

AUTORIZZAZIONE UNICA EX D. LGS. N. 387/2003



Progetto Definitivo

Parco Eolico Melfi

Titolo elaborato:

Studio sugli effetti dello shadow flickering

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REDATTO	CONTR.	APPROV.	DESCRIZIONE REVISIONE DOCUMENTO	DATA	REV	
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Codice MLSA126			Formato A4	Scala	Foglio 1 di 154	

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1. PREMESSA

Nella presente trattazione si descrive l'evoluzione giornaliera delle ombre generate dalle pale eoliche facenti parte dell'impianto eolico denominato "Melfi" al fine di verificare che l'alternanza ciclica dell'ombra non arrechi danni alla salute della popolazione.

2. DESCRIZIONE DEL PROGETTO

L'impianto eolico presenta una potenza totale pari a 42 MW ed è costituito da 7 aerogeneratori, ciascuno di potenza nominale pari a 6 MW, altezza della torre pari a 135 m e rotore pari a 170 m.

Gli aerogeneratori sono collegati tra loro mediante cavi interrati in Media Tensione a 33 kV che convogliano l'elettricità presso una Stazione Elettrica Utente (SEU) di trasformazione 150/33 kV, contenuta in una Stazione Elettrica Condivisa (SEC) con altri produttori, la quale si collega al futuro ampliamento della Stazione Elettrica (SE) 380/150 kV della Rete di Trasmissione Nazionale (RTN) Terna di Melfi mediante una terna di cavi interrati in Alta Tensione a 150 kV.

L'impianto ricade integralmente nel territorio del comune di Melfi (PZ), come si evince dalla **Figura**

2.1.

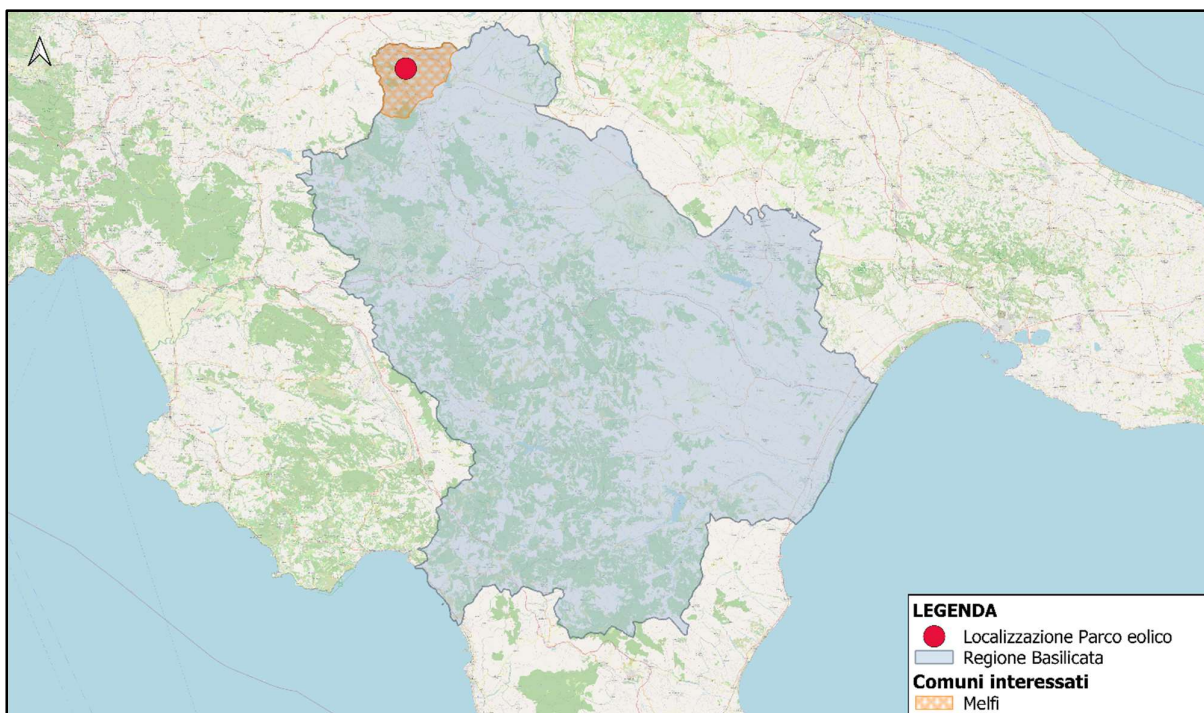


Figura 2.1: Inquadramento territoriale - Limiti amministrativi comuni interessati

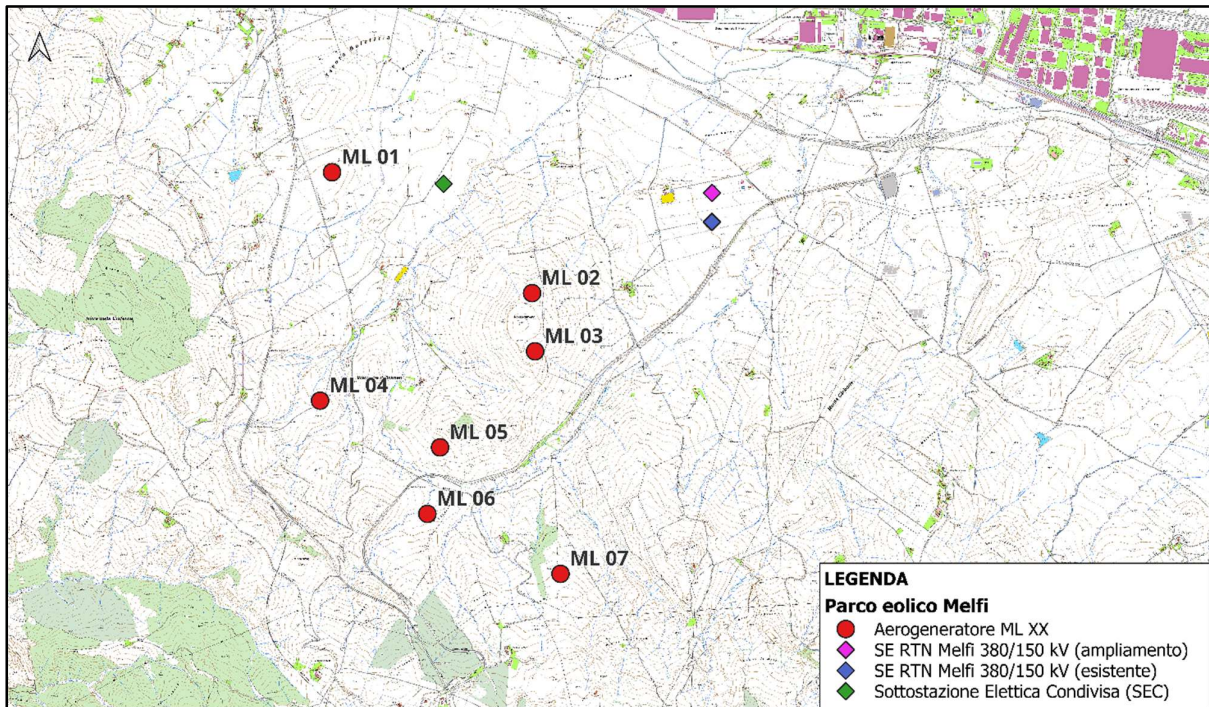


Figura 2.2: Layout d’impianto su CTR

L’ambito territoriale considerato si trova nel Comune di Melfi (PZ), nella zona nord-orientale della Regione Basilicata, al confine con la Regione Puglia, ed è localizzato a circa 2 km dall’area industriale di San Nicola di Melfi.

Le turbine eoliche sono collegate mediante un sistema di linee elettriche interrato di Media Tensione a 33 kV allocate in corrispondenza del sistema di viabilità interna, necessario alla costruzione e alla gestione futura dell’impianto, e realizzato adeguando il sistema viario esistente, ove possibile, e realizzando nuovi tratti di raccordo per consentire il transito dei mezzi eccezionali.

La SEU 150/33 kV, contenuta in una SEC con altri produttori, è posizionata a nord rispetto agli aerogeneratori ed è a sua volta collegata mediante una linea interrata a 150 kV al futuro ampliamento della Stazione Elettrica (SE) 380/150 kV della RTN “Melfi”.

Con particolare riferimento alla connessione alla Rete di Trasmissione Nazionale, la Soluzione Tecnica Minima Generale elaborata da Terna (CP 202201077) prevede che l’impianto eolico in progetto venga collegato in antenna a 150 kV sul futuro ampliamento della Stazione Elettrica (SE) a 380/150 kV della RTN denominata “Melfi”.

La consegna in sito dei componenti degli aerogeneratori avverrà mediante l’utilizzo di mezzi di trasporto eccezionali, tra cui anche il blade lifter, al fine di ridurre gli impatti sui movimenti terra.

Il percorso ipotizzato prevede di partire dal Porto di Taranto ed arrivare in sito passando per la E90, la SP3, la SS7 e la SS655 (**Figura 2.3**).



Figura 2.3: Layout d’impianto con viabilità di accesso dal Porto di Taranto (linea rossa) su immagine satellitare

Per maggiori dettagli si fa riferimento all’elaborato “MLEG024 Relazione viabilità di accesso al cantiere (road survey)”.

2.1. Caratteristiche tecniche dell’aerogeneratore

L’aerogeneratore è una macchina rotante che trasforma l’energia cinetica del vento in energia elettrica ed è essenzialmente costituito da una torre (suddivisa in più parti), dalla navicella, dal Drive Train, dall’Hub e tre pale che costituiscono il rotore.

Il progetto prevede l’installazione di un aerogeneratore modello Siemens Gamesa SG170, di potenza nominale pari a 6,0 MW, altezza torre all’hub pari a 135 m e diametro del rotore pari a 170 m (**Figura 2.1.1**).

Oltre ai componenti sopra elencati, un sistema di controllo esegue il controllo della potenza ruotando le pale intorno al proprio asse principale e il controllo dell’orientamento della navicella, detto controllo dell’imbardata, che permette l’allineamento della macchina rispetto alla direzione del vento.

Il rotore, a passo variabile, è in resina epossidica rinforzata con fibra di vetro ed è posto sopravvento al sostegno con mozzo rigido in acciaio.

Altre caratteristiche principali sono riassunte nella **Tabella 2.1.1** e in allegato alla presente.

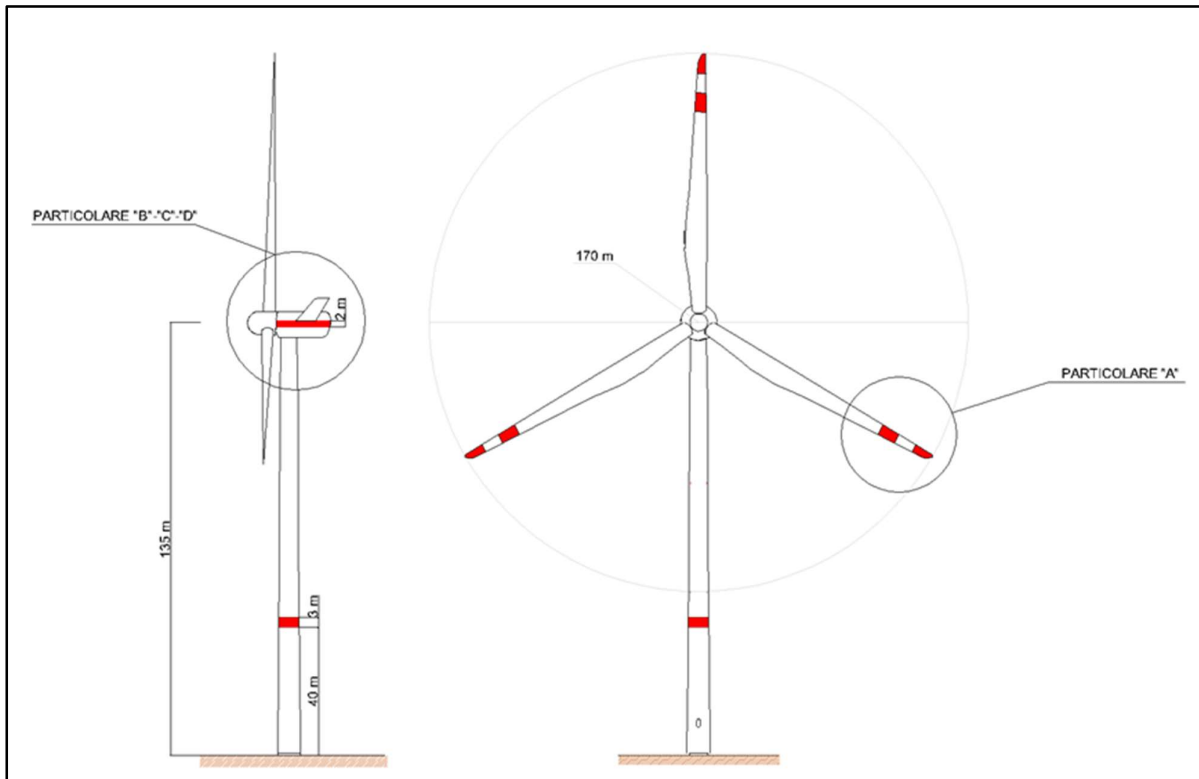


Figura 2.1.1: Profilo aerogeneratore SG170 – 6,0 MW – HH = 135 m – D = 170 m

Rotor		Grid Terminals (LV)	
Type	3-bladed, horizontal axis	Baseline nominal power ..	6.0MW/6.2 MW
Position	Upwind	Voltage	690 V
Diameter	170 m	Frequency	50 Hz or 60 Hz
Swept area	22,698 m ²	Yaw System	
Power regulation	Pitch & torque regulation with variable speed	Type	Active
Rotor tilt	6 degrees	Yaw bearing	Externally geared
Blade		Yaw drive	Electric gear motors
Type	Self-supporting	Yaw brake	Active friction brake
Single piece blade length	83,3 m	Controller	
Segmented blade length:		Type	Siemens Integrated Control System (SICS)
Inboard module	68,33 m	SCADA system	Consolidated SCADA (CSSS)
Outboard module	15,04 m	Tower	
Max chord	4.5 m	Type	Tubular steel / Hybrid
Aerodynamic profile	Siemens Gamesa proprietary airfoils	Hub height	100m to 165 m and site- specific
Material	G (Glassfiber) – CRP (Carbon Reinforced Plastic)	Corrosion protection	
Surface gloss	Semi-gloss, < 30 / ISO2813	Surface gloss	Painted
Surface color	Light grey, RAL 7035 or White, RAL 9018	Color	Semi-gloss, <30 / ISO-2813 Light grey, RAL 7035 or White, RAL 9018
Aerodynamic Brake		Operational Data	
Type	Full span pitching	Cut-in wind speed	3 m/s
Activation	Active, hydraulic	Rated wind speed	11.0 m/s (steady wind without turbulence, as defined by IEC61400-1)
Load-Supporting Parts		Cut-out wind speed	25 m/s
Hub	Nodular cast iron	Restart wind speed	22 m/s
Main shaft	Nodular cast iron	Weight	
Nacelle bed frame	Nodular cast iron	Modular approach	Different modules depending on restriction
Mechanical Brake			
Type	Hydraulic disc brake		
Position	Gearbox rear end		
Nacelle Cover			
Type	Totally enclosed		
Surface gloss	Semi-gloss, <30 / ISO2813		
Color	Light Grey, RAL 7035 or White, RAL 9018		
Generator			
Type	Asynchronous, DFIG		

Tabella 2.1.1: Specifiche tecniche aerogeneratore di progetto

2.2. Viabilità e piazzole

La viabilità e le piazzole del parco eolico sono elementi progettati considerando la fase di costruzione e la fase di esercizio dell'impianto eolico.

In merito alla viabilità, come detto sopra, si è cercato di utilizzare il sistema viario esistente adeguandolo al passaggio dei mezzi eccezionali. Tale indirizzo progettuale ha consentito di minimizzare l'impatto sul territorio e di ripristinare tratti di viabilità comunale e interpoderali che si trovano in stato di dissesto migliorando l'accessibilità dei luoghi anche alla popolazione locale.

Nei casi in cui tale approccio non è stato perseguibile sono stati progettati tratti di nuova viabilità seguendo il profilo naturale del terreno senza interferire con il reticolo idrografico presente in sito.

Nella **Figura 2.2.1** è riportata una sezione stradale tipo di riferimento per i tratti di viabilità da adeguare e per quelli di nuova realizzazione.

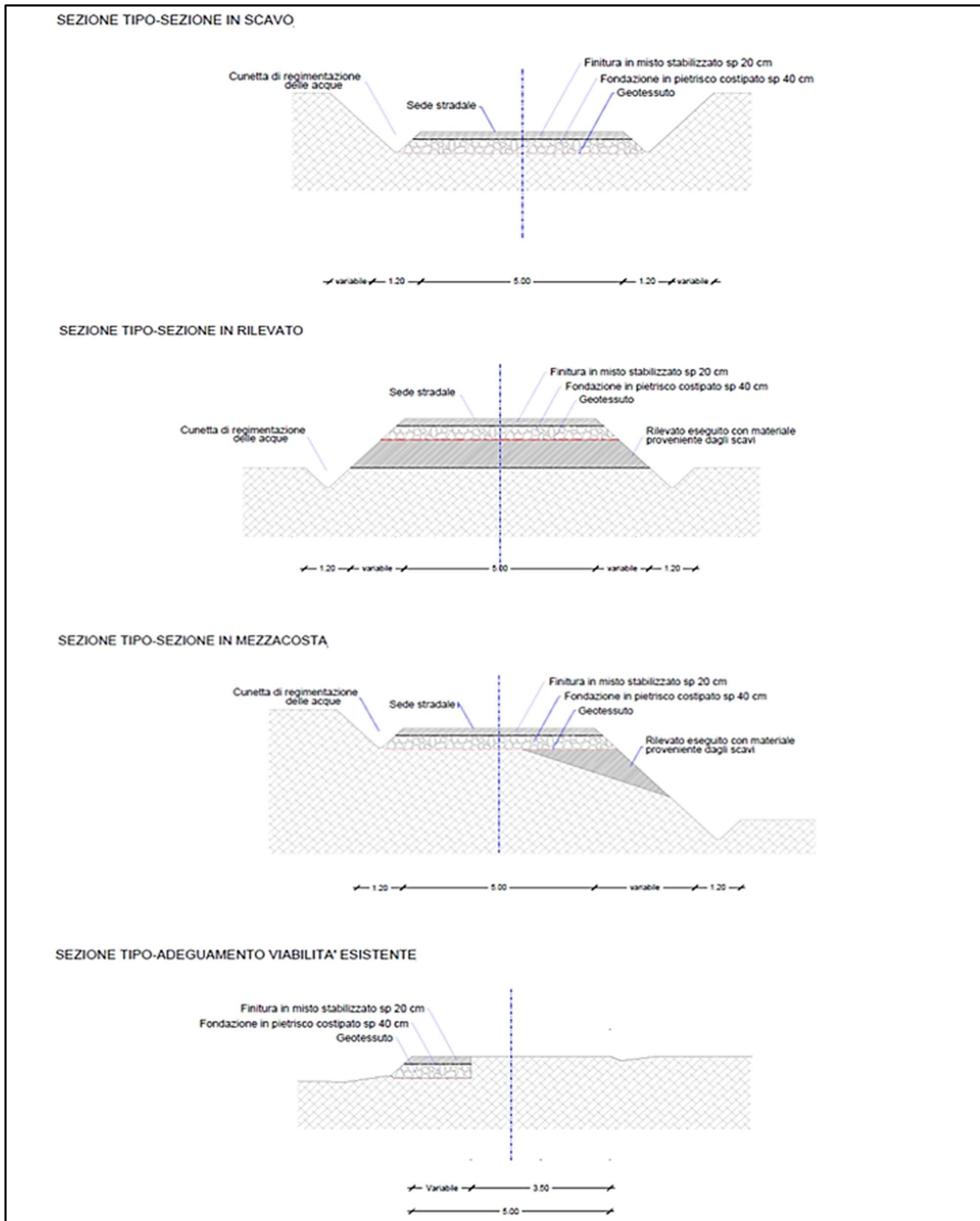


Figura 2.2.1: Sezioni tipo viabilità parco eolico

La progettazione delle piazzole da realizzare per l'installazione di ogni aerogeneratore prevede due configurazioni, la prima necessaria all'installazione dell'aerogeneratore e la seconda, a seguito di opere di ripristino parziale, necessaria alla fase di esercizio e manutenzione dell'impianto (**Figura 2.2.2**).

