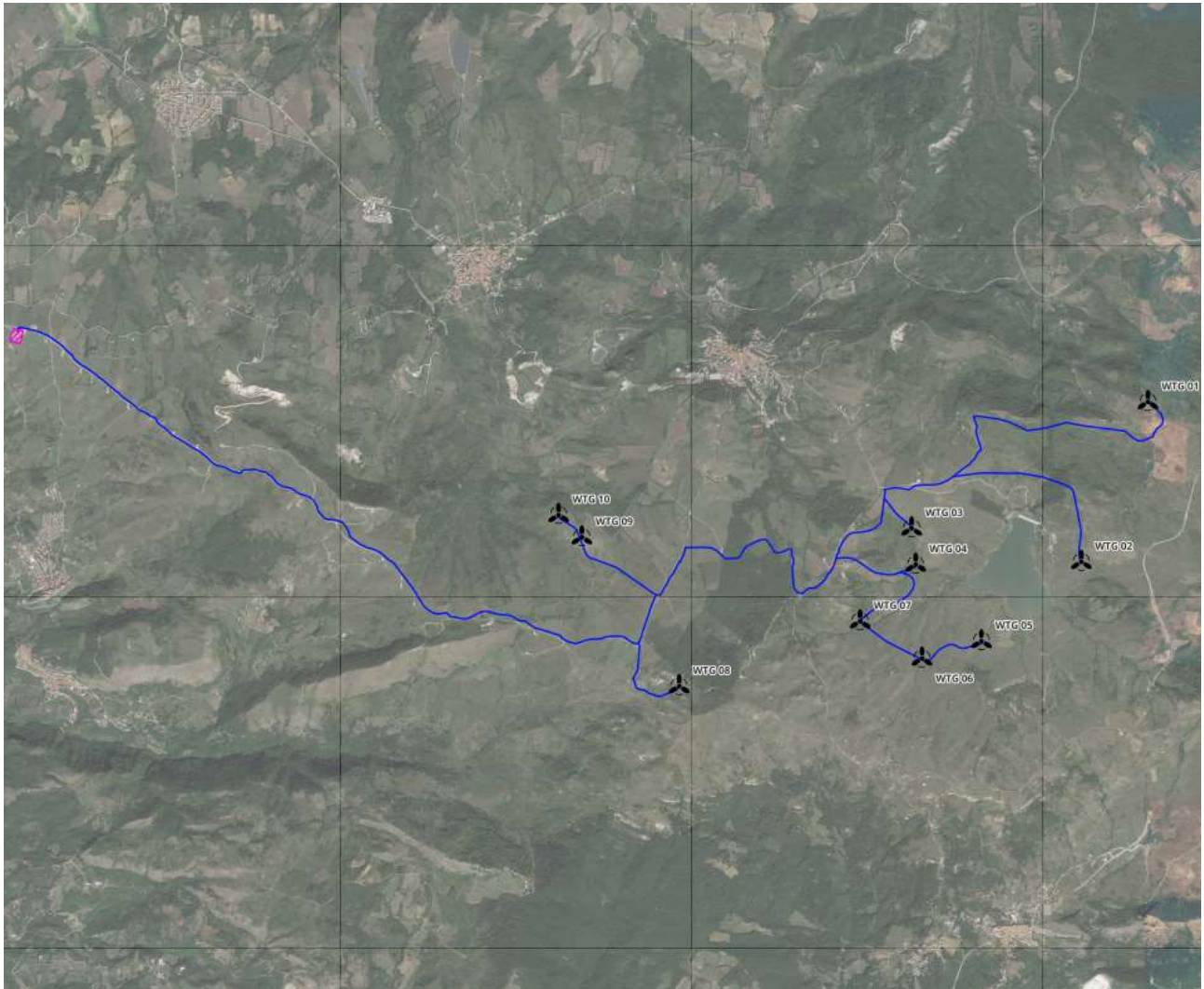


Figura 5 - Inquadramento area parco eolico su base ortofoto

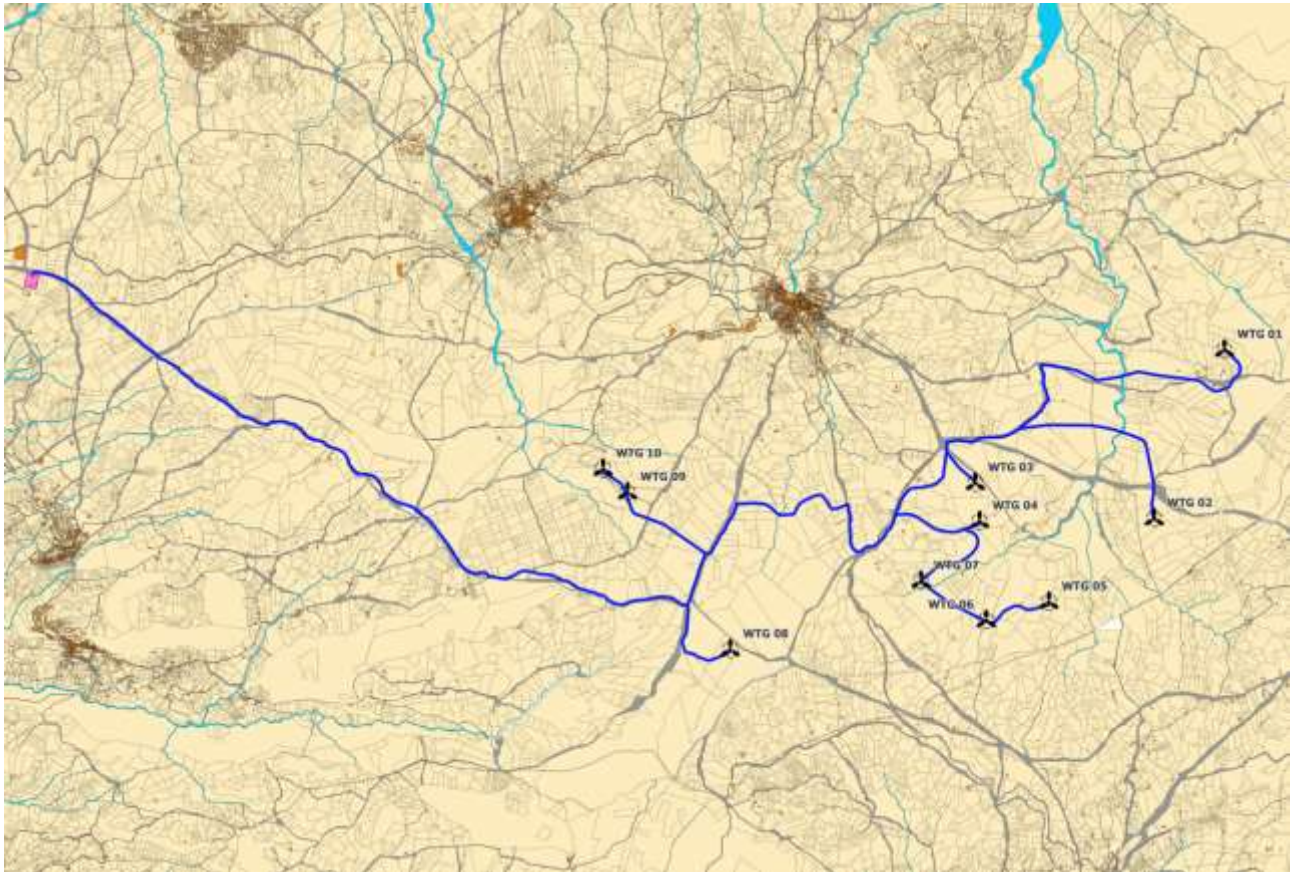


Figura 6 - Inquadramento area parco eolico su catastale



Figura 7 - Inquadramento area parco e sottostazione su CTR

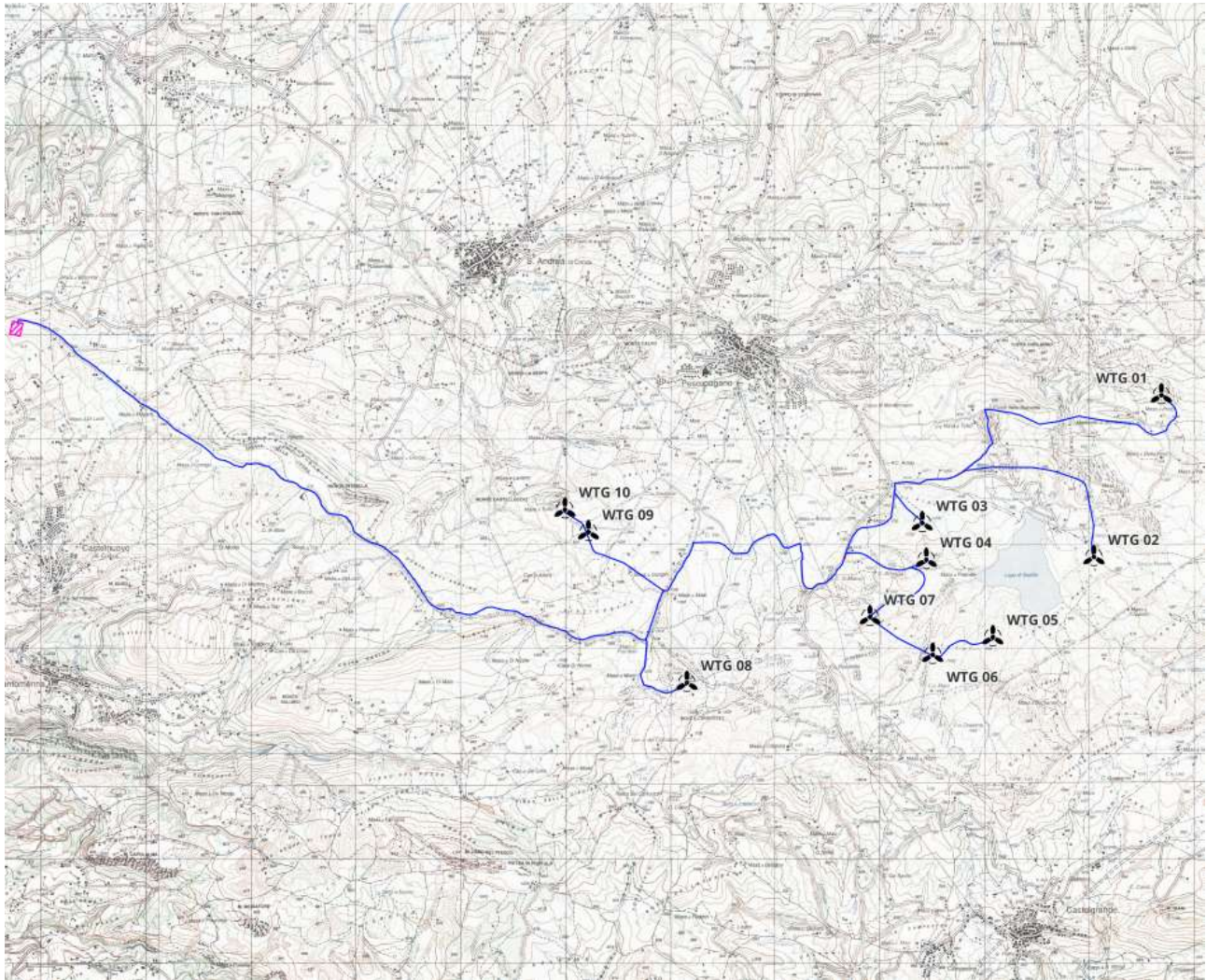



Figura 8 - Inquadramento area parco e sottostazione su IGM

Il parco eolico per la produzione di energia elettrica oggetto di studio avrà le seguenti caratteristiche:

- potenza installata totale: 72 MW;
- potenza della singola turbina: 7,2 MW;
- n. 10 turbine;
- n. 3 cabina di raccolta e smistamento;
- n. 1 SE.

5.1 Configurazione d'impianto

L'aerogeneratore previsto per la realizzazione del parco eolico è una turbina da 7.2 MW.

	PROGETTO DEFINITIVO "Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW" Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)	DATA: MAGGIO 2024 Pag. 21 di 42
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Nella tabella che segue sono sintetizzate le principali caratteristiche dell'aerogeneratore previsto nel parco eolico.

Tipo di Aerogeneratore	Altezza al mozzo (m)	Diametro rotore (m)	Potenza nominale (kW)
Aerogeneratore da 7.2 MW	138 m	172 m	7200

Tabella 1 - Caratteristiche principali dell'aerogeneratore previsto nel parco eolico.

L'effetto di shadow flickering è ovviamente tanto più importante quanto più grande è il diametro del rotore della turbina.

La disposizione prevista per le 10 turbine oggetto di studio è riportata nella tabella sottostante in coordinate UTM (north)-WGS84 Zone: 33.


	Longitude	Latitude
WTG 01	15.446281° E	40.832166° N
WTG 02	15.438557° E	40.818297° N
WTG 03	15.418577° E	40.821400° N
WTG 04	15.420011° E	40.818207° N
WTG 05	15.427073° E	40.811449° N
WTG 06	15.420257° E	40.809957° N
WTG 07	15.413183° E	40.813224° N
WTG 08	15.392347° E	40.807558° N
WTG 09	15.381422° E	40.820728° N
WTG 10	15.378696° E	40.822733° N

Tabella 2 - Coordinate degli aerogeneratori oggetto di studio

5.2 Individuazione ed analisi dei ricettori

Dal punto di vista di un recettore lo shadow flickering si manifesta in una variazione ciclica dell'intensità luminosa: in presenza di luce solare diretta, un recettore localizzato nella zona d'ombra indotta dal rotore, sarà investito da un continuo alternarsi di luce diretta ed ombra, causato dalla proiezione delle ombre dalle pale in movimento.


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

	<p style="text-align: center;">PROGETTO DEFINITIVO</p> <p style="text-align: center;">"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p style="text-align: center;">Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p style="text-align: right;">DATA: MAGGIO 2024 Pag. 22 di 42</p>
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- Si sia in presenza di un livello sufficiente di intensità luminosa, ossia in condizioni di cielo sereno sgombro da nubi ed in assenza di nebbia e con sole alto rispetto all'orizzonte;
- La linea recettore-aerogeneratore non incontri ostacoli: in presenza di vegetazione o edifici interposti l'ombra generata da questi ultimi annulla il fenomeno. Pertanto, ad esempio, qualora il recettore sia una abitazione, perché si generi lo shadow flickering le finestre dovrebbero essere orientate perpendicolarmente alla linea recettore - aerogeneratore e non affacciarsi su ostacoli;
- La turbina sta orientata in modo che il rotore risulti perpendicolare alla linea sole - ricettore: come mostrato nelle figure seguenti, quando il piano del rotore è perpendicolare alla linea sole-recettore, l'ombra proiettata dalle pale risulta muoversi all'interno di un "cerchio" che riferisce alla circonferenza del rotore inducendo uno shadow flickering non trascurabile; per situazioni in cui, dal punto di vista del recettore, il piano del rotore risulti essere in linea con il sole ed il recettore, l'ombra proiettata è sottile, di bassa intensità ed è caratterizzata da un rapido movimento, risultando pertanto lo shadow flickering di entità trascurabile;
- La posizione del sole sia 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 sono in movimento;
- Turbina e ricettore siano vicini: le ombre proiettate in prossimità dell'aerogeneratore risultano di maggiore intensità e nitidezza rispetto a quelle proiettate lontano. Quando una turbina è posizionata sufficientemente vicino al ricettore, così che una porzione ampia di pala copra il sole, l'intensità del flicker risulta maggiore. All'aumentare della distanza tra turbina e recettore, le pale coprono una porzione sempre più piccola del sole, inducendo un flicker di minore entità. Inoltre, il fenomeno risulta di bassa entità quando l'ombra proiettata sul recettore è indotta dall'estremità delle pale; raggiunge il massimo dell'intensità in corrispondenza dell'attacco di pala all'hub.

Rilevamenti sul campo hanno evidenziato che per distanze tra aerogeneratore di altezza paragonabile a quella delle macchine di progetto) e recettori superiori a 375 m il fenomeno è da rilevarsi solamente all'alba e al tramonto, momenti in cui la radiazione diretta è di minore intensità.

Ai fini della previsione degli impatti indotti sulle abitazioni e sugli edifici lavorativi dall'impianto eolico in progetto, sono stati censiti i ricettori presenti nel raggio di 1 km dagli aerogeneratori; distanza oltre la quale si può ipotizzare essere nullo il fenomeno di shadow flickering.

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I ricettori sono stati individuati calcolando l'involuppo delle circonferenze di raggio pari a 1 km con centro geometrico corrispondente alle coordinate geografiche delle turbine, precedentemente indicate.


L'analisi di shadow flickering di cui al presente studio è stata elaborata per specifici n. 38 recettori selezionati sul territorio e corrispondenti a costruzioni ubicate nell'intorno dell'impianto (edifici di Categoria A).

Sebbene il fenomeno dello shadow flickering possa essere percepito anche all'esterno delle costruzioni, esso risulta più evidente e fastidioso all'interno di ambienti chiusi che presentano aperture e/o finestrate orientate proprio sul prolungamento della direttrice sole-turbina, mentre risulta meno impattante (o addirittura nullo) per quegli ambienti con aperture e/o finestrate il cui orientamento si discosta dal prolungamento della direttrice sole-turbina.

Conseguentemente, una corretta valutazione del fenomeno del flickering non può prescindere dall'esatto orientamento delle finestrate. Nella tabella a seguire sono riportati i riferimenti geografici (coordinate UTM (north)-WGS84 Zone: 33) di tutti i recettori oggetto di analisi e simulazione con la relativa indicazione catastale e descrizione d'uso.

Shadow receptor-Input

No.	Longitude	Latitude
A	15.387231° E	40.834895° N
B	15.385880° E	40.832671° N
C	15.382123° E	40.831762° N
D	15.378458° E	40.827453° N
E	15.385126° E	40.827684° N
F	15.372753° E	40.824822° N
G	15.396736° E	40.830472° N
H	15.392192° E	40.831471° N
I	15.392059° E	40.831576° N
J	15.392458° E	40.831646° N
K	15.392191° E	40.831700° N
L	15.395812° E	40.832229° N
M	15.392967° E	40.834019° N
N	15.392408° E	40.834035° N
O	15.393706° E	40.834009° N
P	15.394455° E	40.834299° N
Q	15.395812° E	40.834827° N
R	15.401187° E	40.830231° N
S	15.401411° E	40.830262° N
T	15.397096° E	40.828904° N
U	15.396741° E	40.825962° N
V	15.395971° E	40.825026° N

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024 Pag. 24 di 42</p>
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No.	Longitude	Latitude
W	15.405221° E	40.831228° N
X	15.411083° E	40.832031° N
Y	15.411510° E	40.831795° N
Z	15.413614° E	40.829565° N
AA	15.419861° E	40.825842° N
AB	15.425043° E	40.830024° N
AC	15.413020° E	40.821739° N
AD	15.411291° E	40.818354° N
AE	15.408252° E	40.814773° N
AF	15.417648° E	40.813953° N
AG	15.392687° E	40.796299° N
AH	15.392656° E	40.796548° N
AI	15.392717° E	40.796593° N
AJ	15.393662° E	40.799154° N
AK	15.397347° E	40.805548° N
AL	15.415781° E	40.804809° N

Tabella 3 - Coordinate delle strutture considerate come ricettori sensibili

Con riferimento all'analisi in esame, in via cautelativa, si considereranno per tutti i ricettori le finestrate orientate proprio sul prolungamento della direttrice sole-turbina.

Nella figura successiva vengono mostrati i suddetti ricettori su ortofoto assieme alle turbine oggetto dello studio.

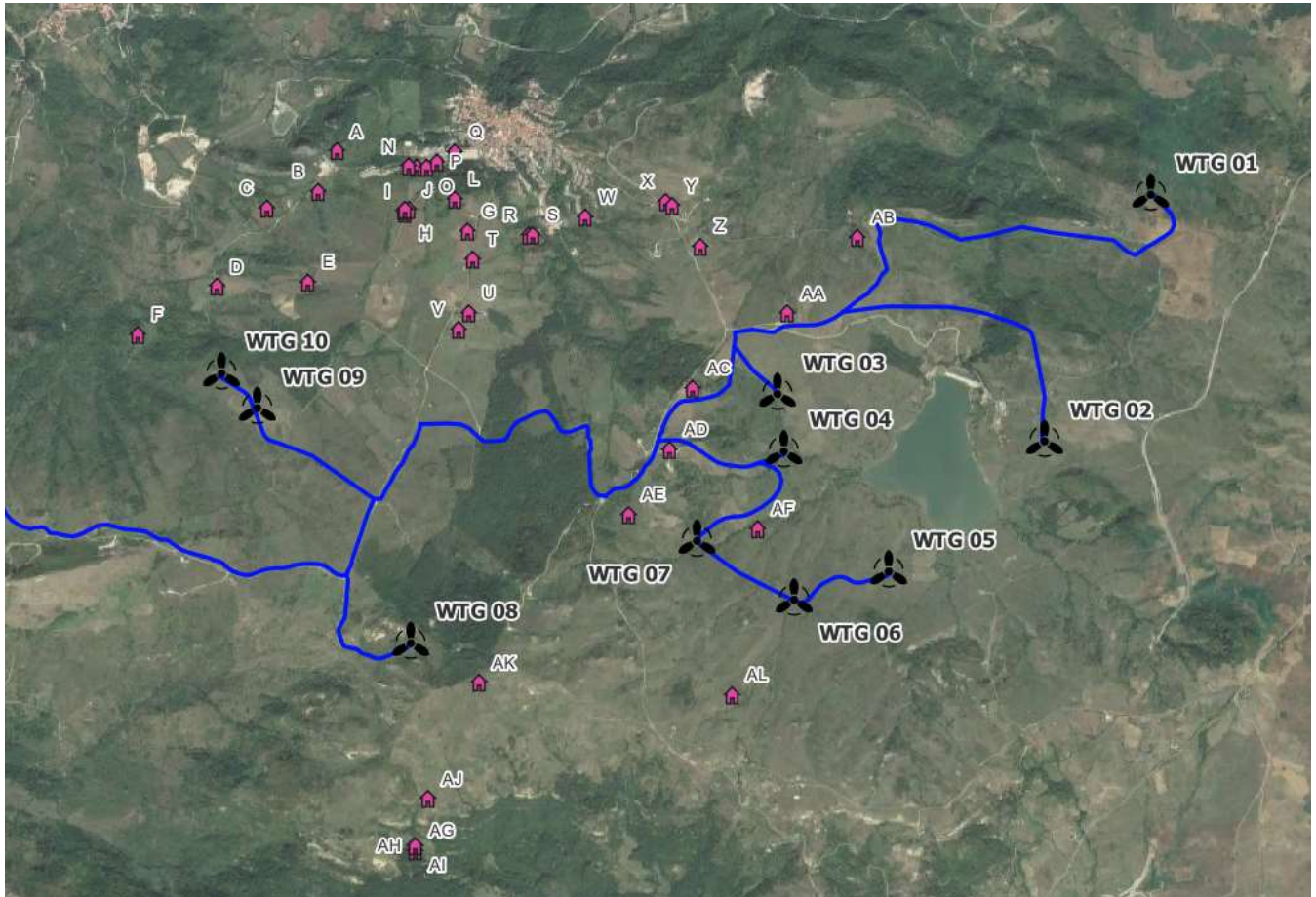


Figura 9 - Localizzazione geografica dei ricettori rispetto alle turbine


In generale, l'area soggetta a shadow flicker non si estende oltre i 500-1000 m dall'aerogeneratore e le zone a maggiore impatto ricadono entro i 300 m di distanza dalle macchine.

Lo "shadow flickering" è ritenuto "pericoloso" in quanto dimostrato che l'effetto visivo, dovuto alla intermittenza dell'ombra creata dal moto delle pale in rotazione, sia causa di possibili danni alla salute umana. Si ritiene più precisamente che il fenomeno sia strettamente connesso con i problemi di epilessia.

6. MODELLO DI CALCOLO E SOFTWARE UTILIZZATO

L'analisi dell'impatto da shadow flickering prodotto da un campo eolico è realizzata, generalmente, attraverso l'impiego di specifici applicativi che modellano il fenomeno in esame.

I pacchetti software impiegati per la progettazione di impianti eolici contengono moduli specifici per il calcolo e l'analisi del fenomeno di flickering.

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024 Pag. 26 di 42</p>
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L'analisi si basa sull'impiego di un modello digitale del terreno dell'area oggetto di progettazione, sulle posizioni (E, N, quota) degli aerogeneratori e dei recettori sensibili, nonché sui dati che correlano la posizione del sole nell'arco dell'anno con le condizioni operative delle turbine nello stesso arco di tempo. Al fine di calcolare la posizione relativa del sole nell'arco di un anno rispetto al parco eolico ed ai ricettori è necessario definire la longitudine, la latitudine ed il fuso orario dell'area interessata dal progetto.

Nello specifico è stato impiegato il modulo shadow flickering del software WindPRO.

Esso consente di analizzare la posizione del sole nell'arco di un anno per identificare i tempi in cui ogni turbina può proiettare ombre sulle finestre delle abitazioni vicine.

In particolare, il modello permette di:


- calcolare il potenziale per le ombre intermittenti alle finestre delle abitazioni;
- mostrare un calendario grafico ("Calendar Graphical") degli eventi di flickering;
- mostrare un elenco dettagliato ("Calendar Time") di ciascun evento di ombreggiamento (ora di inizio, di fine, durata del fenomeno, aerogeneratore/i coinvolti, etc.);
- creare mappe di impatto potenziale che mostrano le ore d'ombra intermittente per l'intero parco eolico o per le singole macchine (curve di isodurata) nell'arco dell'anno.

6.1 Calcolo dello shadow flickering nel WORST CASE

I calcoli effettuati per l'ombreggiamento rappresentano un approccio molto conservativo e di conseguenza peggiorativo, per questo denominato "worst case", in cui la situazione reale risulterà ben al di sotto dei risultati ottenuti.

Per l'esecuzione della valutazione tecnica il software ha utilizzato una serie di dati di input caratterizzanti quali:

- ✓ l'altimetria della zona simulata;
- ✓ la latitudine e longitudine dell'area interessata;
- ✓ la disposizione geografica delle turbine e dimensione geometrica dei loro componenti (torre e pale);
- ✓ la disposizione geografica dei "ricettori sensibili" (fabbricati e relative finestre);
- ✓ l'orientamento del rotore rispetto al ricettore;
- ✓ la proiezione dell'ombra rispetto ai ricettori.

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024 Pag. 27 di 42</p>
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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 attraverso le finestre.


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

- coordinate geografiche delle turbine considerate
- coordinate geografiche dei recettori considerati
- coordinate geografiche baricentriche (Map center WGS84): 15.416468° E; 40.817111° N
- disposizione orizzontale delle finestrate
- estensione area simulata: 10 km x 10 km (100 km²)
- angolo minimo del Sole sull'orizzonte: 3°
- raggio d'influenza massimo: 1 km dal punto di installazione dell'aerogeneratore;
- anno di riferimento: 2023
- altezza del punto di vista dell'osservatore rispetto la mappa: 1,7 m
- altezza del punto di vista (ZVI) rispetto la superficie del suolo: 2,0 m
- parametri turbina:
 - ✓ diametro rotore: 172 m
 - ✓ altezza torre al mozzo: 138 m
 - ✓ altezza complessiva dell'aerogeneratore: 224 m

Per il calcolo dell'orizzonte di ciascun ricettore il modello numerico utilizzato tiene conto dell'ostacolo naturale costituito dall'orografia circostante il ricettore e da eventuali ostacoli imputati specificatamente (ad es. boschi, barriere naturali o artificiali, etc).

In definitiva è bene evidenziare che, a vantaggio di sicurezza, le simulazioni effettuate sono state eseguite ipotizzando contemporaneamente le seguenti condizioni sfavorevoli per qualunque ricettore soggetto a shadow flickering:

- rotore in movimento alla massima frequenza ed in moto continuo;
- assenza di ostacoli;
- orientamento del rotore ortogonale alla congiungente ricettore-sole.

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024 Pag. 28 di 42</p>
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Come già sottolineato, al di là di una certa distanza l'ombra smette di essere un problema perché il rapporto tra lo spessore della pala e il diametro del sole diventa piccolo.

Poiché non vi è un valore generalmente accettato per questa distanza massima, il software permette di specificare il limite in metri o multipli del diametro della turbina o dell'altezza della pala stessa.

Quindi, come è facile immaginare, la condizione più penalizzante corrisponde al caso in cui il piano del rotore risulta ortogonale alla congiungente ricettore – sole; infatti, in tali condizioni, l'ombra proiettata darà origine ad un cerchio di diametro pari al rotore del generatore eolico.

Sebbene il fenomeno possa essere percepito anche all'esterno, esso risulta evidente e fastidioso in quegli ambienti con finestrate rivolte verso le ombre.

6.2 Risultati

Il modello numerico utilizzato, al pari di altri presenti sul mercato, produce in output una mappa dell'impatto dell'ombra sul terreno, nel caso più penalizzante denominato "worst case", corrispondente alle ore in cui il sole permane al di sopra dell'orizzonte nell'arco dell'anno (**circa 4380h/a di luce**), indipendentemente dalla presenza o meno di nubi, le quali inficerebbero il fenomeno stesso di shadow flickering per impossibilità che si generi il fenomeno di flickering, oltre agli input specificati precedentemente, che rendono il caso in oggetto nettamente peggiorativo, ma soprattutto considerano le turbine sempre in movimento ed alla massima rotazione del rotore.

I risultati dettagliati dell'analisi effettuata sono riportati nei diversi allegati al presente lavoro. Nell'immagine che segue, si riporta in opportuna scala cromatica il valore massimo di ombreggiamento annuo su superficie orizzontale prodotta dalle opere in progetto nelle condizioni sfavorevoli sopra elencate.

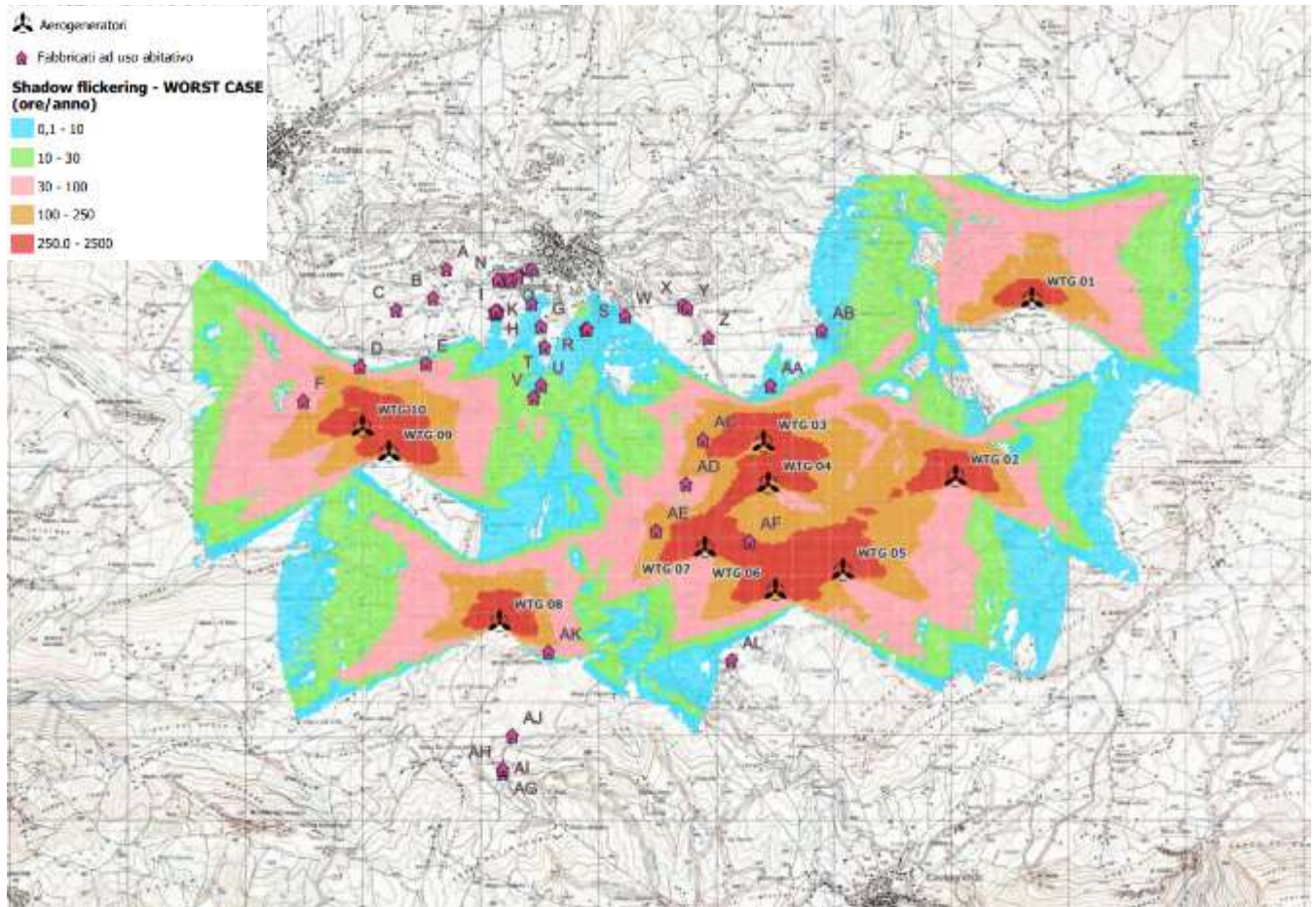


Figura 10 - Rappresentazione grafica dell'ombreggiamento delle turbine rispetto i ricettori

Inoltre, per ogni ricettore vengono rappresentati graficamente, negli appositi diagrammi riportati nell'ALLEGATO 2 al termine alla presente relazione, gli intervalli di ombreggiamento durante le varie ore dell'anno (il cosiddetto "Calendar Graph"), dove le curve indicano l'ora dell'alba e del tramonto e le macchie colorate indicano il periodo in cui è possibile il verificarsi del fenomeno. Sull'asse delle ascisse sono riportati i giorni dell'anno e sull'asse delle ordinate l'ora del giorno (ora solare).

Nell'ALLEGATO 3 viene riportato per ciascun ricettore la lista giornaliera dei singoli eventi di shadow flickering indotti da ogni turbina (il cosiddetto "Calendar Time"): per ciascun evento viene specificata l'ora solare di inizio, l'ora solare di fine, la durata complessiva e la copertura (temporale) percentuale del fenomeno dello shadow flickering al netto di eventuali ostacoli (orografici e/o di altro tipo).

Di seguito, vengono presentati sinteticamente in forma tabellare i risultati complessivi della simulazione per i recettori analizzati.



PROGETTO DEFINITIVO

"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"

Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)


DATA:
MAGGIO 2024
Pag. 30 di 42

Shadow receptor
Shadow, worst case

No. Shadow hours
per year
[h/year]

A	0:00
B	0:00
C	0:00
D	15:13
E	31:29
F	83:41
G	0:00
H	0:00
I	0:00
J	0:00
K	0:00
L	5:01
M	0:00
N	0:00
O	0:00
P	0:00
Q	0:00
R	8:08
S	7:51
T	0:23
U	11:30
V	14:38
W	0:30
X	0:00
Y	0:00
Z	0:00
AA	4:07
AB	0:00
AC	149:00
AD	21:57
AE	127:45
AF	276:25
AG	0:00
AH	0:00
AI	0:00
AJ	0:00
AK	0:00
AL	0:00

Tabella 4 - Risultati riepilogativi complessivi del calcolo del fenomeno di shadow flickering per ciascun ricettore nel WORST CASE

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024</p> <p>Pag. 31 di 42</p>
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7. ANALISI DEI RISULTATI PER SINGOLO RICETTORE (WORST CASE)

Dalla Tabella 4 si evince che 5 dei 38 ricettori sono interessati dal fenomeno di shadow flickering in quanto tutti caratterizzati da valori non nulli delle ore/anno di shadow.


Di seguito si descrive l'analisi dei risultati ottenuti per ogni singolo ricettore.

Dall'analisi del "Calendar Graph" e del "Calendar Time" nell'ALLEGATO 2 e 3 risulta che:

- il fenomeno dello shadow flickering per il ricettore **A, B, C, G, H, I, J, K, M, N, O, P, Q, W, X, Y, Z, AB, AG, AH, AI, AJ, AK e AL** in "WORST CASE" non si viene a verificare nel corso di tutto l'arco dell'anno.
- il fenomeno dello shadow flickering per il ricettore **D** in "WORST CASE" si può verificare nel corso di 1 periodo durante l'anno e più precisamente:
 - ✓ Periodo 1: dal 7 dicembre al 5 gennaio causato dalla turbina WTG10;
- il fenomeno dello shadow flickering per il ricettore **E** in "WORST CASE" si può verificare nel corso di 1 periodo durante l'anno e più precisamente:
 - ✓ Periodo 1: dal 26 novembre al 16 gennaio causato dalla turbina WTG10;
- il fenomeno dello shadow flickering per il ricettore **F** in "WORST CASE" si può verificare nel corso di 2 distinti periodi durante l'anno e più precisamente:
 - ✓ Periodo 1: dal 4 febbraio al 31 marzo causato dalla turbina WTG09 e WTG10;
 - ✓ Periodo 2: dal 12 settembre al 7 novembre causato dalla turbina WTG09 e WTG10;
- il fenomeno dello shadow flickering per il ricettore **L** in "WORST CASE" si può verificare nel corso di 1 periodo durante l'anno e più precisamente:
 - ✓ Periodo 1: dal 3 dicembre al 9 gennaio causato dalla turbina WTG10;
- il fenomeno dello shadow flickering per il ricettore **R** in "WORST CASE" si può verificare nel corso di 2 distinti periodi durante l'anno e più precisamente:
 - ✓ Periodo 1: dal 8 gennaio al 30 gennaio causato dalla turbina WTG03;
 - ✓ Periodo 2: dal 12 novembre al 4 dicembre causato dalla turbina WTG03;
- il fenomeno dello shadow flickering per il ricettore **S** in "WORST CASE" si può verificare nel corso di 2 distinti periodi durante l'anno e più precisamente:
 - ✓ Periodo 1: dal 7 gennaio al 30 gennaio causato dalla turbina WTG03;

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024</p> <p>Pag. 32 di 42</p>
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- ✓ Periodo 2: dal 12 novembre al 5 dicembre causato dalla turbina WTG03;
 - il fenomeno dello shadow flickering per il ricettore **T** in "WORST CASE" si può verificare nel corso di 2 distinti periodi durante l'anno e più precisamente:
- ✓ Periodo 1: dal 11 gennaio al 18 gennaio causato dalla turbina WTG09;
- ✓ Periodo 2: dal 24 novembre al 1 dicembre causato dalla turbina WTG09;
 - il fenomeno dello shadow flickering per il ricettore **U** in "WORST CASE" si può verificare nel corso di 4 periodi continuativo durante l'anno e più precisamente:
- ✓ Periodo 1: dal 28 gennaio al 16 febbraio causato dalla turbina WTG09;
- ✓ Periodo 2: dal 23 febbraio al 5 marzo causato dalla turbina WTG10;
- ✓ Periodo 3: dal 8 ottobre al 18 ottobre causato dalla turbina WTG10;
- ✓ Periodo 4: dal 26 ottobre al 14 novembre causato dalla turbina WTG09;
 - il fenomeno dello shadow flickering per il ricettore **V** in "WORST CASE" si può verificare nel corso di 4 periodi continuativo durante l'anno e più precisamente:
- ✓ Periodo 1: dal 4 febbraio al 23 febbraio causato dalla turbina WTG09;
- ✓ Periodo 2: dal 1 marzo al 13 marzo causato dalla turbina WTG010;
- ✓ Periodo 3: dal 1 ottobre al 12 ottobre causato dalla turbina WTG10;
- ✓ Periodo 4: dal 18 ottobre al 7 novembre causato dalla turbina WTG09;
 - il fenomeno dello shadow flickering per il ricettore **AA** in "WORST CASE" si può verificare nel corso di 2 periodi continuativo durante l'anno e più precisamente:
- ✓ Periodo 1: dal 19 gennaio al 3 febbraio causato dalla turbina WTG02;
- ✓ Periodo 2: dal 8 novembre al 23 novembre causato dalla turbina WTG02;
 - il fenomeno dello shadow flickering per il ricettore **AC** in "WORST CASE" si può verificare nel corso di 3 periodo continuativo durante l'anno e più precisamente:
- ✓ Periodo 1: dal 1 novembre al 10 febbraio causato dalla turbina WTG04;
- ✓ Periodo 2: dal 7 marzo al 26 aprile causato dalla turbina WTG003;
- ✓ Periodo 3: dal 16 agosto al 6 ottobre causato dalla turbina WTG03;
 - il fenomeno dello shadow flickering per il ricettore **AD** in "WORST CASE" si può verificare nel corso di 4 periodo continuativo durante l'anno e più precisamente:
- ✓ Periodo 1: dal 10 gennaio al 30 gennaio causato dalla turbina WTG05;
- ✓ Periodo 2: dal 11 marzo al 30 aprile causato dalla turbina WTG004;

	<p style="text-align: center;">PROGETTO DEFINITIVO</p> <p style="text-align: center;">"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p style="text-align: center;">Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p style="text-align: center;">DATA: MAGGIO 2024 Pag. 33 di 42</p>
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- ✓ Periodo 3: dal 7 settembre al 3 ottobre causato dalla turbina WTG04;
- ✓ Periodo 4: dal 12 novembre al 2 dicembre causato dalla turbina WTG05;
- il fenomeno dello shadow flickering per il ricevitore **AE** in “WORST CASE” si può verificare nel corso di 2 periodi continuativo durante l’anno e più precisamente:
 - ✓ Periodo 1: dal 12 gennaio al 18 marzo causato dalla turbina WTG05, dalla turbina WTG06, dalla turbina WTG07 e dalla turbina WTG08;
 - ✓ Periodo 2: dal 25 settembre al 30 novembre causato dalla turbina WTG05, dalla turbina WTG06, dalla turbina WTG07 e dalla turbina WTG08;
- il fenomeno dello shadow flickering per il ricevitore **AF** in “WORST CASE” si può verificare nel corso di 3 periodo continuativo durante l’anno e più precisamente:
 - ✓ Periodo 1: dal 11 novembre al 30 gennaio causato dalla turbina WTG06;
 - ✓ Periodo 2: dal 11 febbraio al 10 maggio causato dalla turbina WTG05 e dalla turbina WTG07;
 - ✓ Periodo 3: dal 3 agosto al 31 ottobre causato dalla turbina WTG05 e dalla turbina WTG07;


8. ANALISI DEI RISULTATI PER SINGOLO AEROGENERATORE (WORST CASE)

Vengono analizzati nel presente paragrafo i risultati del calcolo del fenomeno di shadow flickering per singola turbina.

Nove delle dieci turbine proposte causano il fenomeno di shadow flickering su 5 dei 38 ricettori selezionati ed analizzati nel presente lavoro.

No.	Name	Worst case [h/year]
WTG 01	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (10)	0:00
WTG 02	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (1)	4:07
WTG 03	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (6)	92:51
WTG 04	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (5)	82:02
WTG 05	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (2)	45:18
WTG 06	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (3)	102:59
WTG 07	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (4)	260:55
WTG 08	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (7)	16:29
WTG 09	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (8)	43:03
WTG 10	VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (9)	127:57

Tabella 5 - Tabella riepilogativa dei dati di Shadow per ogni aerogeneratore

	<p style="text-align: center;">PROGETTO DEFINITIVO</p> <p style="text-align: center;">"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p style="text-align: center;">Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p style="text-align: center;">DATA: MAGGIO 2024 Pag. 34 di 42</p>
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Nelle Tabelle e nei grafici presenti nell'ALLEGATO 1 presente al termine del presente elaborato sono mostrati i risultati dettagliati per singola turbina nel WORST CASE.