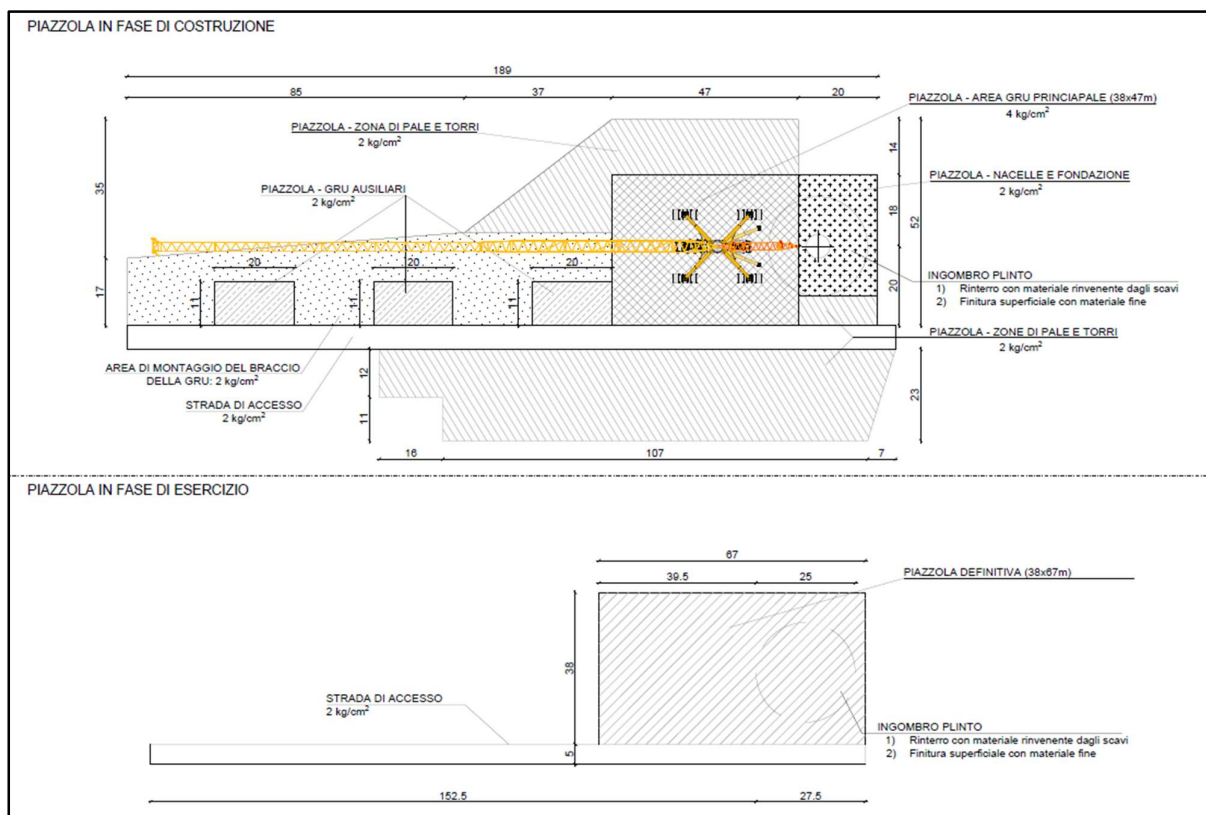


Figura 2.2.2: Planimetria piazzola tipo per la fase di installazione e fase di esercizio e manutenzione

3. CARATTERISTICHE PRINCIPALI DEL PARCO EOLICO

L'impianto eolico sarà costituito essenzialmente da 7 aerogeneratori la cui posizione è stata stabilita a seguito di valutazioni che riguardano diversi aspetti quali l'esposizione a tutti i settori della rosa dei venti, la morfologia del territorio, la distanza da fabbricati e strade esistenti ed utilizzate da un elevato numero di veicoli, distanza dal centro abitato e da beni monumentali presenti nell'area oltre agli aspetti legati alla sicurezza e volti a minimizzare l'impatto sull'ambiente:

- ottemperare alle previsioni della normativa vigente e delle linee guida sia nazionali che regionali;
- minimizzare l'impatto visivo;
- migliorare in sistema viario esistente al fine di migliorare l'accessibilità ai terreni per lo sviluppo dell'agricoltura e dell'allevamento di animali;
- disposizione delle macchine ad una distanza reciproca minima pari ad almeno 450 m, atta a minimizzare l'effetto scia, l'effetto selva e l'impatto sull'avifauna;

- condizioni di massima sicurezza, sia in fase di installazione che di esercizio.

La disposizione finale del parco è stata verificata e confermata a seguito di uno studio di fattibilità condotto sulla base delle informazioni sugli aspetti vincolistici dal punto di vista ambientale e paesaggistico e sulla base dei sopralluoghi svolti sul posto per verificare le interferenze presenti in sito e la fattibilità di realizzazione delle opere.

Il progetto prevede l'adeguamento di tratti di strada esistenti, in particolare strade comunali, e la realizzazione di una nuova viabilità a servizio degli aerogeneratori di progetto, ossia di una rete viaria interna al parco che si snoderà seguendo lo sviluppo degli esistenti tratturi non vincolati dalla Soprintendenza.

La disponibilità delle aree, necessaria per l'installazione degli aerogeneratori e le relative opere connesse, è garantita grazie alla Dichiarazione di Pubblica utilità ai sensi degli artt. 52-quater "Disposizioni generali in materia di conformità urbanistica, apposizione del vincolo preordinato all'esproprio e pubblica utilità" e 52-quinquies "Disposizioni particolari per le infrastrutture lineari energetiche facenti parte delle reti energetiche nazionali" D.P.R. 327/2001 a conclusione del procedimento autorizzatorio di cui all'art.12, d.lgs. 387/2003 e gli effetti dell'Autorizzazione Unica ottenuta dopo opportuna conferenza di servizi.

Tutte le aree oggetto interessate dal progetto sono riportate nello specifico elaborato di progetto "MLEG011 Piano Particellare di esproprio descrittivo".

4. FENOMENO DI SHADOW FLIKERING

La presenza delle turbine eoliche provoca la proiezione dell'ombra sulle aree ad esse adiacenti in presenza di luce solare diretta.

Il fenomeno causa effetti quasi statici dovuti alla presenza della torre fissa ed effetti dinamici legati alla rotazione del rotore delle tre pale della turbina.

Gli effetti statici possono aumentare, nelle prime ed ultime ore del giorno, la probabilità di formazione di ghiaccio su eventuali strade asfaltate soggette a traffico.

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

Lo "**shadow flickering**" descrive appunto l'effetto stroboscopico delle ombre proiettate dalle pale rotanti degli aerogeneratori allorquando il sole si trova alle loro spalle, come si evince dalla **Figura 4.1**.

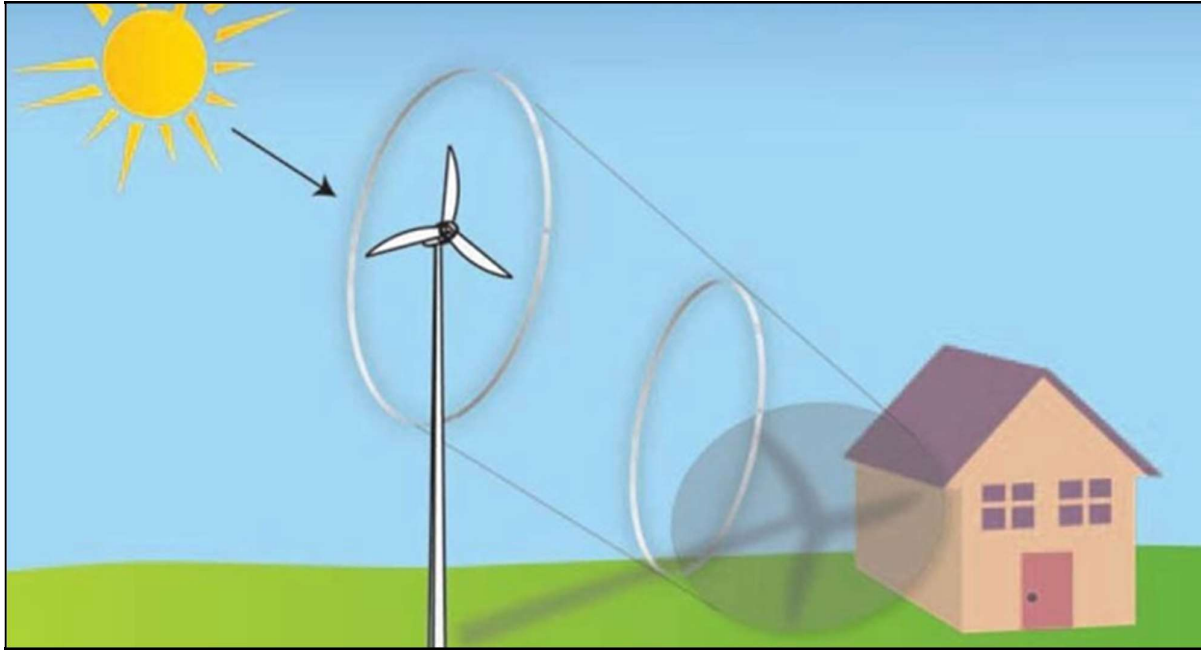


Figura 4.1: Ombre proiettate dalle pale in rotazione di una turbina

Il conseguente 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.

Lo shadow flickering risulta assente nei casi di presenza di nuvole e nebbia che oscurano il sole e nei casi in cui le pale dell'aerogeneratore sono a riposo (per esempio in assenza del vento).

Per effettuare l'analisi del fenomeno vengono considerati alcuni parametri che ne influenzano la rilevanza.

Il primo di essi da tenere in conto è la frequenza di rotazione delle pale; in particolare, le frequenze che possono provocare un senso di fastidio sono comprese tra i 2,5 ed i 20 Hz.

Solitamente gli 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 (dal MW in su) raramente superano la velocità di rotazione di 20 giri al minuto, corrispondente a frequenze di passaggio delle pale ampiamente minori di quelle ritenute fastidiose per la maggioranza degli individui.

Un ulteriore aspetto da considerare per l'analisi della durata del fenomeno è la relazione spaziale tra un aerogeneratore ed un ricettore (abitazione), così come la direzione del vento.

Per distanze dell'ordine dei 300 m il fenomeno è più rilevante 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 l'effetto delle ombre è meno consistente perché il diametro del sole risulta essere di gran lunga superiore rispetto allo spessore della singola pala.

In questo scenario la condizione più penalizzante corrisponde al caso in cui il piano del rotore risulta essere ortogonale alla congiungente tra sole e ricevitore; infatti, in tali condizioni, l'ombra proiettata darà origine ad un cerchio di diametro pari al rotore dell'aerogeneratore.

L'effetto dello shadow flickering risulta evidente e fastidioso in quegli ambienti con finestrate rivolte verso le ombre.

In linea di massima, si può ritenere che l'area soggetta al fenomeno in questione non si estenda oltre i 500 ÷ 1000 m dall'aerogeneratore e le zone a maggiore impatto ricadono entro i 300 m di distanza dalle turbine.

Al fine di analizzare qualitativamente e quantitativamente il fenomeno, risulta necessario individuare la posizione occupata dal sole in maniera univoca tramite due coordinate angolari, azimut ed altezza.

L'azimut per convenzione è l'angolo valutato sul piano orizzontale ed in senso orario, a partire dal nord geografico fino alla proiezione della congiungente (origine del sistema) - sole sul piano orizzontale stesso, ovvero il punto direttamente sotto al sole.

L'altezza o elevazione è misurata sul piano verticale, partendo da tale punto sino ad arrivare in corrispondenza del sole.

Tali coordinate variano con continuità grazie al moto della Terra intorno al sole e la traiettoria descritta nel cielo dal sole è assimilabile ad un arco; ogni giorno si caratterizza per un proprio arco, il quale si discosta, se pur di poco, da quello del giorno immediatamente precedente e successivo.

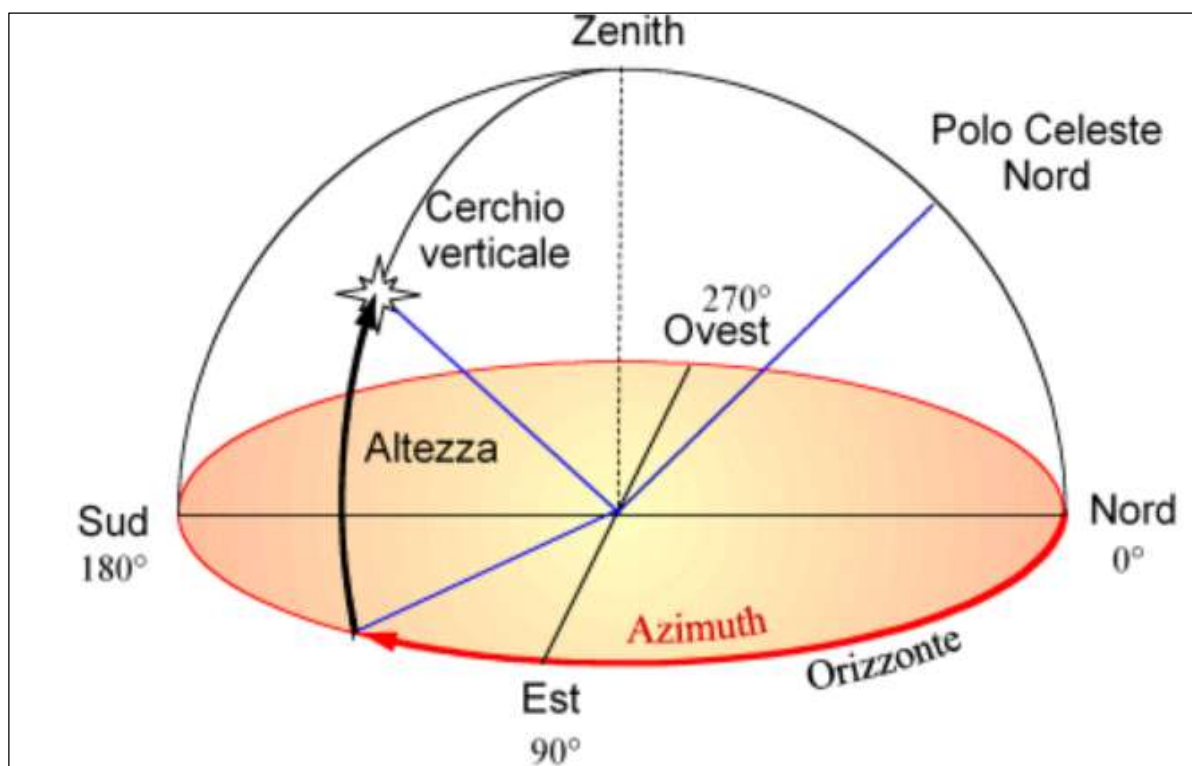


Figura 4.2: Coordinate azimuth ed altezza per identificare la posizione del sole

La durata del giorno non coincide con la durata della luce naturale in quanto prima dell'alba e dopo il tramonto sono individuabili due periodi, detti crepuscolo (rispettivamente crepuscolo mattutino e crepuscolo serale o serotino), durante i quali giunge a terra una luce diffusa naturale fornita dai livelli più esterni dell'atmosfera, i quali, trovandosi a quote più elevate, ricevono luce solare diretta per un tempo più lungo riflettendola in parte verso la terra.

Pertanto, la durata dell'illuminazione del sole è pari alla somma della durata del giorno e della durata del crepuscolo mattutino e serale.

5. RIFERIMENTI NORMATIVI

L'effetto Shadow – Flickering è più pronunciato alle latitudini settentrionali durante i mesi invernali; infatti, soprattutto nel Nord Europa, l'effetto della minore altezza del sole all'orizzonte è più rilevante.

Pertanto, alcuni paesi hanno adottato dei limiti di legge relativi all'esposizione all'effetto in questione.

In Italia non esistono specifiche norme o linee guida che regolamentino il fenomeno e definiscano i limiti di esposizione in termini di ore o giorni all'anno.

Tuttavia, al fine di fornire una valutazione dell'impatto del fenomeno anche in termini quantitativi, si è cercato di mantenere l'esposizione allo shadow – flickering di ogni ricevitore al di sotto delle 30 ore annue, parametro considerato di qualità a livello internazionale.

In particolare, la seguente trattazione fa riferimento alle norme e linee guida tedesche, in base alle quali il fenomeno in questione deve essere valutato nei casi seguenti:

- Fino alle distanze in corrispondenza delle quali il rotore dell'aerogeneratore copre il 20 % del disco solare (per distanze superiori a quella menzionata lo shadow-flickering arreca danni considerati trascurabili);
- per angoli del sole sull'orizzonte superiori a 3°;
- ad un'altezza di 2 m dal suolo.

Inoltre, come anticipato, le linee guida tedesche stabiliscono i limiti di esposizione al fenomeno di:

- 30 ore all'anno;
- 30 minuti al giorno.

6. IPOTESI E METODO DI CALCOLO

L'obiettivo della trattazione è la stima quantitativa dell'effetto shadow flickering prodotto dall'impianto eolico, fenomeno per cui si genera una intermittenza dell'ombra a seguito del movimento del rotore dell'aerogeneratore quando in esercizio (in particolare quando il piano del rotore risulta perpendicolare alla congiungente tra l'osservatore e il sole) e che potrebbe risultare fastidioso per un osservatore.

Nell'analisi condotta sono stati considerati 7 aerogeneratori di nuova realizzazione e relativi al progetto del Parco Eolico Melfi.

Gli aerogeneratori di progetto hanno un'altezza al mozzo di 135 m, diametro del rotore di 170 m, potenza nominale di 6 MW e 8,8 giri al minuto (RPM nominale).

La verifica è stata effettuata in corrispondenza di 27 ricettori, rappresentativi di fabbricati di "civile abitazione", riportati nella **Tabella 6.1**, sui quali l'effetto trattato potrebbe avere una certa rilevanza.

Ricettore	Coordinate UTM WGS 84, 33°		Comune	WTG più vicina	Distanza WTG più vicina	Foglio	Particella	Stato accatastamento
	Latitudine	Longitudine						
R02	41.039196°	15.616879°	Melfi	ML04	570	31	212	A02
R12	41.043744°	15.603714°	Melfi	ML04	741	30	218	A03
R14	41.043132°	15.600646°	Melfi	ML04	997	22	329	A04
R21	41.049846°	15.616249°	Melfi	ML04	792	23	698	A04
R23	41.049958°	15.616141°	Melfi	ML04	799	23	699	A04
R31	41.045032°	15.624636°	Melfi	ML05	602	24	234	A03

Ricettore	Coordinate UTM WGS 84, 33°		Comune	WTG più vicina	Distanza WTG più vicina	Foglio	Particella	Stato accatastamento
	Latitudine	Longitudine						
R32	41.044876°	15.624487°	Melfi	ML05	592	24	329	A03
R43	41.021396°	15.633907°	Melfi	ML07	892	40	14	A03
R51	41.020167°	15.634487°	Melfi	ML07	981	40	194; 195	A03
R61	41.052954°	15.648103°	Melfi	ML02	899	26	124; 9	A03 - A04
R63	41.053198°	15.648198°	Melfi	ML02	916	26	137	A03
R65	41.053032°	15.647619°	Melfi	ML02	865	26	98	A04
R68	41.057291°	15.613144°	Melfi	ML01	664	23	691	A03
R70	41.057596°	15.614162°	Melfi	ML01	635	23	329	A02
R75	41.058635°	15.605762°	Melfi	ML01	870	23	817	F03
R76	41.059028°	15.605161°	Melfi	ML01	887	23	607	A02
R77	41.059233°	15.605455°	Melfi	ML01	856	23	714	A03
R82	41.063442°	15.607087°	Melfi	ML01	589	23	619	A03
R83	41.063236°	15.606657°	Melfi	ML01	624	23	716	A03
R87	41.064884°	15.605765°	Melfi	ML01	720	23	550	A02
R87a	41.064972°	15.606177°	Melfi	ML01	690	23	276	Catasto Terreni
R88	41.064671°	15.605362°	Melfi	ML01	749	23	730	A07
R92	41.065048°	15.604934°	Melfi	ML01	791	23	747	A03
R95a	41.067203°	15.605210°	Melfi	ML01	861	23	620	A02
R99	41.067172°	15.605708°	Melfi	ML01	821	23	540	A03
R103	41.067937°	15.605302°	Melfi	ML01	899	23	357	n.a.
R107	41.069532°	15.608597°	Melfi	ML01	827	15	973	A10/A02

Tabella 6.1: Ricettori oggetto di verifica

La localizzazione dei suddetti ricettori e degli aerogeneratori di progetto è riportata nella figura seguente.

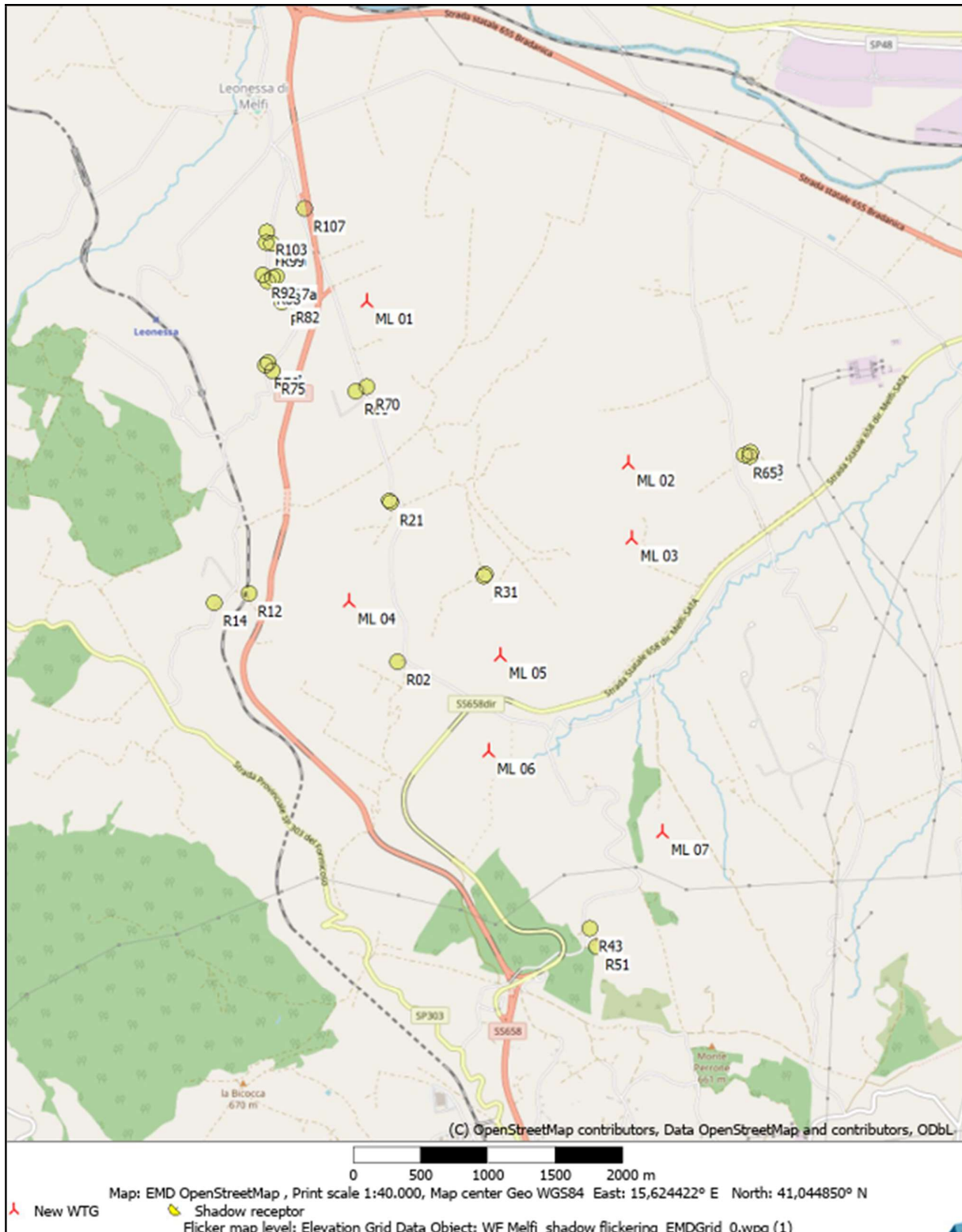


Figura 6.1: Localizzazione dei ricettori rispetto agli aerogeneratori di progetto

Il software impiegato per effettuare la verifica di sicurezza all'effetto shadow flickering è il WindPRO versione 4.0.

Tale software esegue la valutazione di zone di influenza degli aerogeneratori (ZVI), considerando l'orografia del terreno e altezza dell'osservatore (nel caso specifico altezza della finestra di un'abitazione) pari a 2 m, prima di effettuare il calcolo flicker in modo da escludere il contributo di quegli aerogeneratori che non sono visibili dal ricettore.

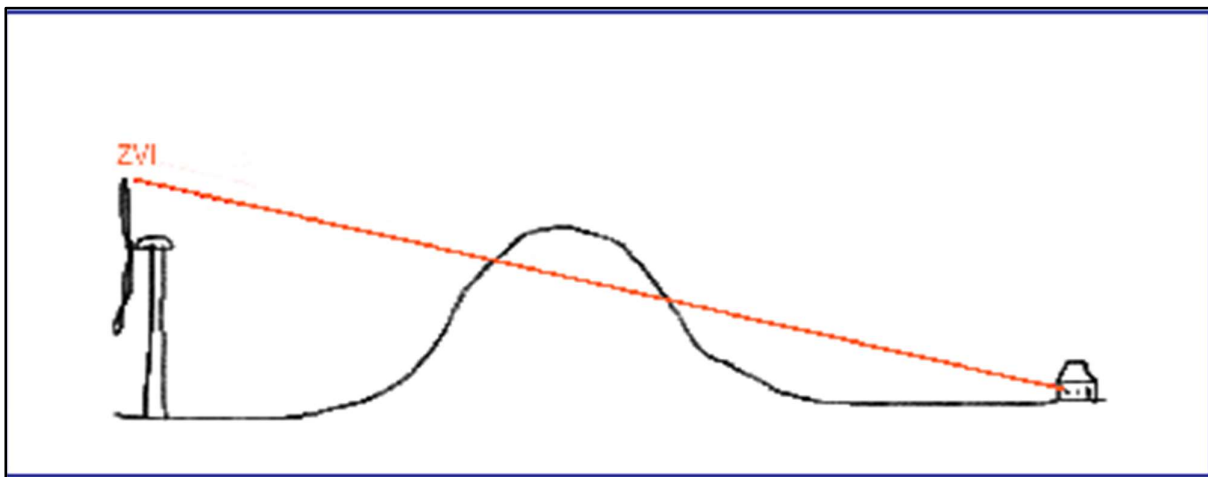


Figura 6.2: Impatto della ZVI, l'orografia del territorio può rendere non visibile l'aerogeneratore al ricettore

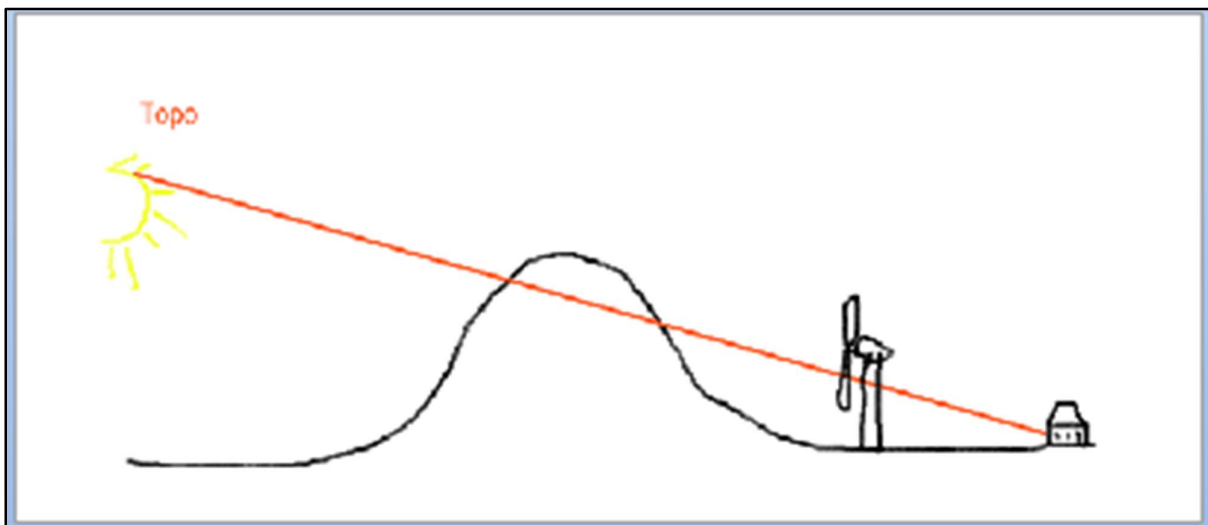


Figura 6.3: Impatto dell'orografia del territorio sull'ombreggiamento

Nella prima stima effettuata (**worst case**) si assumono le seguenti ipotesi restrittive:

- l'impianto eolico sempre in funzione durante le ore di sole;
- altezza minima del sole sull'orizzonte pari a 3° ;
- piano del rotore sempre ortogonale alla congiungente tra l'osservatore e il sole;

- totale assenza di ostacoli o schermi vegetazionali presenti negli spazi circostanti i possibili ricettori e che potrebbero inficiare il fenomeno;
- ricettori in modalità “green house”, ovvero le finestre delle abitazioni attenzionate non orientate in una particolare direzione ma omnidirezionali.

Inoltre, in una seconda stima, allo scopo di pervenire a valori più realistici di impatto (**real case**), si è impiegato il valore di eliofania, che tiene in conto del numero medio di ore di cielo libero da nubi durante il giorno, e le ore di funzionamento degli aerogeneratori in presenza del sole.

Per l’area in esame, è stato considerato il valore medio annuale di 6,60 h come da fonte ISPRA con riferimento al Comune di Genzano di Lucania e le ore di funzionamento degli aerogeneratori in presenza del sole in funzione della direzione del vento, come riportato nelle tabelle seguenti:

MESE	gen	feb	mar	apr	mag	giu	lug	ago	set	ott	nov	dic
GIORNI	31	28	31	30	31	30	31	31	30	31	30	31
PROB. MEDIA ELIOFANIA	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Tabella 6.2: Probabilità medie di eliofania e ore di funzionamento aerogeneratori in presenza del sole

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Somma
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

Tabella 6.3: Ore di funzionamento degli aerogeneratori in presenza del sole in funzione della direzione del vento (ipotesi di funzionamento dell’impianto per 80% del totale ore annue)

Il modello numerico utilizzato, al pari degli altri presenti sul mercato, produce statisticamente un output relativo al valore atteso delle ore d’ombra per anno relativo ai ricettori.

7. CONCLUSIONI

Nella **Figura 7.1** sono rappresentati i ricettori attenzionati rispetto alle posizioni degli aerogeneratori di progetto e gli intervalli delle ore d’ombra per anno ottenute dalla simulazione effettuata nell’area d’impianto.

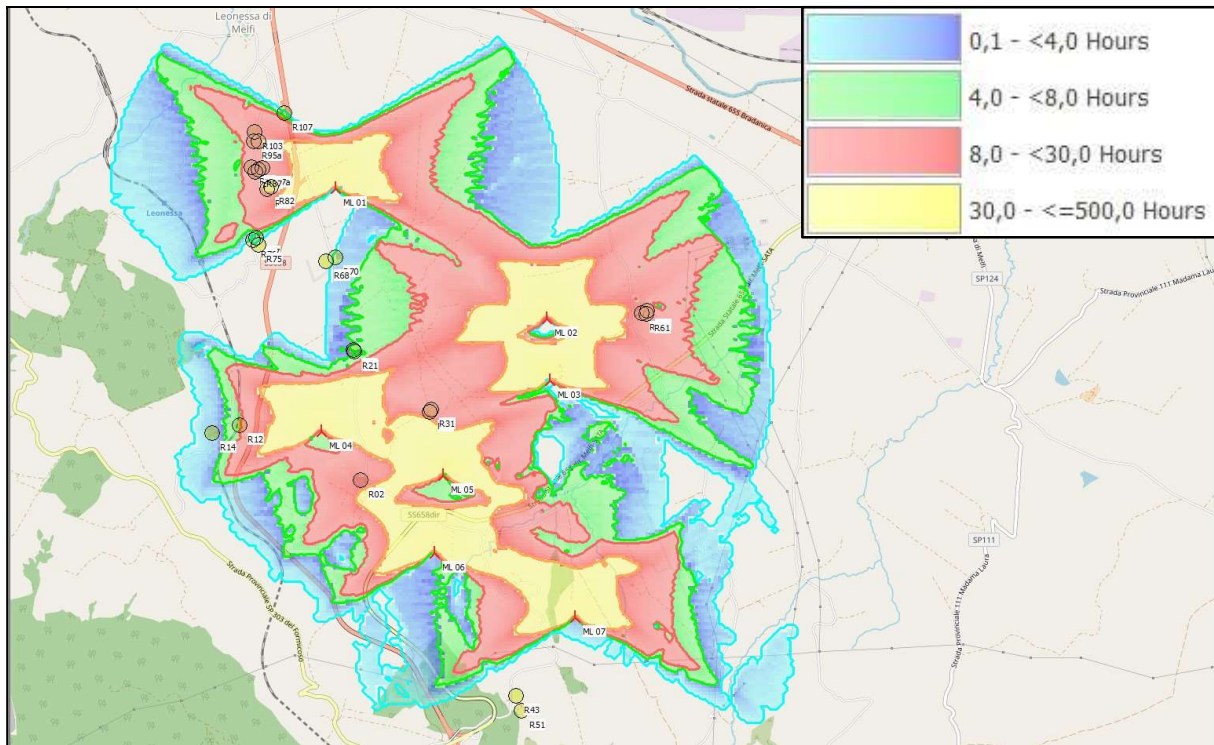


Figura 7.1: Localizzazione dei ricettori attenzionati rispetto agli aerogeneratori di progetto e ore d'ombra per anno

Nella **Tabella 7.1** si riportano i valori attesi delle ore d'ombra intermittente per anno relativamente ai ricettori considerati nelle ipotesi precedentemente indicate.

Ricettore	ORE/ANNO – WORST CASE	ORE/ANNO – REAL CASE (EXPECTED VALUES)
R02	96:10	25:38
R12	29:58	7:47
R14	6:50	1:46
R21	17:10	4:16
R23	16:52	4:12
R31	55:15	13:50
R32	57:14	14:15
R43	0:00	0:00
R51	0:00	0:00
R61	59:40	17:20
R63	58:58	17:26
R65	65:38	19:12
R68	0:00	0:00
R70	6:22	1:38
R75	0:00	0:00
R76	0:00	0:00

Ricettore	ORE/ANNO – WORST CASE	ORE/ANNO – REAL CASE (EXPECTED VALUES)
R77	8:16	1:52
R82	74:00	18:20
R83	67:43	16:47
R87	46:46	11:40
R87a	50:59	12:39
R88	43:29	10:56
R92	39:08	9:49
R95a	42:54	12:08
R99	48:08	13:41
R103	52:27	15:23
R107	1:11	0:23

Tabella 7.1: Ore d’ombra intermittente per anno sui ricettori nel worst case e real case

Dai risultati riportati nella **Tabella 7.1**, si evince che, nelle ipotesi precedentemente elencate e con riferimento al real case, per i ricettori attenzionati, il valore atteso delle ore d’ombra intermittente per anno, per ognuno dei ricettori considerati, è inferiore al valore di 30 ore/anno, parametro considerato di qualità a livello internazionale.

Come detto, nell’analisi condotta sono state adottate ipotesi molto restrittive, tra le quali quella secondo cui l’impianto sia sempre in funzione durante le ore di sole, il piano del rotore sempre ortogonale alla congiungente tra l’osservatore e il sole e ci sia totale assenza di ostacoli o schermi vegetazionali presenti negli spazi circostanti i possibili ricettori e che potrebbero attenuare il fenomeno. Nella stima effettuata è stata considerata l’ulteriore ipotesi conservativa secondo la quale i ricettori siano in modalità “green house”, ovvero le finestre delle abitazioni attenzionate siano omnidirezionali, situazione non sempre verificata nella realtà.

Nello scenario reale ci si aspetta che il fenomeno, quindi, risulti ulteriormente meno rilevante di quello a cui ha condotto la stima effettuata.

Pertanto, si può ragionevolmente affermare che l’effetto shadow flickering non abbia un impatto negativo sul territorio circostante, in particolare sui fabbricati adibiti a “civile abitazione”.