9. "REAL CASE"

I diagrammi dell'ALLEGATO 2 e le liste dell'ALLEGATO 3, posti in coda alla relazione sono rappresentativi di condizioni di shadow flickering che nella realtà non hanno alcuna possibilità di verificarsi.

In particolare, nei documenti citati, viene riportato il valore massimo di ore /anno di ombreggiamento su superficie orizzontale in ciascun punto nell'intorno delle opere in progetto.

Tale valore massimo di ombreggiamento rappresenta pertanto il numero di ore di fenomeno di shadow flickering che non ha alcuna probabilità di essere superato nel corso di un anno.

Dal punto di vista matematico, tale valore prende il nome di P0 ovvero sia quel numero di ore di fenomeno di shadow flickering che ha una probabilità dello zero per cento di essere superato nel corso di un anno.

Estendendo per analogia il concetto, ci si può chiedere quale sia quel valore di ore di fenomeno di shadow flickering che ha una probabilità del 50 per cento (P50) di essere superato nel corso di un anno.

Prima di esaminare la metodologia matematica che si utilizza per determinare il valore P50, si cercherà di spiegare l'importanza di tale valore.


Abbiamo già detto come il valore P50 corrisponda a quel valore che ha una probabilità del 50% di essere superato nel corso di un anno.

In pratica, ogni anno si hanno le stesse probabilità (50%) di stare sopra o di stare sotto a questo valore P50; per la legge dei grandi numeri, si ha che nel corso di un periodo di molti anni (come può essere assimilato il periodo ventennale ed oltre di vita attesa dell'impianto) il valore medio di un qualunque fenomeno stocastico tende ad approssimare proprio il valore P50.

Pertanto, il valore P50 può essere considerato come il valore medio di un generico fenomeno stocastico nel corso di un periodo di molti anni.

Riconducendo il discorso matematico generale al caso in studio si può dire che il valore P50 di ore/anno di shadow flickering rappresenta nel corso del periodo ventennale ed oltre di vita attesa dell'impianto il valore medio reale del fenomeno.

Per questa ragione il valore P50 è il corrispondente del REAL CASE.

	<p style="text-align: center;">PROGETTO DEFINITIVO</p> <p style="text-align: center;">"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p style="text-align: center;">Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p style="text-align: center;">DATA: MAGGIO 2024 Pag. 35 di 42</p>
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Il calcolo matematico di P50 si esegue con le regole matematiche della “probability of exceedance” una volta conosciute e quantificate le incertezze che caratterizzano il fenomeno in esame.

Per il caso in studio di shadow flickering le incertezze per quanto detto nei Capitoli precedenti sono date dalla possibile presenza di manto nuvoloso, dalla possibile assenza di vento e dal possibile orientamento del rotore in direzione non ortogonale alla congiungente ricevitore-sole.

Allo scopo di pervenire a valori più realistici di impatto, prossimi al caso reale (denominato REAL CASE), si è impiegato il valore di eliofania locale, ovvero il numero di ore di cielo libero da nubi durante il giorno; per l’area in esame tale valore di soleggiamento corrisponde a 2664.5 h/yr (rispetto alle 4380h/yr considerate nel worst - case).

I risultati del calcolo possono, ragionevolmente, essere abbattuti del 39,2 %, pari al complemento a 1 del rapporto $2664.5/4380 = 60,8 \%$.

In altri termini, rispetto al WORST CASE, la probabilità di occorrenza del fenomeno di shadow flickering si riduce, per l’area in esame, al 60.8 % che corrisponde proprio alla probabilità che il disco solare risulti libero da nubi.


Tutto ciò non tiene conto di altri fattori che potrebbero diminuire o annullare del tutto l’effetto flickering sul ricevitore, come la presenza di alberi interposti tra turbina e ricevitore e/o posizionamento delle abitazioni e dei propri infissi rispetto alla fonte, la presenza del vento (fattore indispensabile per la formazione del fenomeno dello sfarfallio).

10. CONCLUSIONI

A seguito di quanto descritto nei paragrafi precedenti si può concludere che, pur considerando una stima cautelativa in quanto non si è tenuto conto dell’eventuale presenza di ostacoli e/o vegetazione interposti tra il sole e le finestrate (ad esclusione degli ostacoli orografici), il fenomeno dello shadow flickering si verifica per 5 dei 38 ricettori in esame.

Tale fenomeno si manifesta però in modo differente per i diversi ricettori per cui non si possono generalizzare le conclusioni, ma è doveroso analizzare i diversi casi.

Per la corretta analisi dello shadow flickering, vanno considerate tutti i fattori che possono influenzare il risultato, anche nel caso di ricettori che apparentemente subiscono un fenomeno rilevante, è necessario

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024 Pag. 36 di 42</p>
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verificare se in conclusione il fenomeno stesso dell'ombreggiamento arreca un disturbo reale oppure il fatto stesso non è neppure avvertito da chi abitualmente utilizza i locali.

Partendo proprio dai dati ricavati con condizione peggiorativa (WORST CASE), si analizza quale reale disturbo si trasmette alle attività lavorative nell'area del parco.

A tali considerazioni va altresì sottolineato che:

- la velocità di rotazione della turbina è 8 rotazioni al minuto, quindi nettamente inferiore a 60 rpm, frequenza massima raccomandata al fine di ridurre al minimo i fastidi e soddisfare le condizioni di benessere;
- nelle condizioni di WORST CASE sono 5 i ricettori maggiormente interessati al fenomeno dello shadow, superando il limite imposto dalla normativa tedesca di 30 h/years (E, F, AC, AE, AF);

RICETTORE	WORST CASE (h/year)
A	0:00
B	0:00
C	0:00
D	15:13
E	31:29
F	83:41
G	0:00
H	0:00
I	0:00
J	0:00
K	0:00
L	5:01
M	0:00
N	0:00
O	0:00
P	0:00
Q	0:00
R	8:08
S	7:51
T	0:23
U	11:30
V	14:38
W	0:30
X	0:00



PROGETTO DEFINITIVO

"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"

Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)

DATA:
MAGGIO 2024
Pag. 37 di 42

Y	0:00
Z	0:00
AA	4:07
AB	0:00
AC	149:00
AD	21:57
AE	127:45
AF	276:25
AG	0:00
AH	0:00
AI	0:00
AJ	0:00
AK	0:00
AL	0:00

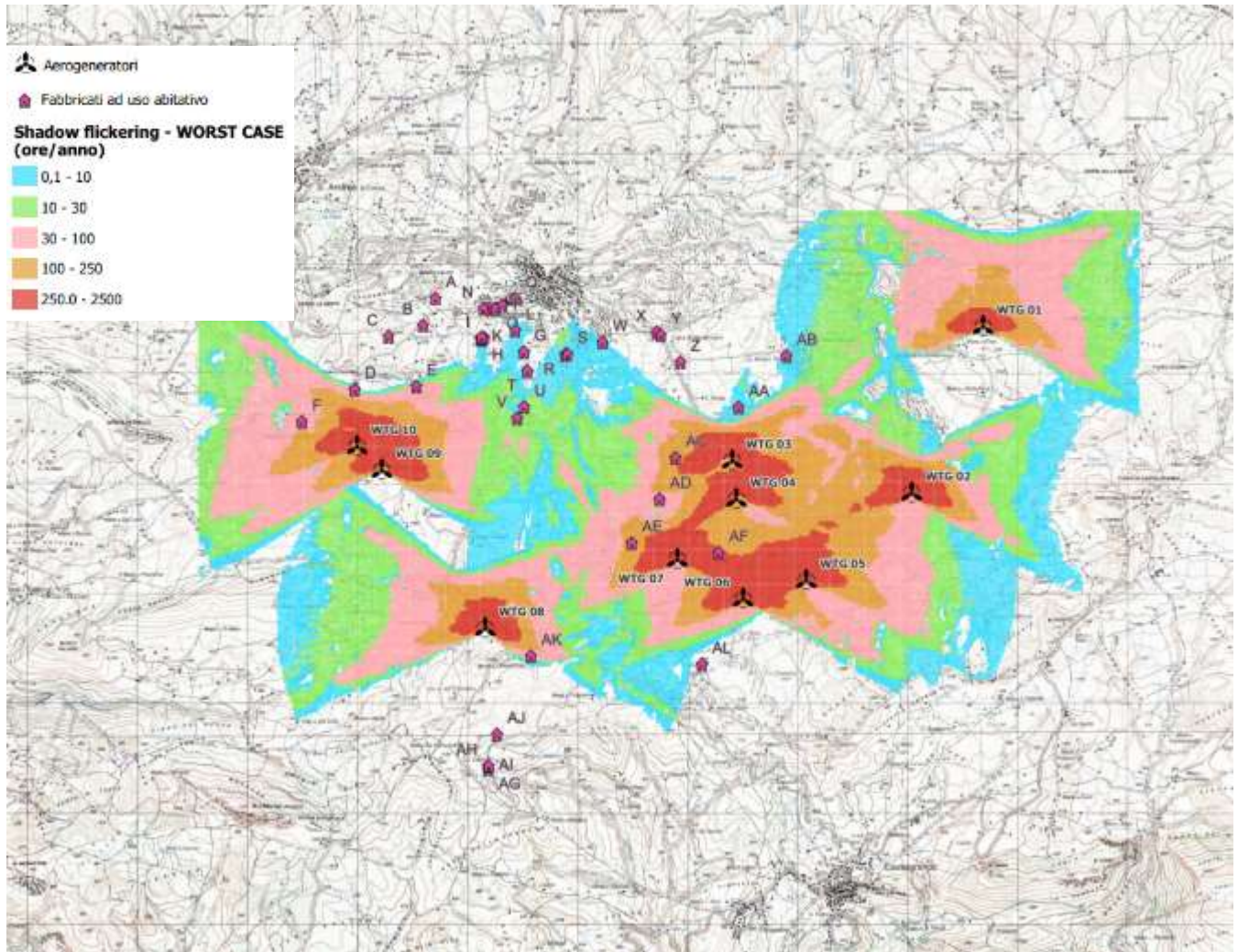


Figura 11 – Rappresentazione grafica WORST CASE

- i ricettori che subiscono il fenomeno dell'ombreggiamento sono molto lontani dalle turbine in progetto essendo posti ad una distanza media comprese tra circa 380 m e 780 m. In tali circostanze, al di sopra dei 300 m, l'effetto dell'ombra è trascurabile poiché il rapporto tra lo spessore della pala e la distanza dal recettore diventa molto piccolo;

RICETTORE	WORST CASE (h/year)	DISTANZA DA TURBINA (m)	AEROGENERATORE PIÙ VICINO
A	0:00	1550	WTG10
B	0:00	1270	WTG10
C	0:00	1050	WTG10



PROGETTO DEFINITIVO


"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"

Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)

DATA:
MAGGIO 2024
Pag. 39 di 42

D	15:13	540	WTG10
E	31:29	780	WTG10
F	83:41	560	WTG10
G	0:00	1700	WTG10
H	0:00	1500	WTG10
I	0:00	1500	WTG10
J	0:00	1530	WTG10
K	0:00	1520	WTG10
L	5:01	1770	WTG10
M	0:00	1750	WTG10
N	0:00	1720	WTG10
O	0:00	1790	WTG10
P	0:00	1860	WTG10
Q	0:00	1980	WTG10
R	8:08	1810	WTG03
S	7:51	1800	WTG03
T	0:23	1645	WTG09
U	11:30	1425	WTG09
V	14:38	1325	WTG09
W	0:30	1612	WTG03
X	0:00	1370	WTG03
Y	0:00	1330	WTG03
Z	0:00	1030	WTG03
AA	4:07	510	WTG03
AB	0:00	1090	WTG03
AC	149:00	520	WTG03
AD	21:57	700	WTG04
AE	127:45	450	WTG07
AF	276:25	380	WTG07
AG	0:00	1260	WTG08
AH	0:00	1230	WTG08
AI	0:00	1230	WTG08
AJ	0:00	950	WTG08
AK	0:00	480	WTG08
AL	0:00	685	WTG06

- il fenomeno è studiato in WORST CASE, quindi nelle condizioni peggiori, considerando il cielo sempre limpido cosa del tutto non vera specialmente per i ricettori che subiscono maggiore

	PROGETTO DEFINITIVO "Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW" Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)	DATA: MAGGIO 2024 Pag. 40 di 42
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ombreggiamento nel periodo invernale, le condizioni di REAL CASE abbatterebbero le ore reali con un'aliquota stimata al 39,2% delle ore rilevate;

- la condizione di WORST CASE, prevede un particolare orientamento delle pale dell'aerogeneratore, sempre fisso e nella stessa direzione, nonché prevede una certa disposizione delle finestre oltre a prevedere una condizione di cielo sempre limpido, tali condizioni sono completamente diverse e comunque mai tutte presenti contemporaneamente nella condizione di REAL CASE.
- nelle condizioni di REAL CASE, 4 dei suddetti ricettori superano il livello imposto dalla normativa tedesca posti ad una distanza media di circa 477,5 m.

RICETTORE	WORST CASE (h/year)	REAL CASE (h/year)	DISTANZA TURBINA (m)	AEROGENERATORE PIÙ VICINO
A	0,00	0,00	1550	WTG10
B	0,00	0,00	1270	WTG10
C	0,00	0,00	1050	WTG10
D	15,13	5,93	540	WTG10
E	31,29	12,27	780	WTG10
F	83,41	32,70	560	WTG10
G	0,00	0,00	1700	WTG10
H	0,00	0,00	1500	WTG10
I	0,00	0,00	1500	WTG10
J	0,00	0,00	1530	WTG10
K	0,00	0,00	1520	WTG10
L	5,01	1,96	1770	WTG10
M	0,00	0,00	1750	WTG10
N	0,00	0,00	1720	WTG10
O	0,00	0,00	1790	WTG10
P	0,00	0,00	1860	WTG10
Q	0,00	0,00	1980	WTG10
R	8,08	3,17	1810	WTG03
S	7,51	2,94	1800	WTG03
T	0,23	0,09	1645	WTG09
U	11,30	4,43	1425	WTG09
V	14,38	5,64	1325	WTG09
W	0,30	0,12	1612	WTG03
X	0,00	0,00	1370	WTG03
Y	0,00	0,00	1330	WTG03

Z	0,00	0,00	1030	WTG03
AA	4,07	1,60	510	WTG03
AB	0,00	0,00	1090	WTG03
AC	149,00	58,41	520	WTG03
AD	21,57	8,46	700	WTG04
AE	127,45	49,96	450	WTG07
AF	276,25	108,29	380	WTG07
AG	0,00	0,00	1260	WTG08
AH	0,00	0,00	1230	WTG08
AI	0,00	0,00	1230	WTG08
AJ	0,00	0,00	950	WTG08
AK	0,00	0,00	480	WTG08
AL	0,00	0,00	685	WTG06

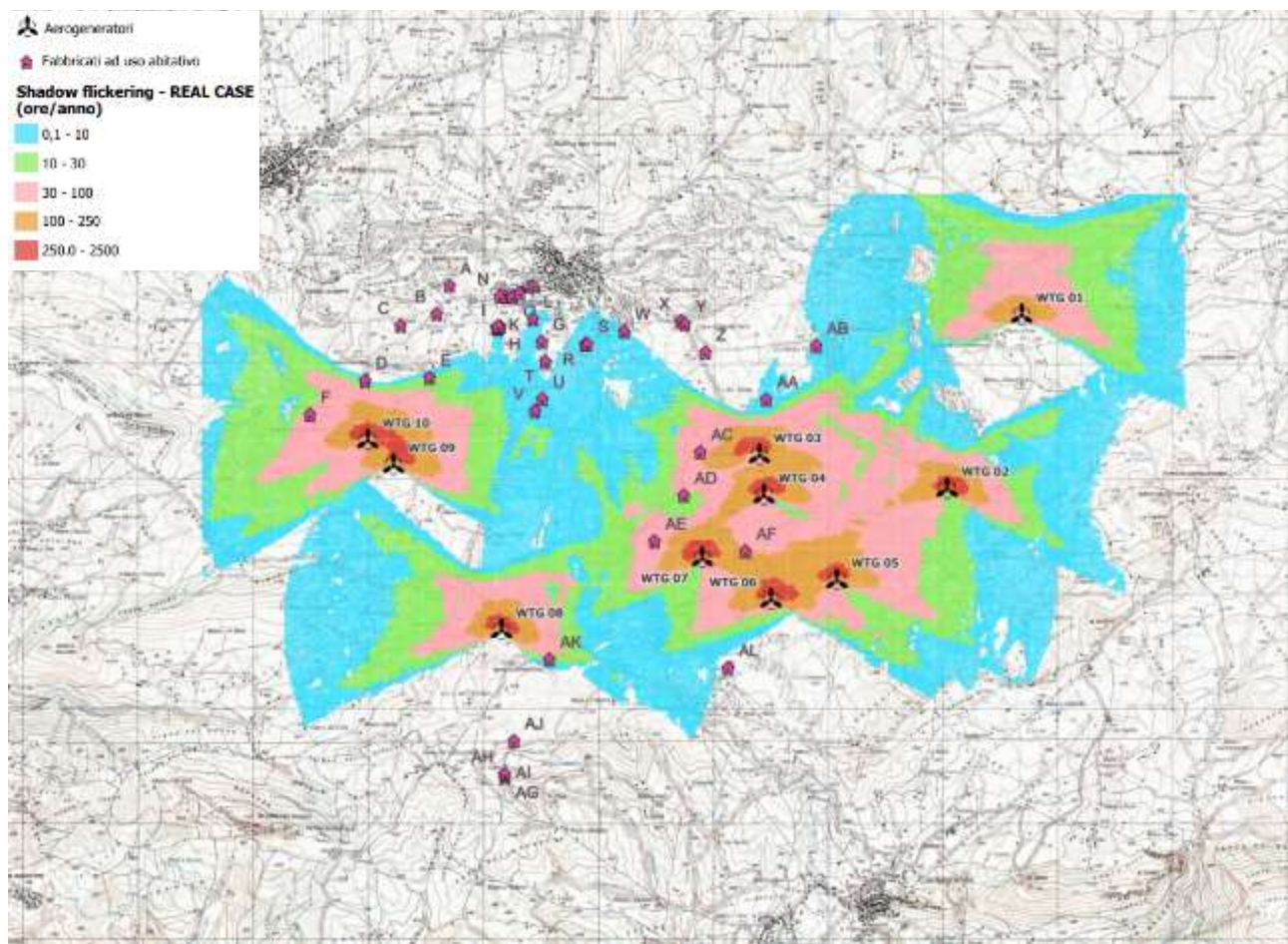



Figura 12 – Rappresentazione grafica REAL CASE

	<p>PROGETTO DEFINITIVO</p> <p>"Impianto di produzione di energia elettrica da fonte eolica nel Comune di Pescopagano (PZ) denominato "Saetta" di potenza nominale pari a 72 MW"</p> <p>Relazione sull'analisi dell'evoluzione dell'ombra indotta dagli aerogeneratori (effetto shadow flickering)</p>	<p>DATA: MAGGIO 2024</p> <p>Pag. 42 di 42</p>
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- Tutti i ricettori che superano il valore limite in WORST e REAL CASE, sia quelli con emissioni marginali sia quelli con maggiore esposizione al fenomeno, sono caratterizzati dalla presenza di schermature naturali (vegetazione ad alto fusto) nella zona adiacente agli edifici, che si frappongono tra essi e l'aerogeneratore in questione e che proteggono e mitigano i possibili effetti di flickering.

Si fa presente che nonostante i 5 casi in cui si verifichi il superamento delle ore annue indicate dalla normativa Tedesca nelle condizioni di Worst Case (4 in condizioni di Real case), queste sono comunque in condizioni cautelative in quanto non si è tenuto conto degli effetti mitigativi dovuti al piano di rotazione delle pale non sempre ortogonale alla direttrice sole-finestra e non vengono considerate la presenza di alberi nelle immediate vicinanze degli edifici che formano una barriera naturale, come non viene considerata la disposizione delle aperture nelle pareti degli edifici come finestre, balconi e porte che consentono all'effetto di sfarfallamento di entrare nell'edificio.

Tale accortezza risulta in alcuni casi fondamentale in quanto il programma di simulazione considera gli edifici formati da soli pareti trasparenti.

Questi accorgimenti potrebbero portare il monte ore indicato ad azzerarsi anche nei casi di superamento, se ciò non avvenisse si potrebbero predisporre, al fine di ridurre e/o eliminare gli effetti di shadow flickering sulle abitazioni interessate, delle opere di mitigazione:

- ✓ completamento della piantumazione già presente come delle barriere di alberi in posizione utile da annullare l'effetto considerato;
- ✓ l'installazione sugli aerogeneratori che causano il fenomeno dell'ombreggiamento, dello Shadow Detection System, una innovativa tecnologia che, attraverso l'analisi della posizione del sole, del rotore della turbina e delle abitazioni circostanti, blocca la turbina nei periodi in cui si creano le condizioni favorevoli per il verificarsi dello shadow flickering, annullando così il fenomeno.

ALLEGATO 1

Project:
WIND_PRP_PESCOPAGANO

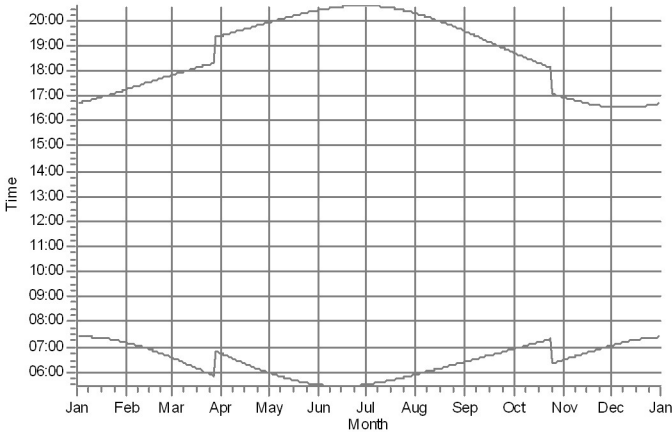
Licensed user:
EGM Project srl
via Vincenzo Verrastro 15/A
IT-85100 Potenza

Calculated:
06/05/2024 19:05/4.0.531

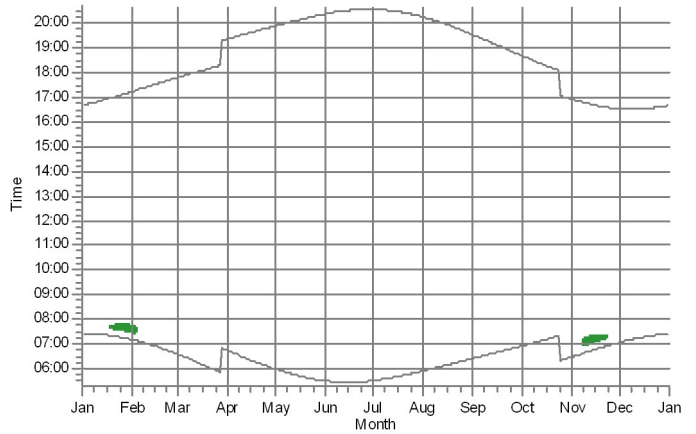
SHADOW - Calendar per WTG, graphical

Calculation: SHADOW_PESCOPAGANO_DEF

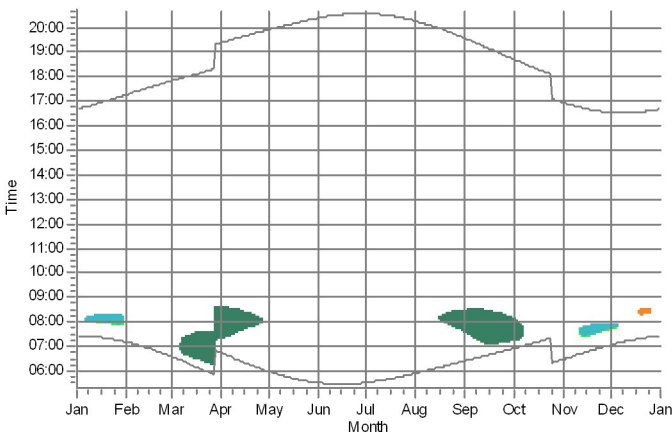
WTG 01: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



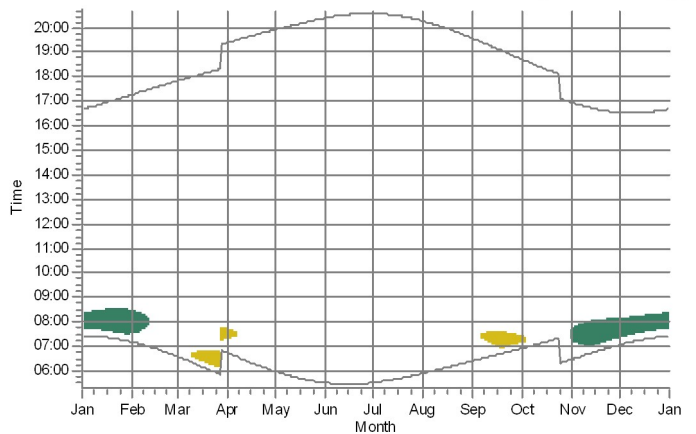
WTG 02: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



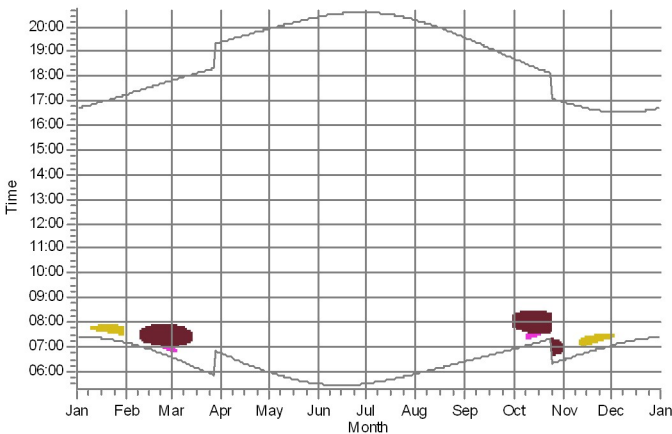
WTG 03: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



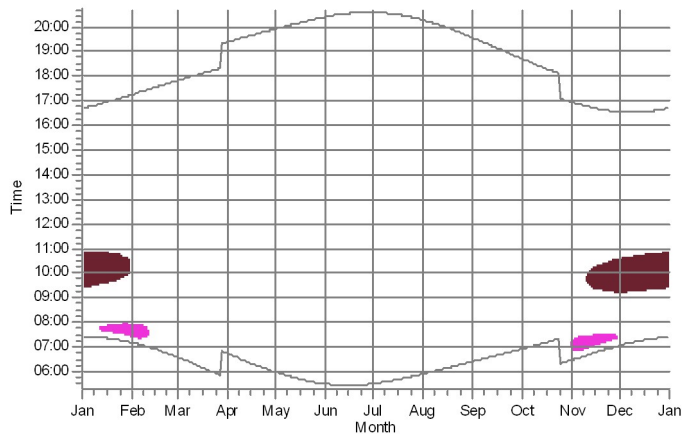
WTG 04: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



WTG 05: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



WTG 06: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



Shadow receptors

R: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (57)
S: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (58)
W: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (62)

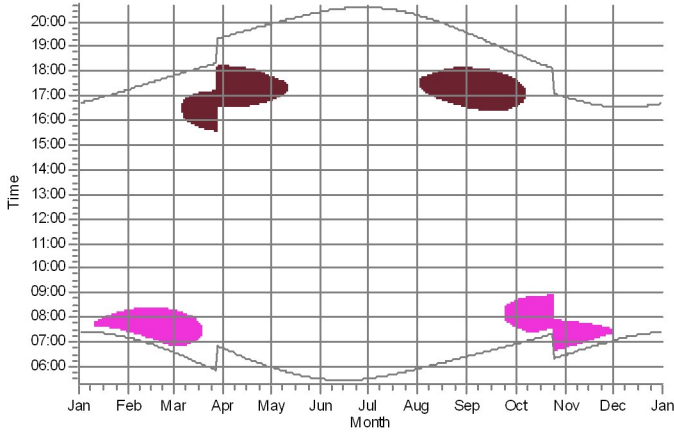
AA: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (66)
AC: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (68)
AD: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (69)

AE: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (70)
AF: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (71)

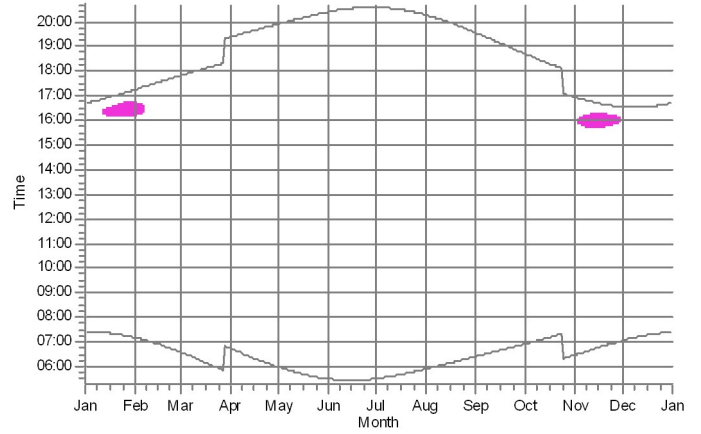
SHADOW - Calendar per WTG, graphical

Calculation: SHADOW_PESCOPAGANO_DEF

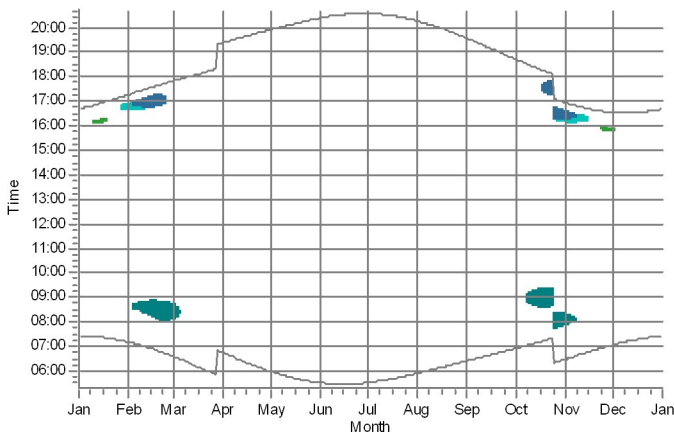
WTG 07: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



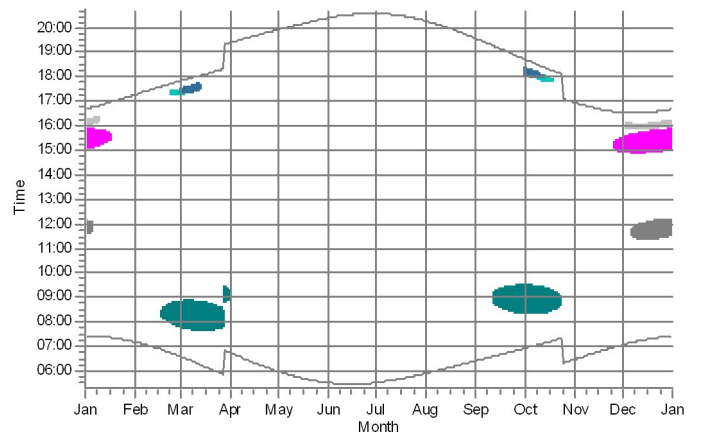
WTG 08: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



WTG 09: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



WTG 10: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m)



Shadow receptors

D: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (43)
E: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (44)
F: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (45)

L: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (51)
T: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (59)
U: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (60)

V: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (61)
AE: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (70)
AF: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (71)

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 01 - VESTAS V172-7.2 7200 172.0 !0! hub: 138.0 m (TOT: 224.0 m) (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	July	August	September	October	November	December
1	07:23 16:41	07:10 17:15	06:34 17:49	06:44 19:23	05:58 19:54	05:30 20:23	05:30 20:34	05:54 20:16	06:25 19:33	06:54 18:42	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:29 20:24	05:31 20:34	05:55 20:14	06:26 19:31	06:55 18:41	06:29 16:55	07:04 16:32
3	07:23 16:43	07:08 17:18	06:31 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:31 20:34	05:56 20:13	06:27 19:29	06:56 18:39	06:30 16:54	07:05 16:31
4	07:23 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:57 18:37	06:32 16:52	07:06 16:31
5	07:23 16:45	07:06 17:20	06:28 17:53	06:37 19:27	05:53 19:58	05:28 20:26	05:32 20:34	05:58 20:11	06:28 19:26	06:58 18:36	06:33 16:51	07:07 16:31
6	07:23 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 19:59	05:28 20:27	05:33 20:33	05:59 20:10	06:29 19:25	06:59 18:34	06:34 16:50	07:08 16:31
7	07:23 16:47	07:04 17:22	06:25 17:56	06:34 19:29	05:51 20:00	05:28 20:28	05:34 20:33	06:00 20:09	06:30 19:23	07:00 18:33	06:35 16:49	07:09 16:31
8	07:23 16:47	07:03 17:24	06:23 17:57	06:33 19:30	05:50 20:01	05:27 20:28	05:34 20:33	06:01 20:07	06:31 19:21	07:01 18:31	06:36 16:48	07:10 16:31
9	07:23 16:48	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:02	05:27 20:29	05:35 20:32	06:02 20:06	06:32 19:20	07:03 18:29	06:38 16:47	07:10 16:31
10	07:23 16:49	07:00 17:26	06:20 17:59	06:29 19:32	05:48 20:03	05:27 20:29	05:36 20:32	06:03 20:05	06:33 19:18	07:04 18:28	06:39 16:46	07:11 16:31
11	07:23 16:50	06:59 17:27	06:19 18:00	06:28 19:33	05:46 20:04	05:27 20:30	05:36 20:32	06:04 20:04	06:34 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:22 16:51	06:58 17:29	06:17 18:01	06:26 19:34	05:45 20:05	05:27 20:30	05:37 20:31	06:05 20:02	06:35 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	06:57 17:30	06:15 18:02	06:25 19:35	05:44 20:06	05:27 20:31	05:38 20:31	06:06 20:01	06:36 19:13	07:07 18:23	06:42 16:43	07:14 16:31
14	07:22 16:54	06:55 17:31	06:14 18:03	06:23 19:36	05:43 20:07	05:27 20:31	05:38 20:30	06:07 20:00	06:37 19:11	07:08 18:21	06:44 16:42	07:15 16:31
15	07:22 16:55	06:54 17:32	06:12 18:04	06:21 19:37	05:42 20:08	05:26 20:32	05:39 20:30	06:08 19:58	06:38 19:09	07:09 18:20	06:45 16:41	07:15 16:32
16	07:21 16:56	06:53 17:34	06:10 18:06	06:20 19:38	05:41 20:09	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:18	06:46 16:40	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:18 19:39	05:40 20:10	05:27 20:32	05:41 20:28	06:10 19:55	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:40	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:04	07:12 18:15	06:48 16:39	07:17 16:32
19	07:20 16:59	06:49 17:37	06:06 18:09	06:15 19:42	05:39 20:12	05:27 20:33	05:42 20:27	06:12 19:53	06:42 19:03	07:13 18:14	06:49 16:38	07:18 16:33
20	07:19 17:00	06:48 17:38	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:33	05:43 20:26	06:13 19:51	06:43 19:01	07:14 18:12	06:51 16:37	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:12 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:09	06:53 16:36	07:20 16:34
23	07:17 17:04	06:43 17:42	05:59 18:13	06:09 19:46	05:35 20:16	05:27 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
24	07:17 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:06	06:40 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:22	06:18 19:44	06:48 18:53	07:20 17:05	06:56 16:34	07:21 16:36
26	07:15 17:08	06:39 17:45	05:54 18:16	06:05 19:49	05:33 20:19	05:28 20:34	05:48 20:21	06:19 19:42	06:49 18:51	07:21 17:04	06:57 16:34	07:21 16:36
27	07:14 17:09	06:37 17:47	05:52 18:17	06:04 19:50	05:33 20:19	05:29 20:34	05:49 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:58 16:33	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:18	06:02 19:51	05:32 20:20	05:29 20:34	05:50 20:20	06:21 19:39	06:51 18:47	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:11		06:49 19:19	06:01 19:52	05:31 20:21	05:29 20:34	05:51 20:19	06:22 19:37	06:52 18:46	07:24 17:00	07:01 16:33	07:22 16:38
30	07:12 17:13		06:47 19:20	06:00 19:53	05:31 20:22	05:30 20:34	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:32	07:23 16:39
31	07:11 17:14		06:46 19:22		05:30 20:23		05:53 20:17	06:24 19:34		06:27 16:57		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 02 - VESTAS V172-7.2 7200 172.0 !0! hub: 138.0 m (TOT: 224.0 m) (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	July	August	September	October	November	December
1	07:23 16:41	07:10 17:15	07:30-07:41/11 17:49	06:34 19:23	06:44 19:54	05:59 20:23	05:30 20:34	05:30 20:15	05:54 19:33	06:25 18:42	06:54 16:56	06:28 16:32
2	07:23 16:42	07:09 17:16	07:29-07:40/11 17:50	06:33 19:24	06:42 19:55	05:57 20:24	05:29 20:34	05:31 20:14	05:55 19:31	06:26 18:41	06:55 16:55	06:29 16:32
3	07:23 16:43	07:08 17:18	07:32-07:37/5 17:51	06:31 19:25	06:41 19:56	05:56 20:25	05:29 20:34	05:31 20:13	05:56 19:29	06:27 18:39	06:56 16:54	06:30 16:32
4	07:23 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	05:57 19:28	06:28 18:38	06:57 16:53	06:32 16:31
5	07:23 16:45	07:06 17:20	06:28 17:53	06:37 19:27	05:53 19:58	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:58 18:36	06:33 16:51	06:07 16:31
6	07:23 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 19:59	05:28 20:27	05:33 20:33	05:59 20:10	06:30 19:25	06:59 18:34	06:34 16:50	06:08 16:31
7	07:23 16:46	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:00	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:00 18:33	06:35 16:49	07:09 16:31
8	07:23 16:47	07:03 17:24	06:23 17:57	06:33 19:30	05:50 20:01	05:27 20:28	05:34 20:33	06:01 20:07	06:31 19:21	07:02 18:31	06:36 16:48	07:03-07:08/5 16:31
9	07:23 16:48	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:02	05:27 20:29	05:35 20:32	06:02 20:06	06:32 19:20	07:03 18:29	06:38 16:47	07:00-07:11/11 16:31
10	07:23 16:49	07:00 17:26	06:20 17:59	06:29 19:32	05:48 20:03	05:27 20:29	05:36 20:32	06:03 20:05	06:33 19:18	07:04 18:28	06:39 16:46	07:01-07:12/11 16:31
11	07:23 16:51	06:59 17:27	06:19 18:00	06:28 19:33	05:47 20:04	05:27 20:30	05:36 20:32	06:04 20:04	06:34 19:16	07:05 18:26	06:40 16:45	07:02-07:14/12 16:31
12	07:22 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:45 20:05	05:27 20:30	05:37 20:31	06:05 20:02	06:35 19:15	07:06 18:25	06:41 16:44	07:04-07:15/11 16:31
13	07:22 16:53	06:57 17:30	06:15 18:02	06:25 19:35	05:44 20:06	05:27 20:31	05:38 20:31	06:06 20:01	06:36 19:13	07:07 18:23	06:42 16:43	07:05-07:16/11 16:31
14	07:22 16:54	06:56 17:31	06:14 18:03	06:23 19:36	05:43 20:07	05:27 20:31	05:39 20:30	06:07 20:00	06:37 19:11	07:08 18:21	06:44 16:42	07:06-07:16/10 16:31
15	07:22 16:55	06:54 17:32	06:12 18:05	06:21 19:37	05:42 20:08	05:27 20:32	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	06:45 16:41	07:07-07:17/10 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:38	05:41 20:09	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:18	06:46 16:41	07:09-07:18/9 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:18 19:39	05:40 20:10	05:27 20:32	05:41 20:28	06:10 19:55	06:40 19:06	07:11 18:17	06:47 16:40	07:10-07:18/8 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:40	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:04	07:12 18:15	06:48 16:39	07:11-07:18/7 16:33
19	07:20 16:59	07:41-07:42/1 17:37	06:49 18:09	06:15 19:42	05:39 20:12	05:27 20:33	05:42 20:27	06:12 19:53	06:42 19:03	07:13 18:14	06:49 16:38	07:12-07:18/6 16:33
20	07:19 17:01	07:40-07:42/2 17:38	06:48 18:10	06:14 19:43	05:38 20:13	05:27 20:33	05:43 20:26	06:13 19:51	06:43 19:01	07:14 18:12	06:51 16:38	07:14-07:19/5 16:33
21	07:19 17:02	07:39-07:43/4 17:40	06:46 18:11	06:12 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	06:52 16:37	07:15-07:19/4 16:34
22	07:18 17:03	07:39-07:44/5 17:41	06:45 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:16-07:19/3 16:34
23	07:17 17:04	07:38-07:44/6 17:42	06:43 18:13	06:10 19:46	05:35 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:17-07:18/1 16:35
24	07:17 17:05	07:37-07:44/7 17:43	06:42 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:07	07:36-07:44/8 17:44	06:40 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:22	06:18 19:44	06:48 18:53	06:20 17:05	06:56 16:34	07:21 16:36
26	07:15 17:08	07:36-07:45/9 17:45	06:39 18:16	06:05 19:49	05:33 20:19	05:28 20:34	05:49 20:21	06:19 19:42	06:49 18:51	06:21 17:04	06:57 16:34	07:21 16:37
27	07:14 17:09	07:35-07:45/10 17:47	06:37 18:17	06:04 19:50	05:33 20:19	05:29 20:34	05:49 20:20	06:20 19:41	06:50 18:49	06:22 17:03	06:58 16:34	07:22 16:37
28	07:14 17:10	07:34-07:44/10 17:48	06:36 18:18	06:02 19:51	05:32 20:20	05:29 20:34	05:50 20:20	06:21 19:39	06:51 18:47	06:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:11	07:33-07:44/11 17:47	06:49 19:19	06:01 19:52	05:31 20:21	05:30 20:34	05:51 20:19	06:22 19:37	06:52 18:46	06:25 17:00	07:01 16:33	07:22 16:39
30	07:12 17:13	07:32-07:43/11 17:47	06:47 19:20	06:00 19:53	05:31 20:22	05:30 20:34	05:52 20:18	06:23 19:36	06:53 18:44	06:26 16:59	07:02 16:32	07:23 16:39
31	07:11 17:14	07:31-07:43/12 17:47	06:46 19:22	05:30 20:23	05:30 20:23	05:30 20:23	05:53 20:17	06:24 19:34	06:24 16:57	06:27 16:57	07:03 16:40	07:23 16:40
Potential sun hours 298												
Sum of minutes with flicker 96 27 0 0 448 0 451 0 458 0 375 0 345 0 298 124 289												