**8. ALLEGATO 1: SHADOW – MAIN RESULT – ELABORAZIONE MEDIANTE IL SOFTWARE
WINDPRO 4.0 – WORST CASE**

Project:

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)Gaetano DOronzio / info@gecodor.it
Calculated:

02/04/2024 18:08/4.0.531

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

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

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

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Elevation Grid Data Object: WF Melfi_shadow flickering_EMDGrid_0.wpg (1)
Receptor grid resolution: 1,0 m

Topographic shadow included in calculation

All coordinates are in
Geo [deg]-WGS84

WTGs

	Longitude	Latitude	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
			[m]									
ML 01	15,614143° E	41,063321° N	311,1	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 02	15,637271° E	41,052566° N	431,3	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 03	15,637566° E	41,047448° N	428,1	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 04	15,612564° E	41,043241° N	349,8	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 05	15,625945° E	41,039632° N	381,5	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 06	15,624926° E	41,033221° N	371,4	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 07	15,640328° E	41,027867° N	446,5	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8

Shadow receptor-Input

No.	Longitude	Latitude	Z	Width	Height	Elevation	Slope of	Direction mode	Eye height
			[m]	[m]	[m]	a.g.l. [m]	window [°]		(ZVI) a.g.l. [m]
R02	15,616879° E	41,039196° N	349,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R103	15,605302° E	41,067937° N	283,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R107	15,608597° E	41,069532° N	279,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R12	15,603714° E	41,043744° N	431,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R14	15,600646° E	41,043132° N	463,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R21	15,616249° E	41,049846° N	301,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R23	15,616141° E	41,049958° N	304,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R31	15,624636° E	41,045032° N	335,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R32	15,624487° E	41,044876° N	332,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R43	15,633907° E	41,021396° N	525,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R51	15,634487° E	41,020167° N	535,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R61	15,648103° E	41,052954° N	326,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R63	15,648198° E	41,053198° N	325,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R65	15,647619° E	41,053032° N	326,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R68	15,613144° E	41,057291° N	305,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R70	15,614162° E	41,057596° N	299,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R75	15,605762° E	41,058635° N	349,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R76	15,605161° E	41,059028° N	353,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R77	15,605455° E	41,059233° N	356,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R82	15,607087° E	41,063442° N	314,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R83	15,606657° E	41,063236° N	317,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R87	15,605765° E	41,064884° N	299,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R87a	15,606177° E	41,064972° N	298,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R88	15,605362° E	41,064671° N	303,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...

Project:

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
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Calculated:

02/04/2024 18:08/4.0.531

SHADOW - Main Result

...continued from previous page

No.	Longitude	Latitude	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
R92	15,604934° E	41,065048° N	299,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R95a	15,605210° E	41,067203° N	286,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R99	15,605708° E	41,067172° N	285,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, worst case

No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]
R02	96:10	174	0:51
R103	52:27	95	0:45
R107	1:11	10	0:09
R12	29:58	83	0:39
R14	6:50	36	0:16
R21	17:10	61	0:22
R23	16:52	59	0:22
R31	55:15	120	0:37
R32	57:14	126	0:38
R43	0:00	0	0:00
R51	0:00	0	0:00
R61	59:40	118	0:41
R63	58:58	118	0:41
R65	65:38	126	0:43
R68	0:00	0	0:00
R70	6:22	25	0:20
R75	0:00	0	0:00
R76	0:00	0	0:00
R77	8:16	40	0:17
R82	74:00	89	1:05
R83	67:43	86	1:01
R87	46:46	68	0:53
R87a	50:59	72	0:55
R88	43:29	65	0:51
R92	39:08	62	0:49
R95a	42:54	72	0:46
R99	48:08	78	0:48

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]
ML 01	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (1)	224:55
ML 02	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (2)	54:46
ML 03	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)	93:17
ML 04	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (4)	54:12
ML 05	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (5)	51:00
ML 06	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (6)	39:07
ML 07	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (7)	0:00

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

SHADOW - Calendar

Shadow receptor: R02 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (1)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January		February		March		April		May		June	
1	07:23	08:16 (ML 06)	07:10	06:34	06:43				07:25 (ML 05)	05:57	07:04 (ML 05)	05:29
	16:40	42 08:58 (ML 06)	17:14	17:48	19:22	9	07:34 (ML 05)	19:54	35	07:39 (ML 05)	20:23	
2	07:23	08:16 (ML 06)	07:09	06:32	06:41				07:19 (ML 05)	05:56	07:04 (ML 05)	05:28
	16:41	43 08:59 (ML 06)	17:15	17:49	19:23	20	07:39 (ML 05)	19:55	33	07:37 (ML 05)	20:24	
3	07:23	08:17 (ML 06)	07:08	06:31	06:40				07:16 (ML 05)	05:55	07:06 (ML 05)	05:28
	16:41	42 08:59 (ML 06)	17:16	17:50	19:24	25	07:41 (ML 05)	19:56	29	07:35 (ML 05)	20:25	
4	07:23	08:18 (ML 06)	07:07	06:29	06:38				07:14 (ML 05)	05:54	07:07 (ML 05)	05:27
	16:42	41 08:59 (ML 06)	17:18	17:51	19:25	30	07:44 (ML 05)	19:57	27	07:34 (ML 05)	20:26	6 06:01 (ML 03)
5	07:23	08:18 (ML 06)	07:06	06:28	06:37				07:11 (ML 05)	05:52	07:09 (ML 05)	05:27
	16:43	41 08:59 (ML 06)	17:19	17:53	19:26	34	07:45 (ML 05)	19:58	23	07:32 (ML 05)	20:26	9 06:03 (ML 03)
6	07:23	08:18 (ML 06)	07:05	06:26	06:35				07:09 (ML 05)	05:51	07:12 (ML 05)	05:27
	16:44	41 08:59 (ML 06)	17:20	17:54	19:27	37	07:46 (ML 05)	19:59	17	07:29 (ML 05)	20:27	10 06:03 (ML 03)
7	07:23	08:19 (ML 06)	07:04	06:24	06:33				07:08 (ML 05)	05:50	07:15 (ML 05)	05:26
	16:45	40 08:59 (ML 06)	17:21	17:55	19:28	40	07:48 (ML 05)	20:00	9	07:24 (ML 05)	20:28	11 06:04 (ML 03)
8	07:23	08:20 (ML 06)	07:02	06:23	06:32				07:06 (ML 05)	05:49		05:26
	16:46	39 08:59 (ML 06)	17:23	17:56	19:29	42	07:48 (ML 05)	20:01			20:28	13 06:05 (ML 03)
9	07:23	08:21 (ML 06)	07:01	06:21	06:30				07:05 (ML 05)	05:48		05:26
	16:47	39 09:00 (ML 06)	17:24	17:57	19:31	44	07:49 (ML 05)	20:02			20:29	14 06:06 (ML 03)
10	07:23	08:22 (ML 06)	07:00	06:20	06:28				07:04 (ML 05)	05:46		05:26
	16:48	38 09:00 (ML 06)	17:25	17:58	19:32	45	07:49 (ML 05)	20:03			20:29	15 06:07 (ML 03)
11	07:23	08:22 (ML 06)	06:59	06:18	06:27				07:02 (ML 05)	05:45		05:25
	16:49	37 08:59 (ML 06)	17:26	17:59	19:33	47	07:49 (ML 05)	20:04			20:30	15 06:06 (ML 03)
12	07:22	08:23 (ML 06)	06:58	06:16	06:25				07:02 (ML 05)	05:44		05:25
	16:50	36 08:59 (ML 06)	17:28	18:00	19:34	48	07:50 (ML 05)	20:05			20:30	16 06:07 (ML 03)
13	07:22	08:24 (ML 06)	06:56	06:15	06:24				07:01 (ML 05)	05:43		05:25
	16:51	36 09:00 (ML 06)	17:29	18:02	19:35	49	07:50 (ML 05)	20:06			20:31	16 06:07 (ML 03)
14	07:22	08:25 (ML 06)	06:55	06:13	06:22				07:01 (ML 05)	05:42		05:25
	16:52	34 08:59 (ML 06)	17:30	18:03	19:36	49	07:50 (ML 05)	20:07			20:31	17 06:08 (ML 03)
15	07:21	08:26 (ML 06)	06:54	06:11	06:20				07:00 (ML 05)	05:41		05:25
	16:54	33 08:59 (ML 06)	17:31	18:04	19:37	50	07:50 (ML 05)	20:08			20:32	17 06:08 (ML 03)
16	07:21	08:27 (ML 06)	06:53	06:10	06:19				07:00 (ML 05)	05:40		05:25
	16:55	31 08:58 (ML 06)	17:33	18:05	19:38	50	07:50 (ML 05)	20:09			20:32	18 06:09 (ML 03)
17	07:21	08:29 (ML 06)	06:51	06:08	06:17				06:59 (ML 05)	05:39		05:25
	16:56	29 08:58 (ML 06)	17:34	18:06	19:39	51	07:50 (ML 05)	20:10			20:32	18 06:09 (ML 03)
18	07:20	08:30 (ML 06)	06:50	06:07	06:16				06:59 (ML 05)	05:38		05:25
	16:57	26 08:56 (ML 06)	17:35	18:07	19:40	51	07:50 (ML 05)	20:11			20:33	18 06:10 (ML 03)
19	07:20	08:32 (ML 06)	06:48	06:05	06:14				06:59 (ML 05)	05:37		05:25
	16:58	24 08:56 (ML 06)	17:36	18:08	19:41	50	07:49 (ML 05)	20:12			20:33	18 06:10 (ML 03)
20	07:19	08:33 (ML 06)	06:47	06:03	06:13				06:59 (ML 05)	05:37		05:25
	16:59	21 08:54 (ML 06)	17:37	18:09	19:42	50	07:49 (ML 05)	20:13			20:33	18 06:10 (ML 03)
21	07:18	08:35 (ML 06)	06:46	06:02	06:11				06:58 (ML 05)	05:36		05:26
	17:00	17 08:52 (ML 06)	17:39	18:10	19:43	50	07:48 (ML 05)	20:14			20:34	18 06:10 (ML 03)
22	07:18	08:39 (ML 06)	06:44	06:00	06:10				06:59 (ML 05)	05:35		05:26
	17:02	12 08:51 (ML 06)	17:40	18:11	19:44	49	07:48 (ML 05)	20:15			20:34	18 06:10 (ML 03)
23	07:17		06:43	05:58	06:08				06:58 (ML 05)	05:34		05:26
	17:03		17:41	18:12	19:45	48	07:46 (ML 05)	20:16			20:34	18 06:11 (ML 03)
24	07:16		06:41	05:56	06:07				06:59 (ML 05)	05:33		05:26
	17:04		17:42	18:13	19:46	47	07:46 (ML 05)	20:17			20:34	18 06:11 (ML 03)
25	07:16		06:40	05:55	06:06				07:00 (ML 05)	05:33		05:27
	17:05		17:43	18:15	19:48	46	07:46 (ML 05)	20:18			20:34	18 06:11 (ML 03)
26	07:15		06:38	05:53	06:04				06:59 (ML 05)	05:32		05:27
	17:06		17:44	18:16	19:49	45	07:44 (ML 05)	20:18			20:34	18 06:11 (ML 03)
27	07:14		06:37	05:51	06:03				07:00 (ML 05)	05:31		05:27
	17:08		17:46	18:17	19:50	44	07:44 (ML 05)	20:19			20:34	17 06:11 (ML 03)
28	07:13		06:35	05:50	06:01				07:00 (ML 05)	05:31		05:28
	17:09		17:47	18:18	19:51	42	07:42 (ML 05)	20:20			20:34	17 06:11 (ML 03)
29	07:13			06:48	06:00				07:01 (ML 05)	05:30		05:28
	17:10			19:19	19:52	40	07:41 (ML 05)	20:21			20:34	17 06:12 (ML 03)
30	07:12			06:46	05:59				07:02 (ML 05)	05:30		05:29
	17:11			19:20	19:53	38	07:40 (ML 05)	20:22			20:34	16 06:11 (ML 03)
31	07:11			06:45						05:29		
	17:13			19:21						20:23		
Potential sun hours	297		297	369	399				448		452	
Total, worst case	742				1270			173			424	

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	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Shadow receptor: R02 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (1)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December			
1	05:29 20:34	05:56 (ML 03) 06:12 (ML 03)	05:53 20:15	06:24 19:32	07:01 (ML 05) 07:48 (ML 05)	06:54 18:42	06:28 16:55	07:03 16:31	08:04 (ML 06) 08:41 (ML 06)
2	05:29 20:34	05:56 (ML 03) 06:11 (ML 03)	05:54 20:14	06:25 19:31	07:02 (ML 05) 07:47 (ML 05)	06:55 18:40	06:29 16:54	07:04 16:30	08:04 (ML 06) 08:42 (ML 06)
3	05:30 20:34	05:57 (ML 03) 06:11 (ML 03)	05:55 20:13	06:26 19:29	07:02 (ML 05) 07:46 (ML 05)	06:56 18:38	06:30 16:53	07:05 16:30	08:04 (ML 06) 08:43 (ML 06)
4	05:31 20:34	05:57 (ML 03) 06:11 (ML 03)	05:56 20:12	06:27 19:27	07:03 (ML 05) 07:45 (ML 05)	06:57 18:37	06:31 16:51	07:06 16:30	08:04 (ML 06) 08:43 (ML 06)
5	05:31 20:34	05:58 (ML 03) 06:11 (ML 03)	05:57 20:11	06:28 19:26	07:04 (ML 05) 07:44 (ML 05)	06:58 18:35	06:33 16:50	07:07 16:30	08:04 (ML 06) 08:44 (ML 06)
6	05:32 20:33	05:59 (ML 03) 06:10 (ML 03)	05:58 20:10	06:29 19:24	07:05 (ML 05) 07:42 (ML 05)	06:59 18:33	06:34 16:49	07:08 16:30	08:04 (ML 06) 08:45 (ML 06)
7	05:32 20:33	06:00 (ML 03) 06:09 (ML 03)	05:59 20:08	06:30 19:22	07:06 (ML 05) 07:40 (ML 05)	07:00 18:32	06:35 16:48	07:09 16:30	08:04 (ML 06) 08:45 (ML 06)
8	05:33 20:33	06:02 (ML 03) 06:09 (ML 03)	06:00 20:07	06:31 19:21	07:08 (ML 05) 07:38 (ML 05)	07:01 18:30	06:36 16:47	07:10 16:30	08:05 (ML 06) 08:46 (ML 06)
9	05:34 20:32	06:04 (ML 03) 06:06 (ML 03)	06:01 20:06	06:32 19:19	07:10 (ML 05) 07:44 (ML 05)	07:02 18:29	06:37 16:46	07:10 16:30	08:05 (ML 06) 08:47 (ML 06)
10	05:34 20:32	06:02 (ML 03) 20:05	06:02 20:05	06:33 19:17	07:11 (ML 05) 07:45 (ML 05)	07:03 18:27	06:39 16:45	07:11 16:30	08:06 (ML 06) 08:48 (ML 06)
11	05:35 20:32	06:03 (ML 03) 20:03	06:03 20:03	06:34 19:16	07:12 (ML 05) 07:46 (ML 05)	07:04 18:25	06:40 16:44	07:12 16:30	08:06 (ML 06) 08:48 (ML 06)
12	05:36 20:31	06:04 (ML 03) 20:02	06:04 20:02	06:35 19:14	07:11 (ML 05) 07:47 (ML 05)	07:05 18:24	06:41 16:43	07:13 16:30	08:07 (ML 06) 08:49 (ML 06)
13	05:36 20:31	06:05 (ML 03) 20:01	06:05 20:01	06:36 19:12	07:10 (ML 05) 07:48 (ML 05)	07:06 18:22	06:42 16:42	07:14 16:30	08:06 (ML 06) 08:49 (ML 06)
14	05:37 20:30	06:06 (ML 03) 19:59	06:06 19:59	06:37 19:11	07:09 (ML 05) 07:49 (ML 05)	07:07 18:21	06:43 16:41	07:15 16:30	08:07 (ML 06) 08:50 (ML 06)
15	05:38 20:30	06:07 (ML 03) 19:58	06:07 19:58	06:38 19:09	07:08 (ML 05) 07:50 (ML 05)	07:08 18:19	06:44 16:40	07:15 16:30	08:07 (ML 06) 08:50 (ML 06)
16	05:39 20:29	06:08 (ML 03) 19:57	06:08 19:57	06:39 19:07	07:07 (ML 05) 07:50 (ML 05)	07:10 18:17	06:46 16:39	07:16 16:30	08:08 (ML 06) 08:51 (ML 06)
17	05:39 20:28	06:09 (ML 03) 19:55	06:09 19:55	06:39 19:05	07:06 (ML 05) 07:51 (ML 05)	07:11 18:16	06:47 16:38	07:17 16:31	08:08 (ML 06) 08:51 (ML 06)
18	05:40 20:28	06:10 (ML 03) 19:54	06:10 19:54	06:40 19:04	07:05 (ML 05) 07:52 (ML 05)	07:12 18:14	06:48 16:38	07:17 16:31	08:09 (ML 06) 08:52 (ML 06)
19	05:41 20:27	06:11 (ML 03) 19:52	06:11 19:52	06:41 19:02	07:05 (ML 05) 07:52 (ML 05)	07:13 18:13	06:49 16:37	07:18 16:31	08:08 (ML 06) 08:52 (ML 06)
20	05:42 20:26	06:12 (ML 03) 19:51	06:12 19:51	06:42 19:00	07:04 (ML 05) 07:52 (ML 05)	07:14 18:11	06:50 16:36	07:19 16:32	08:09 (ML 06) 08:53 (ML 06)
21	05:43 20:26	06:13 (ML 03) 19:49	06:13 19:49	06:43 18:59	07:04 (ML 05) 07:52 (ML 05)	07:15 18:10	06:52 16:36	07:19 16:32	08:10 (ML 06) 08:54 (ML 06)
22	05:44 20:25	06:14 (ML 03) 19:48	06:14 19:48	06:44 18:57	07:03 (ML 05) 07:53 (ML 05)	07:16 18:09	06:53 16:35	07:20 16:33	08:10 (ML 06) 08:54 (ML 06)
23	05:45 20:24	06:15 (ML 03) 19:46	06:15 19:46	06:45 18:55	07:03 (ML 05) 07:53 (ML 05)	07:17 18:07	06:54 16:34	07:20 16:33	08:10 (ML 06) 08:54 (ML 06)
24	05:45 20:23	06:16 (ML 03) 19:45	06:16 19:45	06:46 18:54	07:02 (ML 05) 07:53 (ML 05)	07:19 18:06	06:55 16:34	07:21 16:34	08:11 (ML 06) 08:55 (ML 06)
25	05:46 20:22	06:17 (ML 03) 19:43	06:17 19:43	06:47 18:52	07:02 (ML 05) 07:53 (ML 05)	07:04 17:04	06:56 16:33	07:21 16:34	08:12 (ML 06) 08:55 (ML 06)
26	05:47 20:21	06:18 (ML 03) 19:42	06:18 19:42	06:49 18:50	07:02 (ML 05) 07:52 (ML 05)	06:21 17:03	06:57 16:33	07:21 16:35	08:12 (ML 06) 08:55 (ML 06)
27	05:48 20:20	06:19 (ML 03) 19:40	06:19 19:40	06:50 18:48	07:02 (ML 05) 07:52 (ML 05)	06:22 17:02	06:58 16:32	07:22 16:36	08:13 (ML 06) 08:56 (ML 06)
28	05:49 20:19	06:20 (ML 03) 19:39	06:20 19:39	06:51 18:47	07:02 (ML 05) 07:52 (ML 05)	06:23 17:00	06:59 16:32	07:22 16:36	08:13 (ML 06) 08:56 (ML 06)
29	05:50 20:18	06:21 (ML 03) 19:37	06:21 19:37	06:52 18:45	07:02 (ML 05) 07:51 (ML 05)	06:24 16:59	07:01 16:31	07:22 16:37	08:14 (ML 06) 08:57 (ML 06)
30	05:51 20:17	06:22 (ML 03) 19:35	06:22 19:35	06:53 18:43	07:02 (ML 05) 07:51 (ML 05)	06:25 16:58	07:02 16:31	07:23 16:38	08:14 (ML 06) 08:57 (ML 06)
31	05:52 20:16	06:23 (ML 03) 19:34	06:23 19:34	06:54 18:43	07:01 (ML 05) 07:49 (ML 05)	06:27 16:56	07:03 16:31	07:23 16:39	08:15 (ML 06) 08:58 (ML 06)
Potential sun hours	459	428	375	375	345	298	298	288	1307
Total, worst case	101	1080	375	375	345	298	298	288	1307