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 03 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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
1	07:23 16:41	07:10 17:15	06:34 17:49	06:44 07:23-08:33/70 19:23	05:59 19:54	05:30 20:23
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 07:25-08:33/68 19:24	05:57 19:55	05:30 20:24
3	07:23 16:43	07:08 17:18	06:31 17:51	06:41 07:26-08:32/66 19:25	05:56 19:56	05:29 20:25
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 07:28-08:32/64 19:26	05:55 19:57	05:29 20:26
5	07:24 16:45	07:06 17:20	06:28 17:54	06:37 07:29-08:31/62 19:27	05:54 19:58	05:28 20:26
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 07:30-08:30/60 19:28	05:52 19:59	05:28 20:27
7	07:23 08:06-08:07/1 16:47	07:04 17:23	06:25 06:54-07:06/12 17:56	06:34 07:33-08:30/57 19:29	05:51 20:00	05:28 20:28
8	07:23 08:06-08:08/2 16:48 08:04-08:05/1	07:03 17:24	06:24 06:47-07:12/25 17:57	06:33 07:34-08:29/55 19:30	05:50 20:01	05:28 20:28
9	07:23 08:04-08:09/5 16:49	07:02 17:25	06:22 06:44-07:17/33 17:58	06:31 07:35-08:28/53 19:31	05:49 20:02	05:27 20:29
10	07:23 08:04-08:10/6 16:50	07:00 17:26	06:20 06:43-07:19/36 17:59	06:29 07:37-08:27/50 19:32	05:48 20:04	05:27 20:29
11	07:23 08:03-08:10/7 16:51	06:59 17:28	06:19 06:41-07:21/40 18:00	06:28 07:38-08:26/48 19:33	05:47 20:05	05:27 20:30
12	07:23 08:03-08:11/8 16:52	06:58 17:29	06:17 06:40-07:24/44 18:01	06:26 07:40-08:26/46 19:34	05:46 20:06	05:27 20:30
13	07:22 08:03-08:12/9 16:53	06:57 17:30	06:15 06:38-07:25/47 18:02	06:25 07:41-08:24/43 19:35	05:44 20:07	05:27 20:31
14	07:22 08:02-08:12/10 16:54	06:56 17:31	06:14 06:37-07:26/49 18:04	06:23 07:43-08:24/41 19:36	05:43 20:08	05:27 20:31
15	07:22 08:02-08:13/11 16:55	06:54 17:32	06:12 06:36-07:28/52 18:05	06:22 07:44-08:22/38 19:37	05:42 20:08	05:27 20:32
16	07:21 08:02-08:13/11 16:56	06:53 17:34	06:11 06:34-07:29/55 18:06	06:20 07:46-08:21/35 19:38	05:42 20:09	05:27 20:32
17	07:21 08:02-08:14/12 16:57	06:52 17:35	06:09 06:33-07:31/58 18:07	06:18 07:47-08:20/33 19:40	05:41 20:10	05:27 20:33
18	07:20 08:01-08:14/13 16:58	06:50 17:36	06:07 06:32-07:31/59 18:08	06:17 07:49-08:19/30 19:41	05:40 20:11	05:27 20:33
19	07:20 08:01-08:15/14 16:59	06:49 17:37	06:06 06:30-07:32/62 18:09	06:15 07:50-08:17/27 19:42	05:39 20:12	05:27 20:33
20	07:19 08:00-08:15/15 17:01	06:48 17:38	06:04 06:28-07:32/64 18:10	06:14 07:52-08:16/24 19:43	05:38 20:13	05:27 20:33
21	07:19 07:59-08:14/15 17:02	06:46 17:40	06:02 06:28-07:33/65 18:11	06:12 07:53-08:14/21 19:44	05:37 20:14	05:27 20:34
22	07:18 07:59-08:15/16 17:03	06:45 17:41	06:01 06:26-07:33/67 18:12	06:11 07:55-08:13/18 19:45	05:36 20:15	05:27 20:34
23	07:17 07:58-08:15/17 17:04	06:43 17:42	05:59 06:24-07:33/69 18:13	06:10 07:55-08:10/15 19:46	05:36 20:16	05:28 20:34
24	07:17 07:57-08:14/17 17:05	06:42 17:43	05:57 06:24-07:34/70 18:14	06:08 07:57-08:09/12 19:47	05:35 20:17	05:28 20:34
25	07:16 07:56-08:14/18 17:07	06:40 17:44	05:56 06:22-07:34/72 18:15	06:07 07:59-08:07/8 19:48	05:34 20:18	05:28 20:34
26	07:15 07:56-08:14/18 17:08	06:39 17:46	05:54 06:21-07:34/73 18:16	06:05 08:00-08:04/4 19:49	05:33 20:19	05:28 20:34
27	07:14 07:55-08:13/18 17:09	06:37 17:47	05:52 06:20-07:34/74 18:17	06:04 19:50	05:33 20:19	05:29 20:34
28	07:14 07:55-08:12/17 17:10	06:36 17:48	05:51 06:18-07:34/76 18:18	06:03 19:51	05:32 20:20	05:29 20:34
29	07:13 07:57-08:10/13 17:11		06:49 07:18-08:33/75 19:20	06:01 19:52	05:32 20:21	05:30 20:34
30	07:12 07:59-08:08/9 17:13		06:47 07:21-08:34/73 19:21	06:00 19:53	05:31 20:22	05:30 20:34
31	07:11 17:14		06:46 07:22-08:33/71 19:22		05:30 20:23	
Potential sun hours	298	297	369	398	448	452
Sum of minutes with flicker	283	0	1421	1048	0	0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 03 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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

	July	August	September	October	November	December
1	05:30 20:34	05:54 20:16	06:25 07:37-08:25/48 19:33	06:54 07:18-08:03/45 18:43	06:28 16:56	07:03 07:45-07:52/7 16:32
2	05:31 20:34	05:55 20:15	06:26 07:35-08:25/50 19:31	06:55 07:19-08:01/42 18:41	06:29 16:55	07:04 07:47-07:53/6 16:32
3	05:31 20:34	05:56 20:13	06:27 07:33-08:26/53 19:30	06:56 07:20-07:58/38 18:39	06:31 16:54	07:05 07:48-07:53/5 16:32
4	05:32 20:34	05:57 20:12	06:28 07:31-08:26/55 19:28	06:57 07:20-07:55/35 18:38	06:32 16:53	07:06 07:51-07:53/2 16:31
5	05:33 20:34	05:58 20:11	06:29 07:29-08:26/57 19:26	06:58 07:21-07:51/30 18:36	06:33 16:51	07:07 07:52-07:53/1 16:31
6	05:33 20:33	05:59 20:10	06:30 07:27-08:26/59 19:25	06:59 07:27-07:47/20 18:34	06:34 16:50	07:08 16:31
7	05:34 20:33	06:00 20:09	06:31 07:25-08:26/61 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	05:34 20:33	06:01 20:08	06:32 07:22-08:26/64 19:21	07:02 18:31	06:36 16:48	07:10 16:31
9	05:35 20:32	06:02 20:06	06:33 07:20-08:26/66 19:20	07:03 18:29	06:38 16:47	07:11 16:31
10	05:36 20:32	06:03 20:05	06:34 07:18-08:26/68 19:18	07:04 18:28	06:39 16:46	07:11 16:31
11	05:36 20:32	06:04 20:04	06:34 07:16-08:26/70 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	05:37 20:31	06:05 20:02	06:35 07:14-08:25/71 19:15	07:06 18:25	06:41 07:31-07:40/9 16:44	07:13 16:31
13	05:38 20:31	06:06 20:01	06:36 07:12-08:25/73 19:13	07:07 18:23	06:42 07:29-07:42/13 16:43	07:14 16:31
14	05:39 20:30	06:07 20:00	06:37 07:10-08:25/75 19:11	07:08 18:22	06:44 07:27-07:44/17 16:42	07:15 16:31
15	05:39 20:30	06:08 19:58	06:38 07:08-08:24/76 19:10	07:09 18:20	06:45 07:27-07:45/18 16:41	07:15 16:32
16	05:40 20:29	06:09 08:08-08:09/1 19:57	06:39 07:09-08:24/75 19:08	07:10 18:18	06:46 07:29-07:47/18 16:41	07:16 16:32
17	05:41 20:28	06:10 08:06-08:11/5 19:56	06:40 07:10-08:23/73 19:06	07:11 18:17	06:47 07:30-07:48/18 16:40	07:17 16:32
18	05:42 20:28	06:11 08:05-08:13/8 19:54	06:41 07:09-08:21/72 19:04	07:12 18:15	06:48 07:31-07:48/17 16:39	07:17 16:33
19	05:43 20:27	06:12 08:03-08:15/12 19:53	06:42 07:10-08:21/71 19:03	07:13 18:14	06:49 07:32-07:49/17 16:38	07:18 08:22-08:25/3 16:33
20	05:43 20:26	06:13 08:01-08:16/15 19:51	06:43 07:11-08:20/69 19:01	07:15 18:12	06:51 07:34-07:50/16 16:38	07:19 08:21-08:26/5 16:33
21	05:44 20:26	06:14 07:59-08:18/19 19:50	06:44 07:11-08:19/68 18:59	07:16 18:11	06:52 07:35-07:51/16 16:37	07:19 08:22-08:27/5 16:34
22	05:45 20:25	06:15 07:57-08:19/22 19:48	06:45 07:12-08:18/66 18:58	07:17 18:10	06:53 07:36-07:51/15 16:36	07:20 08:22-08:27/5 16:34
23	05:46 20:24	06:16 07:55-08:20/25 19:47	06:46 07:12-08:17/65 18:56	07:18 18:08	06:54 07:37-07:51/14 16:36	07:20 08:22-08:27/5 16:35
24	05:47 20:23	06:17 07:53-08:21/28 19:45	06:47 07:13-08:15/62 18:54	07:19 18:07	06:55 07:39-07:52/13 16:35	07:21 08:23-08:27/4 16:35
25	05:48 20:22	06:18 07:51-08:22/31 19:44	06:48 07:14-08:14/60 18:53	06:20 17:05	06:56 07:40-07:52/12 16:35	07:21 08:24-08:27/3 16:36
26	05:49 20:22	06:19 07:50-08:23/33 19:42	06:49 07:15-08:13/58 18:51	06:21 17:04	06:57 07:41-07:52/11 16:34	07:22 16:37
27	05:50 20:21	06:20 07:48-08:23/35 19:41	06:50 07:15-08:11/56 18:49	06:22 17:03	06:59 07:41-07:52/11 16:34	07:22 16:37
28	05:50 20:20	06:21 07:46-08:24/38 19:39	06:51 07:16-08:09/53 18:48	06:24 17:01	07:00 07:42-07:52/10 16:33	07:22 16:38
29	05:51 20:19	06:22 07:44-08:25/41 19:38	06:52 07:17-08:08/51 18:46	06:25 17:00	07:01 07:43-07:52/9 16:33	07:23 16:39
30	05:52 20:18	06:23 07:42-08:25/43 19:36	06:53 07:18-08:06/48 18:44	06:26 16:59	07:02 07:44-07:52/8 16:32	07:23 16:39
31	05:53 20:17	06:24 07:39-08:25/46 19:34		06:27 16:57		07:23 16:40
Potential sun hours	458	427	375	345	298	289
Sum of minutes with flicker	0	402	1893	210	262	52

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 04 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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	07:23 07:46-08:19/33 16:41	07:10 07:36-08:23/47 17:15	06:34 17:49	06:44 07:23-07:38/15 19:23	05:59 19:54	05:30 20:23
2	07:23 07:46-08:19/33 16:42	07:09 07:37-08:22/45 17:16	06:33 17:50	06:42 07:25-07:38/13 19:24	05:57 19:55	05:30 20:24
3	07:23 07:46-08:20/34 16:43	07:08 07:38-08:21/43 17:18	06:31 17:51	06:41 07:26-07:36/10 19:25	05:56 19:56	05:29 20:25
4	07:24 07:46-08:21/35 16:44	07:07 07:39-08:20/41 17:19	06:30 17:52	06:39 07:28-07:35/7 19:26	05:55 19:57	05:29 20:26
5	07:24 07:46-08:21/35 16:45	07:06 07:41-08:19/38 17:20	06:28 17:54	06:37 07:29-07:33/4 19:27	05:54 19:58	05:28 20:26
6	07:23 07:45-08:21/36 16:46	07:05 07:43-08:18/35 17:21	06:27 17:55	06:36 07:30-07:31/1 19:28	05:52 19:59	05:28 20:27
7	07:23 07:45-08:21/36 16:47	07:04 07:45-08:16/31 17:23	06:25 17:56	06:34 19:29	05:51 20:00	05:28 20:28
8	07:23 07:45-08:22/37 16:48	07:03 07:46-08:13/27 17:24	06:24 17:57	06:33 19:30	05:50 20:01	05:28 20:28
9	07:23 07:45-08:23/38 16:49	07:02 07:50-08:10/20 17:25	06:22 17:58	06:31 19:31	05:49 20:02	05:27 20:29
10	07:23 07:45-08:23/38 16:50	07:00 07:54-08:06/12 17:26	06:20 17:59	06:29 19:32	05:48 20:03	05:27 20:29
11	07:23 07:44-08:23/39 16:51	06:59 17:28	06:19 06:37-06:40/3 18:00	06:28 19:33	05:47 20:05	05:27 20:30
12	07:23 07:44-08:24/40 16:52	06:58 17:29	06:17 06:36-06:42/6 18:01	06:26 19:34	05:46 20:06	05:27 20:30
13	07:22 07:44-08:25/41 16:53	06:57 17:30	06:15 06:34-06:42/8 18:02	06:25 19:35	05:44 20:07	05:27 20:31
14	07:22 07:43-08:25/42 16:54	06:56 17:31	06:14 06:32-06:43/11 18:03	06:23 19:36	05:43 20:07	05:27 20:31
15	07:22 07:43-08:25/42 16:55	06:54 17:32	06:12 06:31-06:44/13 18:05	06:22 19:37	05:42 20:08	05:27 20:32
16	07:21 07:42-08:25/43 16:56	06:53 17:34	06:11 06:29-06:45/16 18:06	06:20 19:38	05:42 20:09	05:27 20:32
17	07:21 07:42-08:26/44 16:57	06:52 17:35	06:09 06:28-06:46/18 18:07	06:18 19:39	05:41 20:10	05:27 20:32
18	07:20 07:41-08:26/45 16:58	06:50 17:36	06:07 06:26-06:46/20 18:08	06:17 19:41	05:40 20:11	05:27 20:33
19	07:20 07:41-08:26/45 16:59	06:49 17:37	06:06 06:24-06:46/22 18:09	06:15 19:42	05:39 20:12	05:27 20:33
20	07:19 07:40-08:26/46 17:01	06:48 17:38	06:04 06:22-06:45/23 18:10	06:14 19:43	05:38 20:13	05:27 20:33
21	07:19 07:39-08:26/47 17:02	06:46 17:40	06:02 06:21-06:46/25 18:11	06:12 19:44	05:37 20:14	05:27 20:34
22	07:18 07:39-08:27/48 17:03	06:45 17:41	06:01 06:19-06:46/27 18:12	06:11 19:45	05:36 20:15	05:27 20:34
23	07:17 07:38-08:26/48 17:04	06:43 17:42	05:59 06:17-06:45/28 18:13	06:10 19:46	05:36 20:16	05:28 20:34
24	07:17 07:37-08:26/49 17:05	06:42 17:43	05:57 06:16-06:45/29 18:14	06:08 19:47	05:35 20:17	05:28 20:34
25	07:16 07:36-08:26/50 17:07	06:40 17:44	05:56 06:14-06:45/31 18:15	06:07 19:48	05:34 20:18	05:28 20:34
26	07:15 07:36-08:26/50 17:08	06:39 17:46	05:54 06:14-06:44/30 18:16	06:05 19:49	05:33 20:19	05:28 20:34
27	07:14 07:35-08:26/51 17:09	06:37 17:47	05:52 06:16-06:44/28 18:17	06:04 19:50	05:33 20:19	05:29 20:34
28	07:14 07:34-08:26/52 17:10	06:36 17:48	05:51 06:17-06:43/26 18:18	06:03 19:51	05:32 20:20	05:29 20:34
29	07:13 07:33-08:25/52 17:11		06:49 07:18-07:42/24 19:20	06:01 19:52	05:32 20:21	05:30 20:34
30	07:12 07:34-08:25/51 17:13		06:47 07:21-07:41/20 19:21	06:00 19:53	05:31 20:22	05:30 20:34
31	07:11 07:35-08:24/49 17:14		06:46 07:22-07:40/18 19:22		05:30 20:23	
Potential sun hours	298	297	369	398	448	452
Sum of minutes with flicker	1329	339	426	50	0	0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 04 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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	05:31 20:34	05:54 20:16	06:25 19:33	06:54 07:14-07:21/7 18:43	06:28 07:23-07:37/14 16:56	07:03 07:26-08:05/39 16:32
2	05:31 20:34	05:55 20:14	06:26 19:31	06:55 07:15-07:19/4 18:41	06:29 07:19-07:41/22 16:55	07:04 07:27-08:06/39 16:32
3	05:31 20:34	05:56 20:13	06:27 19:30	06:56 07:16-07:17/1 18:39	06:31 07:16-07:43/27 16:54	07:05 07:28-08:06/38 16:32
4	05:32 20:34	05:57 20:12	06:28 19:28	06:57 18:38	06:32 07:13-07:45/32 16:53	07:06 07:29-08:06/37 16:31
5	05:33 20:34	05:58 20:11	06:29 19:26	06:58 18:36	06:33 07:12-07:48/36 16:51	07:07 07:30-08:06/36 16:31
6	05:33 20:33	05:59 20:10	06:30 19:25	06:59 18:34	06:34 07:11-07:49/38 16:50	07:08 07:31-08:07/36 16:31
7	05:34 20:33	06:00 20:09	06:31 07:25-07:28/3 19:23	07:01 18:33	06:35 07:09-07:50/41 16:49	07:09 07:32-08:07/35 16:31
8	05:34 20:33	06:01 20:08	06:32 07:22-07:29/7 19:21	07:02 18:31	06:36 07:09-07:52/43 16:48	07:10 07:33-08:08/35 16:31
9	05:35 20:32	06:02 20:06	06:33 07:20-07:30/10 19:20	07:03 18:29	06:38 07:08-07:53/45 16:47	07:11 07:34-08:08/34 16:31
10	05:36 20:32	06:03 20:05	06:34 07:18-07:31/13 19:18	07:04 18:28	06:39 07:06-07:54/48 16:46	07:11 07:35-08:08/33 16:31
11	05:36 20:32	06:04 20:04	06:34 07:16-07:32/16 19:16	07:05 18:26	06:40 07:06-07:55/49 16:45	07:12 07:36-08:09/33 16:31
12	05:37 20:31	06:05 20:02	06:35 07:14-07:32/18 19:15	07:06 18:25	06:41 07:06-07:57/51 16:44	07:13 07:37-08:10/33 16:31
13	05:38 20:31	06:06 20:01	06:36 07:12-07:32/20 19:13	07:07 18:23	06:42 07:05-07:57/52 16:43	07:14 07:37-08:09/32 16:31
14	05:39 20:30	06:07 20:00	06:37 07:10-07:33/23 19:11	07:08 18:22	06:44 07:06-07:58/52 16:42	07:15 07:38-08:10/32 16:32
15	05:39 20:30	06:08 19:58	06:38 07:08-07:33/25 19:10	07:09 18:20	06:45 07:07-07:58/51 16:41	07:15 07:39-08:10/31 16:32
16	05:40 20:29	06:09 19:57	06:39 07:06-07:33/27 19:08	07:10 18:18	06:46 07:09-07:59/50 16:41	07:16 07:40-08:11/31 16:32
17	05:41 20:28	06:10 19:56	06:40 07:04-07:33/29 19:06	07:11 18:17	06:47 07:10-08:00/50 16:40	07:17 07:40-08:11/31 16:32
18	05:42 20:28	06:11 19:54	06:41 07:01-07:32/31 19:04	07:12 18:15	06:48 07:11-08:00/49 16:39	07:17 07:41-08:12/31 16:33
19	05:43 20:27	06:12 19:53	06:42 07:02-07:32/30 19:03	07:13 18:14	06:49 07:12-08:00/48 16:38	07:18 07:41-08:12/31 16:33
20	05:43 20:26	06:13 19:51	06:43 07:03-07:31/28 19:01	07:15 18:12	06:51 07:14-08:02/48 16:38	07:19 07:42-08:12/30 16:33
21	05:44 20:26	06:14 19:50	06:44 07:04-07:31/27 18:59	07:16 18:11	06:52 07:15-08:02/47 16:37	07:19 07:43-08:13/30 16:34
22	05:45 20:25	06:15 19:48	06:45 07:05-07:30/25 18:58	07:17 18:10	06:53 07:16-08:02/46 16:36	07:20 07:43-08:13/30 16:34
23	05:46 20:24	06:16 19:47	06:46 07:06-07:30/24 18:56	07:18 18:08	06:54 07:17-08:02/45 16:36	07:20 07:43-08:13/30 16:35
24	05:47 20:23	06:17 19:45	06:47 07:07-07:29/22 18:54	07:19 18:07	06:55 07:18-08:03/45 16:35	07:21 07:44-08:14/30 16:35
25	05:48 20:22	06:18 19:44	06:48 07:08-07:28/20 18:53	06:20 17:05	06:56 07:20-08:04/44 16:35	07:21 07:44-08:15/31 16:36
26	05:49 20:21	06:19 19:42	06:49 07:09-07:27/18 18:51	06:21 17:04	06:57 07:21-08:04/43 16:34	07:22 07:45-08:16/31 16:37
27	05:50 20:21	06:20 19:41	06:50 07:10-07:26/16 18:49	06:22 17:03	06:59 07:22-08:04/42 16:34	07:22 07:45-08:16/31 16:37
28	05:50 20:20	06:21 19:39	06:51 07:11-07:25/14 18:48	06:24 17:01	07:00 07:23-08:05/42 16:33	07:22 07:45-08:16/31 16:38
29	05:51 20:19	06:22 19:38	06:52 07:12-07:24/12 18:46	06:25 17:00	07:01 07:24-08:05/41 16:33	07:23 07:45-08:17/32 16:39
30	05:52 20:18	06:23 19:36	06:53 07:13-07:23/10 18:44	06:26 16:59	07:02 07:25-08:05/40 16:32	07:23 07:45-08:17/32 16:39
31	05:53 20:17	06:24 19:34		06:27 16:57		07:23 07:46-08:18/32 16:40
Potential sun hours	458	427	375	345	298	289
Sum of minutes with flicker	0	0	468	12	1281	1017

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 05 - VESTAS V172-7.2 7200 172.0 !0! hub: 138.0 m (TOT: 224.0 m) (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	07:23 16:41	07:10 17:15	06:34 07:04-07:50/46 17:49 06:53-06:58/5	06:44 19:23	05:59 19:54	05:30 20:23
2	07:23 16:42	07:09 17:16	06:33 07:05-07:51/46 17:50 06:52-06:57/5	06:42 19:24	05:57 19:55	05:30 20:24
3	07:23 16:43	07:08 17:18	06:31 07:05-07:49/44 17:51 06:50-06:55/5	06:41 19:25	05:56 19:56	05:29 20:25
4	07:23 16:44	07:07 17:19	06:30 07:06-07:49/43 17:52 06:49-06:52/3	06:39 19:26	05:55 19:57	05:29 20:26
5	07:23 16:45	07:06 17:20	06:28 07:06-07:48/42 17:53	06:37 19:27	05:54 19:58	05:28 20:26
6	07:23 16:46	07:05 17:21	06:27 07:07-07:47/40 17:55	06:36 19:28	05:52 19:59	05:28 20:27
7	07:23 16:47	07:04 17:23	06:25 07:08-07:46/38 17:56	06:34 19:29	05:51 20:00	05:28 20:28
8	07:23 16:48	07:03 17:24	06:24 07:08-07:44/36 17:57	06:33 19:30	05:50 20:01	05:28 20:28
9	07:23 16:49	07:02 17:25	06:22 07:10-07:43/33 17:58	06:31 19:31	05:49 20:02	05:27 20:29
10	07:23 07:45-07:46/1 16:50	07:00 17:26	06:20 07:11-07:40/29 17:59	06:29 19:32	05:48 20:03	05:27 20:29
11	07:23 07:44-07:46/2 16:51	06:59 07:22-07:37/15 17:28	06:19 07:12-07:37/25 18:00	06:28 19:33	05:47 20:04	05:27 20:30
12	07:23 07:44-07:47/3 16:52	06:58 07:19-07:41/22 17:29	06:17 07:16-07:35/19 18:01	06:26 19:34	05:46 20:05	05:27 20:30
13	07:22 07:44-07:48/4 16:53	06:57 07:16-07:42/26 17:30	06:15 07:19-07:30/11 18:02	06:25 19:35	05:44 20:06	05:27 20:31
14	07:22 07:43-07:48/5 16:54	06:56 07:15-07:44/29 17:31	06:14 18:03	06:23 19:36	05:43 20:07	05:27 20:31
15	07:22 07:43-07:49/6 16:55	06:54 07:14-07:46/32 17:32	06:12 18:05	06:22 19:37	05:42 20:08	05:27 20:32
16	07:21 07:42-07:49/7 16:56	06:53 07:12-07:47/35 17:34	06:11 18:06	06:20 19:38	05:41 20:09	05:27 20:32
17	07:21 07:42-07:50/8 16:57	06:52 07:11-07:48/37 17:35	06:09 18:07	06:18 19:39	05:41 20:10	05:27 20:32
18	07:20 07:41-07:49/8 16:58	06:50 07:10-07:50/40 17:36	06:07 18:08	06:17 19:41	05:40 20:11	05:27 20:33
19	07:20 07:41-07:50/9 16:59	06:49 07:08-07:50/42 17:37	06:06 18:09	06:15 19:42	05:39 20:12	05:27 20:33
20	07:19 07:40-07:50/10 17:01	06:48 07:08-07:51/43 17:38	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:33
21	07:19 07:39-07:50/11 17:02	06:46 07:07-07:51/44 17:40	06:02 18:11	06:12 19:44	05:37 20:14	05:27 20:34
22	07:18 07:39-07:50/11 17:03	06:45 07:07-07:52/45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34
23	07:17 07:38-07:50/12 17:04	06:43 07:05-07:51/46 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34
24	07:17 07:37-07:49/12 17:05	06:42 07:06-07:52/46 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34
25	07:16 07:36-07:49/13 17:07	06:40 07:05-07:51/46 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34
26	07:15 07:36-07:49/13 17:08	06:39 07:05-07:52/47 17:45	05:54 18:16	06:05 19:49	05:33 20:19	05:28 20:34
27	07:14 07:35-07:48/13 17:09	06:37 07:04-07:51/47 17:47	05:52 18:17	06:04 19:50	05:33 20:19	05:29 20:34
28	07:14 07:34-07:47/13 17:10	06:36 07:05-07:51/46 17:48	05:51 18:18	06:03 19:51	05:32 20:20	05:29 20:34
29	07:13 07:33-07:45/12 17:11		06:49 19:19	06:01 19:52	05:32 20:21	05:30 20:34
30	07:12 07:36-07:42/6 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:34
31	07:11 17:14		06:46 19:22		05:30 20:23	
Potential sun hours	298	297	369	398	448	451
Sum of minutes with flicker	179	700	470	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 05 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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	05:30 20:34	05:54 20:16	06:25 19:33	06:54 07:56-08:12/16 18:43	06:28 16:56	07:03 07:26-07:28/2 16:32
2	05:31 20:34	05:55 20:14	06:26 19:31	06:55 07:52-08:15/23 18:41	06:29 16:55	07:04 07:27-07:28/1 16:32
3	05:31 20:34	05:56 20:13	06:27 19:30	06:56 07:49-08:17/28 18:39	06:31 16:54	07:05 16:32
4	05:32 20:34	05:57 20:12	06:28 19:28	06:57 07:47-08:19/32 18:38	06:32 16:53	07:06 16:31
5	05:33 20:34	05:58 20:11	06:29 19:26	06:58 07:45-08:20/35 18:36	06:33 16:51	07:07 16:31
6	05:33 20:33	05:59 20:10	06:30 19:25	06:59 07:45-08:22/37 18:34	06:34 16:50	07:08 16:31
7	05:34 20:33	06:00 20:09	06:31 19:23	07:00 07:43-08:22/39 18:33	06:35 16:49	07:09 16:31
8	05:34 20:33	06:01 20:07	06:32 19:21	07:02 07:42-08:23/41 18:31	06:36 16:48	07:10 16:31
9	05:35 20:32	06:02 20:06	06:33 19:20	07:03 07:41-08:24/43 18:29	06:38 16:47	07:11 16:31
10	05:36 20:32	06:03 20:05	06:33 19:18	07:04 07:40-08:24/44 18:28 07:24-07:28/4	06:39 16:46	07:11 16:31
11	05:36 20:32	06:04 20:04	06:34 19:16	07:05 07:39-08:24/45 18:26 07:25-07:30/5	06:40 16:45	07:12 16:31
12	05:37 20:31	06:05 20:02	06:35 19:15	07:06 07:38-08:24/46 18:25 07:26-07:31/5	06:41 07:07-07:15/8 16:44	07:13 16:31
13	05:38 20:31	06:06 20:01	06:36 19:13	07:07 07:38-08:24/46 18:23 07:27-07:32/5	06:42 07:05-07:17/12 16:43	07:14 16:31
14	05:39 20:30	06:07 20:00	06:37 19:11	07:08 07:37-08:24/47 18:22 07:28-07:32/4	06:44 07:06-07:19/13 16:42	07:15 16:31
15	05:39 20:30	06:08 19:58	06:38 19:10	07:09 07:37-08:24/47 18:20 07:29-07:32/3	06:45 07:07-07:20/13 16:41	07:15 16:32
16	05:40 20:29	06:09 19:57	06:39 19:08	07:10 07:38-08:24/46 18:18 07:31-07:33/2	06:46 07:09-07:22/13 16:41	07:16 16:32
17	05:41 20:28	06:10 19:56	06:40 19:06	07:11 07:37-08:24/47 18:17 07:32-07:33/1	06:47 07:10-07:23/13 16:40	07:17 16:32
18	05:42 20:28	06:11 19:54	06:41 19:04	07:12 07:37-08:23/46 18:15	06:48 07:11-07:23/12 16:39	07:17 16:33
19	05:43 20:27	06:12 19:53	06:42 19:03	07:13 07:37-08:23/46 18:14	06:49 07:12-07:24/12 16:38	07:18 16:33
20	05:43 20:26	06:13 19:51	06:43 19:01	07:14 07:37-08:22/45 18:12	06:51 07:14-07:25/11 16:38	07:19 16:33
21	05:44 20:26	06:14 19:50	06:44 18:59	07:16 07:37-08:21/44 18:11	06:52 07:15-07:26/11 16:37	07:19 16:34
22	05:45 20:25	06:15 19:48	06:45 18:58	07:17 07:38-08:20/42 18:10	06:53 07:16-07:26/10 16:36	07:20 16:34
23	05:46 20:24	06:16 19:47	06:46 18:56	07:18 07:39-08:20/41 18:08	06:54 07:17-07:26/9 16:36	07:20 16:35
24	05:47 20:23	06:17 19:45	06:47 18:54	07:19 07:40-08:19/39 18:07	06:55 07:18-07:27/9 16:35	07:21 16:35
25	05:48 20:22	06:18 19:44	06:48 18:53	06:20 06:41-07:18/37 17:05	06:56 07:20-07:28/8 16:35	07:21 16:36
26	05:49 20:21	06:19 19:42	06:49 18:51	06:21 06:42-07:16/34 17:04	06:57 07:21-07:28/7 16:34	07:21 16:37
27	05:50 20:21	06:20 19:41	06:50 18:49	06:22 06:44-07:16/32 17:03	06:58 07:22-07:28/6 16:34	07:22 16:37
28	05:50 20:20	06:21 19:39	06:51 18:48	06:24 06:45-07:14/29 17:01	07:00 07:23-07:28/5 16:33	07:22 16:38
29	05:51 20:19	06:22 19:38	06:52 18:46	06:25 06:46-07:12/26 17:00	07:01 07:24-07:28/4 16:33	07:22 16:39
30	05:52 20:18	06:23 19:36	06:53 18:44	06:26 06:48-07:09/21 16:59	07:02 07:25-07:28/3 16:32	07:23 16:39
31	05:53 20:17	06:24 19:34		06:27 06:51-07:05/14 16:57		07:23 16:40
Potential sun hours	458	427	375	345	299	289
Sum of minutes with flicker	0	0	0	1187	179	3

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 06 - VESTAS V172-7.2 7200 172.0 !0! hub: 138.0 m (TOT: 224.0 m) (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	07:23 09:29-10:47/78 16:41	07:10 07:30-07:53/23 17:15	06:34 17:49	06:44 19:23	05:59 19:54	05:30 20:23	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 07:03-07:11/8 16:56	07:03 09:17-10:29/72 16:32	
2	07:23 09:30-10:47/77 16:42	07:09 07:29-07:53/24 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:14	06:26 19:31	06:55 18:41	06:29 06:59-07:14/15 16:55	07:04 09:17-10:30/73 16:32	
3	07:23 09:30-10:48/78 16:43	07:08 07:28-07:52/24 17:18	06:31 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	06:31 06:56-07:16/20 16:54	07:05 09:17-10:31/74 16:32	
4	07:23 09:31-10:48/77 16:44	07:07 07:27-07:51/24 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:57 18:38	06:32 06:54-07:18/24 16:53	07:06 09:17-10:32/75 16:31	
5	07:23 09:32-10:48/76 16:45	07:06 07:26-07:51/25 17:20	06:28 17:54	06:37 19:27	05:54 19:58	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:58 18:36	06:33 06:55-07:20/25 16:51	07:07 09:17-10:32/75 16:31	
6	07:23 09:31-10:47/76 16:46	07:05 07:25-07:50/25 17:21	06:27 17:55	06:36 19:28	05:52 19:59	05:28 20:27	05:33 20:33	05:59 20:10	06:30 19:25	06:59 18:34	06:34 06:56-07:21/25 16:50	07:08 09:18-10:33/75 16:31	
7	07:23 09:32-10:47/75 16:47	07:04 07:26-07:49/23 17:23	06:25 17:56	06:34 19:29	05:51 20:00	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 06:57-07:21/24 16:49	07:09 09:18-10:34/76 16:31	
8	07:23 09:33-10:48/75 16:48	07:03 07:27-07:46/19 17:24	06:24 17:57	06:33 19:30	05:50 20:01	05:28 20:28	05:34 20:33	06:01 20:07	06:32 19:21	07:02 18:31	06:36 06:59-07:23/24 16:48	07:10 09:18-10:35/77 16:31	
9	07:23 09:34-10:48/74 16:49	07:02 07:29-07:44/15 17:25	06:22 17:58	06:31 19:31	05:49 20:02	05:27 20:29	05:35 20:32	06:02 20:06	06:33 19:20	07:03 18:29	06:38 07:00-07:23/23 16:47	07:11 09:18-10:36/78 16:31	
10	07:23 09:35-10:48/73 16:50	07:00 07:34-07:39/5 17:26	06:20 17:59	06:29 19:32	05:48 20:03	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 07:01-07:24/23 16:46	07:11 09:19-10:36/77 16:31	
11	07:23 09:35-10:47/72 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:04	05:27 20:30	05:36 20:32	06:04 20:04	06:34 19:16	07:05 18:26	06:40 09:42-09:47/5 16:45	07:12 09:19-10:37/78 16:31	
12	07:23 09:36-10:47/71 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:05	05:27 20:30	05:37 20:31	06:05 20:02	06:35 19:15	07:06 18:25	06:41 09:36-09:56/20 16:44	07:13 09:20-10:38/78 16:31	
13	07:22 09:37-10:48/71 16:53	06:57 17:30	06:15 18:02	06:25 19:35	05:45 20:06	05:27 20:31	05:38 20:31	06:06 20:01	06:36 19:13	07:07 18:23	06:42 09:32-10:01/29 16:43	07:14 09:19-10:38/79 16:31	
14	07:22 09:38-10:47/69 16:54	06:56 17:31	06:14 18:03	06:23 19:36	05:43 20:07	05:27 20:31	05:39 20:30	06:07 20:00	06:37 19:11	07:08 18:22	06:44 09:29-10:04/35 16:42	07:15 09:20-10:39/79 16:32	
15	07:22 09:39-10:47/68 16:55	06:54 17:32	06:12 18:05	06:22 19:37	05:42 20:08	05:27 20:32	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	06:45 09:27-10:06/39 16:41	07:15 09:21-10:39/78 16:32	
16	07:21 09:39-10:46/67 16:56	06:53 17:34	06:11 18:06	06:20 19:38	05:42 20:09	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:18	06:46 09:26-10:09/43 16:41	07:16 09:21-10:40/79 16:32	
17	07:21 09:41-10:46/65 16:57	06:52 17:35	06:09 18:07	06:19 19:39	05:41 20:10	05:27 20:32	05:41 20:28	06:10 19:56	06:40 19:06	07:11 18:17	06:47 09:24-10:11/47 16:40	07:17 09:21-10:40/79 16:32	
18	07:20 09:41-10:45/64 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:04	07:12 18:15	06:48 09:23-10:13/50 16:39	07:17 09:22-10:41/79 16:33	
19	07:20 09:43-10:45/62 16:59	06:49 17:37	06:06 18:09	06:15 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:13 18:14	06:49 09:22-10:15/53 16:38	07:18 09:22-10:41/79 16:33	
20	07:19 09:44-10:44/60 17:01	06:48 17:38	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:33	05:43 20:26	06:13 19:51	06:43 19:01	07:14 18:12	06:51 09:22-10:17/55 16:37	07:19 09:23-10:42/79 16:33	
21	07:19 09:45-10:42/57 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	06:52 09:21-10:18/57 16:37	07:19 09:22-10:42/80 16:34	
22	07:18 09:47-10:42/55 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 09:20-10:20/60 16:36	07:20 09:23-10:43/80 16:34	
23	07:17 09:48-10:41/53 17:04	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 09:19-10:21/62 16:36	07:20 09:23-10:43/80 16:35	
24	07:17 09:49-10:39/50 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 09:18-10:22/64 16:35	07:21 09:25-10:44/79 16:35	
25	07:16 09:50-10:37/47 17:07	06:40 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:22	06:18 19:44	06:48 18:53	07:20 17:05	06:56 09:19-10:24/65 16:35	07:21 09:25-10:44/79 16:36	
26	07:15 09:53-10:36/43 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:34	05:49 20:21	06:19 19:42	06:49 18:51	07:21 17:04	06:57 09:18-10:25/67 16:34	07:22 09:25-10:44/79 16:37	
27	07:14 09:55-10:34/39 17:09	06:37 17:47	05:52 18:17	06:04 19:50	05:33 20:19	05:29 20:34	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 09:18-10:26/68 16:34	07:22 09:26-10:45/79 16:37	
28	07:14 09:57-10:32/35 17:10	06:36 17:48	05:51 18:18	06:03 19:51	05:32 20:20	05:29 20:34	05:50 20:20	06:21 19:39	06:51 18:48	07:23 17:01	06:59 09:18-10:27/69 16:33	07:22 09:26-10:45/79 16:38	
29	07:13 10:00-10:28/28 17:11	06:35 17:49	05:50 18:19	06:02 19:52	05:31 20:21	05:28 20:34	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	06:59 09:17-10:28/71 16:33	07:22 09:27-10:46/79 16:39	
30	07:12 10:04-10:24/20 17:13	06:34 17:50	05:49 18:20	06:01 19:53	05:30 20:22	05:27 20:34	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:32	06:59 09:17-10:28/71 16:32	07:23 09:27-10:46/79 16:39	
31	07:11 17:14 Potential sun hours Sum of minutes with flicker	07:31-07:53/22 298 2089	07:31-07:53/22 297 207	07:31-07:53/22 369 0	07:31-07:53/22 398 0	07:31-07:53/22 448 0	07:31-07:53/22 451 0	07:31-07:53/22 458 0	07:31-07:53/22 427 0	07:31-07:53/22 375 0	07:31-07:53/22 345 0	07:31-07:53/22 299 1473	07:31-07:53/22 289 2410

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 07 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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
1	07:23 16:41	07:10 07:30-08:13/43 17:15	06:34 06:53-08:14/81 17:49	06:44 16:36-18:08/92 19:23	05:59 16:53-17:42/49 19:54	05:30 20:23
2	07:23 16:42	07:09 07:29-08:14/45 17:16	06:33 06:53-08:13/80 17:50	06:42 16:36-18:08/92 19:24	05:57 16:55-17:41/46 19:55	05:30 20:24
3	07:23 16:43	07:08 07:28-08:15/47 17:18	06:31 06:53-08:12/79 17:51	06:41 16:36-18:08/92 19:25	05:56 16:55-17:38/43 19:56	05:29 20:25
4	07:24 16:44	07:07 07:27-08:16/49 17:19	06:30 06:54-08:11/77 17:52	06:39 16:36-18:08/92 19:26	05:55 16:57-17:37/40 19:57	05:29 20:26
5	07:24 16:45	07:06 07:26-08:16/50 17:20	06:28 06:55-08:10/75 17:54	06:38 16:36-18:07/91 19:27	05:54 16:59-17:36/37 19:58	05:28 20:26
6	07:24 16:46	07:05 07:25-08:17/52 17:21	06:27 06:56-08:09/73 17:55	06:36 16:36-18:07/91 19:28	05:52 17:02-17:34/32 19:59	05:28 20:27
7	07:23 16:47	07:04 07:24-08:18/54 17:23	06:25 16:22-16:35/13 17:56 06:56-08:07/71	06:34 16:36-18:07/91 19:29	05:51 17:04-17:33/29 20:00	05:28 20:28
8	07:23 16:48	07:03 07:22-08:17/55 17:24	06:24 16:14-16:41/27 17:57 06:57-08:05/68	06:33 16:36-18:06/90 19:30	05:50 17:07-17:31/24 20:01	05:28 20:28
9	07:23 16:49	07:02 07:21-08:18/57 17:25	06:22 16:10-16:46/36 17:58 06:59-08:04/65	06:31 16:36-18:06/90 19:31	05:49 17:10-17:30/20 20:02	05:27 20:29
10	07:23 16:50	07:01 07:20-08:19/59 17:26	06:20 16:06-16:49/43 17:59 06:59-08:02/63	06:29 16:36-18:06/90 19:32	05:48 17:15-17:24/9 20:04	05:27 20:29
11	07:23 16:51	06:59 07:19-08:19/60 17:28	06:19 16:02-16:51/49 18:00 07:00-08:00/60	06:28 16:36-18:05/89 19:33	05:47 20:05 20:05	05:27 20:30
12	07:23 07:44-07:46/2 16:52	06:58 07:18-08:20/62 17:29	06:17 16:00-16:54/54 18:01 07:03-07:58/55	06:26 16:37-18:05/88 19:34	05:46 20:06 20:06	05:27 20:30
13	07:22 07:44-07:48/4 16:53	06:57 07:16-08:19/63 17:30	06:16 15:57-16:56/59 18:02 07:04-07:56/52	06:25 16:37-18:04/87 19:35	05:45 20:07 20:07	05:27 20:31
14	07:22 07:43-07:50/7 16:54	06:56 07:15-08:20/65 17:31	06:14 15:55-16:57/62 18:04 07:06-07:54/48	06:23 16:38-18:04/86 19:36	05:44 20:08 20:08	05:27 20:31
15	07:22 07:43-07:52/9 16:55	06:54 07:14-08:20/66 17:32	06:12 15:54-16:59/65 18:05 07:08-07:50/42	06:22 16:38-18:03/85 19:37	05:43 20:08 20:08	05:27 20:32
16	07:21 07:42-07:53/11 16:56	06:53 07:12-08:19/67 17:34	06:11 15:51-17:00/69 18:06 07:10-07:47/37	06:20 16:39-18:02/83 19:38	05:42 20:09 20:09	05:27 20:32
17	07:21 07:42-07:55/13 16:57	06:52 07:11-08:20/69 17:35	06:09 15:49-17:01/72 18:07 07:14-07:43/29	06:19 16:39-18:01/82 19:40	05:41 20:10 20:10	05:27 20:33
18	07:20 07:41-07:56/15 16:58	06:50 07:10-08:20/70 17:36	06:07 15:48-17:03/75 18:08 07:19-07:37/18	06:17 16:40-18:01/81 19:41	05:40 20:11 20:11	05:27 20:33
19	07:20 07:41-07:59/18 16:59	06:49 07:08-08:19/71 17:37	06:06 15:47-17:03/76 18:09	06:16 16:40-18:00/80 19:42	05:39 20:12 20:12	05:27 20:33
20	07:19 07:40-08:00/20 17:01	06:48 07:07-08:19/72 17:38	06:04 15:45-17:04/79 18:10	06:14 16:41-17:59/78 19:43	05:38 20:13 20:13	05:27 20:33
21	07:19 07:39-08:01/22 17:02	06:46 07:05-08:18/73 17:40	06:02 15:44-17:05/81 18:11	06:13 16:42-17:58/76 19:44	05:37 20:14 20:14	05:27 20:34
22	07:18 07:39-08:03/24 17:03	06:45 07:04-08:19/75 17:41	06:01 15:43-17:06/83 18:12	06:11 16:43-17:57/74 19:45	05:36 20:15 20:15	05:27 20:34
23	07:17 07:38-08:04/26 17:04	06:43 07:02-08:18/76 17:42	05:59 15:42-17:06/84 18:13	06:10 16:43-17:56/73 19:46	05:36 20:16 20:16	05:28 20:34
24	07:17 07:37-08:05/28 17:05	06:42 07:01-08:18/77 17:43	05:57 15:41-17:07/86 18:14	06:08 16:45-17:55/70 19:47	05:35 20:17 20:17	05:28 20:34
25	07:16 07:36-08:06/30 17:07	06:40 07:00-08:17/77 17:44	05:56 15:40-17:07/87 18:15	06:07 16:46-17:53/67 19:48	05:34 20:18 20:18	05:28 20:34
26	07:15 07:36-08:08/32 17:08	06:39 06:58-08:16/78 17:46	05:54 15:39-17:07/88 18:16	06:05 16:46-17:51/65 19:49	05:33 20:19 20:19	05:29 20:34
27	07:14 07:35-08:09/34 17:09	06:38 06:56-08:15/79 17:47	05:52 15:39-17:08/89 18:17	06:04 16:48-17:49/61 19:50	05:33 20:19 20:19	05:29 20:34
28	07:14 07:34-08:10/36 17:10	06:36 06:55-08:15/80 17:48	05:51 15:38-17:08/90 18:18	06:03 16:49-17:48/59 19:51	05:32 20:20 20:20	05:29 20:34
29	07:13 07:33-08:11/38 17:12		06:49 16:37-18:07/90 19:20	06:01 16:50-17:45/55 19:52	05:32 20:21 20:21	05:30 20:34
30	07:12 07:32-08:11/39 17:13		06:47 16:38-18:08/90 19:21	06:00 16:51-17:44/53 19:53	05:31 20:22 20:22	05:30 20:34
31	07:11 07:31-08:12/41 17:14		06:46 16:37-18:08/91 19:22		05:31 20:23 20:23	
Potential sun hours	298	297	369	398	448	451
Sum of minutes with flicker	449	1791	2811	2403	329	0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 07 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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