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

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

SHADOW - Calendar

Shadow receptor: R103 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (26)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	08:01 (ML 01) 07:10 08:13 (ML 01) 17:14	07:55 (ML 01) 06:34 08:39 (ML 01) 17:48	06:43 19:22	05:57 19:54	05:28 20:23
2	07:23 16:40	08:00 (ML 01) 07:09 08:14 (ML 01) 17:15	07:55 (ML 01) 06:32 08:39 (ML 01) 17:49	06:41 19:23	05:56 19:55	05:28 20:24
3	07:23 16:41	08:00 (ML 01) 07:08 08:16 (ML 01) 17:16	07:56 (ML 01) 06:31 08:39 (ML 01) 17:50	06:40 19:24	05:55 19:56	05:28 20:25
4	07:24 16:42	07:59 (ML 01) 07:07 08:17 (ML 01) 17:18	07:56 (ML 01) 06:29 08:38 (ML 01) 17:51	06:38 19:25	05:53 19:57	05:27 20:26
5	07:24 16:43	07:59 (ML 01) 07:06 08:19 (ML 01) 17:19	07:57 (ML 01) 06:28 08:38 (ML 01) 17:53	06:37 19:26	05:52 19:58	05:27 20:26
6	07:24 16:44	07:58 (ML 01) 07:05 08:20 (ML 01) 17:20	07:58 (ML 01) 06:26 08:38 (ML 01) 17:54	06:35 19:27	05:51 19:59	05:27 20:27
7	07:23 16:45	07:57 (ML 01) 07:04 08:21 (ML 01) 17:21	07:57 (ML 01) 06:25 08:36 (ML 01) 17:55	06:33 19:28	05:50 20:00	05:26 20:28
8	07:23 16:46	07:57 (ML 01) 07:03 08:22 (ML 01) 17:23	07:59 (ML 01) 06:23 08:36 (ML 01) 17:56	06:32 19:30	05:49 20:01	05:26 20:28
9	07:23 16:47	07:56 (ML 01) 07:01 08:24 (ML 01) 17:24	08:00 (ML 01) 06:21 08:35 (ML 01) 17:57	06:30 19:31	05:48 20:02	05:26 20:29
10	07:23 16:48	07:56 (ML 01) 07:00 08:25 (ML 01) 17:25	08:01 (ML 01) 06:20 08:34 (ML 01) 17:58	06:28 19:32	05:46 20:03	05:26 20:29
11	07:23 16:49	07:55 (ML 01) 06:59 08:26 (ML 01) 17:26	08:03 (ML 01) 06:18 08:33 (ML 01) 17:59	06:27 19:33	05:45 20:04	05:25 20:30
12	07:23 16:50	07:55 (ML 01) 06:58 08:27 (ML 01) 17:28	08:03 (ML 01) 06:16 08:31 (ML 01) 18:00	06:25 19:34	05:44 20:05	05:25 20:30
13	07:22 16:51	07:55 (ML 01) 06:57 08:29 (ML 01) 17:29	08:06 (ML 01) 06:15 08:29 (ML 01) 18:02	06:24 19:35	05:43 20:06	05:25 20:31
14	07:22 16:52	07:55 (ML 01) 06:55 08:29 (ML 01) 17:30	08:08 (ML 01) 06:13 08:27 (ML 01) 18:03	06:22 19:36	05:42 20:07	05:25 20:31
15	07:22 16:53	07:55 (ML 01) 06:54 08:30 (ML 01) 17:31	08:12 (ML 01) 06:12 08:22 (ML 01) 18:04	06:21 19:37	05:41 20:08	05:25 20:32
16	07:21 16:55	07:54 (ML 01) 06:53 08:31 (ML 01) 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32
17	07:21 16:56	07:54 (ML 01) 06:51 08:32 (ML 01) 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33
18	07:20 16:57	07:54 (ML 01) 06:50 08:33 (ML 01) 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33
19	07:20 16:58	07:54 (ML 01) 06:49 08:34 (ML 01) 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33
20	07:19 16:59	07:54 (ML 01) 06:47 08:34 (ML 01) 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:34
21	07:19 17:00	07:53 (ML 01) 06:46 08:35 (ML 01) 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34
22	07:18 17:02	07:54 (ML 01) 06:44 08:36 (ML 01) 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34
23	07:17 17:03	07:53 (ML 01) 06:43 08:36 (ML 01) 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34
24	07:17 17:04	07:53 (ML 01) 06:41 08:37 (ML 01) 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34
25	07:16 17:05	07:53 (ML 01) 06:40 08:37 (ML 01) 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34
26	07:15 17:06	07:54 (ML 01) 06:38 08:38 (ML 01) 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:35
27	07:14 17:08	07:54 (ML 01) 06:37 08:38 (ML 01) 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35
28	07:13 17:09	07:54 (ML 01) 06:35 08:39 (ML 01) 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35
29	07:13 17:10	07:54 (ML 01) 06:34 08:39 (ML 01) 17:47	06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35
30	07:12 17:11	07:54 (ML 01) 06:33 08:39 (ML 01) 17:47	06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:35
31	07:11 17:13	07:54 (ML 01) 06:32 08:39 (ML 01) 17:47	06:45 19:21	05:58 19:54	05:28 20:23	20:35
Potential sun hours	297	297	369	399	448	452
Total, worst case	1051	508				

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

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

Shadow receptor: R103 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (26)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:30 (ML 01) 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:29 (ML 01) 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:28 (ML 01) 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:27 (ML 01) 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:27 (ML 01) 16:30
6	05:32 20:34	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:27 (ML 01) 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	06:35 16:48	07:26 (ML 01) 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:25 (ML 01) 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:26 (ML 01) 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:26 (ML 01) 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:25 (ML 01) 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:26 (ML 01) 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:26 (ML 01) 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:26 (ML 01) 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40	07:26 (ML 01) 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:27 (ML 01) 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:27 (ML 01) 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38	07:27 (ML 01) 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37	07:27 (ML 01) 16:31
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	06:51 16:36	07:29 (ML 01) 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:29 (ML 01) 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:30 (ML 01) 16:33
23	05:44 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34	07:30 (ML 01) 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:31 (ML 01) 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	06:56 16:33	07:32 (ML 01) 16:34
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	06:57 16:33	07:33 (ML 01) 16:35
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	06:58 16:32	07:34 (ML 01) 16:36
28	05:49 20:20	06:20 19:39	06:51 18:47	07:23 17:00	07:00 16:32	07:35 (ML 01) 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	07:01 16:31	07:35 (ML 01) 16:37
30	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58	07:02 16:31	07:36 (ML 01) 16:38
31	05:52 20:17	06:23 19:34	06:54 18:42	07:26 16:56	07:03 16:31	07:36 (ML 01) 16:38
Potential sun hours	459	428	375	345	298	288
Total, worst case				115	1214	259

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

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

Shadow receptor: R107 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (27)

Assumptions for shadow calculations

- The calculated times are "worst case" given by the following assumptions:
- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31	
2	07:23 16:40	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30	
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30	
4	07:24 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:26	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30	
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:07 16:30	
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:26 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30	
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:26 20:28	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30	
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:10 16:29	
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:47 20:02	05:26 20:29	05:33 20:33	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:11 16:29	
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:11 16:29	
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:12 16:30	
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:13 16:30	
13	07:22 16:51	06:57 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:14 16:30	
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:15 16:30	
15	07:22 16:53	06:54 17:31	06:12 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40	07:15 16:30	
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:16 16:30	
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:17 16:31	09:15 (ML 01)
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38	07:17 16:31	09:17 (ML 01)
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37	07:18 16:31	09:20 (ML 01)
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:34	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	06:51 16:36	07:19 16:32	09:21 (ML 01)
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:19 16:32	09:22 (ML 01)
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:20 16:33	09:23 (ML 01)
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:44 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34	07:20 16:33	09:24 (ML 01)
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34	09:15 (ML 01)
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	06:56 16:33	07:21 16:34	09:24 (ML 01)
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	06:57 16:33	07:22 16:35	09:19 (ML 01)
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	06:58 16:32	07:22 16:36	09:23 (ML 01)
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	07:00 16:32	07:22 16:36	
29	07:13 17:10	06:48 19:19	06:48 19:52	06:00 19:52	05:30 20:21	05:28 20:35	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:01 16:31	07:23 16:37	
30	07:12 17:11	06:46 19:20	06:46 19:53	05:59 19:53	05:29 20:22	05:28 20:35	05:51 20:18	06:22 19:36	06:53 18:43	06:26 16:58	07:02 16:31	07:23 16:38	
31	07:11 17:13	06:45 19:21	06:45 19:21	05:29 20:23	05:29 20:23	05:29 20:23	05:52 20:17	06:23 19:34	06:27 16:56	06:27 16:56	07:23 16:39	07:23 16:39	
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288	
Total, worst case													71

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

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

Shadow receptor: R12 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (2)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February		March		April		May	June	
1	07:23 16:40	07:10 17:14		06:34 17:48	10	06:53 (ML 05) 07:03 (ML 05)	06:43 19:22	07:09 (ML 04) 07:41 (ML 04)	05:57 19:54	05:29 20:23
2	07:23 16:41	07:09 17:15		06:32 17:49	11	06:51 (ML 05) 07:02 (ML 05)	06:42 19:23	07:10 (ML 04) 07:38 (ML 04)	05:56 19:55	05:28 20:24
3	07:23 16:41	07:08 17:16		06:31 17:50	11	06:50 (ML 05) 07:01 (ML 05)	06:40 19:24	07:12 (ML 04) 07:35 (ML 04)	05:55 19:56	05:28 20:25
4	07:23 16:42	07:07 17:18		06:29 17:51	10	06:48 (ML 05) 06:58 (ML 05)	06:38 19:25	07:17 (ML 04) 07:31 (ML 04)	05:54 19:57	05:27 20:26
5	07:23 16:43	07:06 17:19		06:28 17:53	1	06:47 (ML 04) 06:48 (ML 04)	06:37 19:26		05:52 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20		06:26 17:54	4	06:45 (ML 04) 06:49 (ML 04)	06:35 19:27		05:51 19:59	05:27 20:27
7	07:23 16:45	07:04 17:21		06:25 17:55	7	06:43 (ML 04) 06:50 (ML 04)	06:33 19:28		05:50 20:00	05:26 20:28
8	07:23 16:46	07:02 17:23		06:23 17:56	10	06:42 (ML 04) 06:52 (ML 04)	06:32 19:30		05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24		06:21 17:57	13	06:40 (ML 04) 06:53 (ML 04)	06:30 19:31		05:48 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25		06:20 17:58	15	06:38 (ML 04) 06:53 (ML 04)	06:28 19:32		05:46 20:03	05:26 20:29
11	07:23 16:49	06:59 17:26		06:18 17:59	17	06:37 (ML 04) 06:54 (ML 04)	06:27 19:33		05:45 20:04	05:25 20:30
12	07:22 16:50	06:58 17:28		06:16 18:00	20	06:35 (ML 04) 06:55 (ML 04)	06:25 19:34		05:44 20:05	05:25 20:30
13	07:22 16:51	06:56 17:29		06:15 18:02	22	06:34 (ML 04) 06:56 (ML 04)	06:24 19:35		05:43 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30		06:13 18:03	24	06:32 (ML 04) 06:56 (ML 04)	06:22 19:36		05:42 20:07	05:25 20:31
15	07:21 16:54	06:54 17:31		06:12 18:04	25	06:30 (ML 04) 06:55 (ML 04)	06:21 19:37		05:41 20:08	05:25 20:32
16	07:21 16:55	06:53 17:33		06:10 18:05	27	06:29 (ML 04) 06:56 (ML 04)	06:19 19:38		05:40 20:09	05:25 20:32
17	07:21 16:56	06:51 17:34		06:08 18:06	29	06:27 (ML 04) 06:56 (ML 04)	06:17 19:39		05:39 20:10	05:25 20:33
18	07:20 16:57	06:50 17:35		06:07 18:07	30	06:25 (ML 04) 06:55 (ML 04)	06:16 19:40		05:38 20:11	05:25 20:33
19	07:20 16:58	06:49 17:36		06:05 18:08	31	06:23 (ML 04) 06:54 (ML 04)	06:14 19:41		05:37 20:12	05:25 20:33
20	07:19 16:59	06:47 17:37		06:03 18:09	33	06:22 (ML 04) 06:55 (ML 04)	06:13 19:42		05:37 20:13	05:26 20:33
21	07:18 17:00	06:46 17:39		06:02 18:10	34	06:20 (ML 04) 06:54 (ML 04)	06:11 19:43		05:36 20:14	05:26 20:34
22	07:18 17:02	06:44 17:40		06:00 18:11	35	06:18 (ML 04) 06:53 (ML 04)	06:10 19:44		05:35 20:15	05:26 20:34
23	07:17 17:03	06:43 17:41	07:02 (ML 05)	05:58 18:12	36	06:17 (ML 04) 06:53 (ML 04)	06:08 19:45		05:34 20:16	05:26 20:34
24	07:17 17:04	06:41 17:42	2 07:04 (ML 05) 07:01 (ML 05)	05:57 18:14	37	06:15 (ML 04) 06:52 (ML 04)	06:07 19:46		05:33 20:17	05:26 20:34
25	07:16 17:05	06:40 17:43	4 07:05 (ML 05) 06:59 (ML 05)	05:55 18:15	38	06:13 (ML 04) 06:51 (ML 04)	06:06 19:48		05:33 20:18	05:27 20:34
26	07:15 17:07	06:38 17:45	6 07:05 (ML 05) 06:58 (ML 05)	05:53 18:16	38	06:12 (ML 04) 06:50 (ML 04)	06:04 19:49		05:32 20:19	05:27 20:34
27	07:14 17:08	06:37 17:46	7 07:05 (ML 05) 06:56 (ML 05)	05:52 18:17	39	06:10 (ML 04) 06:49 (ML 04)	06:03 19:50		05:31 20:19	05:27 20:34
28	07:13 17:09	06:35 17:47	8 07:04 (ML 05) 06:54 (ML 05)	05:50 18:18	39	06:08 (ML 04) 06:47 (ML 04)	06:01 19:51		05:31 20:20	05:28 20:35
29	07:13 17:10		10 07:04 (ML 05)	05:48 19:19	39	07:07 (ML 04) 07:46 (ML 04)	06:00 19:52		05:30 20:21	05:28 20:34
30	07:12 17:11			05:47 19:20	38	07:06 (ML 04) 07:44 (ML 04)	05:59 19:53		05:30 20:22	05:29 20:34
31	07:11 17:13			05:45 19:21	35	07:07 (ML 04) 07:42 (ML 04)			05:29 20:23	
Potential sun hours	297	297		369		399		448	452	
Total, worst case		37		758		97				

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

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

Shadow receptor: R12 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (2)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:14 (ML 04) 07:34 (ML 04)	06:28 16:31
2	05:30 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:15 (ML 04) 07:33 (ML 04)	06:29 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:16 (ML 04) 07:32 (ML 04)	06:30 16:30
4	05:31 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:17 (ML 04) 07:31 (ML 04)	06:31 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:18 (ML 04) 07:29 (ML 04)	06:33 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:19 (ML 04) 07:28 (ML 04)	06:34 16:30
7	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	07:20 (ML 04) 07:26 (ML 04)	06:35 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:21 (ML 04) 07:23 (ML 04)	06:36 16:30
9	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:29	07:22 (ML 05) 07:31 (ML 05)	06:37 16:30
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:23 (ML 05) 07:34 (ML 05)	06:39 16:30
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	07:24 (ML 05) 07:35 (ML 05)	06:40 16:44
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	07:26 (ML 05) 07:37 (ML 05)	06:41 16:43
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	07:27 (ML 05) 07:37 (ML 05)	06:42 16:42
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	07:28 (ML 05) 07:37 (ML 05)	06:43 16:41
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	07:29 (ML 05) 07:37 (ML 05)	06:45 16:40
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:18	07:30 (ML 05) 07:37 (ML 05)	06:46 16:39
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	07:31 (ML 05) 07:36 (ML 05)	06:47 16:39
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	07:32 (ML 05) 07:35 (ML 05)	06:48 16:38
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	07:34 (ML 05) 07:35 (ML 05)	06:49 16:37
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	07:35 (ML 05) 07:39 (ML 04)	06:50 16:36
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	07:39 (ML 04) 07:39 (ML 04)	06:52 16:36
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	07:40 (ML 04) 07:39 (ML 04)	06:53 16:35
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	07:41 (ML 04) 07:39 (ML 04)	06:54 16:34
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	07:42 (ML 04) 07:39 (ML 04)	06:55 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	07:43 (ML 04) 07:39 (ML 04)	06:56 16:33
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	07:44 (ML 04) 07:38 (ML 04)	06:57 16:33
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	07:45 (ML 04) 07:38 (ML 04)	06:58 16:32
28	05:49 20:19	06:20 19:39	06:51 18:47	07:23 17:00	07:46 (ML 04) 07:37 (ML 04)	07:00 16:32
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	07:47 (ML 04) 07:36 (ML 04)	07:01 16:31
30	05:51 20:17	06:22 19:36	06:53 18:43	07:25 16:58	07:48 (ML 04) 07:35 (ML 04)	07:02 16:31
31	05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	459	428	375	345	298	288
Total, worst case			727	179		

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

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

Shadow receptor: R14 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (3)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23	07:10	06:34	06:43	07:02 (ML 04)	05:57	05:29	05:53	06:24	06:54	06:28	07:03
	16:40	17:14	17:48	19:22	16 07:18 (ML 04)	19:54	20:23	20:34	20:15	19:32	18:42	16:55
2	07:23	07:09	06:32	06:42	07:00 (ML 04)	05:56	05:28	05:30	05:54	06:25	06:55	06:29
	16:41	17:15	17:49	19:23	16 07:16 (ML 04)	19:55	20:24	20:34	20:14	19:31	18:40	16:54
3	07:23	07:08	06:31	06:40	06:58 (ML 04)	05:55	05:28	05:30	05:55	06:26	06:56	06:30
	16:41	17:16	17:50	19:24	15 07:13 (ML 04)	19:56	20:25	20:34	20:13	19:29	18:38	16:53
4	07:23	07:07	06:29	06:38	06:57 (ML 04)	05:54	05:27	05:31	05:56	06:27	06:57	06:31
	16:42	17:18	17:51	19:25	14 07:11 (ML 04)	19:57	20:26	20:34	20:12	19:27	18:37	16:51
5	07:23	07:06	06:28	06:37	06:58 (ML 04)	05:52	05:27	05:31	05:57	06:28	06:58	06:33
	16:43	17:19	17:53	19:26	8 07:06 (ML 04)	19:58	20:26	20:34	20:11	19:26	18:35	16:50
6	07:23	07:05	06:26	06:35	05:51	05:27	05:32	05:58	06:29	06:59	06:59	06:34
	16:44	17:20	17:54	19:27	19:59	20:27	20:33	20:10	19:24	18:33	16:49	16:30
7	07:23	07:04	06:25	06:33	05:50	05:26	05:32	05:59	06:30	06:53 (ML 04)	07:00	06:35
	16:45	17:21	17:55	19:28	20:00	20:28	20:33	20:09	19:22	7 07:00 (ML 04)	18:32	16:48
8	07:23	07:03	06:23	06:32	05:49	05:26	05:33	06:00	06:31	06:51 (ML 04)	07:01	06:36
	16:46	17:23	17:56	19:30	20:01	20:28	20:33	20:07	19:21	14 07:05 (ML 04)	18:30	16:47
9	07:23	07:01	06:21	06:30	05:48	05:26	05:34	06:01	06:32	06:52 (ML 04)	07:02	06:37
	16:47	17:24	17:57	19:31	20:02	20:29	20:32	20:06	19:19	15 07:07 (ML 04)	18:29	16:46
10	07:23	07:00	06:20	06:28	05:46	05:26	05:34	06:02	06:33	06:53 (ML 04)	07:03	06:39
	16:48	17:25	17:58	19:32	20:03	20:29	20:32	20:05	19:17	16 07:09 (ML 04)	18:27	16:45
11	07:23	06:59	06:18	06:27	05:45	05:25	05:35	06:03	06:34	06:54 (ML 04)	07:04	06:40
	16:49	17:26	17:59	19:33	20:04	20:30	20:32	20:03	19:16	16 07:10 (ML 04)	18:25	16:44
12	07:22	06:58	06:16	06:25	05:44	05:25	05:36	06:04	06:35	06:55 (ML 04)	07:05	06:41
	16:50	17:28	18:01	19:34	20:05	20:30	20:31	20:02	19:14	16 07:11 (ML 04)	18:24	16:43
13	07:22	06:56	06:15	06:24	05:43	05:25	05:36	06:05	06:36	06:56 (ML 04)	07:06	06:42
	16:51	17:29	18:02	19:35	20:06	20:31	20:31	20:01	19:12	16 07:12 (ML 04)	18:22	16:42
14	07:22	06:55	06:13	06:22	05:42	05:25	05:37	06:06	06:37	06:57 (ML 04)	07:07	06:43
	16:52	17:30	18:03	19:36	20:07	20:31	20:30	19:59	19:11	15 07:12 (ML 04)	18:21	16:41
15	07:21	06:54	06:12	06:21	05:41	05:25	05:38	06:07	06:38	06:58 (ML 04)	07:09	06:45
	16:54	17:31	18:04	19:37	20:08	20:32	20:30	19:58	19:09	14 07:12 (ML 04)	18:19	16:40
16	07:21	06:53	06:10	06:19	05:40	05:25	05:39	06:08	06:39	06:59 (ML 04)	07:10	06:46
	16:55	17:33	18:05	19:38	20:09	20:32	20:29	19:57	19:07	14 07:13 (ML 04)	18:18	16:39
17	07:21	06:51	06:08	06:17	05:39	05:25	05:40	06:09	06:40	07:00 (ML 04)	07:11	06:47
	16:56	17:34	18:06	19:39	20:10	20:33	20:28	19:55	19:06	13 07:13 (ML 04)	18:16	16:39
18	07:20	06:50	06:07	06:16	05:38	05:25	05:40	06:10	06:41	07:01 (ML 04)	07:12	06:48
	16:57	17:35	18:07	19:40	20:11	20:33	20:28	19:54	19:04	12 07:13 (ML 04)	18:14	16:38
19	07:20	06:49	06:05	06:14	05:37	05:25	05:41	06:11	06:42	07:02 (ML 04)	07:13	06:49
	16:58	17:36	18:08	19:41	20:12	20:33	20:27	19:52	19:02	10 07:12 (ML 04)	18:13	16:37
20	07:19	06:47	06:03	06:13	05:37	05:26	05:42	06:12	06:43	07:03 (ML 04)	07:14	06:50
	16:59	17:37	18:09	19:42	20:13	20:33	20:26	19:51	19:00	9 07:12 (ML 04)	18:11	16:36
21	07:18	06:46	06:02	06:11	05:36	05:26	05:43	06:13	06:44	07:04 (ML 04)	07:15	06:52
	17:00	17:39	18:10	19:43	20:14	20:34	20:26	19:49	18:59	8 07:12 (ML 04)	18:10	16:36
22	07:18	06:44	06:00	06:10	05:35	05:26	05:44	06:14	06:45	07:05 (ML 04)	07:16	06:53
	17:02	17:40	18:11	19:44	20:15	20:34	20:25	19:48	18:57	6 07:11 (ML 04)	18:09	16:35
23	07:17	06:43	05:58	06:08	05:34	05:26	05:45	06:15	06:46	07:06 (ML 04)	07:17	06:54
	17:03	17:41	18:12	19:45	20:16	20:34	20:24	19:46	18:55	4 07:10 (ML 04)	18:07	16:34
24	07:17	06:41	05:57	06:07	05:33	05:26	05:45	06:16	06:47	07:07 (ML 04)	07:19	06:55
	17:04	17:42	18:14	19:47	20:17	20:34	20:23	19:45	18:54	2 07:09 (ML 04)	18:06	16:34
25	07:16	06:40	05:55	06:06	05:33	05:27	05:46	06:17	06:48		06:20	06:56
	17:05	17:43	18:15	19:48	20:18	20:34	20:22	19:43	18:52		17:04	16:33
26	07:15	06:38	05:53	06:04	05:32	05:27	05:47	06:18	06:49		06:21	06:57
	17:07	17:45	18:16	19:49	20:19	20:34	20:21	19:42	18:50		17:03	16:33
27	07:14	06:37	05:52	06:03	05:31	05:27	05:48	06:19	06:50		06:22	06:58
	17:08	17:46	18:17	19:50	20:19	20:34	20:20	19:40	18:49		17:02	16:32
28	07:13	06:35	05:50	06:01	05:31	05:28	05:49	06:20	06:51		06:23	07:00
	17:09	17:47	18:18	19:51	20:20	20:35	20:19	19:39	18:47		17:00	16:32
29	07:13		06:48	06:00	05:30	05:28	05:50	06:21	06:52		06:24	07:01
	17:10		19:19	19:52	20:21	20:34	20:19	19:37	18:45		16:59	16:31
30	07:12		06:47	05:59	05:30	05:29	05:51	06:22	06:53		06:26	07:02
	17:11		19:20	19:53	20:22	20:34	20:18	19:36	18:43		16:58	16:31
31	07:11		06:45	06:04	05:29		05:52	06:23			06:27	07:23
	17:13		19:21	19:53	20:23		20:16	19:34			16:56	16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case			134		69				207			

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

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

SHADOW - Calendar

Shadow receptor: R21 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (4)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	06:48 (ML 02) 19:54
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	06:50 (ML 02) 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	06:56 (ML 02) 19:56
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:55 19:57
5	07:23 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:54 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:53 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:52 20:00
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:51 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:47 20:02	05:50 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:49 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:48 20:04
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	06:49 (ML 03) 20:05
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	06:59 (ML 03) 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	06:45 (ML 03) 20:07
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 19:37	05:41 20:08	07:01 (ML 03) 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	06:43 (ML 03) 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	06:59 (ML 02) 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	06:43 (ML 03) 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	07:02 (ML 02) 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	06:47 (ML 02) 20:13
21	07:18 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:35 20:14	06:42 (ML 03) 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	06:42 (ML 03) 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	06:44 (ML 02) 20:16
24	07:16 17:04	06:41 17:42	05:56 18:13	06:07 19:46	05:33 20:17	06:58 (ML 03) 20:17
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	06:46 (ML 03) 20:18
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	05:32 20:19	06:44 (ML 02) 20:19
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	06:45 (ML 02) 20:19
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	06:44 (ML 02) 20:20
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	06:45 (ML 02) 20:21
30	07:12 17:11		06:46 19:20	05:59 19:53	05:29 20:22	06:44 (ML 02) 20:22
31	07:11 17:13		06:45 19:21		05:29 20:23	06:47 (ML 02) 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case			225	268	18	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

Shadow receptor: R21 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (4)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August		September		October		November	December
1	05:29 20:34	05:53 20:15		06:24 19:32		06:54 18:42	07:28 (ML 03)	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14		06:25 19:31		06:55 18:40	07:31 (ML 03)	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13		06:26 19:29		06:56 18:38	07:36 (ML 03)	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12		06:27 19:27		06:57 18:37		06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11		06:28 19:26		06:58 18:35		06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10		06:29 19:24		06:59 18:33		06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:08		06:30 19:22		07:00 18:32		06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07		06:31 19:21		07:01 18:30		06:36 16:47	07:10 16:29
9	05:34 20:32	06:01 20:06		06:32 19:19		07:02 18:29		06:37 16:46	07:10 16:29
10	05:34 20:32	06:02 20:05		06:33 19:17		07:03 18:27		06:39 16:45	07:11 16:30
11	05:35 20:32	06:03 20:03		06:34 19:16		07:04 18:25		06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	8	06:58 (ML 02) 07:06 (ML 02) 06:56 (ML 02) 07:08 (ML 02)	06:35 19:14	07:05 18:24		06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	12	06:54 (ML 02) 07:10 (ML 02)	06:36 19:12	07:06 18:22		06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	16	06:53 (ML 02) 07:11 (ML 02)	06:37 19:11	07:07 18:21		06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	18	06:52 (ML 02) 07:11 (ML 02)	06:38 19:09	07:08 18:19		06:45 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	19	06:51 (ML 02) 07:12 (ML 02)	06:38 19:07	07:10 18:17		06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	21	06:51 (ML 02) 07:12 (ML 02)	06:39 19:05	07:11 18:16		06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	21	06:50 (ML 02) 07:12 (ML 02)	06:40 19:04	07:12 18:14		06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	22	06:50 (ML 02) 07:12 (ML 02)	06:41 19:02	07:13 18:13	07:34 (ML 03)	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	22	06:50 (ML 02) 07:12 (ML 02)	06:42 19:00	07:14 18:11	07:31 (ML 03) 07:44 (ML 03)	06:50 16:36	07:19 16:32
21	05:43 20:26	06:13 19:49	22	06:50 (ML 02) 07:11 (ML 02)	06:43 18:59	07:15 18:10	07:29 (ML 03) 07:46 (ML 03)	06:52 16:36	07:19 16:32
22	05:44 20:25	06:14 19:48	21	06:50 (ML 02) 07:11 (ML 02)	06:44 18:57	07:16 18:09	07:28 (ML 03) 07:46 (ML 03)	06:53 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	21	06:51 (ML 02) 07:10 (ML 02)	06:45 18:55	07:17 18:07	07:27 (ML 03) 07:47 (ML 03)	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	19	06:51 (ML 02) 07:09 (ML 02)	06:46 18:54	07:19 18:06	07:26 (ML 03) 07:47 (ML 03)	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	19	06:52 (ML 02) 07:07 (ML 02)	06:47 18:52	07:20 17:04	07:25 (ML 03) 07:46 (ML 03)	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	15	06:54 (ML 02) 07:05 (ML 02)	06:49 18:50	07:21 17:03	07:25 (ML 03) 07:46 (ML 03)	06:57 16:33	07:21 16:35
27	05:48 20:20	06:19 19:40	11	06:59 (ML 02) 07:00 (ML 02)	06:50 18:48	07:22 17:02	07:25 (ML 03) 07:46 (ML 03)	06:58 16:32	07:22 16:36
28	05:49 20:19	06:20 19:39	1	07:00 (ML 02)	06:51 18:47	07:23 17:00	07:25 (ML 03) 07:45 (ML 03)	06:59 16:32	07:22 16:36
29	05:50 20:18	06:21 19:37			06:52 18:45	07:24 16:59	07:25 (ML 03) 07:43 (ML 03)	07:01 16:31	07:22 16:37
30	05:51 20:17	06:22 19:35			06:53 18:43	07:25 16:58	07:26 (ML 03) 07:42 (ML 03)	07:02 16:31	07:23 16:38
31	05:52 20:16	06:23 19:34				06:57 16:56			07:23 16:39
Potential sun hours	459	428		375		345		298	288
Total, worst case		287		215		17			

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

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

Shadow receptor: R23 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (5)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March		April		May	June
1	07:23 16:40	07:10 17:14	06:34 17:48		06:43 19:22		05:57 19:54	05:28 20:23
2	07:23 16:41	07:09 17:15	06:32 17:49		06:41 19:23		05:56 19:55	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50		06:40 19:24		05:55 19:56	05:28 20:25
4	07:23 16:42	07:07 17:18	06:29 17:51		06:38 19:25		05:53 19:57	05:27 20:26
5	07:23 16:43	07:06 17:19	06:28 17:53		06:37 19:26		05:52 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54		06:35 19:27		05:51 19:59	05:27 20:27
7	07:23 16:45	07:04 17:21	06:25 17:55		06:33 19:28		05:50 20:00	05:26 20:28
8	07:23 16:46	07:02 17:23	06:23 17:56		06:32 19:29		05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57		06:30 19:31		05:47 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58		06:28 19:32		05:46 20:03	05:26 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59		06:27 19:33		05:45 20:04	05:25 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	8	06:25 19:34		05:44 20:05	05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:02	13	06:24 19:35		05:43 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	16	06:22 19:36		05:42 20:07	05:25 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	19	06:20 19:37	6	06:55 (ML 02) 07:01 (ML 02)	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	20	06:19 19:38	12	06:52 (ML 02) 07:04 (ML 02)	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	21	06:17 19:39	15	06:50 (ML 02) 07:05 (ML 02)	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	21	06:16 19:40	18	06:49 (ML 02) 07:07 (ML 02)	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	21	06:14 19:41	20	06:47 (ML 02) 07:07 (ML 02)	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	21	06:13 19:42	21	06:47 (ML 02) 07:08 (ML 02)	05:36 20:13
21	07:18 17:00	06:46 17:39	06:02 18:10	19	06:11 19:43	21	06:46 (ML 02) 07:07 (ML 02)	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	18	06:10 19:44	22	06:46 (ML 02) 07:08 (ML 02)	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	15	06:08 19:45	22	06:45 (ML 02) 07:07 (ML 02)	05:34 20:16
24	07:16 17:04	06:41 17:42	05:56 18:13	11	06:07 19:46	22	06:45 (ML 02) 07:07 (ML 02)	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 18:15		06:06 19:48	21	06:46 (ML 02) 07:07 (ML 02)	05:33 20:18
26	07:15 17:06	06:38 17:44	05:53 18:16		06:04 19:49	20	06:45 (ML 02) 07:05 (ML 02)	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 18:17		06:03 19:50	19	06:46 (ML 02) 07:05 (ML 02)	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 18:18		06:01 19:51	17	06:46 (ML 02) 07:03 (ML 02)	05:31 20:20
29	07:13 17:10		06:48 19:19		06:00 19:52	14	06:48 (ML 02) 07:02 (ML 02)	05:30 20:21
30	07:12 17:11		06:46 19:20		05:59 19:53	10	06:50 (ML 02) 07:00 (ML 02)	05:29 20:22
31	07:11 17:13		06:45 19:21					05:29 20:23
Potential sun hours	297	297	369		399		448	452
Total, worst case			223		280			

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

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

Shadow receptor: R23 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (5)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:27 (ML 03) 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:28 (ML 03) 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:39 (ML 03) 16:54	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:30 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:10 16:29
9	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:10 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:11 16:30
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	07:00 (ML 02) 07:05 (ML 02) 19:14	06:35 18:24	07:05 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	06:57 (ML 02) 07:08 (ML 02) 19:12	06:36 18:22	07:06 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	06:55 (ML 02) 07:10 (ML 02) 19:11	06:37 18:21	07:07 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	06:54 (ML 02) 07:11 (ML 02) 19:09	06:38 18:19	07:08 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	06:53 (ML 02) 07:12 (ML 02) 19:07	06:38 18:17	07:09 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	06:52 (ML 02) 07:12 (ML 02) 19:05	06:39 18:16	07:11 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	06:51 (ML 02) 07:13 (ML 02) 19:04	06:40 18:14	07:12 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	06:51 (ML 02) 07:13 (ML 02) 19:02	06:41 18:13	07:13 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	06:51 (ML 02) 07:13 (ML 02) 19:00	06:42 19:00	07:14 18:11	07:19 16:32
21	05:43 20:26	06:13 19:49	06:51 (ML 02) 07:12 (ML 02) 18:59	06:43 18:59	07:15 18:10	07:19 16:32
22	05:44 20:25	06:14 19:48	06:51 (ML 02) 07:12 (ML 02) 18:57	06:44 18:57	07:16 18:09	07:20 16:33
23	05:45 20:24	06:15 19:46	06:51 (ML 02) 07:11 (ML 02) 18:55	06:45 18:55	07:17 18:07	07:20 16:33
24	05:45 20:23	06:16 19:45	06:51 (ML 02) 07:11 (ML 02) 18:54	06:46 18:54	07:19 18:06	07:21 16:34
25	05:46 20:22	06:17 19:43	06:52 (ML 02) 07:09 (ML 02) 18:52	06:47 18:52	07:20 17:04	07:21 16:34
26	05:47 20:21	06:18 19:42	06:53 (ML 02) 07:08 (ML 02) 18:50	06:49 18:50	07:21 17:03	07:21 16:35
27	05:48 20:20	06:19 19:40	06:54 (ML 02) 07:06 (ML 02) 18:48	06:50 18:48	07:22 17:02	07:22 16:36
28	05:49 20:19	06:20 19:39	06:58 (ML 02) 07:02 (ML 02) 18:47	06:51 18:47	07:23 17:00	07:22 16:36
29	05:50 20:18	06:21 19:37	06:52 18:45	06:52 18:45	07:24 16:59	07:22 16:37
30	05:51 20:17	06:22 19:35	06:53 18:43	06:53 18:43	07:25 16:58	07:23 16:38
31	05:52 20:16	06:23 19:34		06:54 16:57		07:23 16:39
Potential sun hours	459	428	375	345	298	288
Total, worst case		283	200	26		