	July	August	September	October	November	December
1	05:31 20:34	05:54 20:16	06:25 16:35-18:04/89 19:33	06:54 16:38-17:34/56 18:43 07:42-08:36/54	06:28 06:50-07:48/58 16:56	07:03 16:32
2	05:31 20:34	05:55 20:15	06:26 16:34-18:04/90 19:31	06:55 16:40-17:31/51 18:41 07:40-08:37/57	06:29 06:51-07:48/57 16:55	07:04 16:32
3	05:32 20:34	05:56 17:23-17:37/14 20:13	06:27 16:34-18:04/90 19:30	06:56 16:42-17:28/46 18:39 07:38-08:39/61	06:31 06:52-07:47/55 16:54	07:05 16:32
4	05:32 20:34	05:57 17:19-17:40/21 20:12	06:28 16:33-18:03/90 19:28	06:57 16:45-17:25/40 18:38 07:36-08:40/64	06:32 06:53-07:46/53 16:53	07:06 16:31
5	05:33 20:34	05:58 17:16-17:41/25 20:11	06:29 16:32-18:03/91 19:26	06:58 16:48-17:20/32 18:36 07:35-08:42/67	06:33 06:55-07:47/52 16:52	07:07 16:31
6	05:33 20:33	05:59 17:13-17:43/30 20:10	06:30 16:32-18:03/91 19:25	07:00 16:54-17:16/22 18:34 07:34-08:43/69	06:34 06:56-07:46/50 16:50	07:08 16:31
7	05:34 20:33	06:00 17:11-17:44/33 20:09	06:31 16:31-18:03/92 19:23	07:01 07:32-08:44/72 18:33	06:35 06:57-07:45/48 16:49	07:09 16:31
8	05:34 20:33	06:01 17:08-17:46/38 20:08	06:32 16:31-18:02/91 19:21	07:02 07:31-08:45/74 18:31	06:36 06:59-07:46/47 16:48	07:10 16:31
9	05:35 20:32	06:02 17:06-17:47/41 20:06	06:33 16:30-18:02/92 19:20	07:03 07:30-08:45/75 18:29	06:38 07:00-07:45/45 16:47	07:11 16:31
10	05:36 20:32	06:03 17:05-17:49/44 20:05	06:34 16:30-18:01/91 19:18	07:04 07:28-08:46/78 18:28	06:39 07:01-07:44/43 16:46	07:11 16:31
11	05:36 20:32	06:04 17:03-17:50/47 20:04	06:35 16:29-18:01/92 19:16	07:05 07:27-08:46/79 18:26	06:40 07:02-07:43/41 16:45	07:12 16:31
12	05:37 20:31	06:05 17:01-17:52/51 20:02	06:35 16:29-18:00/91 19:15	07:06 07:26-08:47/81 18:25	06:41 07:04-07:43/39 16:44	07:13 16:31
13	05:38 20:31	06:06 16:59-17:52/53 20:01	06:36 16:29-17:59/90 19:13	07:07 07:27-08:47/80 18:23	06:42 07:05-07:42/37 16:43	07:14 16:31
14	05:39 20:30	06:07 16:57-17:53/56 20:00	06:37 16:29-17:59/90 19:11	07:08 07:28-08:48/80 18:22	06:44 07:06-07:42/36 16:42	07:15 16:32
15	05:39 20:30	06:08 16:56-17:55/59 19:58	06:38 16:28-17:58/90 19:10	07:09 07:29-08:48/79 18:20	06:45 07:07-07:41/34 16:41	07:15 16:32
16	05:40 20:29	06:09 16:54-17:56/62 19:57	06:39 16:28-17:57/89 19:08	07:10 07:31-08:49/78 18:19	06:46 07:09-07:41/32 16:41	07:16 16:32
17	05:41 20:28	06:10 16:53-17:58/65 19:56	06:40 16:28-17:56/88 19:06	07:11 07:32-08:49/77 18:17	06:47 07:10-07:40/30 16:40	07:17 16:32
18	05:42 20:28	06:11 16:51-17:59/68 19:54	06:41 16:27-17:54/87 19:05	07:12 07:33-08:49/76 18:15	06:48 07:11-07:39/28 16:39	07:17 16:33
19	05:43 20:27	06:12 16:50-18:01/71 19:53	06:42 16:28-17:53/85 19:03	07:13 07:34-08:49/75 18:14	06:49 07:12-07:38/26 16:38	07:18 16:33
20	05:43 20:26	06:13 16:49-18:02/73 19:51	06:43 16:28-17:52/84 19:01	07:15 07:35-08:49/74 18:13	06:51 07:14-07:38/24 16:38	07:19 16:33
21	05:44 20:26	06:14 16:48-18:02/74 19:50	06:44 16:28-17:51/83 18:59	07:16 07:36-08:49/73 18:11	06:52 07:15-07:37/22 16:37	07:19 16:34
22	05:45 20:25	06:15 16:46-18:03/77 19:48	06:45 16:29-17:50/81 18:58	07:17 07:38-08:50/72 18:10	06:53 07:16-07:36/20 16:36	07:20 16:34
23	05:46 20:24	06:16 16:45-18:03/78 19:47	06:46 16:29-17:49/80 18:56	07:18 07:39-08:50/71 18:08	06:54 07:17-07:35/18 16:36	07:20 16:35
24	05:47 20:23	06:17 16:44-18:04/80 19:45	06:47 16:30-17:47/77 18:54	07:19 07:40-08:50/70 18:07	06:55 07:18-07:33/15 16:35	07:21 16:35
25	05:48 20:22	06:18 16:43-18:04/81 19:44	06:48 16:30-17:46/76 18:53	07:20 06:41-07:49/68 17:05	06:56 07:20-07:33/13 16:35	07:21 16:36
26	05:49 20:22	06:19 16:42-18:04/82 19:42	06:49 16:31-17:44/73 18:51	07:21 06:42-07:49/67 17:04	06:57 07:21-07:32/11 16:34	07:22 16:37
27	05:50 20:21	06:20 16:41-18:04/83 19:41	06:50 16:32-17:42/70 18:49	07:22 06:44-07:50/66 17:03	06:59 07:22-07:31/9 16:34	07:22 16:37
28	05:50 20:20	06:21 16:40-18:05/85 19:39	06:51 16:33-17:40/67 18:48	07:24 06:45-07:49/64 17:01	07:00 07:23-07:30/7 16:33	07:22 16:38
29	05:51 20:19	06:22 16:39-18:05/86 19:38	06:52 16:35-17:38/63 18:46	07:25 06:46-07:49/63 17:00	07:01 07:24-07:29/5 16:33	07:23 16:39
30	05:52 20:18	06:23 16:38-18:05/87 19:36	06:53 16:36-17:36/60 18:44	07:26 06:47-07:48/61 16:59	07:02 07:25-07:27/2 16:32	07:23 16:39
31	05:53 20:17	06:24 16:36-18:04/88 19:34		06:27 06:48-07:48/60 16:57		07:23 16:40
Potential sun hours	458	427	375	345	298	289
Sum of minutes with flicker	0	1752	2731	2432	957	0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 08 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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	07:23 16:41	07:10 16:16-16:40/24 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32	
2	07:23 16:42	07:09 16:17-16:39/22 17:17	06:33 17:50	06:43 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:29 16:55	07:04 16:32	
3	07:24 16:43	07:08 16:18-16:38/20 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32	
4	07:24 16:44	07:07 16:19-16:38/19 17:19	06:30 17:53	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 15:56-16:00/4 16:53	07:06 16:32	
5	07:24 16:45	07:06 16:21-16:36/15 17:20	06:28 17:54	06:38 19:27	05:54 19:58	05:29 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 15:53-16:05/12 16:52	07:07 16:31	
6	07:24 16:46	07:05 16:23-16:34/11 17:22	06:27 17:55	06:36 19:28	05:52 19:59	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 15:51-16:06/15 16:50	07:08 16:31	
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 15:49-16:08/19 16:49	07:09 16:31	
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:35 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 15:49-16:09/20 16:48	07:10 16:31	
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 15:48-16:10/22 16:47	07:11 16:31	
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 15:47-16:11/24 16:46	07:12 16:31	
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:37 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 15:46-16:11/25 16:45	07:12 16:31	
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:30	05:37 20:31	06:05 20:02	06:36 19:15	07:06 18:25	06:41 15:47-16:12/25 16:44	07:13 16:31	
13	07:22 16:19-16:25/6 16:53	06:57 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:42 15:46-16:12/26 16:43	07:14 16:31	
14	07:22 16:17-16:25/8 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 15:46-16:12/26 16:42	07:15 16:32	
15	07:22 16:16-16:27/11 16:55	06:54 17:33	06:12 18:05	06:22 19:37	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:39 19:10	07:09 18:20	06:45 15:46-16:12/26 16:42	07:15 16:32	
16	07:21 16:15-16:28/13 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:40 19:08	07:10 18:19	06:46 15:47-16:13/26 16:41	07:16 16:32	
17	07:21 16:15-16:30/15 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:10	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 15:47-16:13/26 16:40	07:17 16:32	
18	07:20 16:14-16:30/16 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 15:47-16:13/26 16:39	07:18 16:33	
19	07:20 16:14-16:32/18 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:13 18:14	06:50 15:47-16:12/25 16:38	07:18 16:33	
20	07:19 16:14-16:33/19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:33	05:44 20:26	06:13 19:51	06:43 19:01	07:15 18:13	06:51 15:49-16:12/23 16:38	07:19 16:34	
21	07:19 16:13-16:34/21 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 15:49-16:10/21 16:37	07:19 16:34	
22	07:18 16:14-16:37/23 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:28 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 15:50-16:09/19 16:36	07:20 16:34	
23	07:17 16:13-16:38/25 17:04	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 15:50-16:08/18 16:36	07:20 16:35	
24	07:17 16:13-16:39/26 17:06	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 15:51-16:07/16 16:35	07:21 16:36	
25	07:16 16:13-16:39/26 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:22	06:18 19:44	06:48 18:53	06:20 17:06	06:56 15:53-16:08/15 16:35	07:21 16:36	
26	07:15 16:14-16:40/26 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:34 20:19	05:29 20:34	05:49 20:22	06:19 19:42	06:49 18:51	06:21 17:04	06:58 15:54-16:07/13 16:34	07:22 16:37	
27	07:15 16:14-16:40/26 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	06:23 17:03	06:59 15:55-16:06/11 16:34	07:22 16:37	
28	07:14 16:14-16:40/26 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	06:24 17:01	07:00 15:57-16:05/8 16:33	07:22 16:38	
29	07:13 16:14-16:40/26 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:52 20:19	06:22 19:38	06:52 18:46	06:25 17:00	07:01 15:59-16:05/6 16:33	07:23 16:39	
30	07:12 16:15-16:40/25 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:34	05:52 20:18	06:23 19:36	06:53 18:44	06:26 16:59	07:02 15:59-16:05/6 16:33	07:23 16:39	
31	07:11 16:15-16:40/25 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:34		06:27 16:58		07:23 16:40	
	Potential sun hours Sum of minutes with flicker	298 381	297 111	369 0	398 0	448 0	451 0	458 0	427 0	375 0	346 0	299 497	289 0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 09 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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	07:23 16:41	07:10 16:42-16:51/9 17:15	06:35 08:10-08:41/31 17:49	06:44 19:23	05:59 19:54	05:30 20:24
2	07:24 16:42	07:09 16:41-16:53/12 17:17	06:33 08:11-08:38/27 17:50	06:43 19:24	05:57 19:55	05:30 20:24
3	07:24 16:43	07:08 16:41-16:54/13 17:18	06:32 08:13-08:35/22 17:51	06:41 19:25	05:56 19:56	05:29 20:25
4	07:24 16:44	07:07 16:41-16:55/14 17:19	06:30 08:16-08:32/16 17:53	06:39 19:26	05:55 19:57	05:29 20:26
5	07:24 16:45	07:06 16:41-16:57/16 17:20	06:28 08:22-08:25/3 17:54	06:38 19:27	05:54 19:59	05:29 20:26
6	07:24 16:46	07:05 16:42-16:58/16 17:22	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27
7	07:24 16:47	07:04 16:42-17:00/18 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28
8	07:23 16:48	07:03 16:42-17:01/19 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28
9	07:23 16:49	07:02 16:42-17:02/20 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29
10	07:23 16:50	07:01 16:43-17:03/20 17:26	06:21 17:59	06:30 19:32	05:48 20:04	05:27 20:29
11	07:23 16:07-16:08/1 16:51	06:59 16:44-17:05/21 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30
12	07:23 16:08-16:09/1 16:52	06:58 16:45-17:07/22 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:31
13	07:22 16:09-16:11/2 16:53	06:57 16:45-17:07/22 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31
14	07:22 16:10-16:11/1 16:54	06:56 16:47-17:09/22 17:31	06:14 18:04	06:23 19:37	05:44 20:08	05:27 20:31
15	07:22 16:11-16:13/2 16:55	06:54 16:48-17:10/22 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32
16	07:21 16:12-16:14/2 16:56	06:53 16:48-17:11/23 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32
17	07:21 16:14-16:16/2 16:57	06:52 16:49-17:13/24 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33
18	07:20 16:15-16:16/1 16:58	06:50 16:50-17:14/24 17:36	06:07 18:08	06:17 19:41	05:40 20:12	05:27 20:33
19	07:20 17:00	06:49 16:50-17:15/25 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33
20	07:19 17:01	06:48 16:51-17:15/24 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34
21	07:19 17:02	06:46 16:52-17:13/21 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34
22	07:18 17:03	06:45 16:54-17:12/18 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:28 20:34
23	07:18 17:04	06:44 16:57-17:10/13 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34
24	07:17 17:06	06:42 08:06-08:47/41 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34
25	07:16 17:07	06:41 08:07-08:46/39 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34
26	07:15 17:08	06:39 08:07-08:45/38 17:46	05:54 18:16	06:05 19:49	05:34 20:19	05:29 20:35
27	07:15 17:09	06:38 08:08-08:44/36 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35
28	07:14 16:44-16:46/2 17:10	06:36 08:09-08:42/33 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35
29	07:13 16:43-16:47/4 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35
30	07:12 16:43-16:49/6 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35
31	07:11 16:42-16:50/8 17:14		06:46 19:22		05:31 20:23	
Potential sun hours	298	297	369	398	448	452
Sum of minutes with flicker	32	1147	99	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 09 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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	05:31 20:35	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:12-16:33/21 16:56 07:57-08:16/19	07:03 15:49-15:50/1 16:32
2	05:31 20:34	05:55 20:15	06:26 19:31	06:56 18:41	06:30 16:12-16:31/19 16:55 07:58-08:15/17	07:04 16:32
3	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	06:31 16:11-16:30/19 16:54 08:00-08:14/14	07:05 16:32
4	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:12-16:29/17 16:53 08:02-08:13/11	07:06 16:32
5	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:11-16:28/17 16:52 08:03-08:11/8	07:07 16:31
6	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:11-16:27/16 16:50 08:04-08:09/5	07:08 16:31
7	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:11-16:25/14 16:49 08:05-08:07/2	07:09 16:31
8	05:35 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:12-16:25/13 16:48	07:10 16:31
9	05:35 20:33	06:02 20:06	06:33 19:20	07:03 08:53-09:05/12 18:30	06:38 16:12-16:23/11 16:47	07:11 16:31
10	05:36 20:32	06:03 20:05	06:34 19:18	07:04 08:49-09:08/19 18:28	06:39 16:13-16:22/9 16:46	07:12 16:31
11	05:37 20:32	06:04 20:04	06:35 19:16	07:05 08:46-09:11/25 18:26	06:40 16:13-16:21/8 16:45	07:12 16:31
12	05:37 20:31	06:05 20:03	06:36 19:15	07:06 08:44-09:13/29 18:25	06:41 16:15-16:21/6 16:44	07:13 16:31
13	05:38 20:31	06:06 20:01	06:37 19:13	07:07 08:42-09:14/32 18:23	06:43 16:15-16:19/4 16:43	07:14 16:31
14	05:39 20:30	06:07 20:00	06:38 19:11	07:08 08:41-09:15/34 18:22	06:44 16:16-16:18/2 16:42	07:15 16:32
15	05:39 20:30	06:08 19:59	06:39 19:10	07:09 08:40-09:17/37 18:20	06:45 16:42	07:16 16:32
16	05:40 20:29	06:09 19:57	06:40 19:08	07:10 08:39-09:18/39 18:19	06:46 16:41	07:16 16:32
17	05:41 20:29	06:10 19:56	06:41 19:06	07:11 08:38-09:18/40 18:17	06:47 16:40	07:17 16:32
18	05:42 20:28	06:11 19:54	06:42 19:05	07:12 17:30-17:38/8 08:37-09:18/41	06:48 16:39	07:18 16:33
19	05:43 20:27	06:12 19:53	06:42 19:03	07:14 17:26-17:41/15 08:36-09:19/43	06:50 16:38	07:18 16:33
20	05:44 20:27	06:13 19:51	06:43 19:01	07:15 17:24-17:43/19 08:36-09:19/43	06:51 16:38	07:19 16:34
21	05:44 20:26	06:14 19:50	06:44 19:00	07:16 17:22-17:44/22 08:36-09:19/43	06:52 16:37	07:19 16:34
22	05:45 20:25	06:15 19:48	06:45 18:58	07:17 17:21-17:46/25 08:39-09:20/41	06:53 16:36	07:20 16:34
23	05:46 20:24	06:16 19:47	06:46 18:56	07:18 17:20-17:45/25 08:41-09:20/39	06:54 16:36	07:20 16:35
24	05:47 20:23	06:17 19:45	06:47 18:54	07:19 17:19-17:44/25 08:43-09:19/36	06:55 15:53-15:54/1 16:35	07:21 16:36
25	05:48 20:23	06:18 19:44	06:48 18:53	06:20 16:18-16:42/24 07:45-08:19/34	06:56 15:52-15:54/2 16:35	07:21 16:36
26	05:49 20:22	06:19 19:42	06:49 18:51	06:21 16:18-16:40/22 07:47-08:19/32	06:58 15:51-15:53/2 16:34	07:22 16:37
27	05:50 20:21	06:20 19:41	06:50 18:49	06:23 16:18-16:40/22 07:49-08:19/30	06:59 15:50-15:52/2 16:34	07:22 16:37
28	05:51 20:20	06:21 19:39	06:51 18:48	06:24 16:16-16:38/22 07:51-08:18/27	07:00 15:50-15:51/1 16:33	07:22 16:38
29	05:52 20:19	06:22 19:38	06:52 18:46	06:25 16:15-16:37/22 07:52-08:18/26	07:01 15:50-15:51/1 16:33	07:23 16:39
30	05:52 20:18	06:23 19:36	06:53 18:44	06:26 16:13-16:35/22 07:53-08:17/24	07:02 15:49-15:50/1 16:33	07:23 16:39
31	05:53 20:17	06:24 19:35		06:27 16:13-16:34/21 07:55-08:17/22		07:23 16:40
Potential sun hours	458	427	375	345	298	289
Sum of minutes with flicker	0	0	0	1042	262	1

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 10 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (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	07:23 16:03-16:11/8 11:37-12:05/28 16:41 15:07-15:49/42	07:10 17:15	06:35 17:19-17:27/8 17:49 07:51-08:49/58	06:44 19:23	05:59 19:54	05:30 20:24
2	07:24 16:04-16:12/8 11:39-12:04/25 16:42 15:08-15:49/41	07:09 17:17	06:33 17:20-17:29/9 17:50 07:49-08:49/60	06:43 19:24	05:57 19:55	05:30 20:24
3	07:24 16:04-16:13/9 11:41-12:03/22 16:43 15:08-15:49/41	07:08 17:18	06:32 17:21-17:30/9 17:51 07:48-08:49/61	06:41 19:25	05:56 19:56	05:29 20:25
4	07:24 16:05-16:14/9 11:44-12:01/17 16:44 15:09-15:49/40	07:07 17:19	06:30 17:23-17:31/8 17:53 07:48-08:50/62	06:39 19:26	05:55 19:58	05:29 20:26
5	07:24 16:07-16:15/8 11:48-11:57/9 16:45 15:10-15:49/39	07:06 17:20	06:28 17:25-17:32/7 17:54 07:46-08:49/63	06:38 19:27	05:54 19:59	05:29 20:26
6	07:24 16:08-16:16/8 16:46 15:11-15:49/38	07:05 17:22	06:27 17:25-17:34/9 17:55 07:46-08:50/64	06:36 19:28	05:52 20:00	05:28 20:27
7	07:24 16:08-16:17/9 16:47 15:12-15:48/36	07:04 17:23	06:25 17:25-17:35/10 17:56 07:45-08:50/65	06:34 19:29	05:51 20:01	05:28 20:28
8	07:24 16:10-16:18/8 16:48 15:13-15:48/35	07:03 17:24	06:24 17:25-17:36/11 17:57 07:44-08:49/65	06:33 19:30	05:50 20:02	05:28 20:28
9	07:23 16:13-16:18/5 16:49 15:15-15:48/33	07:02 17:25	06:22 17:26-17:37/11 17:58 07:45-08:50/65	06:31 19:31	05:49 20:03	05:27 20:29
10	07:23 15:16-15:48/32 16:50	07:01 17:26	06:21 17:27-17:38/11 17:59 07:44-08:49/65	06:30 19:32	05:48 20:04	05:27 20:30
11	07:23 15:17-15:46/29 16:51	06:59 17:28	06:19 17:28-17:40/12 18:00 07:44-08:49/65	06:28 19:33	05:47 20:05	05:27 20:30
12	07:23 15:19-15:46/27 16:52	06:58 17:29	06:17 17:30-17:41/11 18:01 07:43-08:48/65	06:26 19:34	05:46 20:06	05:27 20:31
13	07:22 15:21-15:45/24 16:53	06:57 17:30	06:16 17:34-17:39/5 18:03 07:43-08:48/65	06:25 19:35	05:45 20:07	05:27 20:31
14	07:22 15:23-15:43/20 16:54	06:56 17:31	06:14 07:43-08:48/65 18:04	06:23 19:37	05:44 20:08	05:27 20:31
15	07:22 15:26-15:42/16 16:55	06:54 17:33	06:12 07:43-08:46/63 18:05	06:22 19:38	05:43 20:09	05:27 20:32
16	07:21 15:29-15:39/10 16:56	06:53 17:34	06:11 07:43-08:45/62 18:06	06:20 19:39	05:42 20:10	05:27 20:32
17	07:21 16:57	06:52 17:35	06:09 07:43-08:45/62 18:07	06:19 19:40	05:41 20:11	05:27 20:33
18	07:20 16:58	06:51 08:16-08:26/10 17:36	06:07 07:43-08:44/61 18:08	06:17 19:41	05:40 20:12	05:27 20:33
19	07:20 17:00	06:49 08:10-08:31/21 17:37	06:06 07:43-08:42/59 18:09	06:16 19:42	05:39 20:12	05:27 20:33
20	07:19 17:01	06:48 08:08-08:35/27 17:39	06:04 07:44-08:42/58 18:10	06:14 19:43	05:38 20:13	05:27 20:34
21	07:19 17:02	06:46 08:06-08:38/32 17:40	06:02 07:44-08:40/56 18:11	06:13 19:44	05:37 20:14	05:27 20:34
22	07:18 17:03	06:45 08:03-08:40/37 17:41	06:01 07:44-08:38/54 18:12	06:11 19:45	05:36 20:15	05:28 20:34
23	07:18 17:04	06:44 17:20-17:21/1 17:42 08:02-08:42/40	05:59 07:45-08:37/52 18:13	06:10 19:46	05:36 20:16	05:28 20:34
24	07:17 17:06	06:42 17:19-17:22/3 17:43 07:59-08:43/44	05:57 07:46-08:35/49 18:14	06:08 19:47	05:35 20:17	05:28 20:34
25	07:16 17:07	06:41 17:19-17:23/4 17:44 07:57-08:45/48	05:56 07:46-08:33/47 18:15	06:07 19:48	05:34 20:18	05:28 20:34
26	07:15 17:08	06:39 17:19-17:24/5 17:46 07:54-08:46/52	05:54 07:48-08:32/44 18:17	06:05 19:49	05:34 20:19	05:29 20:35
27	07:15 17:09	06:38 17:19-17:26/7 17:47 07:53-08:47/54	05:52 07:49-08:29/40 18:18	06:04 19:50	05:33 20:20	05:29 20:35
28	07:14 17:10	06:36 17:19-17:26/7 17:48 07:51-08:47/56	05:51 07:50-08:26/36 18:19	06:03 19:51	05:32 20:20	05:29 20:35
29	07:13 17:12		06:49 08:53-09:24/31 19:20	06:01 19:52	05:32 20:21	05:30 20:35
30	07:12 17:13		06:48 08:55-09:20/25 19:21	06:00 19:53	05:31 20:22	05:30 20:35
31	07:11 17:14		06:46 08:58-09:16/18 19:22		05:31 20:23	
Potential sun hours	298	297	369	398	448	452
Sum of minutes with flicker	676	448	1826	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: SHADOW_PESCOPAGANO_DEF WTG: WTG 10 - VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (9)
Assumptions for shadow calculations

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- 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	05:31 20:35	05:54 20:16	06:25 19:33	06:55 18:10-18:20/10 18:43 08:23-09:28/65	06:28 16:56	07:03 15:00-15:29/29 16:32
2	05:31 20:34	05:55 20:15	06:26 19:31	06:56 18:07-18:18/11 18:41 08:23-09:28/65	06:30 16:55	07:04 14:59-15:31/32 16:32
3	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:05-18:16/11 18:39 08:22-09:28/66	06:31 16:54	07:05 15:57-16:02/5 16:32 14:59-15:32/33
4	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:04-18:16/12 18:38 08:22-09:27/65	06:32 16:53	07:06 15:55-16:03/8 16:32 14:58-15:33/35
5	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:03-18:14/11 18:36 08:22-09:27/65	06:33 16:52	07:07 15:54-16:03/9 16:31 14:58-15:34/36
6	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:02-18:12/10 18:34 08:22-09:26/64	06:34 16:51	07:08 15:54-16:03/9 16:31 14:58-15:35/37
7	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:01-18:10/9 18:33 08:22-09:26/64	06:35 16:49	07:09 15:53-16:01/8 11:36-11:43/7 16:31 14:57-15:36/39
8	05:35 20:33	06:01 20:08	06:32 19:21	07:02 18:00-18:09/9 18:31 08:22-09:25/63	06:37 16:48	07:10 15:53-16:01/8 11:31-11:47/16 16:31 14:56-15:36/40
9	05:35 20:33	06:02 20:06	06:33 19:20	07:03 17:59-18:07/8 18:30 08:22-09:25/63	06:38 16:47	07:11 15:53-16:01/8 11:29-11:50/21 16:31 14:57-15:37/40
10	05:36 20:32	06:03 20:05	06:34 19:18	07:04 17:56-18:05/9 18:28 08:22-09:24/62	06:39 16:46	07:12 15:53-16:01/8 11:28-11:53/25 16:31 14:57-15:38/41
11	05:37 20:32	06:04 20:04	06:35 19:16	07:05 17:55-18:03/8 18:26 08:23-09:23/60	06:40 16:45	07:12 15:53-16:01/8 11:27-11:55/28 16:31 14:57-15:39/42
12	05:37 20:31	06:05 20:03	06:36 08:50-09:07/17 19:15	07:06 17:53-18:02/9 18:25 08:23-09:22/59	06:41 16:44	07:13 15:53-16:02/9 11:27-11:57/30 16:31 14:57-15:40/43
13	05:38 20:31	06:06 20:01	06:37 08:46-09:11/25 19:13	07:07 17:52-17:59/7 18:23 08:24-09:21/57	06:43 16:43	07:14 15:54-16:02/8 11:26-11:58/32 16:31 14:58-15:41/43
14	05:39 20:30	06:07 20:00	06:38 08:43-09:14/31 19:11	07:08 17:51-17:58/7 18:22 08:24-09:19/55	06:44 16:42	07:15 15:53-16:01/8 11:25-11:59/34 16:32 14:57-15:41/44
15	05:39 20:30	06:08 19:59	06:39 08:41-09:16/35 19:10	07:09 17:51-17:57/6 18:20 08:26-09:19/53	06:45 16:42	07:16 15:54-16:02/8 11:25-12:00/35 16:32 14:58-15:42/44
16	05:40 20:29	06:09 19:57	06:40 08:39-09:18/39 19:08	07:10 17:51-17:56/5 18:19 08:28-09:18/50	06:46 16:41	07:16 15:54-16:02/8 11:26-12:02/36 16:32 14:58-15:43/45
17	05:41 20:29	06:10 19:56	06:41 08:37-09:20/43 19:06	07:11 17:51-17:54/3 18:17 08:29-09:16/47	06:47 16:40	07:17 15:54-16:02/8 11:25-12:02/37 16:32 14:58-15:42/44
18	05:42 20:28	06:11 19:54	06:42 08:35-09:21/46 19:05	07:12 17:51-17:53/2 18:16 08:31-09:14/43	06:48 16:39	07:18 15:55-16:03/8 11:25-12:03/38 16:33 14:59-15:43/44
19	05:43 20:27	06:12 19:53	06:42 08:33-09:22/49 19:03	07:14 08:33-09:12/39 18:14	06:50 16:38	07:18 15:56-16:03/7 11:26-12:04/38 16:33 14:59-15:44/45
20	05:44 20:27	06:13 19:51	06:43 08:32-09:23/51 19:01	07:15 08:34-09:10/36 18:13	06:51 16:38	07:19 15:56-16:03/7 11:26-12:04/38 16:34 14:59-15:44/45
21	05:44 20:26	06:14 19:50	06:44 08:31-09:24/53 19:00	07:16 08:36-09:07/31 18:11	06:52 16:37	07:19 15:56-16:04/8 11:27-12:05/38 16:34 15:00-15:45/45
22	05:45 20:25	06:15 19:48	06:45 08:30-09:25/55 18:58	07:17 08:39-09:05/26 18:10	06:53 16:36	07:20 15:56-16:04/8 11:27-12:05/38 16:34 15:00-15:45/45
23	05:46 20:24	06:16 19:47	06:46 08:28-09:25/57 18:56	07:18 08:41-09:00/19 18:08	06:54 16:36	07:20 15:57-16:05/8 11:28-12:06/38 16:35 15:01-15:46/45
24	05:47 20:23	06:17 19:45	06:47 08:27-09:25/58 18:54	07:19 18:07	06:55 16:35	07:21 15:58-16:05/7 11:28-12:06/38 16:36 15:01-15:46/45
25	05:48 20:23	06:18 19:44	06:48 08:26-09:26/60 18:53	06:20 17:06	06:57 16:35	07:21 15:58-16:05/7 11:28-12:06/38 16:36 15:01-15:46/45
26	05:49 20:22	06:19 19:42	06:49 08:25-09:26/61 18:51	06:21 17:04	06:58 15:08-15:17/9 16:34	07:22 15:59-16:07/8 11:30-12:07/37 16:37 15:03-15:47/44
27	05:50 20:21	06:20 19:41	06:50 08:24-09:27/63 18:49	06:23 17:03	06:59 15:05-15:21/16 16:34	07:22 15:59-16:07/8 11:30-12:07/37 16:37 15:03-15:47/44
28	05:51 20:20	06:21 19:39	06:51 08:23-09:27/64 18:48	06:24 17:01	07:00 15:03-15:23/20 16:33	07:22 16:00-16:08/8 11:31-12:06/35 16:38 15:03-15:48/45
29	05:52 20:19	06:22 19:38	06:52 08:23-09:27/64 18:46	06:25 17:00	07:01 15:01-15:25/24 16:33	07:23 16:00-16:08/8 11:32-12:06/34 16:39 15:04-15:48/44
30	05:52 20:18	06:23 19:36	06:53 08:22-09:27/65 18:44	06:26 16:59	07:02 15:00-15:27/27 16:33	07:23 16:01-16:10/9 11:34-12:07/33 16:40 15:05-15:49/44
31	05:53 20:17	06:24 19:35	06:24 19:35	06:27 16:58		07:23 16:02-16:10/8 11:35-12:06/31 16:40 15:06-15:49/43
Potential sun hours	458	427	375	345	298	289
Sum of minutes with flicker	0	0	936	1364	96	2331

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

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

ALLEGATO 2 - "CALENDAR-GRAPHICAL" (WORST CASE)

Project:
WIND_PRP_PESCOPAGANO

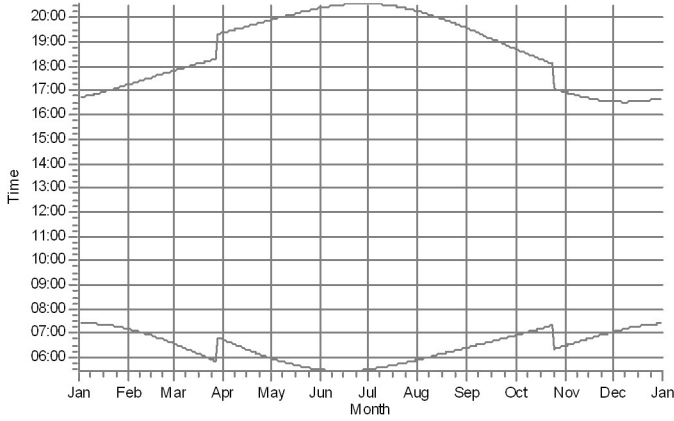
Licensed user:
EGM Project srl
via Vincenzo Verrastro 15/A
IT-85100 Potenza

Calculated:
06/05/2024 19:05/4.0.531

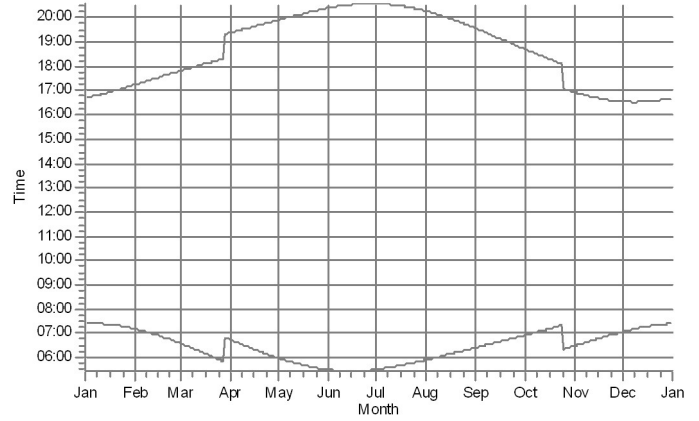
SHADOW - Calendar, graphical

Calculation: SHADOW_PESCOPAGANO_DEF

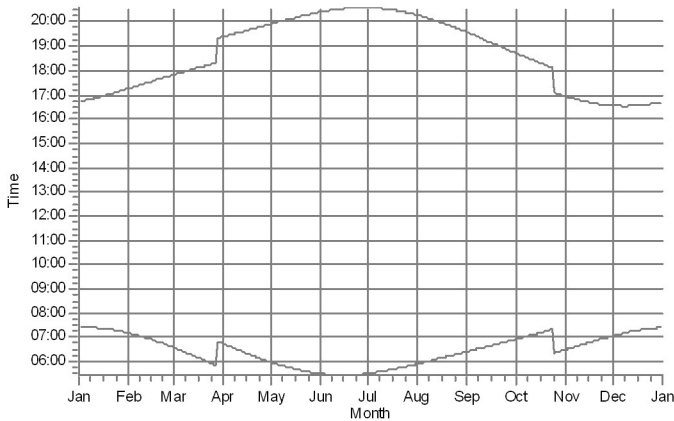
A: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (40)



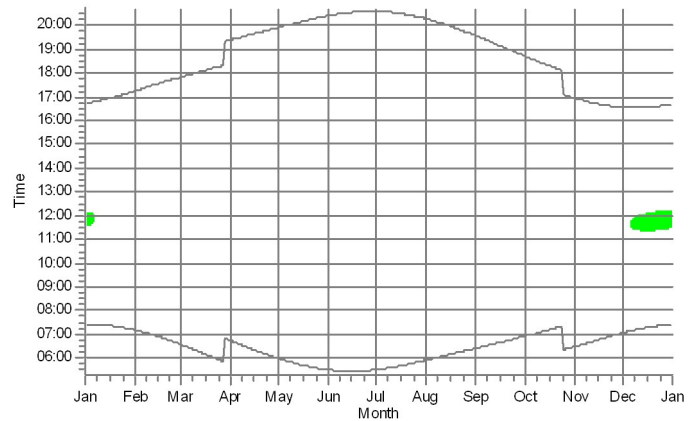
B: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (41)



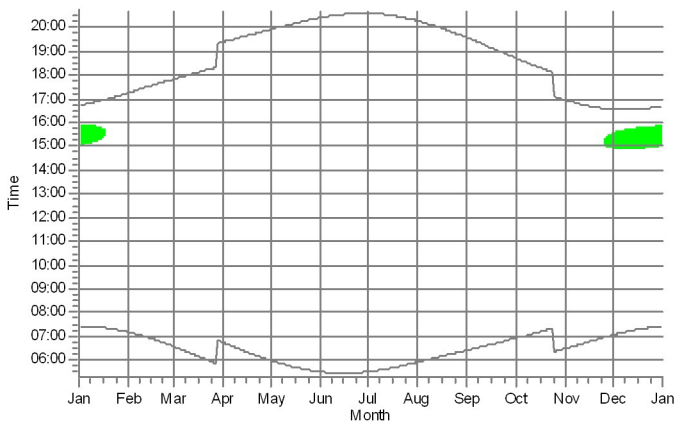
C: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (42)



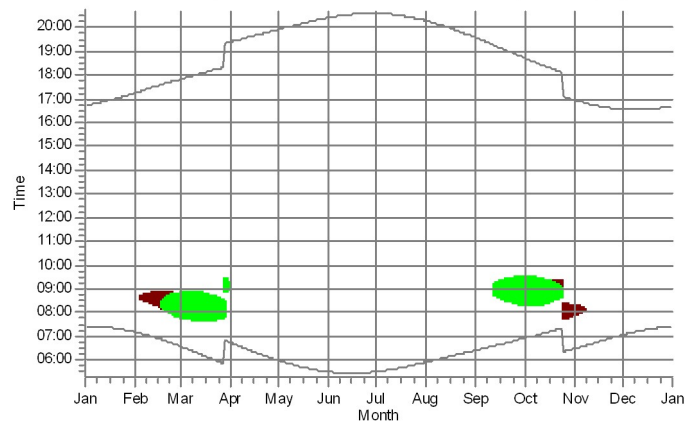
D: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (43)



E: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (44)



F: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (45)



WTGs

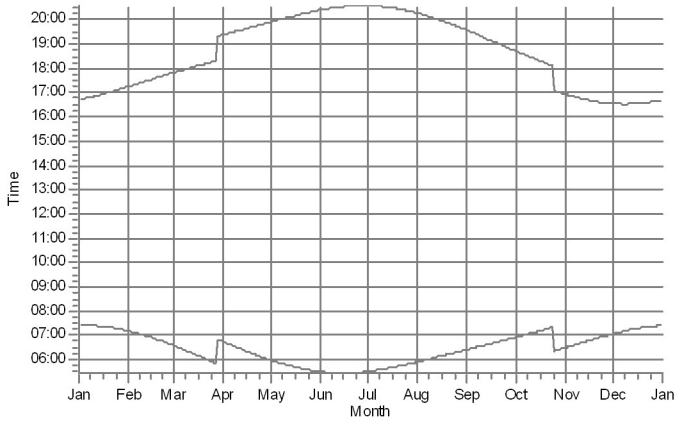
WTG 09: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (8)

WTG 10: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (9)