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

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

Shadow receptor: R31 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (6)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June	
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	06:40 (ML 03) 07:07 (ML 03)	05:28 20:23
2	07:23 16:40	07:09 17:15	06:32 17:49	17:08 (ML 04) 19:23	05:56 19:55	06:38 (ML 03) 07:07 (ML 03)	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50	17:06 (ML 04) 19:24	05:55 19:56	06:37 (ML 03) 07:08 (ML 03)	05:28 20:25
4	07:23 16:42	07:07 17:18	06:29 17:51	17:03 (ML 04) 19:25	05:53 19:57	06:37 (ML 03) 07:09 (ML 03)	05:27 20:26
5	07:23 16:43	07:06 17:19	06:28 17:53	17:02 (ML 04) 19:26	05:52 19:58	06:36 (ML 03) 07:09 (ML 03)	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54	17:00 (ML 04) 19:27	05:51 19:59	06:36 (ML 03) 07:10 (ML 03)	05:27 20:27
7	07:23 16:45	07:04 17:21	06:24 17:55	16:59 (ML 04) 19:28	05:50 20:00	06:34 (ML 03) 07:09 (ML 03)	05:26 20:27
8	07:23 16:46	07:02 17:23	06:23 17:56	16:58 (ML 04) 19:29	05:49 20:01	06:34 (ML 03) 07:09 (ML 03)	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	16:57 (ML 04) 19:30	05:47 20:02	06:34 (ML 03) 07:09 (ML 03)	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	16:56 (ML 04) 19:32	05:46 20:03	06:34 (ML 03) 07:10 (ML 03)	05:26 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	16:56 (ML 04) 19:33	05:45 20:04	06:34 (ML 03) 07:10 (ML 03)	05:25 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	16:55 (ML 04) 19:34	05:44 20:05	06:34 (ML 03) 07:09 (ML 03)	05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:02	16:54 (ML 04) 19:35	05:43 20:06	06:34 (ML 03) 07:09 (ML 03)	05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	16:55 (ML 04) 19:36	05:42 20:07	06:34 (ML 03) 07:09 (ML 03)	05:25 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	16:55 (ML 04) 19:37	05:41 20:08	06:34 (ML 03) 07:09 (ML 03)	05:25 20:32
16	07:21 16:55	06:53 17:32	06:10 18:05	16:54 (ML 04) 19:38	05:40 20:09	06:34 (ML 03) 07:08 (ML 03)	05:25 20:32
17	07:21 16:56	06:51 17:34	06:08 18:06	16:55 (ML 04) 19:39	05:39 20:10	06:34 (ML 03) 07:08 (ML 03)	05:25 20:32
18	07:20 16:57	06:50 17:35	06:06 18:07	16:55 (ML 04) 19:40	05:38 20:11	06:36 (ML 03) 07:08 (ML 03)	05:25 20:33
19	07:20 16:58	06:48 17:36	06:05 18:08	16:56 (ML 04) 19:41	05:37 20:12	06:36 (ML 03) 07:08 (ML 03)	05:25 20:33
20	07:19 16:59	06:47 17:37	06:03 18:09	16:57 (ML 04) 19:42	05:36 20:13	06:36 (ML 03) 07:07 (ML 03)	05:25 20:33
21	07:18 17:00	06:46 17:39	06:01 18:10	16:58 (ML 04) 19:43	05:36 20:14	06:36 (ML 03) 07:06 (ML 03)	05:26 20:34
22	07:18 17:02	06:44 17:40	06:00 18:11	16:59 (ML 04) 19:44	05:35 20:15	06:38 (ML 03) 07:07 (ML 03)	05:26 20:34
23	07:17 17:03	06:43 17:41	05:58 18:12	17:01 (ML 04) 19:45	05:34 20:16	06:38 (ML 03) 07:06 (ML 03)	05:26 20:34
24	07:16 17:04	06:41 17:42	05:56 18:13	17:04 (ML 04) 19:46	05:33 20:17	06:39 (ML 03) 07:05 (ML 03)	05:26 20:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:47	05:33 20:18	06:40 (ML 03) 07:05 (ML 03)	05:27 20:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	05:32 20:18	06:41 (ML 03) 07:04 (ML 03)	05:27 20:34
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	06:41 (ML 03) 06:59 (ML 03)	05:27 20:34
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	06:43 (ML 03) 07:02 (ML 03)	05:28 20:34
29	07:12 17:10		06:48 19:19	06:00 19:52	05:30 20:21	06:43 (ML 03) 07:01 (ML 03)	05:28 20:34
30	07:12 17:11		06:46 19:20	05:59 19:53	05:29 20:22	06:45 (ML 03) 07:00 (ML 03)	05:28 20:34
31	07:11 17:13		06:45 19:21		05:29 20:23	06:46 (ML 03) 06:58 (ML 03)	
Potential sun hours	297	297	369	399	448		452
Total, worst case			649	75	912		8

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

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

Shadow receptor: R31 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (6)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December		
1	05:29 20:34	05:53 20:15	06:44 (ML 03) 07:20 (ML 03)	06:24 19:32	06:54 18:42	17:35 (ML 04) 18:11 (ML 04)	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:44 (ML 03) 07:20 (ML 03)	06:25 19:31	06:55 18:40	17:34 (ML 04) 18:09 (ML 04)	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:45 (ML 03) 07:20 (ML 03)	06:26 19:29	06:56 18:38	17:34 (ML 04) 18:08 (ML 04)	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:45 (ML 03) 07:20 (ML 03)	06:27 19:27	06:57 18:37	17:34 (ML 04) 18:07 (ML 04)	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:45 (ML 03) 07:20 (ML 03)	06:28 19:26	06:58 18:35	17:34 (ML 04) 18:05 (ML 04)	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:45 (ML 03) 07:20 (ML 03)	06:29 19:24	06:59 18:33	17:35 (ML 04) 18:03 (ML 04)	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:08	06:46 (ML 03) 07:19 (ML 03)	06:30 19:22	07:00 18:32	17:35 (ML 04) 18:02 (ML 04)	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:46 (ML 03) 07:19 (ML 03)	06:31 19:21	07:01 18:30	17:36 (ML 04) 18:00 (ML 04)	06:36 16:47	07:10 16:29
9	05:34 20:32	06:01 20:06	06:46 (ML 03) 07:17 (ML 03)	06:32 19:19	07:02 18:28	17:37 (ML 04) 17:58 (ML 04)	06:37 16:46	07:10 16:29
10	05:34 20:32	06:02 20:05	06:46 (ML 03) 07:16 (ML 03)	06:33 19:17	07:03 18:27	17:38 (ML 04) 17:56 (ML 04)	06:39 16:45	07:11 16:29
11	05:35 20:32	06:58 (ML 03) 07:02 (ML 03)	06:03 07:15 (ML 03)	06:34 19:16	07:04 18:25	17:40 (ML 04) 17:55 (ML 04)	06:40 16:44	07:12 16:30
12	05:36 20:31	06:55 (ML 03) 07:05 (ML 03)	06:04 20:02	06:35 19:14	07:05 18:24	17:44 (ML 04) 17:53 (ML 04)	06:41 16:43	07:13 16:30
13	05:36 20:31	06:54 (ML 03) 07:08 (ML 03)	06:05 20:01	06:35 19:12	07:06 18:22	17:44 (ML 04) 17:53 (ML 04)	06:42 16:42	07:14 16:30
14	05:37 20:30	06:53 (ML 03) 07:09 (ML 03)	06:06 19:59	06:36 19:11	07:07 18:21	17:44 (ML 04) 17:53 (ML 04)	06:43 16:41	07:15 16:30
15	05:38 20:30	06:52 (ML 03) 07:10 (ML 03)	06:07 19:58	06:37 19:09	07:08 18:19	17:44 (ML 04) 17:53 (ML 04)	06:44 16:40	07:15 16:30
16	05:39 20:29	06:51 (ML 03) 07:11 (ML 03)	06:08 19:57	06:38 19:07	07:10 18:17	17:44 (ML 04) 17:53 (ML 04)	06:46 16:39	07:16 16:30
17	05:39 20:28	06:50 (ML 03) 07:13 (ML 03)	06:09 19:55	06:39 19:05	07:11 18:16	17:44 (ML 04) 17:53 (ML 04)	06:47 16:38	07:17 16:31
18	05:40 20:28	06:50 (ML 03) 07:14 (ML 03)	06:10 19:54	06:40 19:04	07:12 18:14	17:44 (ML 04) 17:53 (ML 04)	06:48 16:38	07:17 16:31
19	05:41 20:27	06:49 (ML 03) 07:15 (ML 03)	06:11 19:52	06:41 19:02	07:13 18:13	17:44 (ML 04) 17:53 (ML 04)	06:49 16:37	07:18 16:31
20	05:42 20:26	06:48 (ML 03) 07:15 (ML 03)	06:12 19:51	06:42 19:00	07:14 18:11	17:44 (ML 04) 17:53 (ML 04)	06:50 16:36	07:19 16:32
21	05:43 20:25	06:47 (ML 03) 07:16 (ML 03)	06:13 19:49	06:43 18:59	07:15 18:09	17:44 (ML 04) 17:53 (ML 04)	06:52 16:36	07:19 16:32
22	05:44 20:25	06:47 (ML 03) 07:17 (ML 03)	06:14 19:48	06:44 18:57	07:16 18:10	17:44 (ML 04) 17:53 (ML 04)	06:53 16:35	07:20 16:33
23	05:44 20:24	06:47 (ML 03) 07:17 (ML 03)	06:15 19:46	06:45 18:55	07:17 18:11	17:44 (ML 04) 17:53 (ML 04)	06:54 16:34	07:20 16:33
24	05:45 20:23	06:47 (ML 03) 07:18 (ML 03)	06:16 19:45	06:46 18:54	07:18 18:12	17:44 (ML 04) 17:53 (ML 04)	06:55 16:34	07:21 16:34
25	05:46 20:22	06:46 (ML 03) 07:19 (ML 03)	06:17 19:43	06:47 18:52	07:19 18:12	17:44 (ML 04) 17:53 (ML 04)	06:56 16:33	07:21 16:34
26	05:47 20:21	06:45 (ML 03) 07:18 (ML 03)	06:18 19:42	06:48 18:50	07:20 18:13	17:44 (ML 04) 17:53 (ML 04)	06:57 16:33	07:21 16:35
27	05:48 20:20	06:45 (ML 03) 07:19 (ML 03)	06:19 19:40	06:49 18:48	07:21 18:13	17:44 (ML 04) 17:53 (ML 04)	06:58 16:32	07:22 16:36
28	05:49 20:19	06:45 (ML 03) 07:19 (ML 03)	06:20 19:39	06:51 18:47	07:22 18:13	17:44 (ML 04) 17:53 (ML 04)	06:59 16:32	07:22 16:36
29	05:50 20:18	06:45 (ML 03) 07:19 (ML 03)	06:21 19:37	06:52 18:45	07:23 18:13	17:44 (ML 04) 17:53 (ML 04)	07:01 16:31	07:22 16:37
30	05:51 20:17	06:44 (ML 03) 07:20 (ML 03)	06:22 19:35	06:53 18:43	07:24 18:12	17:44 (ML 04) 17:53 (ML 04)	07:02 16:31	07:23 16:38
31	05:52 20:16	06:44 (ML 03) 07:20 (ML 03)	06:23 19:34	06:54 18:43	07:25 18:12	17:44 (ML 04) 17:53 (ML 04)	07:03 16:31	07:23 16:39
Potential sun hours	459	428	375	345	311	298	288	
Total, worst case	542	462	356	311				

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

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

Shadow receptor: R32 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (7)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	06:41 (ML 03) 20:23
2	07:23 16:40	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	06:38 (ML 03) 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50	5 17:15 (ML 04) 17:20 (ML 04)	06:40 19:24	06:37 (ML 03) 20:25
4	07:23 16:42	07:07 17:18	06:29 17:51	13 17:09 (ML 04) 17:22 (ML 04)	06:38 19:25	06:36 (ML 03) 20:26
5	07:23 16:43	07:06 17:19	06:28 17:53	17 17:07 (ML 04) 17:24 (ML 04)	06:36 19:26	06:36 (ML 03) 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54	21 17:04 (ML 04) 17:25 (ML 04)	06:35 19:27	06:35 (ML 03) 20:27
7	07:23 16:45	07:04 17:21	06:24 17:55	24 17:02 (ML 04) 17:26 (ML 04)	06:33 19:28	06:34 (ML 03) 20:27
8	07:23 16:46	07:02 17:23	06:23 17:56	26 17:01 (ML 04) 17:27 (ML 04)	06:32 19:29	06:33 (ML 03) 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	29 16:59 (ML 04) 17:28 (ML 04)	06:30 19:30	06:33 (ML 03) 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	31 16:58 (ML 04) 17:29 (ML 04)	06:28 19:32	06:33 (ML 03) 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	32 16:58 (ML 04) 17:30 (ML 04)	06:27 19:33	06:32 (ML 03) 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	34 16:57 (ML 04) 17:31 (ML 04)	06:25 19:34	06:32 (ML 03) 20:30
13	07:22 16:51	06:56 17:29	06:15 18:02	35 16:56 (ML 04) 17:31 (ML 04)	06:24 19:35	06:32 (ML 03) 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	37 16:56 (ML 04) 17:33 (ML 04)	06:22 19:36	06:32 (ML 03) 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	38 16:55 (ML 04) 17:33 (ML 04)	06:20 19:37	06:32 (ML 03) 20:32
16	07:21 16:55	06:53 17:32	06:10 18:05	38 16:55 (ML 04) 17:33 (ML 04)	06:19 19:38	06:32 (ML 03) 20:32
17	07:21 16:56	06:51 17:34	06:08 18:06	38 16:55 (ML 04) 17:33 (ML 04)	06:17 19:39	06:32 (ML 03) 20:32
18	07:20 16:57	06:50 17:35	06:06 18:07	37 16:55 (ML 04) 17:32 (ML 04)	06:16 19:40	06:33 (ML 03) 20:33
19	07:20 16:58	06:48 17:36	06:05 18:08	36 16:55 (ML 04) 17:31 (ML 04)	06:14 19:41	06:33 (ML 03) 20:33
20	07:19 16:59	06:47 17:37	06:03 18:09	35 16:56 (ML 04) 17:31 (ML 04)	06:13 19:42	06:33 (ML 03) 20:33
21	07:18 17:00	06:46 17:39	06:01 18:10	33 16:56 (ML 04) 17:29 (ML 04)	06:11 19:43	06:34 (ML 03) 20:34
22	07:18 17:02	06:44 17:40	06:00 18:11	31 16:57 (ML 04) 17:28 (ML 04)	06:10 19:44	06:35 (ML 03) 20:34
23	07:17 17:03	06:43 17:41	05:58 18:12	29 16:58 (ML 04) 17:27 (ML 04)	06:08 19:45	06:35 (ML 03) 20:34
24	07:16 17:04	06:41 17:42	05:56 18:13	26 16:59 (ML 04) 17:25 (ML 04)	06:07 19:46	06:35 (ML 03) 20:34
25	07:16 17:05	06:40 17:43	05:55 18:15	21 17:01 (ML 04) 17:22 (ML 04)	06:06 19:47	06:37 (ML 03) 20:34
26	07:15 17:06	06:38 17:44	05:53 18:16	16 17:04 (ML 04) 17:20 (ML 04)	06:04 19:49	06:37 (ML 03) 20:34
27	07:14 17:08	06:37 17:46	05:51 18:17	6 17:08 (ML 04) 17:14 (ML 04)	06:03 19:50	06:37 (ML 03) 20:34
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	06:01 20:20	06:39 (ML 03) 20:34
29	07:12 17:10	06:48 19:19	06:00 19:19	06:00 19:52	06:45 (ML 03) 20:21	06:39 (ML 03) 20:34
30	07:12 17:11	06:46 19:20	06:00 19:20	05:59 19:53	06:42 (ML 03) 20:22	06:40 (ML 03) 20:34
31	07:11 17:13	06:45 19:21	06:00 19:21	05:59 19:53	06:41 (ML 03) 20:23	06:41 (ML 03) 20:34
Potential sun hours	297	297	369	399	448	452
Total, worst case			688	30	934	61

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

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

Shadow receptor: R32 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (7)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December	
1	05:29 20:34	05:53 20:15	06:43 (ML 03) 07:18 (ML 03)	06:24 19:32	06:54 18:42	17:36 (ML 04) 16:55	06:28 16:31
2	05:29 20:34	05:54 20:14	06:43 (ML 03) 07:18 (ML 03)	06:25 19:31	06:55 18:40	17:36 (ML 04) 16:54	06:29 16:30
3	05:30 20:34	05:55 20:13	06:43 (ML 03) 07:18 (ML 03)	06:26 19:29	06:56 18:38	17:36 (ML 04) 16:53	06:30 16:30
4	05:30 20:34	05:56 20:12	06:44 (ML 03) 07:18 (ML 03)	06:27 19:27	06:57 18:37	17:37 (ML 04) 16:51	06:31 16:30
5	05:31 20:34	05:57 20:11	06:44 (ML 03) 07:17 (ML 03)	06:28 19:26	06:58 18:35	17:37 (ML 04) 16:50	06:33 16:30
6	05:32 20:33	05:58 20:10	06:44 (ML 03) 07:17 (ML 03)	06:29 19:24	06:59 18:33	17:38 (ML 04) 16:49	06:34 16:30
7	05:32 20:33	06:57 (ML 03) 06:59 (ML 03)	05:59 20:08	06:30 19:22	07:00 18:32	17:39 (ML 04) 16:48	06:35 16:30
8	05:33 20:33	06:53 (ML 03) 07:02 (ML 03)	06:00 20:07	06:31 19:21	07:01 18:30	17:40 (ML 04) 16:47	06:36 16:29
9	05:34 20:32	06:52 (ML 03) 07:04 (ML 03)	06:01 20:06	06:32 19:19	07:02 18:28	17:42 (ML 04) 16:46	06:37 16:29
10	05:34 20:32	06:52 (ML 03) 07:06 (ML 03)	06:02 20:05	06:33 19:17	07:03 18:27	17:45 (ML 04) 16:45	06:39 16:29
11	05:35 20:32	06:50 (ML 03) 07:06 (ML 03)	06:03 20:03	06:34 19:16	07:04 18:25	17:56 (ML 04) 16:44	06:40 16:30
12	05:36 20:31	06:49 (ML 03) 07:08 (ML 03)	06:04 20:02	06:35 19:14	07:05 18:24	17:59 (ML 04) 16:43	06:41 16:30
13	05:36 20:31	06:49 (ML 03) 07:09 (ML 03)	06:05 20:01	06:35 19:12	07:06 18:22	17:59 (ML 04) 16:42	06:42 16:30
14	05:37 20:30	06:49 (ML 03) 07:10 (ML 03)	06:06 19:59	06:36 19:11	07:07 18:21	17:56 (ML 04) 16:41	06:43 16:30
15	05:38 20:30	06:47 (ML 03) 07:11 (ML 03)	06:07 19:58	06:37 19:09	07:08 18:19	17:56 (ML 04) 16:40	06:44 16:30
16	05:39 20:29	06:47 (ML 03) 07:12 (ML 03)	06:08 19:57	06:38 19:07	07:10 18:17	17:56 (ML 04) 16:39	06:46 16:30
17	05:39 20:28	06:46 (ML 03) 07:13 (ML 03)	06:09 19:55	06:39 19:05	17:53 (ML 04) 18:07 (ML 04)	17:11 18:16	06:47 16:31
18	05:40 20:28	06:46 (ML 03) 07:14 (ML 03)	06:10 19:54	06:40 19:04	17:50 (ML 04) 18:10 (ML 04)	07:12 18:14	06:48 16:31
19	05:41 20:27	06:46 (ML 03) 07:14 (ML 03)	06:11 19:52	06:41 19:02	17:47 (ML 04) 18:11 (ML 04)	07:13 18:13	06:49 16:31
20	05:42 20:26	06:45 (ML 03) 07:14 (ML 03)	06:12 19:51	06:42 19:00	17:45 (ML 04) 18:13 (ML 04)	07:14 18:11	06:50 16:32
21	05:43 20:25	06:44 (ML 03) 07:15 (ML 03)	06:13 19:49	06:43 18:59	17:44 (ML 04) 18:14 (ML 04)	07:15 18:10	06:52 16:32
22	05:44 20:25	06:44 (ML 03) 07:16 (ML 03)	06:14 19:48	06:44 18:57	17:42 (ML 04) 18:14 (ML 04)	07:16 18:08	06:53 16:33
23	05:44 20:24	06:44 (ML 03) 07:16 (ML 03)	06:15 19:46	06:45 18:55	17:41 (ML 04) 18:15 (ML 04)	07:17 18:07	06:54 16:33
24	05:45 20:23	06:44 (ML 03) 07:17 (ML 03)	06:16 19:45	06:46 18:54	17:40 (ML 04) 18:15 (ML 04)	07:18 18:06	06:55 16:34
25	05:46 20:22	06:44 (ML 03) 07:17 (ML 03)	06:17 19:43	06:47 18:52	17:39 (ML 04) 18:15 (ML 04)	06:20 17:04	06:56 16:34
26	05:47 20:21	06:43 (ML 03) 07:17 (ML 03)	06:18 19:42	06:48 18:50	17:38 (ML 04) 18:15 (ML 04)	06:21 17:03	06:57 16:35
27	05:48 20:20	06:43 (ML 03) 07:17 (ML 03)	06:19 19:40	06:49 18:48	17:37 (ML 04) 18:15 (ML 04)	06:22 17:01	06:58 16:36
28	05:49 20:19	06:43 (ML 03) 07:18 (ML 03)	06:20 19:39	06:51 18:47	17:37 (ML 04) 18:15 (ML 04)	06:23 17:00	06:59 16:36
29	05:50 20:18	06:43 (ML 03) 07:18 (ML 03)	06:21 19:37	06:52 18:45	17:36 (ML 04) 18:14 (ML 04)	06:24 16:59	07:01 16:37
30	05:51 20:17	06:43 (ML 03) 07:18 (ML 03)	06:22 19:35	06:53 18:43	17:36 (ML 04) 18:12 (ML 04)	06:25 16:58	07:02 16:38
31	05:52 20:16	06:43 (ML 03) 07:18 (ML 03)	06:23 19:34			06:27 16:56	07:23 16:39
Potential sun hours	459	428	375	345	298	288	
Total, worst case	643	389	440	249			