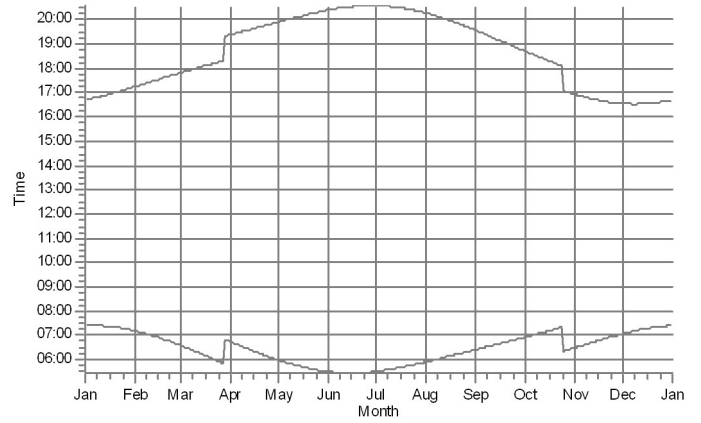
SHADOW - Calendar, graphical

Calculation: SHADOW_PESCOPAGANO_DEF

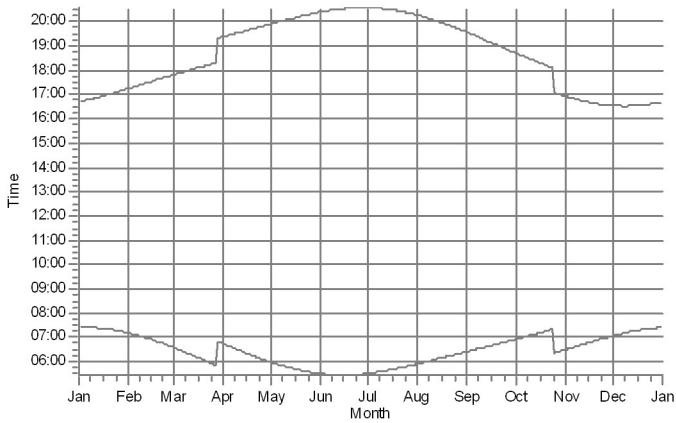
G: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (46)



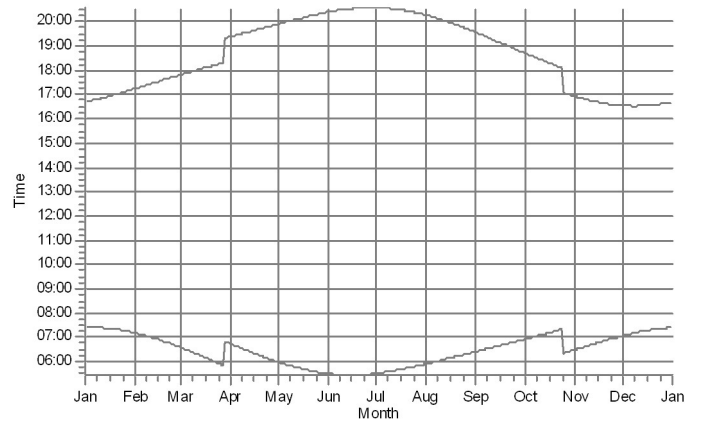
H: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (47)



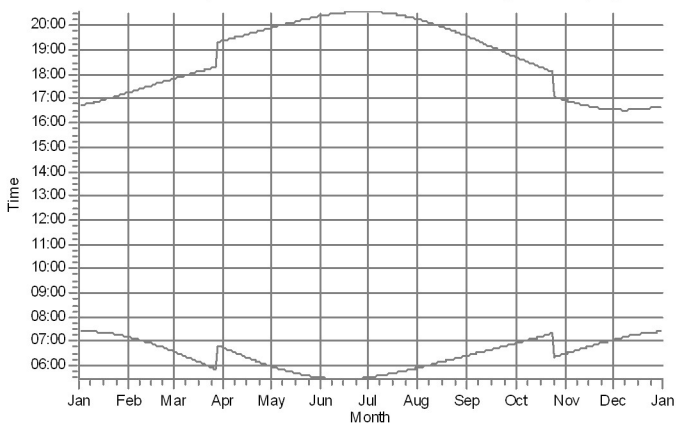
I: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (48)



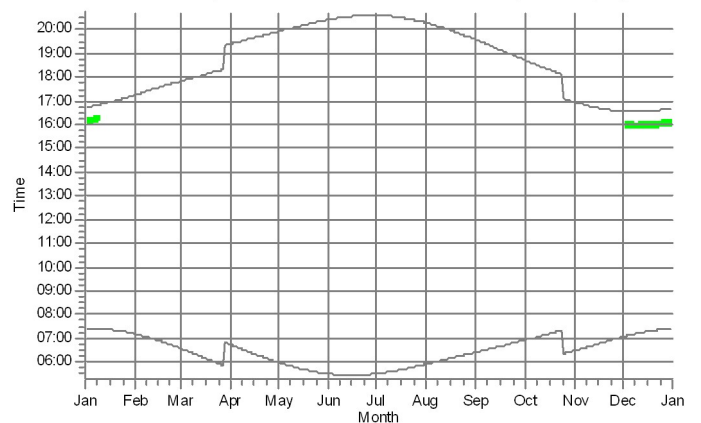
J: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (49)



K: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (50)



L: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (51)



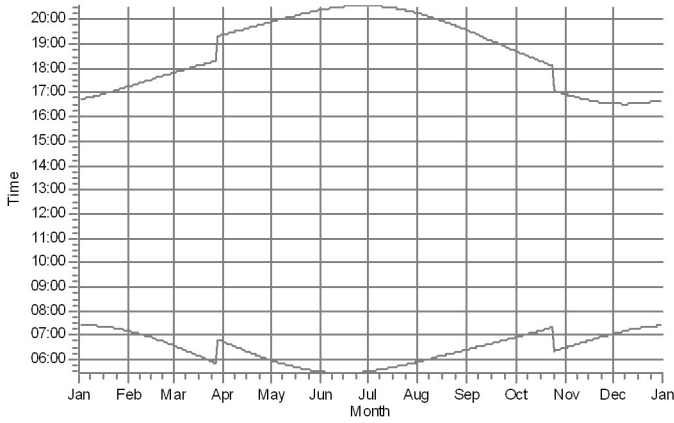
WTGs

 WTG 10: VESTAS V172-7.2 7200 172.0 !O! hub: 138.0 m (TOT: 224.0 m) (9)

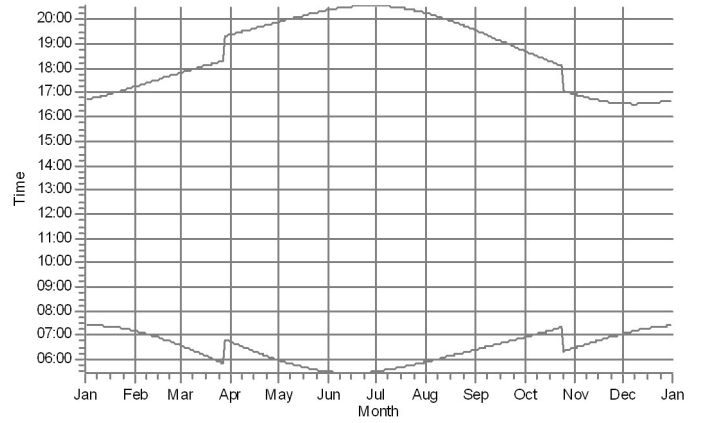
SHADOW - Calendar, graphical

Calculation: SHADOW_PESCOPAGANO_DEF

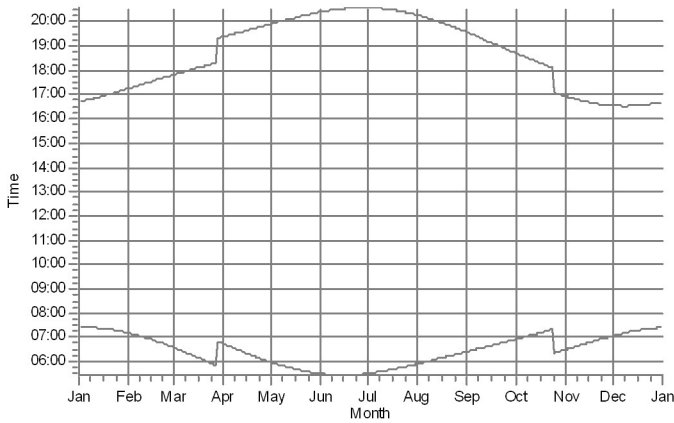
Mt Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (52)



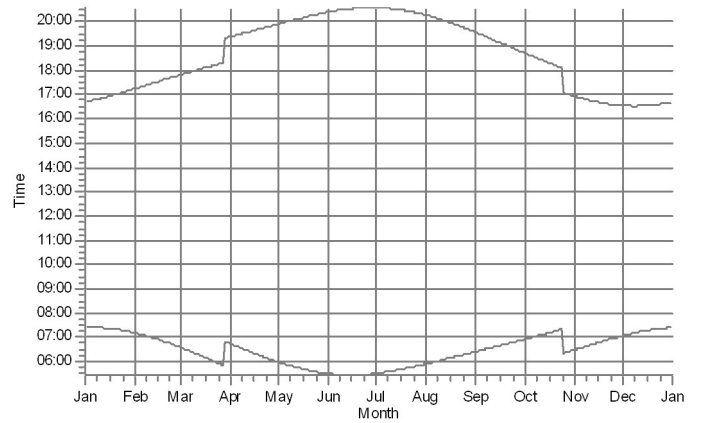
N: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (53)



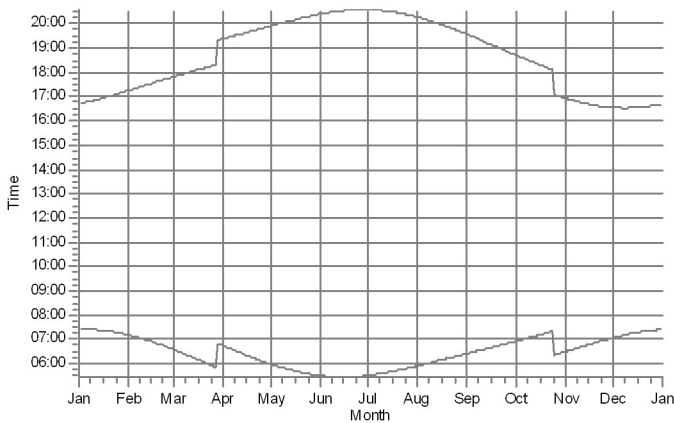
O: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (54)



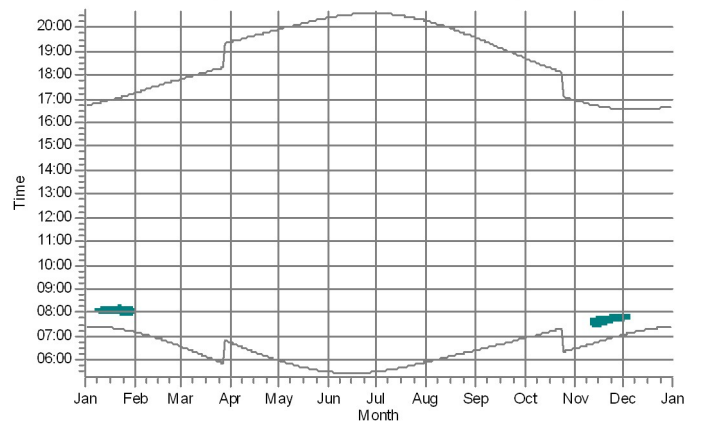
P: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (55)



Q: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (56)



R: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (57)



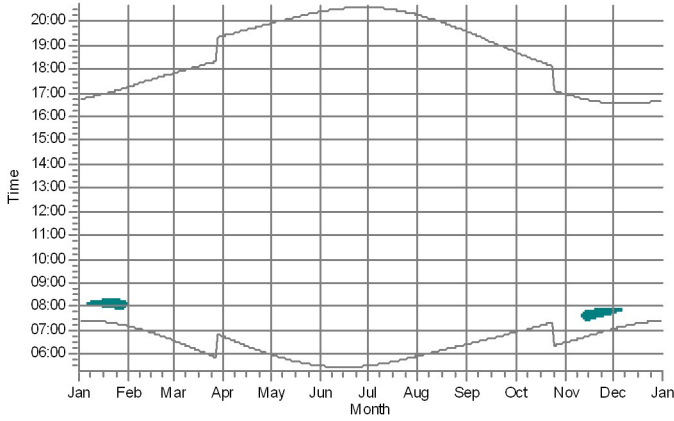
WTGs

WTG 03: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (6)

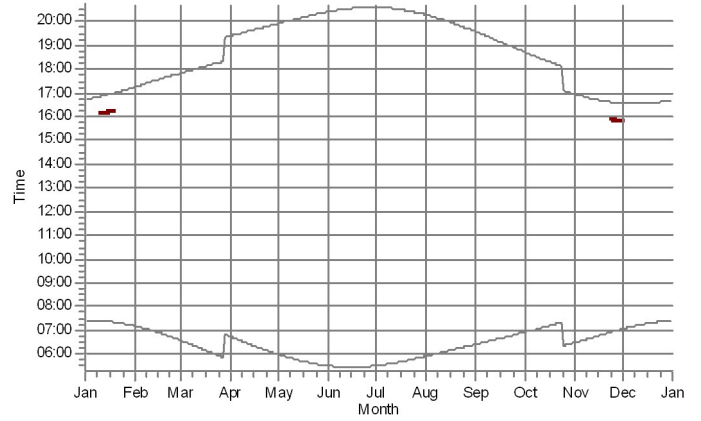
SHADOW - Calendar, graphical

Calculation: SHADOW_PESCOPAGANO_DEF

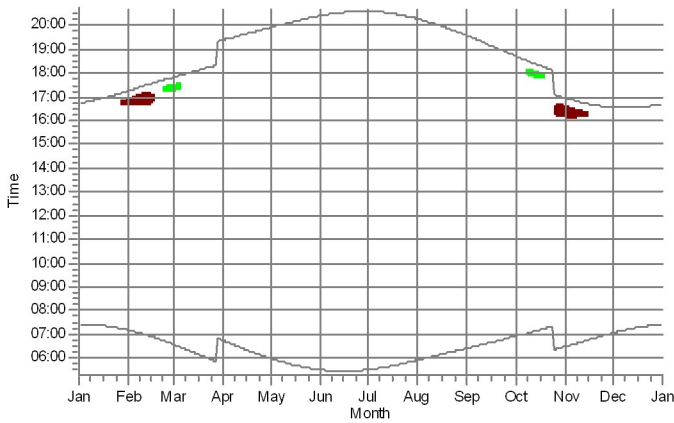
S: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (58)



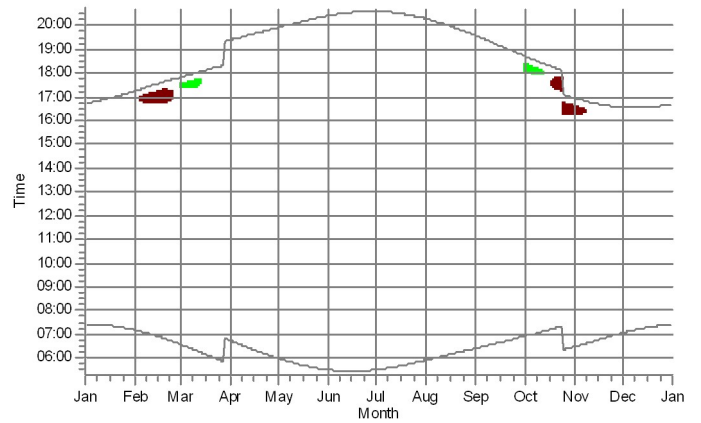
T: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (59)



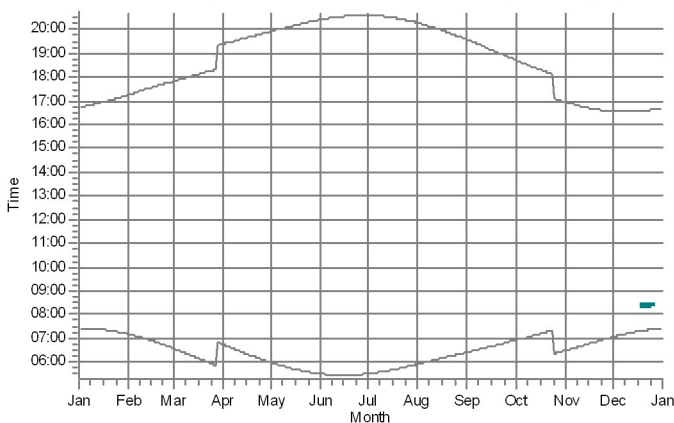
U: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (60)



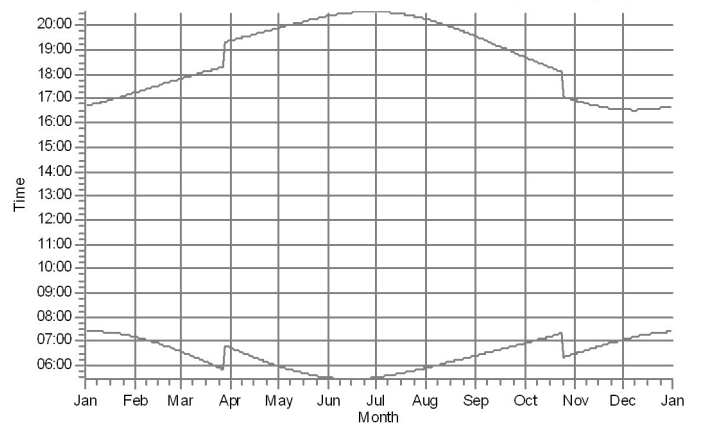
V: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (61)



W: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (62)



X: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (63)



WTGs

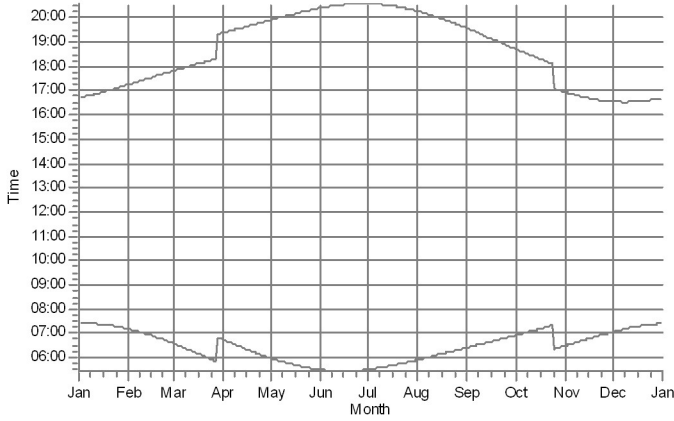
WTG 03: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (6)
 WTG 09: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (8)

WTG 10: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (9)

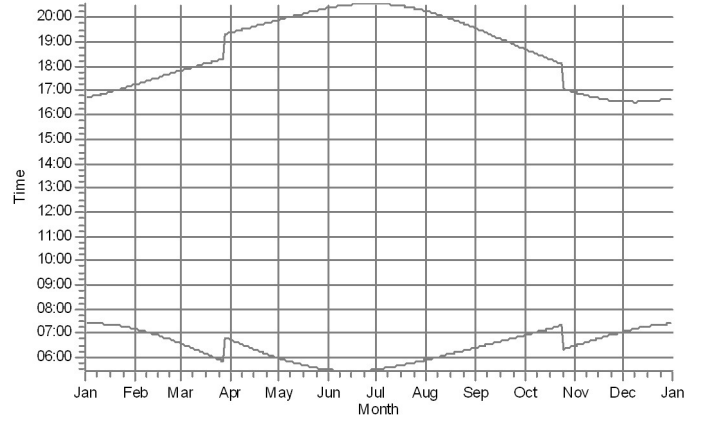
SHADOW - Calendar, graphical

Calculation: SHADOW_PESCOPAGANO_DEF

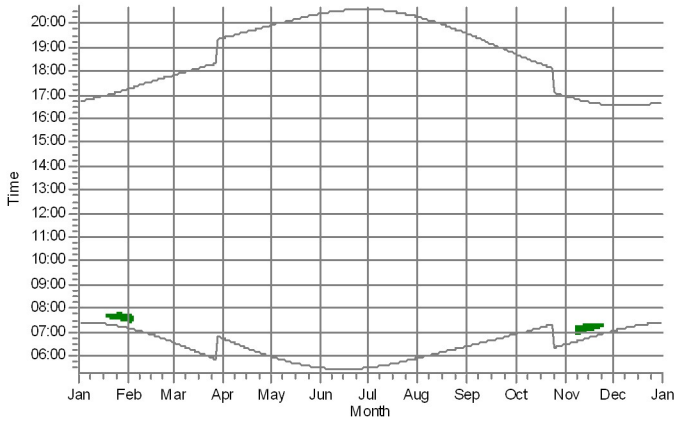
Y: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (64)



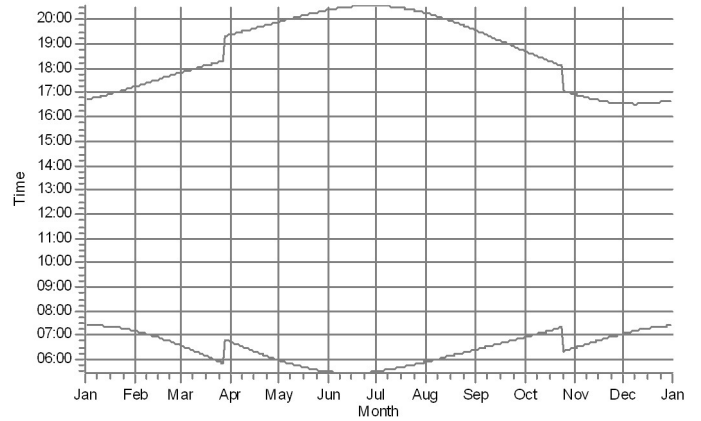
Z: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (65)



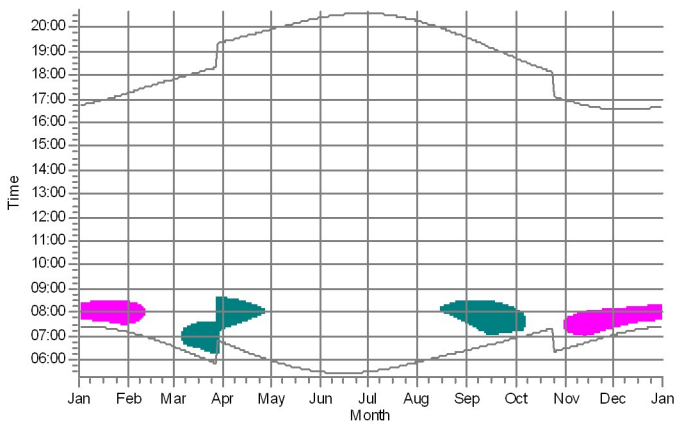
AA: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (66)



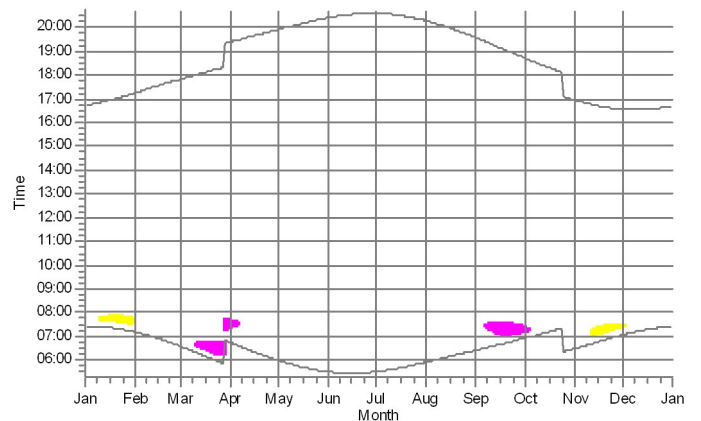
AB: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (67)



AC: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (68)



AD: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (69)



WTGs

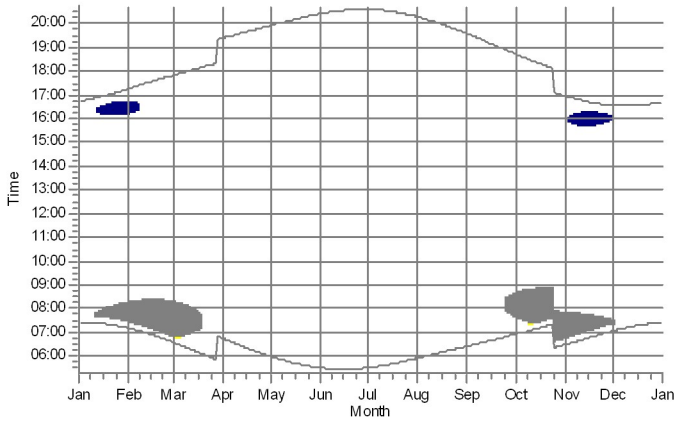
- WTG 02: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (1)
- WTG 05: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (2)

- WTG 04: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (5)
- WTG 03: VESTAS V172-7.2 7200 172.0 IO! hub: 138.0 m (TOT: 224.0 m) (6)

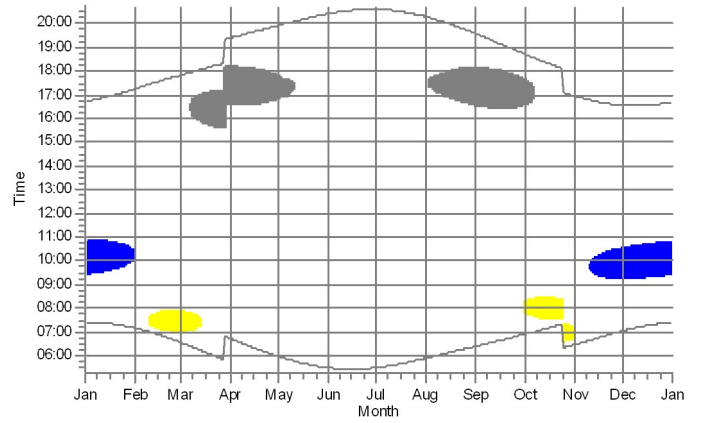
SHADOW - Calendar, graphical

Calculation: SHADOW_PESCOPAGANO_DEF

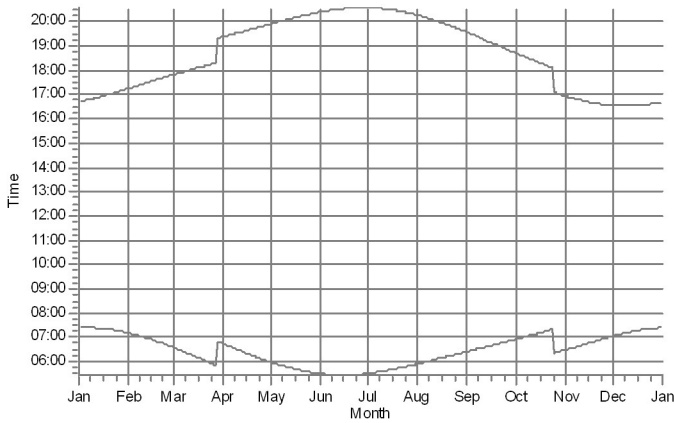
AE: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (70)



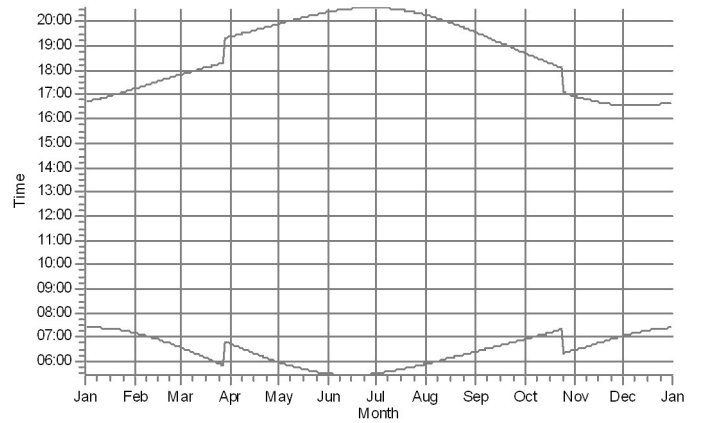
AF: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (71)



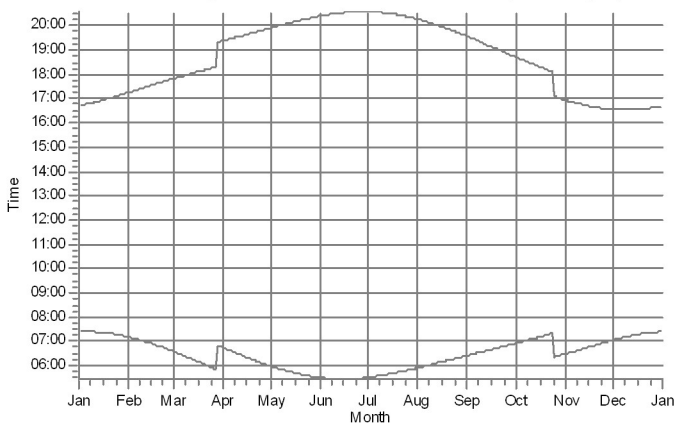
AG: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (72)



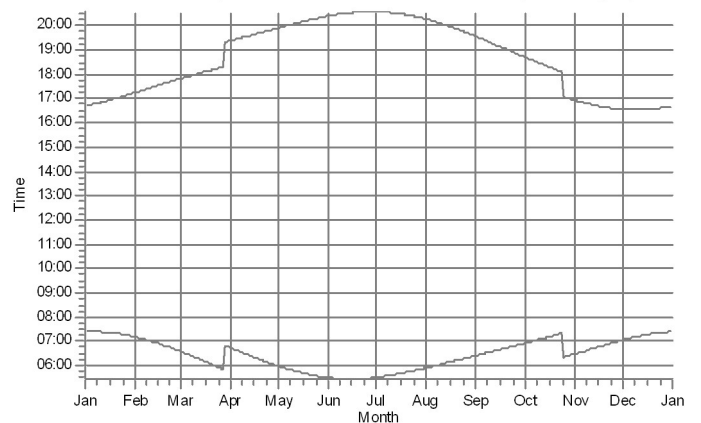
AH: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (73)



AI: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (74)



AJ: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (75)



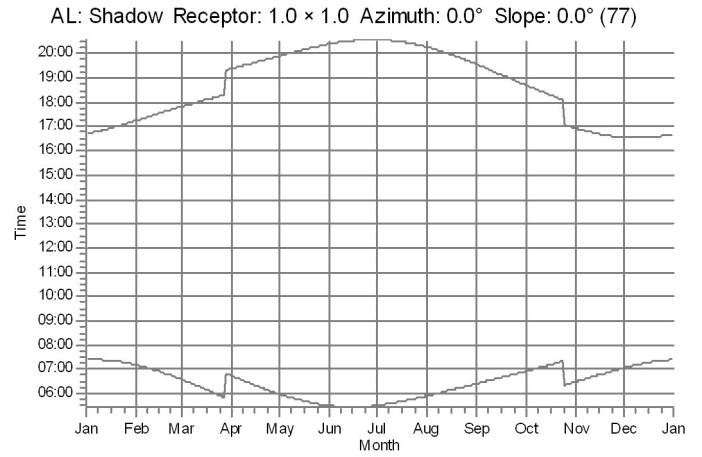
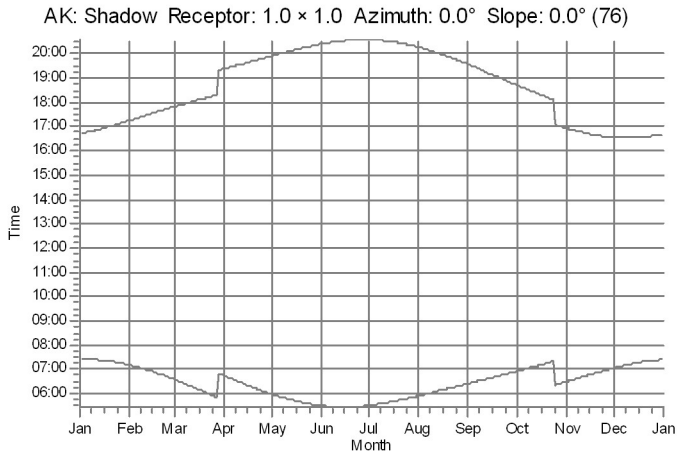
WTGs

- WTG 05: VESTAS V172-7.2 7200 172.0 !OI! hub: 138.0 m (TOT: 224.0 m) (2)
- WTG 06: VESTAS V172-7.2 7200 172.0 !OI! hub: 138.0 m (TOT: 224.0 m) (3)

- WTG 07: VESTAS V172-7.2 7200 172.0 !OI! hub: 138.0 m (TOT: 224.0 m) (4)
- WTG 08: VESTAS V172-7.2 7200 172.0 !OI! hub: 138.0 m (TOT: 224.0 m) (7)

SHADOW - Calendar, graphical

Calculation: SHADOW_PESCOPAGANO_DEF



WTGs

ALLEGATO 3 - "CALENDAR-TIME" (WORST CASE)

Project:

WIND_PRP_PESCOPAGANO

Licensed user:

EGM Project srl
via Vincenzo Verrastro 15/A
IT-85100 Potenza

Calculated:

06/05/2024 19:05/4.0.531

SHADOW - Calendar

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: A - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (40)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:35	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:24 16:42	07:09 17:17	06:33 17:50	06:43 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:56 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:53	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:59	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:24 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:30	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:31	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	06:57 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	06:54 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:59	06:39 19:10	07:09 18:20	06:45 16:42	07:16 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:40 19:08	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:12	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
23	07:18 17:04	06:44 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
24	07:17 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:35	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:05	06:57 16:35	07:21 16:36
26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:33	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	428	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: B - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (41)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:35	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:24 16:42	07:09 17:17	06:33 17:50	06:43 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:56 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:53	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:59	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:24 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:30	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:37 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	06:58 17:31	06:17 18:04	06:26 19:36	05:46 20:08	05:27 20:31	05:37 20:30	06:05 20:00	06:36 19:11	07:06 18:22	06:41 16:42	07:13 16:32
13	07:22 16:53	06:57 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	06:54 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:59	06:39 19:10	07:09 18:20	06:45 16:42	07:16 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:40 19:08	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:12	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
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25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:35	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:05	06:57 16:35	07:21 16:36
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27	07:15 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:33	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: C - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (42)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:35	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:24 16:42	07:09 17:17	06:33 17:50	06:43 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:56 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:53	06:39 19:26	05:55 19:58	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:32
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:59	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:22	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:24 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:35 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:21 17:59	06:30 19:32	05:48 20:04	05:27 20:30	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:37 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:31	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	06:57 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:37	05:44 20:08	05:27 20:32	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	06:54 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:59	06:39 19:10	07:09 18:20	06:45 16:42	07:16 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:40 19:08	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:41 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:12	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:13	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
23	07:18 17:04	06:44 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
24	07:17 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:35	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:06	06:57 16:35	07:21 16:36
26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:34 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:52 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:33	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: D - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (43)
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	07:23	11:37 (WTG 10)	07:10	06:35	06:44	05:59	05:30	05:31	05:54	06:25	06:55	06:28	07:03
	16:41	28 12:05 (WTG 10)	17:15	17:49	19:23	19:54	20:24	20:35	20:16	19:33	18:43	16:56	16:32
2	07:24	11:39 (WTG 10)	07:09	06:33	06:43	05:57	05:30	05:31	05:55	06:26	06:56	06:30	07:04
	16:42	25 12:04 (WTG 10)	17:17	17:50	19:24	19:55	20:24	20:34	20:15	19:31	18:41	16:55	16:32
3	07:24	11:41 (WTG 10)	07:08	06:32	06:41	05:56	05:29	05:32	05:56	06:27	06:57	06:31	07:05
	16:43	22 12:03 (WTG 10)	17:18	17:51	19:25	19:56	20:25	20:34	20:14	19:30	18:39	16:54	16:32
4	07:24	11:44 (WTG 10)	07:07	06:30	06:39	05:55	05:29	05:32	05:57	06:28	06:58	06:32	07:06
	16:44	17 12:01 (WTG 10)	17:19	17:53	19:26	19:58	20:26	20:34	20:12	19:28	18:38	16:53	16:32
5	07:24	11:48 (WTG 10)	07:06	06:28	06:38	05:54	05:29	05:33	05:58	06:29	06:59	06:33	07:07
	16:45	9 11:57 (WTG 10)	17:20	17:54	19:27	19:59	20:26	20:34	20:11	19:26	18:36	16:52	16:31
6	07:24		07:05	06:27	06:36	05:52	05:28	05:33	05:59	06:30	07:00	06:34	07:08
	16:46		17:22	17:55	19:28	20:00	20:27	20:34	20:10	19:25	18:34	16:50	16:31
7	07:24		07:04	06:25	06:34	05:51	05:28	05:34	06:00	06:31	07:01	06:35	07:09
	16:47		17:23	17:56	19:29	20:01	20:28	20:33	20:09	19:23	18:33	16:49	16:31
8	07:24		07:03	06:24	06:33	05:50	05:28	05:35	06:01	06:32	07:02	06:37	07:10
	16:48		17:24	17:57	19:30	20:02	20:28	20:33	20:08	19:22	18:31	16:48	16:31
9	07:23		07:02	06:22	06:31	05:49	05:27	05:35	06:02	06:33	07:03	06:38	07:11
	16:49		17:25	17:58	19:31	20:03	20:29	20:33	20:06	19:20	18:30	16:47	16:31
10	07:23		07:01	06:21	06:30	05:48	05:27	05:36	06:03	06:34	07:04	06:39	07:12
	16:50		17:26	17:59	19:32	20:04	20:30	20:32	20:05	19:18	18:28	16:46	16:31
11	07:23		06:59	06:19	06:28	05:47	05:27	05:37	06:04	06:35	07:05	06:40	07:12
	16:51		17:28	18:00	19:33	20:05	20:30	20:32	20:04	19:16	18:26	16:45	16:31
12	07:23		06:58	06:17	06:26	05:46	05:27	05:37	06:05	06:36	07:06	06:41	07:13
	16:52		17:29	18:01	19:34	20:06	20:31	20:31	20:03	19:15	18:25	16:44	16:31
13	07:22		06:57	06:16	06:25	05:45	05:27	05:38	06:06	06:37	07:07	06:43	07:14
	16:53		17:30	18:03	19:35	20:07	20:31	20:31	20:01	19:13	18:23	16:43	16:31
14	07:22		06:56	06:14	06:23	05:44	05:27	05:39	06:07	06:38	07:08	06:44	07:15
	16:54		17:31	18:04	19:37	20:08	20:32	20:30	20:00	19:11	18:22	16:42	16:32
15	07:22		06:54	06:12	06:22	05:43	05:27	05:39	06:08	06:39	07:09	06:45	07:16
	16:55		17:33	18:05	19:38	20:09	20:32	20:30	19:59	19:10	18:20	16:42	16:32
16	07:21		06:53	06:11	06:20	05:42	05:27	05:40	06:09	06:40	07:10	06:46	07:16
	16:56		17:34	18:06	19:39	20:10	20:32	20:29	19:57	19:08	18:19	16:41	16:32
17	07:21		06:52	06:09	06:19	05:41	05:27	05:41	06:10	06:41	07:11	06:47	07:17
	16:57		17:35	18:07	19:40	20:11	20:33	20:29	19:56	19:06	18:17	16:40	16:32
18	07:20		06:51	06:07	06:17	05:40	05:27	05:42	06:11	06:42	07:12	06:48	07:18
	16:58		17:36	18:08	19:41	20:12	20:33	20:28	19:54	19:05	18:16	16:39	16:33
19	07:20		06:49	06:06	06:16	05:39	05:27	05:43	06:12	06:42	07:14	06:50	07:18
	17:00		17:37	18:09	19:42	20:13	20:33	20:27	19:53	19:03	18:14	16:38	16:33
20	07:19		06:48	06:04	06:14	05:38	05:27	05:44	06:13	06:43	07:15	06:51	07:19
	17:01		17:39	18:10	19:43	20:13	20:34	20:27	19:51	19:01	18:13	16:38	16:34
21	07:19		06:46	06:02	06:13	05:37	05:27	05:44	06:14	06:44	07:16	06:52	07:19
	17:02		17:40	18:11	19:44	20:14	20:34	20:26	19:50	19:00	18:11	16:37	16:34
22	07:18		06:45	06:01	06:11	05:36	05:28	05:45	06:15	06:45	07:17	06:53	07:20
	17:03		17:41	18:12	19:45	20:15	20:34	20:25	19:48	18:58	18:10	16:36	16:34
23	07:18		06:44	05:59	06:10	05:36	05:28	05:46	06:16	06:46	07:18	06:54	07:20
	17:04		17:42	18:13	19:46	20:16	20:34	20:24	19:47	18:56	18:08	16:36	16:35
24	07:17		06:42	05:57	06:08	05:35	05:28	05:47	06:17	06:47	07:19	06:55	07:21
	17:06		17:43	18:14	19:47	20:17	20:34	20:23	19:45	18:54	18:07	16:35	16:36
25	07:16		06:41	05:56	06:07	05:34	05:28	05:48	06:18	06:48	06:20	06:57	07:21
	17:07		17:44	18:15	19:48	20:18	20:35	20:23	19:44	18:53	17:06	16:35	16:36
26	07:15		06:39	05:54	06:05	05:34	05:29	05:49	06:19	06:49	06:21	06:58	07:22
	17:08		17:46	18:17	19:49	20:19	20:35	20:22	19:42	18:51	17:04	16:34	16:37
27	07:15		06:38	05:52	06:04	05:33	05:29	05:50	06:20	06:50	06:23	06:59	07:22
	17:09		17:47	18:18	19:50	20:20	20:35	20:21	19:41	18:49	17:03	16:34	16:37
28	07:14		06:36	05:51	06:03	05:32	05:29	05:51	06:21	06:51	06:24	07:00	07:22
	17:10		17:48	18:19	19:51	20:20	20:35	20:20	19:39	18:48	17:01	16:33	16:38
29	07:13			06:49	06:01	05:32	05:30	05:52	06:22	06:52	06:25	07:01	07:23
	17:12			19:20	19:52	20:21	20:35	20:19	19:38	18:46	17:00	16:33	16:39
30	07:12			06:48	06:00	05:31	05:30	05:52	06:23	06:53	06:26	07:02	07:23
	17:13			19:21	19:53	20:22	20:35	20:18	19:36	18:44	16:59	16:33	16:39
31	07:11			06:46		05:31		05:53	06:24		06:27		07:23
	17:14			19:22		20:23		20:17	19:35		16:58		16:40
Potential sun hours	298		297	369	398	448	452	458	427	375	345	298	289
Total, worst case		101											812

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: E - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (44)
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	07:23 16:41	15:07 (WTG 10) 15:49 (WTG 10)	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:35	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32	15:00 (WTG 10) 15:29 (WTG 10)
2	07:24 16:42	15:08 (WTG 10) 15:49 (WTG 10)	07:09 17:17	06:33 17:50	06:43 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:56 18:41	06:30 16:55	07:04 16:32	14:59 (WTG 10) 15:31 (WTG 10)
3	07:24 16:43	15:08 (WTG 10) 15:49 (WTG 10)	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	06:31 16:54	07:05 16:32	14:59 (WTG 10) 15:32 (WTG 10)
4	07:24 16:44	15:09 (WTG 10) 15:49 (WTG 10)	07:07 17:19	06:30 17:53	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:32	14:58 (WTG 10) 15:33 (WTG 10)
5	07:24 16:45	15:10 (WTG 10) 15:49 (WTG 10)	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:59	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31	14:58 (WTG 10) 15:34 (WTG 10)
6	07:24 16:46	15:11 (WTG 10) 15:49 (WTG 10)	07:05 17:22	06:27 17:55	06:36 19:28	05:52 19:28	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31	14:58 (WTG 10) 15:35 (WTG 10)
7	07:24 16:47	15:12 (WTG 10) 15:48 (WTG 10)	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31	14:57 (WTG 10) 15:36 (WTG 10)
8	07:23 16:48	15:13 (WTG 10) 15:48 (WTG 10)	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:35 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31	14:56 (WTG 10) 15:37 (WTG 10)
9	07:23 16:49	15:15 (WTG 10) 15:48 (WTG 10)	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31	14:57 (WTG 10) 15:37 (WTG 10)
10	07:23 16:50	15:16 (WTG 10) 15:48 (WTG 10)	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:30	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31	14:57 (WTG 10) 15:38 (WTG 10)
11	07:23 16:51	15:17 (WTG 10) 15:46 (WTG 10)	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:37 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31	14:57 (WTG 10) 15:39 (WTG 10)
12	07:23 16:52	15:19 (WTG 10) 15:46 (WTG 10)	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:31	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31	14:57 (WTG 10) 15:40 (WTG 10)
13	07:22 16:53	15:21 (WTG 10) 15:45 (WTG 10)	06:57 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31	14:58 (WTG 10) 15:41 (WTG 10)
14	07:22 16:54	15:23 (WTG 10) 15:43 (WTG 10)	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32	14:57 (WTG 10) 15:41 (WTG 10)
15	07:22 16:55	15:26 (WTG 10) 15:42 (WTG 10)	06:54 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:59	06:39 19:10	07:09 18:20	06:45 16:42	07:16 16:32	14:58 (WTG 10) 15:42 (WTG 10)
16	07:21 16:56	15:29 (WTG 10) 15:39 (WTG 10)	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:40 19:08	07:10 18:19	06:46 16:41	07:16 16:32	14:58 (WTG 10) 15:43 (WTG 10)
17	07:21 16:57		06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:41 19:06	07:11 18:17	06:47 16:40	07:17 16:32	14:58 (WTG 10) 15:44 (WTG 10)
18	07:20 16:58		06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:12	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33	14:59 (WTG 10) 15:43 (WTG 10)
19	07:20 17:00		06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33	14:59 (WTG 10) 15:44 (WTG 10)
20	07:19 17:01		06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:34	14:59 (WTG 10) 15:44 (WTG 10)
21	07:19 17:02		06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 16:37	07:19 16:34	15:00 (WTG 10) 15:45 (WTG 10)
22	07:18 17:03		06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34	15:00 (WTG 10) 15:45 (WTG 10)
23	07:18 17:04		06:44 17:42	06:00 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35	15:01 (WTG 10) 15:46 (WTG 10)
24	07:17 17:05		06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:47	07:19 18:07	06:55 16:35	07:21 16:35	15:01 (WTG 10) 15:46 (WTG 10)
25	07:16 17:07		06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:06	06:56 16:35	07:21 16:36	15:01 (WTG 10) 15:46 (WTG 10)
26	07:15 17:08		06:39 17:46	05:54 18:16	06:05 19:49	05:34 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37	15:03 (WTG 10) 15:47 (WTG 10)
27	07:15 17:09		06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:23 17:03	06:59 16:34	07:22 16:37	15:03 (WTG 10) 15:47 (WTG 10)
28	07:14 17:10		06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:24 17:01	07:00 16:33	07:22 16:38	15:03 (WTG 10) 15:48 (WTG 10)
29	07:13 17:12			06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:52 20:19	06:22 19:38	06:52 18:46	07:25 17:00	07:01 16:33	07:23 16:39	15:01 (WTG 10) 15:48 (WTG 10)
30	07:12 17:13			06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:26 16:59	07:02 16:33	07:23 16:39	15:05 (WTG 10) 15:49 (WTG 10)
31	07:11 17:14			06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35	06:27 16:58		06:27 16:58	07:23 16:40	15:06 (WTG 10) 15:49 (WTG 10)
Potential sun hours	298		297	369	398	448	452	458	427	375	345	298	289	1290
Total, worst case	503											96		

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: F - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (45)
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	07:23 16:41	07:10 17:15		06:35 17:49	58	07:51 (WTG 10) 08:49 (WTG 10)	06:44 19:23	05:59 20:24
2	07:24 16:42	07:09 17:17		06:33 17:50	60	07:49 (WTG 10) 08:49 (WTG 10)	06:43 19:24	05:57 19:55
3	07:24 16:43	07:08 17:18		06:32 17:51	61	07:48 (WTG 10) 08:49 (WTG 10)	06:41 19:25	05:56 19:56
4	07:24 16:44	07:07 17:19	3	08:35 (WTG 09) 08:38 (WTG 09)	62	07:48 (WTG 10) 08:50 (WTG 10)	06:39 19:26	05:55 19:58
5	07:24 16:45	07:06 17:20	6	08:34 (WTG 09) 08:40 (WTG 09)	63	07:46 (WTG 10) 08:49 (WTG 10)	06:38 19:27	05:54 19:59
6	07:24 16:46	07:05 17:22	9	08:33 (WTG 09) 08:42 (WTG 09)	64	07:46 (WTG 10) 08:50 (WTG 10)	06:36 19:28	05:52 20:00
7	07:24 16:47	07:04 17:23	11	08:32 (WTG 09) 08:43 (WTG 09)	65	07:45 (WTG 10) 08:50 (WTG 10)	06:34 19:29	05:51 20:01
8	07:24 16:48	07:03 17:24	14	08:31 (WTG 09) 08:45 (WTG 09)	65	07:44 (WTG 10) 08:49 (WTG 10)	06:33 19:30	05:50 20:02
9	07:23 16:49	07:02 17:25	17	08:28 (WTG 09) 08:45 (WTG 09)	65	07:45 (WTG 10) 08:50 (WTG 10)	06:31 19:31	05:49 20:03
10	07:23 16:50	07:01 17:27	19	08:27 (WTG 09) 08:46 (WTG 09)	65	07:44 (WTG 10) 08:49 (WTG 10)	06:30 19:32	05:48 20:04
11	07:23 16:51	06:59 17:28	22	08:25 (WTG 09) 08:47 (WTG 09)	65	07:44 (WTG 10) 08:49 (WTG 10)	06:28 19:33	05:47 20:05
12	07:23 16:52	06:58 17:29	24	08:24 (WTG 09) 08:48 (WTG 09)	65	07:43 (WTG 10) 08:48 (WTG 10)	06:26 19:34	05:46 20:06
13	07:22 16:53	06:57 17:30	26	08:22 (WTG 09) 08:48 (WTG 09)	65	07:43 (WTG 10) 08:48 (WTG 10)	06:25 19:35	05:45 20:07
14	07:22 16:54	06:56 17:31	28	08:21 (WTG 09) 08:49 (WTG 09)	65	07:43 (WTG 10) 08:48 (WTG 10)	06:23 19:37	05:44 20:08
15	07:22 16:55	06:54 17:33	31	08:19 (WTG 09) 08:50 (WTG 09)	63	07:43 (WTG 10) 08:46 (WTG 10)	06:22 19:38	05:43 20:09
16	07:21 16:56	06:53 17:34	33	08:16 (WTG 09) 08:49 (WTG 09)	62	07:43 (WTG 10) 08:45 (WTG 10)	06:20 19:39	05:42 20:10
17	07:21 16:57	06:52 17:35	34	08:15 (WTG 09) 08:49 (WTG 09)	62	07:43 (WTG 10) 08:45 (WTG 10)	06:19 19:40	05:41 20:11
18	07:20 16:58	06:51 17:36	37	08:13 (WTG 09) 08:50 (WTG 09)	61	07:43 (WTG 10) 08:44 (WTG 10)	06:17 19:41	05:40 20:12
19	07:20 17:00	06:49 17:37	39	08:10 (WTG 09) 08:49 (WTG 09)	59	07:43 (WTG 10) 08:42 (WTG 10)	06:16 19:42	05:39 20:13
20	07:19 17:01	06:48 17:39	41	08:08 (WTG 09) 08:49 (WTG 09)	58	07:44 (WTG 10) 08:42 (WTG 10)	06:14 19:43	05:38 20:13
21	07:19 17:02	06:46 17:40	43	08:06 (WTG 09) 08:49 (WTG 09)	56	07:44 (WTG 10) 08:40 (WTG 10)	06:13 19:44	05:37 20:14
22	07:18 17:03	06:45 17:41	45	08:03 (WTG 10) 08:48 (WTG 09)	54	07:44 (WTG 10) 08:38 (WTG 10)	06:11 19:45	05:36 20:15
23	07:18 17:04	06:44 17:42	46	08:02 (WTG 10) 08:48 (WTG 09)	52	07:45 (WTG 10) 08:37 (WTG 10)	06:10 19:46	05:36 20:16
24	07:17 17:06	06:42 17:43	48	07:59 (WTG 10) 08:47 (WTG 09)	49	07:46 (WTG 10) 08:35 (WTG 10)	06:08 19:47	05:35 20:17
25	07:16 17:07	06:41 17:45	49	07:57 (WTG 10) 08:46 (WTG 09)	47	07:46 (WTG 10) 08:33 (WTG 10)	06:07 19:48	05:34 20:18
26	07:15 17:08	06:39 17:46	52	07:54 (WTG 10) 08:46 (WTG 10)	44	07:48 (WTG 10) 08:32 (WTG 10)	06:06 19:49	05:34 20:19
27	07:15 17:09	06:38 17:47	54	07:53 (WTG 10) 08:47 (WTG 10)	40	07:49 (WTG 10) 08:29 (WTG 10)	06:04 19:50	05:33 20:20
28	07:14 17:10	06:36 17:48	56	07:51 (WTG 10) 08:47 (WTG 10)	36	07:50 (WTG 10) 08:26 (WTG 10)	06:03 19:51	05:32 20:20
29	07:13 17:12			06:49 19:20	31	08:53 (WTG 10) 09:24 (WTG 10)	06:01 19:52	05:32 20:21
30	07:12 17:13			06:48 19:21	25	08:55 (WTG 10) 09:20 (WTG 10)	06:00 19:53	05:31 20:22
31	07:11 17:14			06:46 19:22	18	08:58 (WTG 10) 09:16 (WTG 10)	05:31 20:23	
Potential sun hours	298	297		369			398	448
Total, worst case			787		1705			452

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: F - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (45)
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	05:31 20:35	05:54 20:16	06:25 19:33	06:55 18:43	08:23 (WTG 10) 09:28 (WTG 10)	06:28 19 07:57 (WTG 09) 08:16 (WTG 09)	
2	05:31 20:34	05:55 20:15	06:26 19:31	06:56 18:41	65 08:23 (WTG 10) 65 09:28 (WTG 10)	06:30 17 07:58 (WTG 09) 17 08:15 (WTG 09)	
3	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	66 08:22 (WTG 10) 66 09:28 (WTG 10)	06:31 14 06:54 14 08:14 (WTG 09)	
4	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	65 08:22 (WTG 10) 65 09:27 (WTG 10)	06:32 11 06:53 11 08:02 (WTG 09) 11 08:13 (WTG 09)	
5	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	65 08:22 (WTG 10) 65 09:27 (WTG 10)	06:33 8 06:52 8 08:03 (WTG 09) 8 08:11 (WTG 09)	
6	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	64 08:22 (WTG 10) 64 09:26 (WTG 10)	06:34 5 06:51 5 08:04 (WTG 09) 5 08:09 (WTG 09)	
7	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	64 08:22 (WTG 10) 64 09:26 (WTG 10)	06:35 2 06:49 2 08:05 (WTG 09) 2 08:07 (WTG 09)	
8	05:35 20:33	06:01 20:08	06:32 19:22	07:02 18:31	63 08:22 (WTG 10) 63 09:25 (WTG 10)	06:37 16:48 16:31	
9	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	63 08:22 (WTG 10) 63 09:25 (WTG 10)	06:38 16:47 16:31	
10	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	62 08:22 (WTG 10) 62 09:24 (WTG 10)	06:39 16:46 16:31	
11	05:37 20:32	06:04 20:04	06:35 19:17	07:05 18:26	60 08:23 (WTG 10) 60 09:23 (WTG 10)	06:40 16:45 16:31	
12	05:37 20:31	06:05 20:03	06:36 19:15	08:50 (WTG 10) 09:07 (WTG 10)	17 07:06 17 18:25	59 08:23 (WTG 10) 59 09:22 (WTG 10)	06:41 16:44 16:31
13	05:38 20:31	06:06 20:01	06:37 19:13	08:46 (WTG 10) 09:11 (WTG 10)	25 07:07 25 18:23	57 08:24 (WTG 10) 57 09:21 (WTG 10)	06:43 16:43 16:31
14	05:39 20:30	06:07 20:00	06:38 19:11	08:43 (WTG 10) 09:14 (WTG 10)	31 07:08 31 18:22	55 08:24 (WTG 10) 55 09:19 (WTG 10)	06:44 16:43 16:32
15	05:40 20:30	06:08 19:59	06:39 19:10	08:41 (WTG 10) 09:16 (WTG 10)	35 07:09 35 18:20	53 08:26 (WTG 10) 53 09:19 (WTG 10)	06:45 16:42 16:32
16	05:40 20:29	06:09 19:57	06:40 19:08	08:39 (WTG 10) 09:18 (WTG 10)	39 07:10 39 18:19	50 08:28 (WTG 10) 50 09:18 (WTG 09)	06:46 16:41 16:32
17	05:41 20:29	06:10 19:56	06:41 19:06	08:37 (WTG 10) 09:20 (WTG 10)	43 07:11 43 18:17	49 08:29 (WTG 10) 49 09:18 (WTG 09)	06:47 16:40 16:32
18	05:42 20:28	06:11 19:54	06:42 19:05	08:35 (WTG 10) 09:21 (WTG 10)	46 07:12 46 18:16	47 08:31 (WTG 10) 47 09:18 (WTG 09)	06:48 16:39 16:33
19	05:43 20:27	06:12 19:53	06:43 19:03	08:33 (WTG 10) 09:22 (WTG 10)	46 07:14 46 18:14	46 08:33 (WTG 10) 46 09:19 (WTG 09)	06:50 16:38 16:33
20	05:44 20:27	06:13 19:51	06:44 19:01	08:32 (WTG 10) 09:23 (WTG 10)	45 07:15 45 18:13	45 08:34 (WTG 10) 45 09:19 (WTG 09)	06:51 16:38 16:34
21	05:44 20:26	06:14 19:50	06:44 19:00	08:31 (WTG 10) 09:24 (WTG 10)	43 07:16 43 18:11	43 08:36 (WTG 09) 43 09:19 (WTG 09)	06:52 16:37 16:34
22	05:45 20:25	06:15 19:49	06:45 18:58	08:30 (WTG 10) 09:25 (WTG 10)	41 07:17 41 18:10	41 08:39 (WTG 09) 41 09:20 (WTG 09)	06:53 16:36 16:34
23	05:46 20:24	06:16 19:47	06:46 18:56	08:28 (WTG 10) 09:25 (WTG 10)	39 07:18 39 18:08	39 08:41 (WTG 09) 39 09:20 (WTG 09)	06:54 16:36 16:35
24	05:47 20:23	06:17 19:46	06:47 18:55	08:27 (WTG 10) 09:25 (WTG 10)	36 07:19 36 18:07	36 08:43 (WTG 09) 36 09:19 (WTG 09)	06:55 16:35 16:36
25	05:48 20:23	06:18 19:44	06:48 18:53	08:26 (WTG 10) 09:26 (WTG 10)	34 06:20 34 17:06	34 07:45 (WTG 09) 34 08:19 (WTG 09)	06:57 16:35 16:36
26	05:49 20:22	06:19 19:42	06:49 18:51	08:25 (WTG 10) 09:26 (WTG 10)	32 06:21 32 17:04	32 07:47 (WTG 09) 32 08:19 (WTG 09)	06:58 16:34 16:37
27	05:50 20:21	06:20 19:41	06:50 18:49	08:24 (WTG 10) 09:27 (WTG 10)	30 06:23 30 17:03	30 07:49 (WTG 09) 30 08:19 (WTG 09)	06:59 16:34 16:37
28	05:51 20:20	06:21 19:39	06:51 18:48	08:23 (WTG 10) 09:27 (WTG 10)	27 06:24 27 17:02	27 07:51 (WTG 09) 27 08:18 (WTG 09)	07:00 16:33 16:38
29	05:52 20:19	06:22 19:38	06:53 18:46	08:23 (WTG 10) 09:27 (WTG 10)	26 06:25 26 17:00	26 07:52 (WTG 09) 26 08:18 (WTG 09)	07:01 16:33 16:39
30	05:52 20:18	06:23 19:36	06:54 18:44	08:22 (WTG 10) 09:27 (WTG 10)	24 06:26 24 16:59	24 07:53 (WTG 09) 24 08:17 (WTG 09)	07:02 16:33 16:40
31	05:53 20:17	06:24 19:35		06:27 16:58	22 07:55 (WTG 09) 22 08:17 (WTG 09)		07:23 16:40
Potential sun hours	458	427	375	345	298	289	
Total, worst case			936	1517	76		

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: G - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (46)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:58	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:31	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	06:57 17:30	06:16 18:02	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	06:54 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	06:45 16:42	07:16 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
23	07:17 17:04	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
24	07:17 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:05	06:56 16:35	07:21 16:36
26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:17	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:32	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:34		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: H - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (47)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:24 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:59	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:31	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	06:57 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	06:54 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:39 19:10	07:09 18:20	06:45 16:42	07:16 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:12	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
23	07:18 17:04	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
24	07:17 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:05	06:56 16:35	07:21 16:36
26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:33	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: I - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (48)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:24 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	06:31 16:54	07:05 16:32
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Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: J - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (49)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: K - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (50)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:33	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: L - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (51)
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	07:23	16:03 (WTG 10)	07:10	06:35	06:44	05:59	05:30	05:31	05:54	06:25	06:54	06:28	07:03			
	16:41	8	16:11 (WTG 10)	17:15	17:49	19:23	19:54	20:24	20:34	20:16	19:33	18:43	16:56	16:32		
2	07:23	16:04 (WTG 10)	07:09	06:33	06:42	05:57	05:30	05:31	05:55	06:26	06:55	06:30	07:04			
	16:42	8	16:12 (WTG 10)	17:16	17:50	19:24	19:55	20:24	20:34	20:15	19:31	18:41	16:55	16:32		
3	07:24	16:04 (WTG 10)	07:08	06:32	06:41	05:56	05:29	05:32	05:56	06:27	06:56	06:31	07:05	15:57 (WTG 10)		
	16:43	9	16:13 (WTG 10)	17:18	17:51	19:25	19:56	20:25	20:34	20:14	19:30	18:39	16:54	16:32	5	16:02 (WTG 10)
4	07:24	16:05 (WTG 10)	07:07	06:30	06:39	05:55	05:29	05:32	05:57	06:28	06:58	06:32	07:06	15:55 (WTG 10)		
	16:44	9	16:14 (WTG 10)	17:19	17:52	19:26	19:57	20:26	20:34	20:12	19:28	18:38	16:53	16:31	8	16:03 (WTG 10)
5	07:24	16:07 (WTG 10)	07:06	06:28	06:38	05:54	05:28	05:33	05:58	06:29	06:59	06:33	07:07	15:54 (WTG 10)		
	16:45	8	16:15 (WTG 10)	17:20	17:54	19:27	19:58	20:26	20:34	20:11	19:26	18:36	16:52	16:31	9	16:03 (WTG 10)
6	07:24	16:08 (WTG 10)	07:05	06:27	06:36	05:52	05:28	05:33	05:59	06:30	07:00	06:34	07:08	15:54 (WTG 10)		
	16:46	8	16:16 (WTG 10)	17:21	17:55	19:28	20:00	20:27	20:34	20:10	19:25	18:34	16:50	16:31	9	16:03 (WTG 10)
7	07:24	16:08 (WTG 10)	07:04	06:25	06:34	05:51	05:28	05:34	06:00	06:31	07:01	06:35	07:09	15:53 (WTG 10)		
	16:47	9	16:17 (WTG 10)	17:23	17:56	19:29	20:01	20:28	20:33	20:09	19:23	18:33	16:49	16:31	8	16:01 (WTG 10)
8	07:23	16:10 (WTG 10)	07:03	06:24	06:33	05:50	05:28	05:34	06:01	06:32	07:02	06:37	07:10	15:53 (WTG 10)		
	16:48	8	16:18 (WTG 10)	17:24	17:57	19:30	20:02	20:28	20:33	20:08	19:21	18:31	16:48	16:31	8	16:01 (WTG 10)
9	07:23	16:13 (WTG 10)	07:02	06:22	06:31	05:49	05:27	05:35	06:02	06:33	07:03	06:38	07:11	15:53 (WTG 10)		
	16:49	5	16:18 (WTG 10)	17:25	17:58	19:31	20:03	20:29	20:33	20:06	19:20	18:30	16:47	16:31	8	16:01 (WTG 10)
10	07:23		07:01	06:20	06:30	05:48	05:27	05:36	06:03	06:34	07:04	06:39	07:12	15:53 (WTG 10)		
	16:50		17:26	17:59	19:32	20:04	20:29	20:32	20:05	19:18	18:28	16:46	16:31	8	16:01 (WTG 10)	
11	07:23	06:59	06:19	06:28	05:47	05:27	05:36	06:04	06:35	07:05	06:40	07:12	15:53 (WTG 10)			
	16:51		17:28	18:00	19:33	20:05	20:30	20:32	20:04	19:16	18:26	16:45	16:31	8	16:01 (WTG 10)	
12	07:23	06:58	06:17	06:26	05:46	05:27	05:37	06:05	06:36	07:06	06:41	07:13	15:53 (WTG 10)			
	16:52		17:29	18:01	19:34	20:06	20:31	20:31	20:03	19:15	18:25	16:44	16:31	9	16:02 (WTG 10)	
13	07:22	06:57	06:16	06:25	05:45	05:27	05:38	06:06	06:37	07:07	06:43	07:14	15:54 (WTG 10)			
	16:53		17:30	18:02	19:35	20:07	20:31	20:31	20:01	19:13	18:23	16:43	16:31	8	16:02 (WTG 10)	
14	07:22	06:56	06:14	06:23	05:44	05:27	05:39	06:07	06:38	07:08	06:44	07:15	15:54 (WTG 10)			
	16:54		17:31	18:04	19:36	20:08	20:31	20:30	20:00	19:11	18:22	16:42	16:32	8	16:01 (WTG 10)	
15	07:22	06:54	06:12	06:22	05:43	05:27	05:39	06:08	06:38	07:09	06:45	07:16	15:54 (WTG 10)			
	16:55		17:33	18:05	19:38	20:09	20:32	20:30	19:58	19:10	18:20	16:42	16:32	8	16:02 (WTG 10)	
16	07:21	06:53	06:11	06:20	05:42	05:27	05:40	06:09	06:39	07:10	06:46	07:16	15:54 (WTG 10)			
	16:56		17:34	18:06	19:39	20:10	20:32	20:29	19:57	19:08	18:19	16:41	16:32	8	16:02 (WTG 10)	
17	07:21	06:52	06:09	06:19	05:41	05:27	05:41	06:10	06:40	07:11	06:47	07:17	15:54 (WTG 10)			
	16:57		17:35	18:07	19:40	20:11	20:33	20:29	19:56	19:06	18:17	16:40	16:32	8	16:02 (WTG 10)	
18	07:20	06:50	06:07	06:17	05:40	05:27	05:42	06:11	06:41	07:12	06:48	07:18	15:55 (WTG 10)			
	16:58		17:36	18:08	19:41	20:12	20:33	20:28	19:54	19:05	18:16	16:39	16:33	8	16:03 (WTG 10)	
19	07:20	06:49	06:06	06:16	05:39	05:27	05:43	06:12	06:42	07:14	06:50	07:18	15:56 (WTG 10)			
	17:00		17:37	18:09	19:42	20:12	20:33	20:27	19:53	19:03	18:14	16:38	16:33	7	16:03 (WTG 10)	
20	07:19	06:48	06:04	06:14	05:38	05:27	05:43	06:13	06:43	07:15	06:51	07:19	15:56 (WTG 10)			
	17:01		17:39	18:10	19:43	20:13	20:34	20:27	19:51	19:01	18:13	16:38	16:33	7	16:03 (WTG 10)	
21	07:19	06:46	06:02	06:13	05:37	05:27	05:44	06:14	06:44	07:16	06:52	07:19	15:56 (WTG 10)			
	17:02		17:40	18:11	19:44	20:14	20:34	20:26	19:50	19:00	18:11	16:37	16:34	8	16:04 (WTG 10)	
22	07:18	06:45	06:01	06:11	05:36	05:27	05:45	06:15	06:45	07:17	06:53	07:20	15:56 (WTG 10)			
	17:03		17:41	18:12	19:45	20:15	20:34	20:25	19:48	18:58	18:10	16:36	16:34	8	16:04 (WTG 10)	
23	07:17	06:43	05:59	06:10	05:36	05:28	05:46	06:16	06:46	07:18	06:54	07:20	15:57 (WTG 10)			
	17:04		17:42	18:13	19:46	20:16	20:34	20:24	19:47	18:56	18:08	16:36	16:35	8	16:05 (WTG 10)	
24	07:17	06:42	05:57	06:08	05:35	05:28	05:47	06:17	06:47	07:19	06:55	07:21	15:58 (WTG 10)			
	17:05		17:43	18:14	19:47	20:17	20:34	20:23	19:45	18:54	18:07	16:35	16:35	7	16:05 (WTG 10)	
25	07:16	06:41	05:56	06:07	05:34	05:28	05:48	06:18	06:48	07:20	06:56	07:21	15:58 (WTG 10)			
	17:07		17:44	18:15	19:48	20:18	20:34	20:23	19:44	18:53	17:05	16:35	16:36	7	16:05 (WTG 10)	
26	07:15	06:39	05:54	06:05	05:33	05:29	05:49	06:19	06:49	07:21	06:58	07:22	15:59 (WTG 10)			
	17:08		17:46	18:16	19:49	20:19	20:35	20:22	19:42	18:51	17:04	16:34	16:37	8	16:07 (WTG 10)	
27	07:15	06:38	05:52	06:04	05:33	05:29	05:50	06:20	06:50	07:22	06:59	07:22	15:59 (WTG 10)			
	17:09		17:47	18:18	19:50	20:20	20:35	20:21	19:41	18:49	17:03	16:34	16:37	8	16:07 (WTG 10)	
28	07:14	06:36	05:51	06:03	05:32	05:29	05:51	06:21	06:51	07:23	07:00	07:22	16:00 (WTG 10)			
	17:10		17:48	18:19	19:51	20:20	20:35	20:20	19:39	18:48	17:01	16:33	16:38	8	16:08 (WTG 10)	
29	07:13		06:49	06:01	05:32	05:30	05:51	06:22	06:52	07:24	07:01	07:23	16:00 (WTG 10)			
	17:12		19:20	19:52	20:21	20:35	20:19	19:38	18:46	17:00	16:33	16:39	8	16:08 (WTG 10)		
30	07:12		06:47	06:00	05:31	05:30	05:52	06:23	06:53	07:25	07:02	07:23	16:01 (WTG 10)			
	17:13		19:21	19:53	20:22	20:35	20:18	19:36	18:44	16:59	16:32	16:39	9	16:10 (WTG 10)		
31	07:11		06:46		05:31		05:53	06:24		06:27		07:23	16:02 (WTG 10)			
	17:14		19:22		20:23		20:17	19:35		16:58		16:40	8	16:10 (WTG 10)		
Potential sun hours	298		297	369	398	448	452	458	427	375	345	298	289		229	
Total, worst case		72														

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: M - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (52)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:35	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:24 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:57 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:59	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:31	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	06:57 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	06:54 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:39 19:10	07:09 18:20	06:45 16:42	07:16 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:12	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
23	07:18 17:04	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
24	07:17 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:05	06:56 16:35	07:21 16:36
26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:32	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	428	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: N - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (53)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:35	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:24 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:30 16:55	07:04 16:32
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Potential sun hours	298	297	369	398	448	452	458	428	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: O - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (54)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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Potential sun hours	298	297	369	398	448	452	458	428	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: P - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (55)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:05	06:56 16:35	07:21 16:36
26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:32	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	428	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: Q - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (56)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:24 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:58	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:31	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	06:57 17:30	06:16 18:02	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	06:54 17:33	06:12 18:05	06:22 19:38	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	06:45 16:42	07:16 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:12	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
23	07:18 17:04	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
24	07:17 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:23	06:18 19:44	06:48 18:53	07:20 17:05	06:56 16:35	07:21 16:36
26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:18	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:12		06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:32	07:23 16:39
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:35		06:27 16:58		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	428	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: R - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (57)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:29 16:55	5 07:50 (WTG 03) 07:47 (WTG 03) 16:32
3	07:24 16:43	07:08 17:18	06:31 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	06:31 16:54	3 07:50 (WTG 03) 07:48 (WTG 03) 16:32
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	2 07:48 (WTG 03) 07:49 (WTG 03) 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:58	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	1 07:50 (WTG 03) 07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:23 16:48	08:04 (WTG 03) 08:05 (WTG 03)	07:03 17:24	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	08:04 (WTG 03) 08:06 (WTG 03)	07:02 17:25	06:32 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	08:04 (WTG 03) 08:07 (WTG 03)	07:01 17:26	06:29 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	08:03 (WTG 03) 08:08 (WTG 03)	06:59 17:28	06:28 18:00	05:47 20:05	05:27 20:30	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	08:03 (WTG 03) 08:09 (WTG 03)	06:58 17:29	06:17 19:34	05:46 20:06	05:27 20:30	05:37 20:31	06:05 20:02	06:36 19:15	07:06 18:25	06:41 16:44	9 07:31 (WTG 03) 07:13 16:31
13	07:22 16:53	08:03 (WTG 03) 08:10 (WTG 03)	06:57 17:30	06:16 18:02	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	13 07:29 (WTG 03) 07:14 16:31
14	07:22 16:54	08:02 (WTG 03) 08:10 (WTG 03)	06:56 17:31	06:14 18:04	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:37 19:11	07:08 18:22	06:44 16:42	16 07:27 (WTG 03) 07:15 16:32
15	07:22 16:55	08:02 (WTG 03) 08:11 (WTG 03)	06:54 17:32	06:12 18:05	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	06:45 16:42	17 07:27 (WTG 03) 07:16 16:32
16	07:21 16:56	08:02 (WTG 03) 08:11 (WTG 03)	06:53 17:34	06:11 18:06	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:19	06:46 16:41	17 07:29 (WTG 03) 07:16 16:32
17	07:21 16:57	08:02 (WTG 03) 08:12 (WTG 03)	06:52 17:35	06:09 18:07	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	16 07:30 (WTG 03) 07:17 16:32
18	07:20 16:58	08:01 (WTG 03) 08:12 (WTG 03)	06:50 17:36	06:07 18:08	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	16 07:31 (WTG 03) 07:18 16:33
19	07:20 16:59	08:01 (WTG 03) 08:13 (WTG 03)	06:49 17:37	06:06 18:09	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:13 18:14	06:50 16:38	15 07:32 (WTG 03) 07:18 16:33
20	07:19 17:01	08:00 (WTG 03) 08:13 (WTG 03)	06:48 17:39	06:04 18:10	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	15 07:34 (WTG 03) 07:19 16:33
21	07:19 17:02	07:59 (WTG 03) 08:13 (WTG 03)	06:46 17:40	06:02 18:11	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	06:52 16:37	14 07:35 (WTG 03) 07:19 16:34
22	07:18 17:03	07:59 (WTG 03) 08:14 (WTG 03)	06:45 17:41	06:01 18:12	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	13 07:36 (WTG 03) 07:20 16:34
23	07:17 17:04	07:58 (WTG 03) 08:13 (WTG 03)	06:43 17:42	05:59 18:13	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	12 07:37 (WTG 03) 07:20 16:35
24	07:17 17:05	07:57 (WTG 03) 08:13 (WTG 03)	06:42 17:43	05:57 18:14	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	11 07:39 (WTG 03) 07:21 16:35
25	07:16 17:07	07:56 (WTG 03) 08:12 (WTG 03)	06:41 17:44	05:56 18:15	05:34 20:18	05:28 20:34	05:48 20:22	06:18 19:44	06:48 18:53	07:20 17:05	06:56 16:35	10 07:40 (WTG 03) 07:22 16:36
26	07:15 17:08	07:56 (WTG 03) 08:13 (WTG 03)	06:39 17:46	05:54 18:16	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34	9 07:41 (WTG 03) 07:22 16:37
27	07:15 17:09	07:55 (WTG 03) 08:12 (WTG 03)	06:38 17:47	05:52 18:17	05:32 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34	9 07:41 (WTG 03) 07:22 16:37
28	07:14 17:10	07:55 (WTG 03) 08:11 (WTG 03)	06:36 17:48	05:51 18:19	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	8 07:42 (WTG 03) 07:22 16:38
29	07:13 17:12	07:57 (WTG 03) 08:10 (WTG 03)	06:35 17:49	05:50 18:20	05:31 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	7 07:43 (WTG 03) 07:23 16:39
30	07:12 17:13	07:59 (WTG 03) 08:08 (WTG 03)	06:34 17:50	05:49 18:21	05:30 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:32	6 07:44 (WTG 03) 07:23 16:39
31	07:11 17:14	08:00 (WTG 03)	06:33 17:51	05:48 18:22	05:29 20:23	05:30 20:35	05:53 20:17	06:24 19:34	06:54 18:43	07:26 16:58	07:03 16:31	5 07:45 (WTG 03) 07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case	244										233	11

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: S - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (58)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:29 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:31 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:57 18:38	06:32 16:53	07:06 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:58	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 19:59	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	08:06 (WTG 03) 08:07 (WTG 03)	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49
8	07:23 16:48	08:06 (WTG 03) 08:08 (WTG 03)	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48
9	07:23 16:49	08:06 (WTG 03) 08:09 (WTG 03)	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47
10	07:23 16:50	08:06 (WTG 03) 08:10 (WTG 03)	07:01 17:26	06:20 17:59	06:29 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46
11	07:23 16:51	08:05 (WTG 03) 08:10 (WTG 03)	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45
12	07:23 16:52	08:05 (WTG 03) 08:11 (WTG 03)	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:30	05:37 20:31	06:05 20:02	06:36 19:15	07:06 18:25	06:41 16:44
13	07:22 16:53	08:05 (WTG 03) 08:12 (WTG 03)	06:57 17:30	06:16 18:02	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43
14	07:22 16:54	08:04 (WTG 03) 08:12 (WTG 03)	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:30	05:39 20:30	06:07 20:00	06:37 19:11	07:08 18:22	06:44 16:42
15	07:22 16:55	08:05 (WTG 03) 08:13 (WTG 03)	06:54 17:32	06:12 18:05	06:22 19:37	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:38 18:20	07:09 18:20	06:45 16:42
16	07:21 16:56	08:04 (WTG 03) 08:13 (WTG 03)	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:39 18:19	07:10 18:19	06:46 16:41
17	07:21 16:57	08:03 (WTG 03) 08:14 (WTG 03)	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40
18	07:20 16:58	08:02 (WTG 03) 08:14 (WTG 03)	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39
19	07:20 16:59	08:02 (WTG 03) 08:15 (WTG 03)	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:13 18:14	06:50 16:38
20	07:19 17:01	08:01 (WTG 03) 08:15 (WTG 03)	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38
21	07:19 17:02	08:01 (WTG 03) 08:14 (WTG 03)	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	06:52 16:37
22	07:18 17:03	08:01 (WTG 03) 08:15 (WTG 03)	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36
23	07:17 17:04	08:00 (WTG 03) 08:15 (WTG 03)	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36
24	07:17 17:05	07:59 (WTG 03) 08:14 (WTG 03)	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35
25	07:16 17:07	07:58 (WTG 03) 08:14 (WTG 03)	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:22	06:18 19:44	06:48 18:53	07:20 17:05	06:56 16:35
26	07:15 17:08	07:58 (WTG 03) 08:14 (WTG 03)	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:58 16:34
27	07:15 17:09	07:57 (WTG 03) 08:13 (WTG 03)	06:38 17:47	05:52 18:17	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:59 16:34
28	07:14 17:10	07:58 (WTG 03) 08:12 (WTG 03)	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33
29	07:13 17:12	08:00 (WTG 03) 08:10 (WTG 03)	06:35 17:49	06:01 19:20	05:32 19:52	05:30 20:21	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33
30	07:12 17:13	08:04 (WTG 03) 08:06 (WTG 03)	06:34 17:50	06:00 19:21	05:31 19:53	05:30 20:22	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:32
31	07:11 17:14	08:06 (WTG 03)	06:33 17:51	06:00 19:22	05:31 19:54	05:31 20:23	05:31 20:36	05:53 20:17	06:24 19:34	06:54 18:44	07:26 16:58	07:03 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case	234										222	15

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: T - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (59)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:30 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:32 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:14	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:31
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:58	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 20:00	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31
11	07:23 16:51	16:07 (WTG 09) 16:08 (WTG 09)	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:32 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	16:08 (WTG 09) 16:09 (WTG 09)	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:30	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	16:09 (WTG 09) 16:11 (WTG 09)	06:16 18:02	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:43 16:43	07:14 16:31
14	07:22 16:54	16:10 (WTG 09) 16:11 (WTG 09)	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	16:11 (WTG 09) 16:13 (WTG 09)	06:12 18:05	06:22 19:37	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	06:45 16:42	07:16 16:32
16	07:21 16:56	16:12 (WTG 09) 16:14 (WTG 09)	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:39 18:19	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	16:14 (WTG 09) 16:16 (WTG 09)	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	16:15 (WTG 09) 16:16 (WTG 09)	06:07 18:08	06:17 19:41	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:18 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
23	07:17 17:04	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
24	07:17 17:05	06:42 17:43	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	06:55 16:35	07:21 16:35
25	07:16 17:07	06:41 17:44	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	05:48 20:23	06:18 19:44	06:48 18:53	07:15 18:05	06:56 16:35	07:21 16:36
26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:35	05:49 20:22	06:19 19:42	06:49 18:51	07:14 18:04	06:58 16:34	07:22 16:37
27	07:15 17:09	06:38 17:47	05:52 18:17	06:04 19:50	05:33 20:20	05:29 20:35	05:50 20:21	06:20 19:41	06:50 18:49	07:13 18:03	06:59 16:34	07:22 16:37
28	07:14 17:10	06:36 17:48	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	05:51 20:20	06:21 19:39	06:51 18:48	07:11 18:01	07:00 16:33	07:22 16:38
29	07:13 17:12	06:35 19:20	05:49 19:52	06:01 20:21	05:32 20:25	05:30 20:35	05:51 20:19	06:22 19:38	06:52 18:46	07:01 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13	06:47 19:21	06:00 19:53	06:00 20:22	05:31 20:25	05:30 20:35	05:52 20:18	06:23 19:36	06:53 18:44	07:02 16:59	07:02 16:32	07:23 16:39
31	07:11 17:14	06:46 19:22	06:00 19:53	06:00 20:23	05:31 20:23	05:30 20:35	05:53 20:17	06:24 19:34	06:54 18:44	07:02 16:58	07:02 16:58	07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case	12										10	1

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: U - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (60)
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	07:23 16:41	07:10 17:15	16:42 (WTG 09) 16:51 (WTG 09)	06:35 17:49	17:19 (WTG 10) 17:26 (WTG 10)	06:44 19:23	05:59 19:54	05:30 20:24
2	07:23 16:42	07:09 17:16	16:41 (WTG 09) 16:53 (WTG 09)	06:33 17:50	17:20 (WTG 10) 17:28 (WTG 10)	06:42 19:24	05:57 19:55	05:30 20:24
3	07:24 16:43	07:08 17:18	16:41 (WTG 09) 16:54 (WTG 09)	06:31 17:51	17:21 (WTG 10) 17:28 (WTG 10)	06:41 19:25	05:56 19:56	05:29 20:25
4	07:24 16:44	07:07 17:19	16:41 (WTG 09) 16:55 (WTG 09)	06:30 17:52	17:23 (WTG 10) 17:30 (WTG 10)	06:39 19:26	05:55 19:57	05:29 20:26
5	07:24 16:45	07:06 17:20	16:41 (WTG 09) 16:57 (WTG 09)	06:28 17:54	17:25 (WTG 10) 17:30 (WTG 10)	06:38 19:27	05:54 19:58	05:28 20:26
6	07:24 16:46	07:05 17:21	16:42 (WTG 09) 16:58 (WTG 09)	06:27 17:55	17:30 (WTG 10)	06:36 19:28	05:52 20:00	05:28 20:27
7	07:24 16:47	07:04 17:23	16:42 (WTG 09) 17:00 (WTG 09)	06:25 17:56	17:30 (WTG 10)	06:34 19:29	05:51 20:01	05:28 20:28
8	07:23 16:48	07:03 17:24	16:42 (WTG 09) 17:01 (WTG 09)	06:24 17:57	17:30 (WTG 10)	06:33 19:30	05:50 20:02	05:28 20:28
9	07:23 16:49	07:02 17:25	16:42 (WTG 09) 17:02 (WTG 09)	06:22 17:58	17:30 (WTG 10)	06:31 19:31	05:49 20:03	05:27 20:29
10	07:23 16:50	07:01 17:26	16:43 (WTG 09) 17:03 (WTG 09)	06:20 17:59	17:30 (WTG 10)	06:30 19:32	05:48 20:04	05:27 20:29
11	07:23 16:51	06:59 17:28	16:44 (WTG 09) 17:05 (WTG 09)	06:19 18:00	17:30 (WTG 10)	06:28 19:33	05:47 20:05	05:27 20:30
12	07:23 16:52	06:58 17:29	16:45 (WTG 09) 17:07 (WTG 09)	06:17 18:01	17:30 (WTG 10)	06:26 19:34	05:46 20:06	05:27 20:30
13	07:22 16:53	06:57 17:30	16:45 (WTG 09) 17:07 (WTG 09)	06:16 18:02	17:30 (WTG 10)	06:25 19:35	05:45 20:07	05:27 20:31
14	07:22 16:54	06:56 17:31	16:47 (WTG 09) 17:05 (WTG 09)	06:14 18:04	17:30 (WTG 10)	06:23 19:36	05:44 20:08	05:27 20:31
15	07:22 16:55	06:54 17:33	16:49 (WTG 09) 17:04 (WTG 09)	06:12 18:05	17:30 (WTG 10)	06:22 19:37	05:43 20:09	05:27 20:32
16	07:21 16:56	06:53 17:34	16:52 (WTG 09) 17:00 (WTG 09)	06:11 18:06	17:30 (WTG 10)	06:20 19:39	05:42 20:10	05:27 20:32
17	07:21 16:57	06:52 17:35	17:00 (WTG 09)	06:09 18:07	17:30 (WTG 10)	06:19 19:40	05:41 20:11	05:27 20:33
18	07:20 16:58	06:50 17:36	17:00 (WTG 09)	06:07 18:08	17:30 (WTG 10)	06:17 19:41	05:40 20:11	05:27 20:33
19	07:20 17:00	06:49 17:37	17:00 (WTG 09)	06:06 18:09	17:30 (WTG 10)	06:16 19:42	05:39 20:12	05:27 20:33
20	07:19 17:01	06:48 17:39	17:00 (WTG 09)	06:04 18:10	17:30 (WTG 10)	06:14 19:43	05:38 20:13	05:27 20:34
21	07:19 17:02	06:46 17:40	17:00 (WTG 09)	06:02 18:11	17:30 (WTG 10)	06:13 19:44	05:37 20:14	05:27 20:34
22	07:18 17:03	06:45 17:41	17:00 (WTG 09)	06:01 18:12	17:30 (WTG 10)	06:11 19:45	05:36 20:15	05:27 20:34
23	07:17 17:04	06:43 17:42	17:20 (WTG 10)	05:59 18:13	17:30 (WTG 10)	06:10 19:46	05:36 20:16	05:28 20:34
24	07:17 17:05	06:42 17:43	17:19 (WTG 10)	05:57 18:14	17:30 (WTG 10)	06:08 19:47	05:35 20:17	05:28 20:34
25	07:16 17:07	06:41 17:44	17:19 (WTG 10)	05:56 18:15	17:30 (WTG 10)	06:07 19:48	05:34 20:18	05:28 20:34
26	07:15 17:08	06:39 17:46	17:19 (WTG 10)	05:54 18:16	17:30 (WTG 10)	06:05 19:49	05:33 20:19	05:29 20:35
27	07:15 17:09	06:38 17:47	17:19 (WTG 10)	05:52 18:17	17:30 (WTG 10)	06:04 19:50	05:33 20:20	05:29 20:35
28	07:14 17:10	06:36 17:48	17:19 (WTG 10)	05:51 18:19	17:30 (WTG 10)	06:03 19:51	05:32 20:20	05:29 20:35
29	07:13 17:12	2 16:44 (WTG 09) 16:43 (WTG 09)	17:26 (WTG 10)	06:49 19:20	17:30 (WTG 10)	06:01 19:52	05:32 20:21	05:30 20:35
30	07:12 17:13	4 16:47 (WTG 09) 16:43 (WTG 09)	17:26 (WTG 10)	06:47 19:21	17:30 (WTG 10)	06:00 19:53	05:31 20:22	05:30 20:35
31	07:11 17:14	6 16:49 (WTG 09) 16:42 (WTG 09)	17:26 (WTG 10)	06:46 19:22	17:30 (WTG 10)	05:31 20:23	05:31 20:23	05:30 20:35
Potential sun hours	298	297	369	398	448	452		
Total, worst case	20	290	34					

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: U - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (60)
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	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43		06:28 16:56		16:12 (WTG 09) 16:32
2	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41		06:30 16:55	21	16:12 (WTG 09) 16:32
3	05:32 20:34	05:56 20:14	06:27 19:30	06:56 18:39		06:31 16:54	19	16:11 (WTG 09) 16:30 (WTG 09)
4	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38		06:32 16:53	17	16:12 (WTG 09) 16:29 (WTG 09)
5	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36		06:33 16:52	17	16:11 (WTG 09) 16:28 (WTG 09)
6	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34		06:34 16:50	16	16:11 (WTG 09) 16:27 (WTG 09)
7	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33		06:35 16:49	14	16:11 (WTG 09) 16:25 (WTG 09)
8	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	3	18:03 (WTG 10) 18:06 (WTG 10)	13	16:12 (WTG 09) 16:25 (WTG 09)
9	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	6	17:59 (WTG 10) 18:05 (WTG 10)	11	16:12 (WTG 09) 16:23 (WTG 09)
10	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	7	17:56 (WTG 10) 18:03 (WTG 10)	9	16:13 (WTG 09) 16:22 (WTG 09)
11	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	7	17:55 (WTG 10) 18:02 (WTG 10)	8	16:13 (WTG 09) 16:21 (WTG 09)
12	05:37 20:31	06:05 20:03	06:36 19:15	07:06 18:25	8	17:53 (WTG 10) 18:01 (WTG 10)	6	16:15 (WTG 09) 16:21 (WTG 09)
13	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	7	17:52 (WTG 10) 17:59 (WTG 10)	4	16:15 (WTG 09) 16:19 (WTG 09)
14	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	7	17:51 (WTG 10) 17:58 (WTG 10)	2	16:16 (WTG 09) 16:32
15	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	6	17:51 (WTG 10) 17:57 (WTG 10)		16:45 16:42
16	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:19	5	17:51 (WTG 10) 17:56 (WTG 10)		16:46 16:41
17	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	3	17:51 (WTG 10) 17:54 (WTG 10)		16:47 16:40
18	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	2	17:51 (WTG 10) 17:53 (WTG 10)		16:48 16:39
19	05:43 20:27	06:12 19:53	06:42 19:03	07:14 18:14		06:50 16:38		16:38 16:33
20	05:43 20:27	06:13 19:51	06:43 19:01	07:15 18:13		06:51 16:38		16:38 16:33
21	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11		06:52 16:37		16:38 16:34
22	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10		06:53 16:36		16:38 16:34
23	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08		06:54 16:36		16:38 16:35
24	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07		06:55 16:35		16:38 16:35
25	05:48 20:22	06:18 19:44	06:48 18:53	06:20 17:05		06:56 16:35		16:38 16:35
26	05:49 20:22	06:19 19:42	06:49 18:51	06:21 17:04	9	16:21 (WTG 09) 16:30 (WTG 09)		06:58 16:34
27	05:50 20:21	06:20 19:41	06:50 18:49	06:23 17:03	15	16:19 (WTG 09) 16:34 (WTG 09)		06:59 16:34
28	05:51 20:20	06:21 19:39	06:51 18:48	06:24 17:01	20	16:16 (WTG 09) 16:36 (WTG 09)		07:00 16:33
29	05:51 20:19	06:22 19:38	06:52 18:46	06:25 17:00	22	16:15 (WTG 09) 16:37 (WTG 09)		07:01 16:33
30	05:52 20:18	06:23 19:36	06:53 18:44	06:26 16:59	22	16:13 (WTG 09) 16:35 (WTG 09)		07:02 16:32
31	05:53 20:17	06:24 19:34		06:27 16:58	21	16:13 (WTG 09) 16:34 (WTG 09)		07:23 16:40
Potential sun hours	458	427	375	345		298		289
Total, worst case				170		176		

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: V - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (61)
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	07:23 16:41	07:10 17:15	06:35 17:49	17:26 (WTG 10) 17:27 (WTG 10)	06:44 19:23	05:59 19:54
2	07:23 16:42	07:09 17:16	06:33 17:50	17:26 (WTG 10) 17:29 (WTG 10)	06:42 19:24	05:57 19:55
3	07:24 16:43	07:08 17:18	06:32 17:51	17:25 (WTG 10) 17:30 (WTG 10)	06:41 19:25	05:56 19:56
4	07:24 16:44	07:07 17:19	16:53 (WTG 09) 16:55 (WTG 09)	06:30 17:52	17:25 (WTG 10) 17:31 (WTG 10)	06:39 19:26
5	07:24 16:45	07:06 17:20	16:52 (WTG 09) 16:57 (WTG 09)	06:28 17:54	17:25 (WTG 10) 17:32 (WTG 10)	06:38 19:27
6	07:24 16:46	07:05 17:21	16:51 (WTG 09) 16:58 (WTG 09)	06:27 17:55	17:25 (WTG 10) 17:34 (WTG 10)	06:36 19:28
7	07:24 16:47	07:04 17:23	16:50 (WTG 09) 17:00 (WTG 09)	06:25 17:56	17:25 (WTG 10) 17:35 (WTG 10)	06:34 19:29
8	07:23 16:48	07:03 17:24	16:50 (WTG 09) 17:01 (WTG 09)	06:24 17:57	17:25 (WTG 10) 17:36 (WTG 10)	06:33 19:30
9	07:23 16:49	07:02 17:25	16:49 (WTG 09) 17:02 (WTG 09)	06:22 17:58	17:26 (WTG 10) 17:37 (WTG 10)	06:31 19:31
10	07:23 16:50	07:01 17:26	16:48 (WTG 09) 17:03 (WTG 09)	06:20 17:59	17:27 (WTG 10) 17:38 (WTG 10)	06:30 19:32
11	07:23 16:51	06:59 17:28	16:48 (WTG 09) 17:05 (WTG 09)	06:19 18:00	17:28 (WTG 10) 17:40 (WTG 10)	06:28 19:33
12	07:23 16:52	06:58 17:29	16:48 (WTG 09) 17:07 (WTG 09)	06:17 18:01	17:30 (WTG 10) 17:41 (WTG 10)	06:26 19:34
13	07:22 16:53	06:57 17:30	16:48 (WTG 09) 17:07 (WTG 09)	06:16 18:02	17:34 (WTG 10) 17:39 (WTG 10)	06:25 19:35
14	07:22 16:54	06:56 17:31	16:48 (WTG 09) 17:09 (WTG 09)	06:14 18:04	17:39 (WTG 10) 19:36	06:23 20:08
15	07:22 16:55	06:54 17:33	16:48 (WTG 09) 17:10 (WTG 09)	06:12 18:05	19:37	06:22 20:09
16	07:21 16:56	06:53 17:34	16:48 (WTG 09) 17:11 (WTG 09)	06:11 18:06	19:39	06:20 20:10
17	07:21 16:57	06:52 17:35	16:49 (WTG 09) 17:13 (WTG 09)	06:09 18:07	19:40	06:19 20:11
18	07:20 16:58	06:50 17:36	16:50 (WTG 09) 17:14 (WTG 09)	06:07 18:08	19:41	06:17 20:11
19	07:20 17:00	06:49 17:37	16:50 (WTG 09) 17:15 (WTG 09)	06:06 18:09	19:42	06:16 20:12
20	07:19 17:01	06:48 17:39	16:51 (WTG 09) 17:15 (WTG 09)	06:04 18:10	19:43	06:14 20:13
21	07:19 17:02	06:46 17:40	16:52 (WTG 09) 17:13 (WTG 09)	06:02 18:11	19:44	06:13 20:14
22	07:18 17:03	06:45 17:41	16:54 (WTG 09) 17:12 (WTG 09)	06:01 18:12	19:45	06:11 20:15
23	07:17 17:04	06:43 17:42	16:57 (WTG 09) 17:10 (WTG 09)	05:59 18:13	19:46	06:10 20:16
24	07:17 17:05	06:42 17:43	05:57 18:14	05:57 18:14	19:47	06:08 20:17
25	07:16 17:07	06:41 17:44	05:56 18:15	05:56 18:15	19:48	06:07 20:18
26	07:15 17:08	06:39 17:46	05:54 18:16	05:54 18:16	19:49	06:05 20:19
27	07:15 17:09	06:38 17:47	05:52 18:17	05:52 18:17	19:50	06:04 20:20
28	07:14 17:10	06:36 17:48	05:51 18:19	05:51 18:19	19:51	06:03 20:20
29	07:13 17:12		06:49 19:20	06:49 19:20	19:52	06:01 20:21
30	07:12 17:13		06:47 19:21	06:47 19:21	19:53	06:00 20:22
31	07:11 17:14		06:46 19:22	06:46 19:22		05:31 20:23
Potential sun hours	298	297	369	102	398	448
Total, worst case		333				452

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: V - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (61)
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	05:31	05:54	06:25	06:54		18:10 (WTG 10)	06:28	16:18 (WTG 09)	07:03
	20:34	20:16	19:33	18:43	10	18:20 (WTG 10)	16:56	16:33 (WTG 09)	16:32
2	05:31	05:55	06:26	06:55		18:07 (WTG 10)	06:30	16:18 (WTG 09)	07:04
	20:34	20:15	19:31	18:41	11	18:18 (WTG 10)	16:55	16:31 (WTG 09)	16:32
3	05:32	05:56	06:27	06:56		18:05 (WTG 10)	06:31	16:19 (WTG 09)	07:05
	20:34	20:14	19:30	18:39	11	18:16 (WTG 10)	16:54	16:30 (WTG 09)	16:32
4	05:32	05:57	06:28	06:58		18:04 (WTG 10)	06:32	16:20 (WTG 09)	07:06
	20:34	20:12	19:28	18:38	12	18:16 (WTG 10)	16:53	16:29 (WTG 09)	16:31
5	05:33	05:58	06:29	06:59		18:03 (WTG 10)	06:33	16:21 (WTG 09)	07:07
	20:34	20:11	19:26	18:36	11	18:14 (WTG 10)	16:52	16:28 (WTG 09)	16:31
6	05:33	05:59	06:30	07:00		18:02 (WTG 10)	06:34	16:22 (WTG 09)	07:08
	20:34	20:10	19:25	18:34	10	18:12 (WTG 10)	16:50	16:27 (WTG 09)	16:31
7	05:34	06:00	06:31	07:01		18:01 (WTG 10)	06:35	16:23 (WTG 09)	07:09
	20:33	20:09	19:23	18:33	9	18:10 (WTG 10)	16:49	16:25 (WTG 09)	16:31
8	05:34	06:01	06:32	07:02		18:00 (WTG 10)	06:37		07:10
	20:33	20:08	19:21	18:31	9	18:09 (WTG 10)	16:48		16:31
9	05:35	06:02	06:33	07:03		18:00 (WTG 10)	06:38		07:11
	20:33	20:06	19:20	18:30	7	18:07 (WTG 10)	16:47		16:31
10	05:36	06:03	06:34	07:04		18:00 (WTG 10)	06:39		07:12
	20:32	20:05	19:18	18:28	5	18:05 (WTG 10)	16:46		16:31
11	05:36	06:04	06:35	07:05		18:00 (WTG 10)	06:40		07:12
	20:32	20:04	19:16	18:26	3	18:03 (WTG 10)	16:45		16:31
12	05:37	06:05	06:36	07:06		18:00 (WTG 10)	06:41		07:13
	20:31	20:03	19:15	18:25	2	18:02 (WTG 10)	16:44		16:31
13	05:38	06:06	06:37	07:07			06:43		07:14
	20:31	20:01	19:13	18:23			16:43		16:31
14	05:39	06:07	06:38	07:08			06:44		07:15
	20:30	20:00	19:11	18:22			16:42		16:32
15	05:39	06:08	06:38	07:09			06:45		07:16
	20:30	19:58	19:10	18:20			16:42		16:32
16	05:40	06:09	06:39	07:10			06:46		07:16
	20:29	19:57	19:08	18:19			16:41		16:32
17	05:41	06:10	06:40	07:11			06:47		07:17
	20:29	19:56	19:06	18:17			16:40		16:32
18	05:42	06:11	06:41	07:12		17:30 (WTG 09)	06:48		07:18
	20:28	19:54	19:05	18:16	8	17:38 (WTG 09)	16:39		16:33
19	05:43	06:12	06:42	07:14		17:26 (WTG 09)	06:50		07:18
	20:27	19:53	19:03	18:14	15	17:41 (WTG 09)	16:38		16:33
20	05:43	06:13	06:43	07:15		17:24 (WTG 09)	06:51		07:19
	20:27	19:51	19:01	18:13	19	17:43 (WTG 09)	16:38		16:33
21	05:44	06:14	06:44	07:16		17:22 (WTG 09)	06:52		07:19
	20:26	19:50	18:59	18:11	22	17:44 (WTG 09)	16:37		16:34
22	05:45	06:15	06:45	07:17		17:21 (WTG 09)	06:53		07:20
	20:25	19:48	18:58	18:10	25	17:46 (WTG 09)	16:36		16:34
23	05:46	06:16	06:46	07:18		17:20 (WTG 09)	06:54		07:20
	20:24	19:47	18:56	18:08	25	17:45 (WTG 09)	16:36		16:35
24	05:47	06:17	06:47	07:19		17:19 (WTG 09)	06:55		07:21
	20:23	19:45	18:54	18:07	25	17:44 (WTG 09)	16:35		16:35
25	05:48	06:18	06:48	06:20		16:18 (WTG 09)	06:56		07:21
	20:22	19:44	18:53	17:05	24	16:42 (WTG 09)	16:35		16:36
26	05:49	06:19	06:49	06:21		16:18 (WTG 09)	06:58		07:22
	20:22	19:42	18:51	17:04	22	16:40 (WTG 09)	16:34		16:37
27	05:50	06:20	06:50	06:23		16:18 (WTG 09)	06:59		07:22
	20:21	19:41	18:49	17:03	22	16:40 (WTG 09)	16:34		16:37
28	05:51	06:21	06:51	06:24		16:18 (WTG 09)	07:00		07:22
	20:20	19:39	18:48	17:01	20	16:38 (WTG 09)	16:33		16:38
29	05:51	06:22	06:52	06:25		16:17 (WTG 09)	07:01		07:23
	20:19	19:38	18:46	17:00	20	16:37 (WTG 09)	16:33		16:39
30	05:52	06:23	06:53	06:26		16:17 (WTG 09)	07:02		07:23
	20:18	19:36	18:44	16:59	18	16:35 (WTG 09)	16:33		16:39
31	05:53	06:24		06:27		16:18 (WTG 09)			07:23
	20:17	19:34		16:58	16	16:34 (WTG 09)			16:40
Potential sun hours	458	427	375	345		298			289
Total, worst case				381		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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SHADOW - Calendar

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: W - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (62)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32	
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:29 16:55	07:04 16:32	
3	07:24 16:43	07:08 17:18	06:31 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32	
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:57 18:38	06:32 16:53	07:06 16:31	
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:58	05:28 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31	
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	05:52 19:59	05:28 20:27	05:33 20:34	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	07:08 16:31	
7	07:24 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:01	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31	
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31	
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:29	06:38 16:47	07:11 16:31	
10	07:23 16:50	07:01 17:26	06:20 17:59	06:29 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:12 16:31	
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31	
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:30	05:37 20:31	06:05 20:02	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31	
13	07:22 16:53	06:57 17:30	06:16 18:02	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:36 19:13	07:07 18:23	06:42 16:43	07:14 16:31	
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:43 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:37 19:11	07:08 18:22	06:44 16:42	07:15 16:32	
15	07:22 16:55	06:54 17:32	06:12 18:05	06:22 19:37	05:43 20:09	05:27 20:32	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	06:45 16:41	07:16 16:32	
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:19	06:46 16:41	07:16 16:32	
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:11	05:27 20:33	05:41 20:29	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32	
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:15	06:48 16:39	07:18 16:33	
19	07:20 16:59	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:13 18:14	06:50 16:38	07:18 16:33	3 08:22 (WTG 03)
20	07:19 17:01	06:48 17:38	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:34	05:43 20:26	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:33	5 08:26 (WTG 03)
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	06:52 16:37	07:19 16:34	5 08:27 (WTG 03)
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34	5 08:27 (WTG 03)
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26	07:15 17:08	06:39 17:46	05:54 18:16	06:05 19:49	05:33 20:19	05:28 20:35	05:49 20:22	06:19 19:42	06:49 18:51	06:21 17:04	06:58 16:34	07:22 16:37	
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31	07:11 17:14		06:46 19:22		05:30 20:23		05:53 20:17	06:24 19:34		06:27 16:58		07:23 16:40	
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289	
Total, worst case													30

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: X - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (63)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:30 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:29 16:55	07:04 16:32
3	07:24 16:43	07:08 17:18	06:31 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:31 20:34	05:56 20:13	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32
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31	07:11 17:14		06:46 19:22		05:30 20:23		05:53 20:17	06:24 19:34		06:27 16:57		07:23 16:40
Potential sun hours Total, worst case	298	297	369	398	448	452	458	427	375	345	298	289

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: Y - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (64)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:24	05:30 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:29 16:55	07:04 16:32
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Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: Z - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (65)
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

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9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:29	06:38 16:47	07:11 16:31
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31	07:11 17:14		06:46 19:22		05:30 20:23		05:53 20:17	06:24 19:34		06:27 16:57		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AA - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (66)
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	07:23 16:41	07:10 17:15	07:30 (WTG 02) 17:49	06:34 19:23	06:44 19:54	05:59 20:23	05:30 20:34	05:30 20:16	05:54 19:33	06:25 18:43	06:54 16:56	06:28 16:32
2	07:23 16:42	07:09 17:16	07:29 (WTG 02) 17:50	06:33 19:24	06:42 19:55	05:57 20:24	05:30 20:34	05:31 20:15	05:55 19:31	06:26 18:41	06:55 16:55	06:29 16:32
3	07:23 16:43	07:08 17:18	07:32 (WTG 02) 17:51	06:31 19:25	06:41 19:56	05:56 20:25	05:29 20:34	05:31 20:13	05:56 19:30	06:27 18:39	06:56 16:54	06:31 16:32
4	07:24 16:44	07:07 17:19	07:37 (WTG 02) 17:51	06:30 19:26	06:39 19:57	05:55 20:26	05:29 20:34	05:32 20:12	05:57 19:28	06:28 18:38	06:57 16:53	06:32 16:31
5	07:24 16:45	07:06 17:20	07:32 (WTG 02) 17:54	06:28 19:27	06:37 19:58	05:54 20:26	05:28 20:34	05:33 20:11	05:58 19:26	06:29 18:36	06:58 16:51	06:33 16:31
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12	07:23 16:52	06:58 17:29	07:32 (WTG 02) 18:01	06:17 19:34	06:26 20:06	05:46 20:30	05:27 20:31	06:05 20:02	06:35 19:15	07:06 18:25	16:44 16:44	06:41 16:31
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17	07:21 16:57	06:52 17:35	07:32 (WTG 02) 18:07	06:09 19:40	06:18 20:10	05:41 20:33	05:27 20:28	06:10 19:56	06:40 18:17	07:11 18:17	16:47 16:40	06:47 16:32
18	07:20 16:58	06:50 17:36	07:32 (WTG 02) 18:08	06:07 19:41	06:17 20:11	05:40 20:33	05:27 20:28	06:11 19:54	06:41 18:15	07:12 18:15	16:48 16:39	06:48 16:33
19	07:20 16:59	06:49 17:37	07:32 (WTG 02) 18:09	06:06 19:42	06:15 20:12	05:39 20:33	05:27 20:27	06:12 19:53	06:42 18:14	07:13 18:14	16:49 16:38	06:49 16:33
20	07:19 17:01	06:48 17:38	07:32 (WTG 02) 18:10	06:04 19:43	06:14 20:13	05:38 20:33	05:27 20:26	06:13 19:51	06:43 18:12	07:15 18:12	16:51 16:38	06:51 16:33
21	07:19 17:02	06:46 17:40	07:32 (WTG 02) 18:11	06:02 19:44	06:12 20:14	05:37 20:34	05:27 20:26	06:14 19:50	06:44 18:11	07:16 18:11	16:52 16:52	06:52 16:34
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Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case	96	27									124	

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AB - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (67)
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	07:23 16:41	07:10 17:15	06:34 17:49	06:44 19:23	05:59 19:54	05:30 20:23	05:30 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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28	07:14 17:10	06:36 17:48	05:51 18:18	06:03 19:51	05:32 20:20	05:29 20:34	05:50 20:20	06:21 19:39	06:51 18:48	07:23 17:01	07:00 16:33	07:22 16:38
29	07:13 17:11		06:49 19:19	06:01 19:52	05:31 20:21	05:30 20:34	05:51 20:19	06:22 19:38	06:52 18:46	07:24 17:00	07:01 16:33	07:23 16:39
30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:34	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:32	07:23 16:39
31	07:11 17:14		06:46 19:22		05:30 20:23		05:53 20:17	06:24 19:34		06:27 16:57		07:23 16:40
Potential sun hours	298	297	369	398	448	452	458	427	375	345	298	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AC - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (68)
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	07:23	07:46 (WTG 04)	07:10	07:36 (WTG 04)	06:34		06:44	07:23 (WTG 03)	05:59	05:30		
	16:41	33 08:19 (WTG 04)	17:15	47 08:23 (WTG 04)	17:49		19:23	70 08:33 (WTG 03)	19:54	20:23		
2	07:23	07:46 (WTG 04)	07:09	07:37 (WTG 04)	06:33		06:42	07:25 (WTG 03)	05:57	05:30		
	16:42	33 08:19 (WTG 04)	17:16	45 08:22 (WTG 04)	17:50		19:24	68 08:33 (WTG 03)	19:55	20:24		
3	07:23	07:46 (WTG 04)	07:08	07:38 (WTG 04)	06:31		06:41	07:26 (WTG 03)	05:56	05:29		
	16:43	34 08:20 (WTG 04)	17:18	43 08:21 (WTG 04)	17:51		19:25	66 08:32 (WTG 03)	19:56	20:25		
4	07:24	07:46 (WTG 04)	07:07	07:39 (WTG 04)	06:30		06:39	07:28 (WTG 03)	05:55	05:29		
	16:44	35 08:21 (WTG 04)	17:19	41 08:20 (WTG 04)	17:52		19:26	64 08:32 (WTG 03)	19:57	20:26		
5	07:24	07:46 (WTG 04)	07:06	07:41 (WTG 04)	06:28		06:38	07:29 (WTG 03)	05:54	05:28		
	16:45	35 08:21 (WTG 04)	17:20	38 08:19 (WTG 04)	17:54		19:27	62 08:31 (WTG 03)	19:58	20:26		
6	07:24	07:45 (WTG 04)	07:05	07:43 (WTG 04)	06:27		06:36	07:30 (WTG 03)	05:52	05:28		
	16:46	36 08:21 (WTG 04)	17:21	35 08:18 (WTG 04)	17:55		19:28	60 08:30 (WTG 03)	19:59	20:27		
7	07:23	07:45 (WTG 04)	07:04	07:45 (WTG 04)	06:25		06:34	07:33 (WTG 03)	05:51	05:28		
	16:47	36 08:21 (WTG 04)	17:23	31 08:16 (WTG 04)	17:56	12	06:54 (WTG 03)	19:29	57 08:30 (WTG 03)	20:00	20:28	
8	07:23	07:45 (WTG 04)	07:03	07:46 (WTG 04)	06:24		06:47 (WTG 03)	06:33	07:34 (WTG 03)	05:50	05:28	
	16:48	37 08:22 (WTG 04)	17:24	27 08:13 (WTG 04)	17:57	25	07:12 (WTG 03)	19:30	55 08:29 (WTG 03)	20:01	20:28	
9	07:23	07:45 (WTG 04)	07:02	07:50 (WTG 04)	06:22		06:44 (WTG 03)	06:31	07:35 (WTG 03)	05:49	05:27	
	16:49	38 08:23 (WTG 04)	17:25	20 08:10 (WTG 04)	17:58	33	07:17 (WTG 03)	19:31	53 08:28 (WTG 03)	20:03	20:29	
10	07:23	07:45 (WTG 04)	07:01	07:54 (WTG 04)	06:20		06:43 (WTG 03)	06:29	07:37 (WTG 03)	05:48	05:27	
	16:50	38 08:23 (WTG 04)	17:26	12 08:06 (WTG 04)	17:59	36	07:19 (WTG 03)	19:32	50 08:27 (WTG 03)	20:04	20:29	
11	07:23	07:44 (WTG 04)	06:59		06:19		06:41 (WTG 03)	06:28	07:38 (WTG 03)	05:47	05:27	
	16:51	39 08:23 (WTG 04)	17:28		18:00	40	07:21 (WTG 03)	19:33	48 08:26 (WTG 03)	20:05	20:30	
12	07:23	07:44 (WTG 04)	06:58		06:17		06:40 (WTG 03)	06:26	07:40 (WTG 03)	05:46	05:27	
	16:52	40 08:24 (WTG 04)	17:29		18:01	44	07:24 (WTG 03)	19:34	46 08:26 (WTG 03)	20:06	20:30	
13	07:22	07:44 (WTG 04)	06:57		06:16		06:38 (WTG 03)	06:25	07:41 (WTG 03)	05:45	05:27	
	16:53	41 08:25 (WTG 04)	17:30		18:02	47	07:25 (WTG 03)	19:35	43 08:24 (WTG 03)	20:07	20:31	
14	07:22	07:43 (WTG 04)	06:56		06:14		06:37 (WTG 03)	06:23	07:43 (WTG 03)	05:43	05:27	
	16:54	42 08:25 (WTG 04)	17:31		18:04	49	07:26 (WTG 03)	19:36	41 08:24 (WTG 03)	20:08	20:31	
15	07:22	07:43 (WTG 04)	06:54		06:12		06:36 (WTG 03)	06:22	07:44 (WTG 03)	05:42	05:27	
	16:55	42 08:25 (WTG 04)	17:32		18:05	52	07:28 (WTG 03)	19:37	38 08:22 (WTG 03)	20:09	20:32	
16	07:21	07:42 (WTG 04)	06:53		06:11		06:34 (WTG 03)	06:20	07:46 (WTG 03)	05:42	05:27	
	16:56	43 08:25 (WTG 04)	17:34		18:06	55	07:29 (WTG 03)	19:38	35 08:21 (WTG 03)	20:09	20:32	
17	07:21	07:42 (WTG 04)	06:52		06:09		06:33 (WTG 03)	06:19	07:47 (WTG 03)	05:41	05:27	
	16:57	44 08:26 (WTG 04)	17:35		18:07	58	07:31 (WTG 03)	19:40	33 08:20 (WTG 03)	20:10	20:33	
18	07:20	07:41 (WTG 04)	06:50		06:07		06:32 (WTG 03)	06:17	07:49 (WTG 03)	05:40	05:27	
	16:58	45 08:26 (WTG 04)	17:36		18:08	59	07:31 (WTG 03)	19:41	30 08:19 (WTG 03)	20:11	20:33	
19	07:20	07:41 (WTG 04)	06:49		06:06		06:30 (WTG 03)	06:15	07:50 (WTG 03)	05:39	05:27	
	16:59	45 08:26 (WTG 04)	17:37		18:09	62	07:32 (WTG 03)	19:42	27 08:17 (WTG 03)	20:12	20:33	
20	07:19	07:40 (WTG 04)	06:48		06:04		06:28 (WTG 03)	06:14	07:52 (WTG 03)	05:38	05:27	
	17:01	46 08:26 (WTG 04)	17:38		18:10	64	07:32 (WTG 03)	19:43	24 08:16 (WTG 03)	20:13	20:33	
21	07:19	07:39 (WTG 04)	06:46		06:02		06:28 (WTG 03)	06:13	07:53 (WTG 03)	05:37	05:27	
	17:02	47 08:26 (WTG 04)	17:40		18:11	65	07:33 (WTG 03)	19:44	21 08:14 (WTG 03)	20:14	20:34	
22	07:18	07:39 (WTG 04)	06:45		06:01		06:26 (WTG 03)	06:11	07:55 (WTG 03)	05:36	05:27	
	17:03	48 08:27 (WTG 04)	17:41		18:12	67	07:33 (WTG 03)	19:45	18 08:13 (WTG 03)	20:15	20:34	
23	07:17	07:38 (WTG 04)	06:43		05:59		06:24 (WTG 03)	06:10	07:55 (WTG 03)	05:36	05:28	
	17:04	48 08:26 (WTG 04)	17:42		18:13	69	07:33 (WTG 03)	19:46	15 08:10 (WTG 03)	20:16	20:34	
24	07:17	07:37 (WTG 04)	06:42		05:57		06:24 (WTG 03)	06:08	07:57 (WTG 03)	05:35	05:28	
	17:05	49 08:26 (WTG 04)	17:43		18:14	70	07:34 (WTG 03)	19:47	12 08:09 (WTG 03)	20:17	20:34	
25	07:16	07:36 (WTG 04)	06:40		05:56		06:22 (WTG 03)	06:07	07:59 (WTG 03)	05:34	05:28	
	17:07	50 08:26 (WTG 04)	17:44		18:15	72	07:34 (WTG 03)	19:48	8 08:07 (WTG 03)	20:18	20:34	
26	07:15	07:36 (WTG 04)	06:39		05:54		06:21 (WTG 03)	06:05	08:00 (WTG 03)	05:33	05:28	
	17:08	50 08:26 (WTG 04)	17:46		18:16	73	07:34 (WTG 03)	19:49	4 08:04 (WTG 03)	20:19	20:34	
27	07:14	07:35 (WTG 04)	06:38		05:52		06:20 (WTG 03)	06:04		05:33	05:29	
	17:09	51 08:26 (WTG 04)	17:47		18:17	74	07:34 (WTG 03)	19:50		20:19	20:34	
28	07:14	07:34 (WTG 04)	06:36		05:51		06:18 (WTG 03)	06:03		05:32	05:29	
	17:10	52 08:26 (WTG 04)	17:48		18:18	76	07:34 (WTG 03)	19:51		20:20	20:35	
29	07:13	07:33 (WTG 04)			06:49		07:18 (WTG 03)	06:01		05:32	05:30	
	17:11	52 08:25 (WTG 04)			19:20	75	08:33 (WTG 03)	19:52		20:21	20:35	
30	07:12	07:34 (WTG 04)			06:47		07:21 (WTG 03)	06:00		05:31	05:30	
	17:13	51 08:25 (WTG 04)			19:21	73	08:34 (WTG 03)	19:53		20:22	20:34	
31	07:11	07:35 (WTG 04)			06:46		07:22 (WTG 03)			05:30		
	17:14	49 08:24 (WTG 04)			19:22	71	08:33 (WTG 03)			20:23		
Potential sun hours	298		297		369		398		448		452	
Total, worst case	1329		339		1421		1048					

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AC - Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 0.0° (68)
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	05:31 20:34	05:54 20:16	06:25 19:33	07:37 (WTG 03) 08:25 (WTG 03)	06:54 18:43	07:18 (WTG 03) 08:03 (WTG 03)
2	05:31 20:34	05:55 20:15	06:26 19:31	07:35 (WTG 03) 08:25 (WTG 03)	06:55 18:41	07:19 (WTG 03) 08:01 (WTG 03)
3	05:32 20:34	05:56 20:13	06:27 19:30	07:33 (WTG 03) 08:26 (WTG 03)	06:56 18:39	07:20 (WTG 03) 07:58 (WTG 03)
4	05:32 20:34	05:57 20:12	06:28 19:28	07:31 (WTG 03) 08:26 (WTG 03)	06:57 18:38	07:20 (WTG 03) 07:55 (WTG 03)
5	05:33 20:34	05:58 20:11	06:29 19:26	07:29 (WTG 03) 08:26 (WTG 03)	06:58 18:36	07:21 (WTG 03) 07:48 (WTG 03)
6	05:33 20:33	05:59 20:10	06:30 19:25	07:27 (WTG 03) 08:26 (WTG 03)	07:00 18:34	07:22 (WTG 03) 07:49 (WTG 03)
7	05:34 20:33	06:00 20:09	06:31 19:23	07:25 (WTG 03) 08:26 (WTG 03)	07:01 18:33	07:23 (WTG 03) 07:47 (WTG 03)
8	05:34 20:33	06:01 20:08	06:32 19:21	07:22 (WTG 03) 08:26 (WTG 03)	07:02 18:31	07:24 (WTG 03) 07:52 (WTG 03)
9	05:35 20:33	06:02 20:06	06:33 19:20	07:20 (WTG 03) 08:26 (WTG 03)	07:03 18:29	07:25 (WTG 03) 07:53 (WTG 03)
10	05:36 20:32	06:03 20:05	06:34 19:18	07:18 (WTG 03) 08:26 (WTG 03)	07:04 18:28	07:26 (WTG 03) 07:54 (WTG 03)
11	05:36 20:32	06:04 20:04	06:35 19:16	07:16 (WTG 03) 08:26 (WTG 03)	07:05 18:26	07:27 (WTG 03) 07:55 (WTG 03)
12	05:37 20:31	06:05 20:02	06:35 19:15	07:14 (WTG 03) 08:25 (WTG 03)	07:06 18:25	07:28 (WTG 03) 07:57 (WTG 03)
13	05:38 20:31	06:06 20:01	06:36 19:13	07:12 (WTG 03) 08:25 (WTG 03)	07:07 18:23	07:29 (WTG 03) 07:58 (WTG 03)
14	05:39 20:30	06:07 20:00	06:37 19:11	07:10 (WTG 03) 08:25 (WTG 03)	07:08 18:22	07:30 (WTG 03) 07:59 (WTG 03)
15	05:39 20:30	06:08 19:58	06:38 19:10	07:08 (WTG 03) 08:24 (WTG 03)	07:09 18:20	07:31 (WTG 03) 07:58 (WTG 03)
16	05:40 20:29	06:09 19:57	06:39 19:08	07:09 (WTG 03) 08:24 (WTG 03)	07:10 18:18	07:32 (WTG 03) 07:59 (WTG 03)
17	05:41 20:28	06:10 19:56	06:40 19:06	07:10 (WTG 03) 08:23 (WTG 03)	07:11 18:17	07:33 (WTG 03) 08:00 (WTG 03)
18	05:42 20:28	06:11 19:54	06:41 19:05	07:09 (WTG 03) 08:23 (WTG 03)	07:12 18:15	07:34 (WTG 03) 08:01 (WTG 03)
19	05:43 20:27	06:12 19:53	06:42 19:03	07:10 (WTG 03) 08:22 (WTG 03)	07:13 18:14	07:35 (WTG 03) 08:02 (WTG 03)
20	05:43 20:26	06:13 19:51	06:43 19:01	07:11 (WTG 03) 08:20 (WTG 03)	07:15 18:13	07:36 (WTG 03) 08:03 (WTG 03)
21	05:44 20:26	06:14 19:50	06:44 18:59	07:11 (WTG 03) 08:19 (WTG 03)	07:16 18:11	07:37 (WTG 03) 08:04 (WTG 03)
22	05:45 20:25	06:15 19:48	06:45 18:58	07:12 (WTG 03) 08:18 (WTG 03)	07:17 18:10	07:38 (WTG 03) 08:05 (WTG 03)
23	05:46 20:24	06:16 19:47	06:46 18:56	07:12 (WTG 03) 08:17 (WTG 03)	07:18 18:08	07:39 (WTG 03) 08:06 (WTG 03)
24	05:47 20:23	06:17 19:45	06:47 18:54	07:13 (WTG 03) 08:15 (WTG 03)	07:19 18:07	07:40 (WTG 03) 08:07 (WTG 03)
25	05:48 20:22	06:18 19:44	06:48 18:53	07:14 (WTG 03) 08:14 (WTG 03)	07:20 17:05	07:41 (WTG 03) 08:08 (WTG 03)
26	05:49 20:22	06:19 19:42	06:49 18:51	07:15 (WTG 03) 08:13 (WTG 03)	07:21 17:04	07:42 (WTG 03) 08:09 (WTG 03)
27	05:50 20:21	06:20 19:41	06:50 18:49	07:15 (WTG 03) 08:11 (WTG 03)	07:22 17:03	07:43 (WTG 03) 08:07 (WTG 03)
28	05:50 20:20	06:21 19:39	06:51 18:48	07:16 (WTG 03) 08:09 (WTG 03)	07:24 17:01	07:44 (WTG 03) 08:05 (WTG 03)
29	05:51 20:19	06:22 19:38	06:52 18:46	07:17 (WTG 03) 08:08 (WTG 03)	07:25 17:00	07:45 (WTG 03) 08:04 (WTG 03)
30	05:52 20:18	06:23 19:36	06:53 18:44	07:18 (WTG 03) 08:06 (WTG 03)	07:26 16:59	07:46 (WTG 03) 08:03 (WTG 03)
31	05:53 20:17	06:24 19:34	06:54 18:42	07:19 (WTG 03) 08:05 (WTG 03)	07:27 16:57	07:47 (WTG 03) 08:02 (WTG 03)
Potential sun hours	458	427	375	345	298	289
Total, worst case		402	1893	210	1281	1017

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AD - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (69)
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	07:23 16:41	07:10 17:15	06:34 17:49	06:44 19:23	07:23 (WTG 04) 07:38 (WTG 04)	05:59 19:54	05:30 20:23
2	07:23 16:42	07:09 17:16	06:33 17:50	06:42 19:24	07:25 (WTG 04) 07:38 (WTG 04)	05:57 19:55	05:30 20:24
3	07:23 16:43	07:08 17:18	06:31 17:51	06:41 19:25	07:26 (WTG 04) 07:36 (WTG 04)	05:56 19:56	05:29 20:25
4	07:24 16:44	07:07 17:19	06:30 17:52	06:39 19:26	07:28 (WTG 04) 07:35 (WTG 04)	05:55 19:57	05:29 20:26
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	07:29 (WTG 04) 07:33 (WTG 04)	05:54 19:58	05:28 20:26
6	07:24 16:46	07:05 17:21	06:27 17:55	06:36 19:28	07:30 (WTG 04) 07:31 (WTG 04)	05:52 19:59	05:28 20:27
7	07:23 16:47	07:04 17:23	06:25 17:56	06:34 19:29		05:51 20:00	05:28 20:28
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30		05:50 20:01	05:28 20:28
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31		05:49 20:03	05:27 20:29
10	07:23 16:50	07:45 (WTG 05) 07:46 (WTG 05)	07:01 17:26	06:29 17:59		05:48 20:04	05:27 20:29
11	07:23 16:51	07:44 (WTG 05) 07:46 (WTG 05)	06:59 17:28	06:19 18:00	06:37 (WTG 04) 06:40 (WTG 04)	06:28 19:33	05:27 20:30
12	07:23 16:52	07:44 (WTG 05) 07:47 (WTG 05)	06:58 17:29	06:17 18:01	06:36 (WTG 04) 06:42 (WTG 04)	06:26 19:34	05:27 20:30
13	07:22 16:53	07:44 (WTG 05) 07:48 (WTG 05)	06:57 17:30	06:16 18:02	06:34 (WTG 04) 06:42 (WTG 04)	06:25 19:35	05:27 20:31
14	07:22 16:54	07:43 (WTG 05) 07:48 (WTG 05)	06:56 17:31	06:14 18:04	06:32 (WTG 04) 06:43 (WTG 04)	06:23 19:36	05:27 20:31
15	07:22 16:55	07:43 (WTG 05) 07:49 (WTG 05)	06:54 17:32	06:12 18:05	06:31 (WTG 04) 06:44 (WTG 04)	06:22 19:37	05:27 20:32
16	07:21 16:56	07:42 (WTG 05) 07:49 (WTG 05)	06:53 17:34	06:11 18:06	06:29 (WTG 04) 06:45 (WTG 04)	06:20 19:38	05:27 20:32
17	07:21 16:57	07:42 (WTG 05) 07:50 (WTG 05)	06:52 17:35	06:09 18:07	06:28 (WTG 04) 06:46 (WTG 04)	06:19 19:40	05:27 20:33
18	07:20 16:58	07:41 (WTG 05) 07:49 (WTG 05)	06:50 17:36	06:07 18:08	06:26 (WTG 04) 06:46 (WTG 04)	06:17 19:41	05:27 20:33
19	07:20 16:59	07:41 (WTG 05) 07:50 (WTG 05)	06:49 17:37	06:06 18:09	06:24 (WTG 04) 06:46 (WTG 04)	06:16 19:42	05:27 20:33
20	07:19 17:01	07:40 (WTG 05) 07:50 (WTG 05)	06:48 17:38	06:04 18:10	06:22 (WTG 04) 06:45 (WTG 04)	06:14 19:43	05:27 20:33
21	07:19 17:02	07:39 (WTG 05) 07:50 (WTG 05)	06:46 17:40	06:02 18:11	06:21 (WTG 04) 06:46 (WTG 04)	06:13 19:44	05:27 20:34
22	07:18 17:03	07:39 (WTG 05) 07:50 (WTG 05)	06:45 17:41	06:01 18:12	06:19 (WTG 04) 06:46 (WTG 04)	06:11 19:45	05:27 20:34
23	07:17 17:04	07:38 (WTG 05) 07:50 (WTG 05)	06:43 17:42	05:59 18:13	06:17 (WTG 04) 06:45 (WTG 04)	06:10 19:46	05:28 20:34
24	07:17 17:05	07:37 (WTG 05) 07:49 (WTG 05)	06:42 17:43	05:57 18:14	06:16 (WTG 04) 06:45 (WTG 04)	06:08 19:47	05:28 20:34
25	07:16 17:07	07:36 (WTG 05) 07:49 (WTG 05)	06:40 17:44	05:56 18:15	06:14 (WTG 04) 06:45 (WTG 04)	06:07 19:48	05:28 20:34
26	07:15 17:08	07:36 (WTG 05) 07:49 (WTG 05)	06:39 17:46	05:54 18:16	06:14 (WTG 04) 06:44 (WTG 04)	06:05 19:49	05:29 20:34
27	07:14 17:09	07:35 (WTG 05) 07:48 (WTG 05)	06:38 17:47	05:52 18:17	06:16 (WTG 04) 06:44 (WTG 04)	06:04 19:50	05:29 20:34
28	07:14 17:10	07:34 (WTG 05) 07:47 (WTG 05)	06:36 17:48	05:51 18:18	06:17 (WTG 04) 06:43 (WTG 04)	06:03 19:51	05:29 20:35
29	07:13 17:12	07:33 (WTG 05) 07:45 (WTG 05)		06:49 19:20	07:18 (WTG 04) 07:42 (WTG 04)	06:01 19:52	05:30 20:35
30	07:12 17:13	07:36 (WTG 05) 07:42 (WTG 05)		06:47 19:21	07:21 (WTG 04) 07:41 (WTG 04)	06:00 19:53	05:30 20:34
31	07:11 17:14			06:46 19:22	07:22 (WTG 04) 07:40 (WTG 04)	05:31 20:23	
Potential sun hours	298	297	369	398	448	452	
Total, worst case	179		426	50			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AD - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (69)
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	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	07:14 (WTG 04) 07:21 (WTG 04)	06:28 16:56
2	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	07:15 (WTG 04) 07:19 (WTG 04)	06:29 16:55
3	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	07:16 (WTG 04) 07:17 (WTG 04)	06:31 16:54
4	05:32 20:34	05:57 20:12	06:28 19:28	06:57 18:38	06:57 16:53	06:32 16:31
5	05:33 20:34	05:58 20:11	06:29 19:26	06:58 18:36	06:58 16:52	06:33 16:31
6	05:33 20:33	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:50	06:34 16:31
7	05:34 20:33	06:00 20:09	06:31 19:23	07:25 (WTG 04) 07:28 (WTG 04)	07:01 18:33	06:35 16:49
8	05:34 20:33	06:01 20:08	06:32 19:21	07:22 (WTG 04) 07:29 (WTG 04)	07:02 18:31	06:37 16:48
9	05:35 20:33	06:02 20:06	06:33 19:20	07:20 (WTG 04) 07:30 (WTG 04)	07:03 18:29	06:38 16:47
10	05:36 20:32	06:03 20:05	06:34 19:18	07:18 (WTG 04) 07:31 (WTG 04)	07:04 18:28	06:39 16:46
11	05:36 20:32	06:04 20:04	06:35 19:16	07:16 (WTG 04) 07:32 (WTG 04)	07:05 18:26	06:40 16:45
12	05:37 20:31	06:05 20:02	06:36 19:15	07:14 (WTG 04) 07:32 (WTG 04)	07:06 18:25	06:41 16:44
13	05:38 20:31	06:06 20:01	06:36 19:13	07:12 (WTG 04) 07:32 (WTG 04)	07:07 18:23	06:42 16:43
14	05:39 20:30	06:07 20:00	06:37 19:11	07:10 (WTG 04) 07:33 (WTG 04)	07:08 18:22	06:44 16:42
15	05:39 20:30	06:08 19:58	06:38 19:10	07:08 (WTG 04) 07:33 (WTG 04)	07:09 18:20	06:45 16:41
16	05:40 20:29	06:09 19:57	06:39 19:08	07:06 (WTG 04) 07:33 (WTG 04)	07:10 18:19	06:46 16:41
17	05:41 20:28	06:10 19:56	06:40 19:06	07:04 (WTG 04) 07:33 (WTG 04)	07:11 18:17	06:47 16:40
18	05:42 20:28	06:11 19:54	06:41 19:05	07:01 (WTG 04) 07:32 (WTG 04)	07:12 18:15	06:48 16:39
19	05:43 20:27	06:12 19:53	06:42 19:03	07:02 (WTG 04) 07:32 (WTG 04)	07:13 18:14	06:49 16:38
20	05:43 20:26	06:13 19:51	06:43 19:01	07:03 (WTG 04) 07:31 (WTG 04)	07:15 18:13	06:51 16:38
21	05:44 20:26	06:14 19:50	06:44 18:59	07:04 (WTG 04) 07:31 (WTG 04)	07:16 18:11	06:52 16:37
22	05:45 20:25	06:15 19:48	06:45 18:58	07:05 (WTG 04) 07:30 (WTG 04)	07:17 18:10	06:53 16:36
23	05:46 20:24	06:16 19:47	06:46 18:56	07:06 (WTG 04) 07:30 (WTG 04)	07:18 18:08	06:54 16:36
24	05:47 20:23	06:17 19:45	06:47 18:54	07:07 (WTG 04) 07:29 (WTG 04)	07:19 18:07	06:55 16:35
25	05:48 20:22	06:18 19:44	06:48 18:53	07:08 (WTG 04) 07:28 (WTG 04)	06:20 17:05	06:56 16:35
26	05:49 20:22	06:19 19:42	06:49 18:51	07:09 (WTG 04) 07:27 (WTG 04)	06:21 17:04	06:57 16:34
27	05:50 20:21	06:20 19:41	06:50 18:49	07:10 (WTG 04) 07:26 (WTG 04)	06:22 17:03	06:59 16:34
28	05:50 20:20	06:21 19:39	06:51 18:48	07:11 (WTG 04) 07:25 (WTG 04)	06:24 17:01	07:00 16:33
29	05:51 20:19	06:22 19:38	06:52 18:46	07:12 (WTG 04) 07:24 (WTG 04)	06:25 17:00	07:01 16:33
30	05:52 20:18	06:23 19:36	06:53 18:44	07:13 (WTG 04) 07:23 (WTG 04)	06:26 16:59	07:02 16:32
31	05:53 20:17	06:24 19:34		06:27 16:57		07:23 16:40
Potential sun hours	458	427	375	345	298	289
Total, worst case			468	12	179	3

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AE - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (70)
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	07:23 16:41	07:10 17:15	07:30 (WTG 06) 16:40 (WTG 08)	06:35 17:49	06:53 (WTG 05) 08:14 (WTG 07)	06:44 19:23	05:59 19:54	05:30 20:23	
2	07:23 16:42	07:09 17:16	07:29 (WTG 06) 16:39 (WTG 08)	06:33 17:50	06:52 (WTG 05) 08:13 (WTG 07)	06:42 19:24	05:57 19:55	05:30 20:24	
3	07:23 16:43	07:08 17:18	07:28 (WTG 06) 16:38 (WTG 08)	06:31 17:51	06:50 (WTG 05) 08:12 (WTG 07)	06:41 19:25	05:56 19:56	05:29 20:25	
4	07:24 16:44	07:07 17:19	07:27 (WTG 06) 16:38 (WTG 08)	06:30 17:52	06:49 (WTG 05) 08:11 (WTG 07)	06:39 19:26	05:55 19:57	05:29 20:26	
5	07:24 16:45	07:06 17:20	07:26 (WTG 06) 16:36 (WTG 08)	06:28 17:54	06:55 (WTG 07) 08:10 (WTG 07)	06:38 19:27	05:54 19:58	05:28 20:26	
6	07:24 16:46	07:05 17:21	07:25 (WTG 06) 16:34 (WTG 08)	06:27 17:55	06:56 (WTG 07) 08:09 (WTG 07)	06:36 19:28	05:52 19:59	05:28 20:27	
7	07:23 16:47	07:04 17:23	07:24 (WTG 07) 08:18 (WTG 07)	06:25 17:56	06:56 (WTG 07) 08:07 (WTG 07)	06:34 19:29	05:51 20:00	05:28 20:28	
8	07:23 16:48	07:03 17:24	07:22 (WTG 07) 08:17 (WTG 07)	06:24 17:57	06:57 (WTG 07) 08:05 (WTG 07)	06:33 19:30	05:50 20:01	05:28 20:28	
9	07:23 16:49	07:02 17:25	07:21 (WTG 07) 08:18 (WTG 07)	06:22 17:58	06:59 (WTG 07) 08:04 (WTG 07)	06:31 19:31	05:49 20:03	05:27 20:29	
10	07:23 16:50	07:01 17:26	07:20 (WTG 07) 08:19 (WTG 07)	06:20 17:59	06:59 (WTG 07) 08:02 (WTG 07)	06:29 19:32	05:48 20:04	05:27 20:29	
11	07:23 16:51	06:59 17:28	07:19 (WTG 07) 08:19 (WTG 07)	06:19 18:00	07:00 (WTG 07) 08:00 (WTG 07)	06:28 19:33	05:47 20:05	05:27 20:30	
12	07:23 16:52	07:44 (WTG 07) 07:46 (WTG 07)	06:58 17:29	07:18 (WTG 07) 08:20 (WTG 07)	06:17 18:01	07:03 (WTG 07) 07:58 (WTG 07)	06:26 19:34	05:46 20:06	05:27 20:30
13	07:22 16:53	07:44 (WTG 06) 16:25 (WTG 08)	06:57 17:30	07:16 (WTG 07) 08:19 (WTG 07)	06:16 18:02	07:04 (WTG 07) 07:56 (WTG 07)	06:25 19:35	05:45 20:07	05:27 20:31
14	07:22 16:54	07:43 (WTG 06) 16:25 (WTG 08)	06:56 17:31	07:15 (WTG 07) 08:20 (WTG 07)	06:14 18:04	07:06 (WTG 07) 07:54 (WTG 07)	06:23 19:36	05:44 20:08	05:27 20:31
15	07:22 16:55	07:43 (WTG 06) 16:27 (WTG 08)	06:54 17:32	07:14 (WTG 07) 08:20 (WTG 07)	06:12 18:05	07:08 (WTG 07) 07:50 (WTG 07)	06:22 19:37	05:43 20:09	05:27 20:32
16	07:21 16:56	07:42 (WTG 06) 16:28 (WTG 08)	06:53 17:34	07:12 (WTG 07) 08:19 (WTG 07)	06:11 18:06	07:10 (WTG 07) 07:47 (WTG 07)	06:20 19:38	05:42 20:09	05:27 20:32
17	07:21 16:57	07:42 (WTG 06) 16:30 (WTG 08)	06:52 17:35	07:11 (WTG 07) 08:20 (WTG 07)	06:09 18:07	07:14 (WTG 07) 07:43 (WTG 07)	06:19 19:40	05:41 20:10	05:27 20:33
18	07:20 16:58	07:41 (WTG 06) 16:30 (WTG 08)	06:50 17:36	07:10 (WTG 07) 08:20 (WTG 07)	06:07 18:08	07:19 (WTG 07) 07:37 (WTG 07)	06:17 19:41	05:40 20:11	05:27 20:33
19	07:20 17:00	07:41 (WTG 06) 16:32 (WTG 08)	06:49 17:37	07:08 (WTG 07) 08:19 (WTG 07)	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	
20	07:19 17:01	07:40 (WTG 06) 16:33 (WTG 08)	06:48 17:38	07:07 (WTG 07) 08:19 (WTG 07)	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:33	
21	07:19 17:02	07:39 (WTG 06) 16:34 (WTG 08)	06:46 17:40	07:05 (WTG 07) 08:18 (WTG 07)	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	
22	07:18 17:03	07:39 (WTG 06) 16:37 (WTG 08)	06:45 17:41	07:04 (WTG 07) 08:19 (WTG 07)	06:01 18:12	06:11 19:45	05:36 20:15	05:27 20:34	
23	07:17 17:04	07:38 (WTG 06) 16:38 (WTG 08)	06:43 17:42	07:02 (WTG 07) 08:18 (WTG 07)	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	
24	07:17 17:05	07:37 (WTG 06) 16:39 (WTG 08)	06:42 17:43	07:01 (WTG 07) 08:18 (WTG 07)	05:57 18:14	06:08 19:47	05:35 20:17	05:28 20:34	
25	07:16 17:07	07:36 (WTG 06) 16:39 (WTG 08)	06:40 17:44	07:00 (WTG 05) 08:17 (WTG 07)	05:56 18:15	06:07 19:48	05:34 20:18	05:28 20:34	
26	07:15 17:08	07:36 (WTG 06) 16:40 (WTG 08)	06:39 17:46	06:58 (WTG 05) 08:16 (WTG 07)	05:54 18:16	06:05 19:49	05:33 20:19	05:29 20:34	
27	07:14 17:09	07:35 (WTG 06) 16:40 (WTG 08)	06:38 17:47	06:56 (WTG 05) 08:15 (WTG 07)	05:52 18:17	06:04 19:50	05:33 20:19	05:29 20:34	
28	07:14 17:10	07:34 (WTG 06) 16:40 (WTG 08)	06:36 17:48	06:55 (WTG 05) 08:15 (WTG 07)	05:51 18:19	06:03 19:51	05:32 20:20	05:29 20:35	
29	07:13 17:11	07:33 (WTG 06) 16:40 (WTG 08)			06:49 19:20	06:01 19:52	05:32 20:21	05:30 20:35	
30	07:12 17:12	07:32 (WTG 06) 16:40 (WTG 08)			06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:34	
31	07:11 17:14	07:31 (WTG 06) 16:40 (WTG 08)			06:46 19:22		05:31 20:23		
Potential sun hours	298	297	369	398	448	451			
Total, worst case	830	1902	1080						

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

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AE - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (70)
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	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	07:42 (WTG 07) 08:36 (WTG 07)	06:28 16:56	06:50 (WTG 07) 07:48 (WTG 07)	07:03 16:32
2	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	07:40 (WTG 07) 08:37 (WTG 07)	06:29 16:55	06:51 (WTG 07) 07:48 (WTG 07)	07:04 16:32
3	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	07:38 (WTG 07) 08:39 (WTG 07)	06:31 16:54	06:52 (WTG 07) 07:47 (WTG 07)	07:05 16:32
4	05:32 20:34	05:57 20:12	06:28 19:28	06:57 18:38	07:36 (WTG 07) 08:40 (WTG 07)	06:32 16:53	06:53 (WTG 07) 16:00 (WTG 08)	07:06 16:31
5	05:33 20:34	05:58 20:11	06:29 19:26	06:58 18:36	07:35 (WTG 07) 08:42 (WTG 07)	06:33 16:52	06:55 (WTG 06) 16:05 (WTG 08)	07:07 16:31
6	05:33 20:33	05:59 20:10	06:30 19:25	07:00 18:34	07:34 (WTG 07) 08:43 (WTG 07)	06:34 16:50	06:56 (WTG 06) 16:06 (WTG 08)	07:08 16:31
7	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	07:32 (WTG 07) 08:44 (WTG 07)	06:35 16:49	06:57 (WTG 06) 16:08 (WTG 08)	07:09 16:31
8	05:34 20:33	06:01 20:08	06:32 19:21	07:02 18:31	07:31 (WTG 07) 08:45 (WTG 07)	06:37 16:48	06:59 (WTG 06) 16:09 (WTG 08)	07:10 16:31
9	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:29	07:30 (WTG 07) 08:45 (WTG 07)	06:38 16:47	07:00 (WTG 06) 16:10 (WTG 08)	07:11 16:31
10	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	07:24 (WTG 05) 08:46 (WTG 07)	06:39 16:46	07:01 (WTG 06) 16:11 (WTG 08)	07:11 16:31
11	05:36 20:32	06:04 20:04	06:35 19:16	07:05 18:26	07:25 (WTG 05) 08:46 (WTG 07)	06:40 16:45	07:02 (WTG 06) 16:11 (WTG 08)	07:12 16:31
12	05:37 20:31	06:05 20:02	06:36 19:15	07:06 18:25	07:26 (WTG 05) 08:47 (WTG 07)	06:41 16:44	07:04 (WTG 06) 16:12 (WTG 08)	07:13 16:31
13	05:38 20:31	06:06 20:01	06:36 19:13	07:07 18:23	07:27 (WTG 05) 08:47 (WTG 07)	06:42 16:43	07:05 (WTG 06) 16:12 (WTG 08)	07:14 16:31
14	05:39 20:30	06:07 20:00	06:37 19:11	07:08 18:22	07:28 (WTG 05) 08:48 (WTG 07)	06:44 16:42	07:06 (WTG 06) 16:12 (WTG 08)	07:15 16:32
15	05:39 20:30	06:08 19:58	06:38 19:10	07:09 18:20	07:29 (WTG 05) 08:48 (WTG 07)	06:45 16:42	07:07 (WTG 06) 16:12 (WTG 08)	07:15 16:32
16	05:40 20:29	06:09 19:57	06:39 19:08	07:10 18:19	07:31 (WTG 05) 08:49 (WTG 07)	06:46 16:41	07:09 (WTG 06) 16:13 (WTG 08)	07:16 16:32
17	05:41 20:28	06:10 19:56	06:40 19:06	07:11 18:17	07:32 (WTG 05) 08:49 (WTG 07)	06:47 16:40	07:10 (WTG 06) 16:13 (WTG 08)	07:17 16:32
18	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	07:33 (WTG 07) 08:49 (WTG 07)	06:48 16:39	07:11 (WTG 06) 16:13 (WTG 08)	07:17 16:33
19	05:43 20:27	06:12 19:53	06:42 19:03	07:13 18:14	07:34 (WTG 07) 08:49 (WTG 07)	06:49 16:38	07:12 (WTG 06) 16:12 (WTG 08)	07:18 16:33
20	05:43 20:26	06:13 19:51	06:43 19:01	07:15 18:13	07:35 (WTG 07) 08:49 (WTG 07)	06:51 16:38	07:14 (WTG 06) 16:12 (WTG 08)	07:19 16:33
21	05:44 20:26	06:14 19:50	06:44 18:59	07:16 18:11	07:36 (WTG 07) 08:49 (WTG 07)	06:52 16:37	07:15 (WTG 06) 16:10 (WTG 08)	07:19 16:34
22	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	07:38 (WTG 07) 08:50 (WTG 07)	06:53 16:36	07:16 (WTG 06) 16:09 (WTG 08)	07:20 16:34
23	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	07:39 (WTG 07) 08:50 (WTG 07)	06:54 16:36	07:17 (WTG 06) 16:08 (WTG 08)	07:20 16:35
24	05:47 20:23	06:17 19:45	06:47 18:54	07:19 18:07	07:40 (WTG 07) 08:50 (WTG 07)	06:55 16:35	07:18 (WTG 06) 16:07 (WTG 08)	07:21 16:35
25	05:48 20:22	06:18 19:44	06:48 18:53	07:20 17:05	06:41 (WTG 07) 07:49 (WTG 07)	06:56 16:35	07:20 (WTG 06) 16:08 (WTG 08)	07:21 16:36
26	05:49 20:22	06:19 19:42	06:49 18:51	07:21 17:04	06:42 (WTG 07) 07:49 (WTG 07)	06:57 16:34	07:21 (WTG 06) 16:07 (WTG 08)	07:22 16:37
27	05:50 20:21	06:20 19:41	06:50 18:49	07:22 17:03	06:44 (WTG 07) 07:50 (WTG 07)	06:59 16:34	07:22 (WTG 06) 16:06 (WTG 08)	07:22 16:37
28	05:51 20:20	06:21 19:39	06:51 18:48	07:24 17:01	06:45 (WTG 07) 07:49 (WTG 07)	07:00 16:33	07:23 (WTG 06) 16:05 (WTG 08)	07:22 16:38
29	05:51 20:19	06:22 19:38	06:52 18:46	07:25 17:00	06:46 (WTG 07) 07:49 (WTG 07)	07:01 16:33	07:24 (WTG 06) 16:05 (WTG 08)	07:23 16:39
30	05:52 20:18	06:23 19:36	06:53 18:44	07:26 16:59	06:47 (WTG 07) 07:48 (WTG 07)	07:02 16:32	07:25 (WTG 07) 07:27 (WTG 07)	07:23 16:39
31	05:53 20:17	06:24 19:34		06:27 16:58	06:48 (WTG 07) 07:48 (WTG 07)			07:23 16:40
Potential sun hours	458	427	375	345	298	289		
Total, worst case			208	2191	1454			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AF - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (71)
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	07:23 16:41	09:29 (WTG 06) 10:47 (WTG 06)	07:10 17:15	06:34 17:49	07:04 (WTG 05) 07:50 (WTG 05)	06:44 19:23
2	07:23 16:42	09:30 (WTG 06) 10:47 (WTG 06)	07:09 17:16	06:33 17:50	07:05 (WTG 05) 07:51 (WTG 05)	06:42 19:24
3	07:23 16:43	09:30 (WTG 06) 10:48 (WTG 06)	07:08 17:18	06:31 17:51	07:05 (WTG 05) 07:49 (WTG 05)	06:41 19:25
4	07:23 16:44	09:31 (WTG 06) 10:48 (WTG 06)	07:07 17:19	06:30 17:52	07:06 (WTG 05) 07:49 (WTG 05)	06:39 19:26
5	07:24 16:45	09:32 (WTG 06) 10:48 (WTG 06)	07:06 17:20	06:28 17:54	07:06 (WTG 05) 07:48 (WTG 05)	06:37 19:27
6	07:23 16:46	09:31 (WTG 06) 10:47 (WTG 06)	07:05 17:21	06:27 17:55	07:07 (WTG 05) 07:47 (WTG 05)	06:36 19:28
7	07:23 16:47	09:32 (WTG 06) 10:47 (WTG 06)	07:04 17:23	06:25 17:56	07:08 (WTG 05) 07:48 (WTG 05)	06:34 19:29
8	07:23 16:48	09:33 (WTG 06) 10:48 (WTG 06)	07:03 17:24	06:24 17:57	07:08 (WTG 05) 16:41 (WTG 07)	06:33 19:30
9	07:23 16:49	09:34 (WTG 06) 10:48 (WTG 06)	07:02 17:25	06:22 17:58	07:10 (WTG 05) 16:46 (WTG 07)	06:31 19:31
10	07:23 16:50	09:35 (WTG 06) 10:48 (WTG 06)	07:00 17:26	06:20 17:59	07:11 (WTG 05) 16:49 (WTG 07)	06:29 19:32
11	07:23 16:51	09:35 (WTG 06) 10:47 (WTG 06)	06:59 17:28	06:19 18:00	07:12 (WTG 05) 16:51 (WTG 07)	06:28 19:33
12	07:23 16:52	09:36 (WTG 06) 10:47 (WTG 06)	06:58 17:29	06:17 18:01	07:16 (WTG 05) 16:54 (WTG 07)	06:26 19:34
13	07:22 16:53	09:37 (WTG 06) 10:48 (WTG 06)	06:57 17:30	06:15 18:02	07:19 (WTG 05) 16:56 (WTG 07)	06:25 19:35
14	07:22 16:54	09:38 (WTG 06) 10:47 (WTG 06)	06:56 17:31	06:14 18:04	15:55 (WTG 07) 16:57 (WTG 07)	06:23 19:36
15	07:22 16:55	09:39 (WTG 06) 10:47 (WTG 06)	06:54 17:32	06:12 18:05	15:54 (WTG 07) 16:59 (WTG 07)	06:22 19:37
16	07:21 16:56	09:39 (WTG 06) 10:46 (WTG 06)	06:53 17:34	06:11 18:06	15:51 (WTG 07) 17:00 (WTG 07)	06:20 19:38
17	07:21 16:57	09:41 (WTG 06) 10:46 (WTG 06)	06:52 17:35	06:09 18:07	15:49 (WTG 07) 17:01 (WTG 07)	06:19 19:39
18	07:20 16:58	09:41 (WTG 06) 10:45 (WTG 06)	06:50 17:36	06:07 18:08	15:48 (WTG 07) 17:03 (WTG 07)	06:17 19:41
19	07:20 16:59	09:43 (WTG 06) 10:45 (WTG 06)	06:49 17:37	06:06 18:09	15:47 (WTG 07) 17:03 (WTG 07)	06:15 19:42
20	07:19 17:01	09:44 (WTG 06) 10:44 (WTG 06)	06:48 17:38	06:04 18:10	15:45 (WTG 07) 17:04 (WTG 07)	06:14 19:43
21	07:19 17:02	09:45 (WTG 06) 10:42 (WTG 06)	06:46 17:40	06:02 18:11	15:44 (WTG 07) 17:05 (WTG 07)	06:13 19:44
22	07:18 17:03	09:47 (WTG 06) 10:42 (WTG 06)	06:45 17:41	06:01 18:12	15:43 (WTG 07) 17:06 (WTG 07)	06:11 19:45
23	07:17 17:04	09:48 (WTG 06) 10:41 (WTG 06)	06:43 17:42	05:59 18:13	15:42 (WTG 07) 17:06 (WTG 07)	06:10 19:46
24	07:17 17:05	09:49 (WTG 06) 10:39 (WTG 06)	06:42 17:43	05:57 18:14	15:41 (WTG 07) 17:07 (WTG 07)	06:08 19:47
25	07:16 17:07	09:50 (WTG 06) 10:37 (WTG 06)	06:40 17:44	05:56 18:15	15:40 (WTG 07) 17:07 (WTG 07)	06:07 19:48
26	07:15 17:08	09:53 (WTG 06) 10:36 (WTG 06)	06:39 17:46	05:54 18:16	15:39 (WTG 07) 17:07 (WTG 07)	06:05 19:49
27	07:14 17:09	09:55 (WTG 06) 10:34 (WTG 06)	06:37 17:47	05:52 18:17	15:39 (WTG 07) 17:08 (WTG 07)	06:04 19:50
28	07:14 17:10	09:57 (WTG 06) 10:32 (WTG 06)	06:36 17:48	05:51 18:18	15:38 (WTG 07) 17:08 (WTG 07)	06:03 19:51
29	07:13 17:11	10:00 (WTG 06) 10:28 (WTG 06)	06:49 17:49	06:49 19:20	16:37 (WTG 07) 18:07 (WTG 07)	06:01 19:52
30	07:12 17:13	10:04 (WTG 06) 10:24 (WTG 06)	06:47 17:50	06:47 19:21	16:38 (WTG 07) 18:08 (WTG 07)	06:00 19:53
31	07:11 17:14		06:46 17:51	06:46 19:22	16:37 (WTG 07) 18:08 (WTG 07)	05:30 20:23
Potential sun hours	298	297	369	398	448	451
Total, worst case	1855	688	2190	2403	329	

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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AF - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (71)
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	05:31 20:34	05:54 20:16	06:25 19:33	16:35 (WTG 07) 06:54 18:04 (WTG 07) 18:43	07:56 (WTG 05) 06:28 17:34 (WTG 07) 16:56	07:03 09:17 (WTG 06)
2	05:31 20:34	05:55 20:14	06:26 19:31	16:34 (WTG 07) 06:55 18:04 (WTG 07) 18:41	07:52 (WTG 05) 06:29 17:31 (WTG 07) 16:55	72 16:32 73 10:30 (WTG 06)
3	05:32 20:34	05:56 20:13	17:23 (WTG 07) 06:27 17:37 (WTG 07) 19:30	16:34 (WTG 07) 06:56 18:04 (WTG 07) 18:39	07:49 (WTG 05) 06:31 17:28 (WTG 07) 16:54	06:31 16:32 74 10:31 (WTG 06)
4	05:32 20:34	05:57 20:12	17:19 (WTG 07) 06:28 17:40 (WTG 07) 19:28	16:33 (WTG 07) 06:57 18:03 (WTG 07) 18:38	07:47 (WTG 05) 06:32 17:25 (WTG 07) 16:53	06:32 16:31 75 10:32 (WTG 06)
5	05:33 20:34	05:58 20:11	17:16 (WTG 07) 06:29 17:41 (WTG 07) 19:26	16:32 (WTG 07) 06:58 18:03 (WTG 07) 18:36	07:45 (WTG 05) 06:33 17:20 (WTG 07) 16:51	06:33 16:31 75 10:32 (WTG 06)
6	05:33 20:33	05:59 20:10	17:13 (WTG 07) 06:30 17:43 (WTG 07) 19:25	16:32 (WTG 07) 06:59 18:03 (WTG 07) 18:34	07:45 (WTG 05) 06:34 17:16 (WTG 07) 16:50	06:34 16:31 75 10:33 (WTG 06)
7	05:34 20:33	06:00 20:09	17:11 (WTG 07) 06:31 17:44 (WTG 07) 19:23	16:31 (WTG 07) 07:01 18:03 (WTG 07) 18:33	07:43 (WTG 05) 06:35 17:16 (WTG 07) 16:49	06:35 16:31 76 10:34 (WTG 06)
8	05:34 20:33	06:01 20:08	17:08 (WTG 07) 06:32 17:46 (WTG 07) 19:21	16:31 (WTG 07) 07:02 18:02 (WTG 07) 18:31	07:42 (WTG 05) 06:36 17:23 (WTG 07) 16:48	06:36 16:31 77 10:35 (WTG 06)
9	05:35 20:32	06:02 20:06	17:06 (WTG 07) 06:33 17:47 (WTG 07) 19:20	16:30 (WTG 07) 07:03 18:02 (WTG 07) 18:29	07:41 (WTG 05) 06:38 17:24 (WTG 07) 16:47	06:38 16:31 78 10:36 (WTG 06)
10	05:36 20:32	06:03 20:05	17:05 (WTG 07) 06:34 17:49 (WTG 07) 19:18	16:30 (WTG 07) 07:04 18:01 (WTG 07) 18:28	07:40 (WTG 05) 06:39 17:25 (WTG 07) 16:46	06:39 16:31 77 10:36 (WTG 06)
11	05:36 20:32	06:04 20:04	17:03 (WTG 07) 06:35 17:50 (WTG 07) 19:16	16:29 (WTG 07) 07:05 18:01 (WTG 07) 18:26	07:39 (WTG 05) 06:40 17:26 (WTG 07) 16:45	06:40 09:42 (WTG 06) 07:12 09:47 (WTG 06) 16:31 78 10:37 (WTG 06)
12	05:37 20:31	06:05 20:02	17:01 (WTG 07) 06:35 17:52 (WTG 07) 19:15	16:29 (WTG 07) 07:06 18:00 (WTG 07) 18:25	07:38 (WTG 05) 06:41 17:27 (WTG 07) 16:44	06:41 09:56 (WTG 06) 16:31 20 10:38 (WTG 06)
13	05:38 20:31	06:06 20:01	16:59 (WTG 07) 06:36 17:52 (WTG 07) 19:13	16:29 (WTG 07) 07:07 17:59 (WTG 07) 18:23	07:38 (WTG 05) 06:42 17:28 (WTG 07) 16:43	06:42 09:29 (WTG 06) 16:31 29 10:38 (WTG 06)
14	05:39 20:30	06:07 20:00	16:57 (WTG 07) 06:37 17:53 (WTG 07) 19:11	16:29 (WTG 07) 07:08 17:59 (WTG 07) 18:22	07:37 (WTG 05) 06:44 17:29 (WTG 07) 16:42	06:44 09:29 (WTG 06) 16:32 35 10:39 (WTG 06)
15	05:39 20:30	06:08 19:58	16:56 (WTG 07) 06:38 17:55 (WTG 07) 19:10	16:28 (WTG 07) 07:09 17:58 (WTG 07) 18:20	07:37 (WTG 05) 06:45 17:30 (WTG 07) 16:41	06:45 09:26 (WTG 06) 16:32 39 10:39 (WTG 06)
16	05:40 20:29	06:09 19:57	16:54 (WTG 07) 06:39 17:56 (WTG 07) 19:08	16:28 (WTG 07) 07:10 17:57 (WTG 07) 18:18	07:38 (WTG 05) 06:46 17:31 (WTG 07) 16:41	06:46 09:26 (WTG 06) 16:32 43 10:40 (WTG 06)
17	05:41 20:28	06:10 19:56	16:53 (WTG 07) 06:40 17:58 (WTG 07) 19:06	16:28 (WTG 07) 07:11 17:56 (WTG 07) 18:17	07:37 (WTG 05) 06:47 17:32 (WTG 07) 16:40	06:47 09:24 (WTG 06) 16:32 47 10:41 (WTG 06)
18	05:42 20:28	06:11 19:54	16:51 (WTG 07) 06:41 17:59 (WTG 07) 19:05	16:27 (WTG 07) 07:12 17:54 (WTG 07) 18:15	07:37 (WTG 05) 06:48 17:33 (WTG 07) 16:39	06:48 09:23 (WTG 06) 16:33 50 10:41 (WTG 06)
19	05:43 20:27	06:12 19:53	16:50 (WTG 07) 06:42 18:01 (WTG 07) 19:03	16:28 (WTG 07) 07:13 17:53 (WTG 07) 18:14	07:37 (WTG 05) 06:49 17:34 (WTG 07) 16:38	06:49 09:22 (WTG 06) 16:33 53 10:41 (WTG 06)
20	05:43 20:26	06:13 19:51	16:49 (WTG 07) 06:43 18:02 (WTG 07) 19:01	16:28 (WTG 07) 07:15 17:52 (WTG 07) 18:13	07:37 (WTG 05) 06:51 17:35 (WTG 07) 16:38	06:51 09:22 (WTG 06) 16:33 55 10:42 (WTG 06)
21	05:44 20:26	06:14 19:50	16:48 (WTG 07) 06:44 18:02 (WTG 07) 18:59	16:28 (WTG 07) 07:16 17:51 (WTG 07) 18:11	07:37 (WTG 05) 06:52 17:36 (WTG 07) 16:37	06:52 09:21 (WTG 06) 16:34 57 10:42 (WTG 06)
22	05:45 20:25	06:15 19:48	16:46 (WTG 07) 06:45 18:03 (WTG 07) 18:58	16:29 (WTG 07) 07:17 17:50 (WTG 07) 18:10	07:38 (WTG 05) 06:53 17:37 (WTG 07) 16:36	06:53 09:20 (WTG 06) 16:34 60 10:43 (WTG 06)
23	05:46 20:24	06:16 19:47	16:45 (WTG 07) 06:46 18:03 (WTG 07) 18:56	16:29 (WTG 07) 07:18 17:49 (WTG 07) 18:08	07:39 (WTG 05) 06:54 17:38 (WTG 07) 16:36	06:54 09:19 (WTG 06) 16:35 62 10:43 (WTG 06)
24	05:47 20:23	06:17 19:45	16:44 (WTG 07) 06:47 18:04 (WTG 07) 18:54	16:30 (WTG 07) 07:19 17:47 (WTG 07) 18:07	07:40 (WTG 05) 06:55 17:39 (WTG 07) 16:35	06:55 09:18 (WTG 06) 16:35 64 10:44 (WTG 06)
25	05:48 20:22	06:18 19:44	16:43 (WTG 07) 06:48 18:04 (WTG 07) 18:53	16:30 (WTG 07) 06:20 17:46 (WTG 07) 17:05	06:41 (WTG 05) 06:56 17:40 (WTG 07) 16:35	06:56 09:19 (WTG 06) 16:36 65 10:44 (WTG 06)
26	05:49 20:21	06:19 19:42	16:42 (WTG 07) 06:49 18:04 (WTG 07) 18:51	16:31 (WTG 07) 06:21 17:44 (WTG 07) 17:04	06:42 (WTG 05) 06:57 17:41 (WTG 07) 16:34	06:57 09:18 (WTG 06) 16:37 67 10:44 (WTG 06)
27	05:50 20:21	06:20 19:41	16:41 (WTG 07) 06:50 18:04 (WTG 07) 18:49	16:32 (WTG 07) 06:22 17:42 (WTG 07) 17:03	06:44 (WTG 05) 06:59 17:42 (WTG 07) 16:34	06:59 09:18 (WTG 06) 16:37 68 10:45 (WTG 06)
28	05:50 20:20	06:21 19:39	16:40 (WTG 07) 06:51 18:05 (WTG 07) 18:48	16:33 (WTG 07) 06:24 17:40 (WTG 07) 17:01	06:45 (WTG 05) 07:00 17:41 (WTG 07) 16:33	07:00 09:18 (WTG 06) 16:38 69 10:45 (WTG 06)
29	05:51 20:19	06:22 19:38	16:39 (WTG 07) 06:52 18:05 (WTG 07) 18:46	16:35 (WTG 07) 06:25 17:38 (WTG 07) 17:00	06:46 (WTG 05) 07:01 17:42 (WTG 07) 16:33	07:01 09:17 (WTG 06) 16:39 71 10:46 (WTG 06)
30	05:52 20:18	06:23 19:36	16:38 (WTG 07) 06:53 18:05 (WTG 07) 18:44	16:36 (WTG 07) 06:26 17:36 (WTG 07) 16:59	06:48 (WTG 05) 07:02 17:43 (WTG 07) 16:32	07:02 09:17 (WTG 06) 16:39 71 10:46 (WTG 06)
31	05:53 20:17	06:24 19:34	16:36 (WTG 07) 06:54 18:04 (WTG 07) 18:44	16:37 (WTG 07) 06:27 17:37 (WTG 07) 16:57	06:51 (WTG 05) 07:03 17:44 (WTG 07) 16:33	07:03 09:18 (WTG 06) 16:40 78 10:47 (WTG 06)
Potential sun hours	458	427	375	345	298	289
Total, worst case		1752	2523	1405	1030	2410

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AG - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (72)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:23	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:17	06:33 17:50	06:43 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:29 16:55	07:04 16:32
3	07:23 16:43	07:08 17:18	06:31 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32
4	07:24 16:44	07:07 17:19	06:30 17:53	06:39 19:26	05:55 19:57	05:29 20:26	05:32 20:34	05:57 20:12	06:28 19:28	06:58 18:38	06:32 16:53	07:06 16:32
5	07:24 16:45	07:06 17:20	06:28 17:54	06:38 19:27	05:54 19:58	05:29 20:26	05:33 20:34	05:58 20:11	06:29 19:26	06:59 18:36	06:33 16:52	07:07 16:31
6	07:24 16:46	07:05 17:22	06:27 17:55	06:36 19:28	05:52 19:59	05:28 20:27	05:33 20:33	05:59 20:10	06:30 19:25	07:00 18:34	06:34 16:51	07:08 16:31
7	07:23 16:47	07:04 17:23	06:25 17:56	06:34 19:29	05:51 20:00	05:28 20:28	05:34 20:33	06:00 20:09	06:31 19:23	07:01 18:33	06:35 16:49	07:09 16:31
8	07:23 16:48	07:03 17:24	06:24 17:57	06:33 19:30	05:50 20:02	05:28 20:28	05:35 20:33	06:01 20:08	06:32 19:21	07:02 18:31	06:37 16:48	07:10 16:31
9	07:23 16:49	07:02 17:25	06:22 17:58	06:31 19:31	05:49 20:03	05:27 20:29	05:35 20:33	06:02 20:06	06:33 19:20	07:03 18:30	06:38 16:47	07:11 16:31
10	07:23 16:50	07:01 17:26	06:20 17:59	06:30 19:32	05:48 20:04	05:27 20:29	05:36 20:32	06:03 20:05	06:34 19:18	07:04 18:28	06:39 16:46	07:11 16:31
11	07:23 16:51	06:59 17:28	06:19 18:00	06:28 19:33	05:47 20:05	05:27 20:30	05:37 20:32	06:04 20:04	06:35 19:16	07:05 18:26	06:40 16:45	07:12 16:31
12	07:23 16:52	06:58 17:29	06:17 18:01	06:26 19:34	05:46 20:06	05:27 20:30	05:37 20:31	06:05 20:02	06:36 19:15	07:06 18:25	06:41 16:44	07:13 16:31
13	07:22 16:53	06:57 17:30	06:16 18:03	06:25 19:35	05:45 20:07	05:27 20:31	05:38 20:31	06:06 20:01	06:37 19:13	07:07 18:23	06:42 16:43	07:14 16:31
14	07:22 16:54	06:56 17:31	06:14 18:04	06:23 19:36	05:44 20:08	05:27 20:31	05:39 20:30	06:07 20:00	06:38 19:11	07:08 18:22	06:44 16:42	07:15 16:32
15	07:22 16:55	06:54 17:33	06:12 18:05	06:22 19:37	05:43 20:09	05:27 20:32	05:40 20:30	06:08 19:58	06:39 19:10	07:09 18:20	06:45 16:42	07:15 16:32
16	07:21 16:56	06:53 17:34	06:11 18:06	06:20 19:39	05:42 20:10	05:27 20:32	05:40 20:29	06:09 19:57	06:40 19:08	07:10 18:19	06:46 16:41	07:16 16:32
17	07:21 16:57	06:52 17:35	06:09 18:07	06:19 19:40	05:41 20:10	05:27 20:33	05:41 20:28	06:10 19:56	06:40 19:06	07:11 18:17	06:47 16:40	07:17 16:32
18	07:20 16:58	06:50 17:36	06:07 18:08	06:17 19:41	05:40 20:11	05:27 20:33	05:42 20:28	06:11 19:54	06:41 19:05	07:12 18:16	06:48 16:39	07:17 16:33
19	07:20 17:00	06:49 17:37	06:06 18:09	06:16 19:42	05:39 20:12	05:27 20:33	05:43 20:27	06:12 19:53	06:42 19:03	07:13 18:14	06:50 16:38	07:18 16:33
20	07:19 17:01	06:48 17:39	06:04 18:10	06:14 19:43	05:38 20:13	05:27 20:33	05:44 20:26	06:13 19:51	06:43 19:01	07:15 18:13	06:51 16:38	07:19 16:34
21	07:19 17:02	06:46 17:40	06:02 18:11	06:13 19:44	05:37 20:14	05:27 20:34	05:44 20:26	06:14 19:50	06:44 19:00	07:16 18:11	06:52 16:37	07:19 16:34
22	07:18 17:03	06:45 17:41	06:01 18:12	06:11 19:45	05:36 20:15	05:28 20:34	05:45 20:25	06:15 19:48	06:45 18:58	07:17 18:10	06:53 16:36	07:20 16:34
23	07:17 17:04	06:43 17:42	05:59 18:13	06:10 19:46	05:36 20:16	05:28 20:34	05:46 20:24	06:16 19:47	06:46 18:56	07:18 18:08	06:54 16:36	07:20 16:35
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30	07:12 17:13		06:47 19:21	06:00 19:53	05:31 20:22	05:30 20:34	05:52 20:18	06:23 19:36	06:53 18:44	07:25 16:59	07:02 16:33	07:23 16:40
31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:34		06:27 16:58		07:23 16:40
Potential sun hours	298	298	369	398	448	451	458	427	375	346	299	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AH - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (73)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:23	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
2	07:23 16:42	07:09 17:17	06:33 17:50	06:43 19:24	05:57 19:55	05:30 20:24	05:31 20:34	05:55 20:15	06:26 19:31	06:55 18:41	06:29 16:55	07:04 16:32
3	07:23 16:43	07:08 17:18	06:31 17:51	06:41 19:25	05:56 19:56	05:29 20:25	05:32 20:34	05:56 20:13	06:27 19:30	06:56 18:39	06:31 16:54	07:05 16:32
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31	07:11 17:14		06:46 19:22		05:31 20:23		05:53 20:17	06:24 19:34		06:27 16:58		07:23 16:40
Potential sun hours	298	298	369	398	448	451	458	427	375	346	299	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AI - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (74)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:23	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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Potential sun hours	298	298	369	398	448	451	458	427	375	346	299	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AJ - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (75)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:23	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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Potential sun hours	298	298	369	398	448	451	458	427	375	346	299	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AK - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (76)
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	07:23 16:41	07:10 17:15	06:35 17:49	06:44 19:23	05:59 19:54	05:30 20:23	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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Potential sun hours	298	297	369	398	448	451	458	427	375	346	299	289
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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

Calculation: SHADOW_PESCOPAGANO_DEF Shadow receptor: AL - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (77)
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	07:23 16:41	07:10 17:15	06:34 17:49	06:44 19:23	05:59 19:54	05:30 20:23	05:31 20:34	05:54 20:16	06:25 19:33	06:54 18:43	06:28 16:56	07:03 16:32
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