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

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

SHADOW - Calendar

Shadow receptor: R43 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (8)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:29 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:25	05:31 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:53	06:36 19:26	05:52 19:58	05:27 20:26	05:31 20:33	05:57 20:11	06:28 19:26	06:58 18:35	06:32 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:03 17:21	06:24 17:55	06:33 19:28	05:50 20:00	05:26 20:27	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:09 16:30
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:30	05:47 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:28	06:37 16:46	07:10 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:31	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:38 16:45	07:11 16:30
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:31	06:03 20:03	06:33 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:34 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:01	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:35 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:36 19:11	07:07 18:21	06:43 16:41	07:14 16:30
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:29	06:07 19:58	06:37 19:09	07:08 18:19	06:44 16:40	07:15 16:30
16	07:21 16:55	06:52 17:32	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:56	06:38 19:07	07:09 18:17	06:46 16:39	07:16 16:30
17	07:20 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:32	05:39 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:06 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:19 16:58	06:48 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:18 16:32
21	07:18 17:00	06:46 17:39	06:01 18:10	06:11 19:43	05:36 20:14	05:26 20:33	05:43 20:25	06:13 19:49	06:43 18:59	07:15 18:10	06:51 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:08	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:16 17:04	06:41 17:42	05:56 18:13	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:46 18:53	07:18 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:14	06:06 19:47	05:33 20:17	05:27 20:34	05:46 20:22	06:17 19:43	06:47 18:52	07:19 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:48	05:32 20:18	05:27 20:34	05:47 20:21	06:18 19:42	06:48 18:50	07:20 17:03	06:57 16:33	07:21 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:49 18:48	07:21 17:01	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:34	05:49 20:19	06:20 19:39	06:50 18:47	07:22 17:00	06:59 16:32	07:22 16:36
29	07:12 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:18	06:21 19:37	06:51 18:45	07:23 16:59	07:00 16:31	07:22 16:37
30	07:12 17:11		06:46 19:20	05:59 19:53	05:30 20:22	05:29 20:34	05:51 20:17	06:22 19:35	06:53 18:43	07:24 16:58	07:01 16:31	07:23 16:38
31	07:11 17:13		06:45 19:21		05:29 20:22		05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
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

Shadow receptor: R51 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (9)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:29 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:25	05:31 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:53	06:36 19:26	05:52 19:58	05:27 20:26	05:31 20:33	05:57 20:11	06:28 19:26	06:58 18:35	06:32 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:03 17:21	06:24 17:55	06:33 19:28	05:50 20:00	05:26 20:27	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:08 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:09 16:30
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:30	05:47 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:28	06:37 16:46	07:10 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:31	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:38 16:45	07:11 16:30
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:31	06:03 20:03	06:33 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:34 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:01	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:30	06:05 20:01	06:35 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:36 19:11	07:07 18:21	06:43 16:41	07:14 16:30
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:29	06:07 19:58	06:37 19:09	07:08 18:19	06:44 16:40	07:15 16:30
16	07:21 16:55	06:52 17:32	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:56	06:38 19:07	07:09 18:17	06:46 16:39	07:16 16:30
17	07:20 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:32	05:39 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:06 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:19 16:58	06:48 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:18 16:32
21	07:18 17:00	06:46 17:39	06:01 18:10	06:11 19:43	05:36 20:14	05:26 20:33	05:43 20:25	06:13 19:49	06:43 18:59	07:15 18:10	06:51 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:08	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:16 17:04	06:41 17:42	05:56 18:13	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:46 18:53	07:18 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:14	06:06 19:47	05:33 20:17	05:27 20:34	05:46 20:22	06:17 19:43	06:47 18:52	07:19 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:48	05:32 20:18	05:27 20:34	05:47 20:21	06:18 19:42	06:48 18:50	07:20 17:03	06:57 16:33	07:21 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:49 18:48	07:21 17:01	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:34	05:49 20:19	06:20 19:39	06:50 18:47	07:22 17:00	06:59 16:32	07:22 16:36
29	07:12 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:18	06:21 19:37	06:51 18:45	07:23 16:59	07:00 16:31	07:22 16:37
30	07:12 17:11		06:46 19:20	05:59 19:53	05:30 20:22	05:29 20:34	05:51 20:17	06:22 19:35	06:53 18:43	07:24 16:58	07:01 16:31	07:23 16:38
31	07:11 17:13		06:45 19:21		05:29 20:22		05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
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

Shadow receptor: R61 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	15:40 (ML 03) 16:16 (ML 03)	06:34 17:48	06:43 19:22	17:52 (ML 02) 19:54
2	07:23 16:40	07:09 17:15	15:40 (ML 03) 16:16 (ML 03)	06:32 17:49	06:41 19:23	17:52 (ML 02) 19:55
3	07:23 16:41	07:08 17:16	15:40 (ML 03) 16:16 (ML 03)	06:31 17:50	06:40 19:24	17:50 (ML 02) 19:56
4	07:23 16:42	07:07 17:18	15:40 (ML 03) 16:17 (ML 03)	06:29 17:51	06:38 19:25	17:49 (ML 02) 19:57
5	07:23 16:43	07:06 17:19	15:39 (ML 03) 16:16 (ML 03)	06:28 17:52	06:36 19:26	17:49 (ML 02) 19:58
6	07:23 16:44	07:05 17:20	15:40 (ML 03) 16:16 (ML 03)	06:26 17:54	06:35 19:27	17:48 (ML 02) 19:59
7	07:23 16:45	07:03 17:21	15:40 (ML 03) 16:16 (ML 03)	06:24 17:55	06:33 19:28	17:48 (ML 02) 20:00
8	07:23 16:46	07:02 17:23	15:41 (ML 03) 16:16 (ML 03)	06:23 17:56	06:31 19:29	17:47 (ML 02) 20:01
9	07:23 16:47	07:01 17:24	15:42 (ML 03) 16:16 (ML 03)	06:21 17:57	06:30 19:30	17:47 (ML 02) 20:02
10	07:23 16:48	07:00 17:25	15:43 (ML 03) 16:16 (ML 03)	06:20 17:58	06:28 19:31	17:47 (ML 02) 20:03
11	07:23 16:49	06:59 17:26	15:43 (ML 03) 16:14 (ML 03)	06:18 17:59	06:27 19:33	17:47 (ML 02) 20:04
12	07:22 16:50	06:58 17:27	15:44 (ML 03) 16:14 (ML 03)	06:16 18:00	06:25 19:34	17:47 (ML 02) 20:05
13	07:22 16:51	06:56 17:29	15:45 (ML 03) 16:13 (ML 03)	06:15 18:01	06:23 19:35	17:47 (ML 02) 20:06
14	07:22 16:52	06:55 17:30	15:46 (ML 03) 16:11 (ML 03)	06:13 18:03	06:22 19:36	17:48 (ML 02) 20:07
15	07:21 16:53	06:54 17:31	15:48 (ML 03) 16:10 (ML 03)	06:11 18:04	06:20 19:37	17:48 (ML 02) 20:08
16	07:21 16:54	06:52 17:32	15:51 (ML 03) 16:08 (ML 03)	06:10 18:05	06:19 19:38	17:48 (ML 02) 20:09
17	07:20 16:56	06:51 17:34	15:53 (ML 03) 16:04 (ML 03)	06:08 18:06	06:17 19:39	17:49 (ML 02) 20:10
18	07:20 16:57	15:51 (ML 03) 06:50	06:50	06:06	06:16 19:40	17:50 (ML 02) 20:11
19	07:19 16:58	15:47 (ML 03) 16:00 (ML 03)	06:48	06:05	06:14 19:41	17:51 (ML 02) 20:12
20	07:19 16:59	15:46 (ML 03) 16:03 (ML 03)	06:47	06:03	06:13 19:42	17:52 (ML 02) 20:13
21	07:18 17:00	15:45 (ML 03) 16:05 (ML 03)	06:46	06:01	06:11 19:43	17:54 (ML 02) 20:14
22	07:18 17:01	15:43 (ML 03) 16:06 (ML 03)	06:44	06:00	06:10 19:44	17:57 (ML 02) 20:15
23	07:17 17:03	15:43 (ML 03) 16:08 (ML 03)	06:43	05:58	06:08 19:45	18:00 (ML 02) 20:16
24	07:16 17:04	15:42 (ML 03) 16:09 (ML 03)	06:41	05:56	06:07 19:46	18:10 (ML 02) 20:17
25	07:16 17:05	15:41 (ML 03) 16:10 (ML 03)	06:40	05:55	06:05 19:47	20:18
26	07:15 17:06	15:41 (ML 03) 16:11 (ML 03)	06:38	05:53	06:04 19:48	20:18
27	07:14 17:08	15:40 (ML 03) 16:12 (ML 03)	06:37	05:51	06:03 19:50	17:06 (ML 02) 20:19
28	07:13 17:09	15:41 (ML 03) 16:13 (ML 03)	06:35	05:50	06:01 19:51	17:01 (ML 02) 20:20
29	07:12 17:10	15:40 (ML 03) 16:14 (ML 03)	06:34	05:48	06:00 19:52	17:58 (ML 02) 20:21
30	07:12 17:11	15:40 (ML 03) 16:15 (ML 03)	06:33	05:46	05:59 19:53	17:56 (ML 02) 20:22
31	07:11 17:13	15:40 (ML 03) 16:15 (ML 03)	06:32	05:45	05:58 19:54	17:54 (ML 02) 20:22
Potential sun hours	297	297	369	399	448	452
Total, worst case	358	520	114	788		

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

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

Shadow receptor: R61 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	17:46 (ML 02) 18:26 (ML 02)	06:53 18:42	06:28 15:11 (ML 03)
2	05:29 20:34	05:54 20:14	06:24 19:31	17:45 (ML 02) 18:26 (ML 02)	06:55 18:40	15:45 (ML 03) 16:31
3	05:30 20:34	05:55 20:13	06:25 19:29	17:45 (ML 02) 18:26 (ML 02)	06:56 18:38	15:11 (ML 03) 16:30
4	05:30 20:34	05:56 20:12	06:26 19:27	17:44 (ML 02) 18:25 (ML 02)	06:57 18:37	15:46 (ML 03) 16:30
5	05:31 20:34	05:57 20:11	06:27 19:26	17:44 (ML 02) 18:25 (ML 02)	06:58 18:35	15:10 (ML 03) 16:30
6	05:31 20:33	05:58 20:10	06:28 19:24	17:44 (ML 02) 18:24 (ML 02)	06:59 18:33	15:46 (ML 03) 16:29
7	05:32 20:33	05:59 20:08	06:29 19:22	17:44 (ML 02) 18:24 (ML 02)	07:00 18:32	15:10 (ML 03) 16:29
8	05:33 20:33	06:00 20:07	06:30 19:21	17:44 (ML 02) 18:23 (ML 02)	07:01 18:30	15:47 (ML 03) 16:29
9	05:33 20:32	06:01 20:06	06:31 19:19	17:44 (ML 02) 18:22 (ML 02)	07:02 18:28	15:10 (ML 03) 16:29
10	05:34 20:32	06:02 20:05	06:32 19:17	17:45 (ML 02) 18:21 (ML 02)	07:03 18:27	15:11 (ML 03) 16:29
11	05:35 20:31	06:03 20:03	06:33 19:16	17:45 (ML 02) 18:19 (ML 02)	07:04 18:25	15:47 (ML 03) 16:29
12	05:35 20:31	06:04 20:02	06:34 19:14	17:46 (ML 02) 18:18 (ML 02)	07:05 18:24	15:11 (ML 03) 16:30
13	05:36 20:31	06:05 20:01	06:35 19:12	17:47 (ML 02) 18:16 (ML 02)	07:06 18:22	15:12 (ML 03) 16:30
14	05:37 20:30	06:06 19:59	06:36 19:10	17:49 (ML 02) 18:14 (ML 02)	07:07 18:20	15:12 (ML 03) 16:30
15	05:38 20:29	06:07 19:58	06:37 19:09	17:51 (ML 02) 18:11 (ML 02)	07:08 18:19	15:13 (ML 03) 16:30
16	05:38 20:29	06:08 19:56	06:38 19:07	17:54 (ML 02) 18:07 (ML 02)	07:09 18:17	15:14 (ML 03) 16:30
17	05:39 20:28	06:09 19:55	06:39 19:05	17:55 (ML 02) 18:06	07:11 18:16	15:15 (ML 03) 16:31
18	05:40 20:28	06:10 19:54	06:40 19:04	17:56 (ML 02) 18:05	07:12 18:14	15:16 (ML 03) 16:31
19	05:41 20:27	06:11 19:52	06:41 19:02	17:57 (ML 02) 18:04	07:13 18:13	15:17 (ML 03) 16:31
20	05:42 20:26	06:12 19:51	18:05 (ML 02) 19:00	06:42 18:01	07:14 18:11	15:18 (ML 03) 16:32
21	05:43 20:25	06:13 19:49	18:01 (ML 02) 18:19 (ML 02)	06:43 18:59	07:15 18:10	15:21 (ML 03) 16:32
22	05:43 20:25	06:14 19:48	17:59 (ML 02) 18:21 (ML 02)	06:44 18:57	07:16 18:08	15:22 (ML 03) 16:33
23	05:44 20:24	06:15 19:46	17:57 (ML 02) 18:23 (ML 02)	06:45 18:55	07:17 18:07	15:24 (ML 03) 16:33
24	05:45 20:23	06:16 19:45	17:55 (ML 02) 18:24 (ML 02)	06:46 18:53	07:18 18:06	15:28 (ML 03) 16:34
25	05:46 20:22	06:17 19:43	17:53 (ML 02) 18:25 (ML 02)	06:47 18:52	06:20 17:04	15:34 (ML 03) 16:33
26	05:47 20:21	06:18 19:42	17:52 (ML 02) 18:26 (ML 02)	06:48 18:50	06:21 17:03	15:36 (ML 03) 16:33
27	05:48 20:20	06:19 19:40	17:51 (ML 02) 18:26 (ML 02)	06:49 18:48	06:22 17:01	15:38 (ML 03) 16:32
28	05:49 20:19	06:20 19:39	17:50 (ML 02) 18:27 (ML 02)	06:50 18:47	06:23 17:00	15:40 (ML 03) 16:32
29	05:50 20:18	06:21 19:37	17:48 (ML 02) 18:26 (ML 02)	06:51 18:45	06:24 16:59	15:41 (ML 03) 16:31
30	05:51 20:17	06:22 19:35	17:47 (ML 02) 18:26 (ML 02)	06:52 18:43	06:25 16:57	15:43 (ML 03) 16:31
31	05:52 20:16	06:23 19:34	17:46 (ML 02) 18:26 (ML 02)	06:52 16:56	06:27 16:56	15:44 (ML 03) 16:31
Potential sun hours	459	428	375	345	298	288
Total, worst case		361	550	171	718	

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

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

Shadow receptor: R63 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	15:37 (ML 03) 16:13 (ML 03)	06:34 17:48	06:43 19:22	17:46 (ML 02) 19:54
2	07:23 16:40	07:09 17:15	15:37 (ML 03) 16:14 (ML 03)	06:32 17:49	06:41 19:23	17:46 (ML 02) 19:55
3	07:23 16:41	07:08 17:16	15:38 (ML 03) 16:14 (ML 03)	06:31 17:50	06:40 19:24	17:45 (ML 02) 19:56
4	07:23 16:42	07:07 17:18	15:38 (ML 03) 16:14 (ML 03)	06:29 17:51	06:38 19:25	17:44 (ML 02) 19:57
5	07:23 16:43	07:06 17:19	15:38 (ML 03) 16:13 (ML 03)	06:28 17:52	06:36 19:26	17:45 (ML 02) 19:58
6	07:23 16:44	07:05 17:20	15:38 (ML 03) 16:13 (ML 03)	06:26 17:54	06:35 19:27	17:44 (ML 02) 19:59
7	07:23 16:45	07:03 17:21	15:39 (ML 03) 16:13 (ML 03)	06:24 17:55	06:33 19:28	17:44 (ML 02) 20:00
8	07:23 16:46	07:02 17:23	15:40 (ML 03) 16:12 (ML 03)	06:23 17:56	06:31 19:29	17:44 (ML 02) 20:01
9	07:23 16:47	07:01 17:24	15:41 (ML 03) 16:12 (ML 03)	06:21 17:57	06:30 19:30	17:44 (ML 02) 20:02
10	07:23 16:48	07:00 17:25	15:43 (ML 03) 16:11 (ML 03)	06:20 17:58	06:28 19:31	17:45 (ML 02) 20:03
11	07:23 16:49	06:59 17:26	15:43 (ML 03) 16:09 (ML 03)	06:18 17:59	06:27 19:33	17:45 (ML 02) 20:04
12	07:22 16:50	06:58 17:27	15:45 (ML 03) 16:08 (ML 03)	06:16 18:00	06:25 19:34	17:46 (ML 02) 20:05
13	07:22 16:51	06:56 17:29	15:47 (ML 03) 16:07 (ML 03)	06:15 18:01	06:23 19:35	17:46 (ML 02) 20:06
14	07:22 16:52	06:55 17:30	15:49 (ML 03) 16:04 (ML 03)	06:13 18:03	06:22 19:36	17:47 (ML 02) 20:07
15	07:21 16:53	8 15:47 (ML 03) 06:54	15:55 (ML 03) 15:53 (ML 03)	06:11 18:04	06:20 19:37	17:48 (ML 02) 20:08
16	07:21 16:54	13 15:44 (ML 03) 17:32	06:52	06:10 18:05	06:19 19:38	17:49 (ML 02) 20:09
17	07:20 16:56	17 16:00 (ML 03) 17:34	06:51	06:08 18:06	06:17 19:39	17:51 (ML 02) 20:10
18	07:20 16:57	20 15:41 (ML 03) 17:35	06:50	06:06 18:07	06:16 19:40	17:53 (ML 02) 20:11
19	07:19 16:58	22 16:02 (ML 03) 17:36	06:48	06:05 18:08	06:14 19:41	17:56 (ML 02) 20:12
20	07:19 16:59	25 15:40 (ML 03) 17:37	06:47	06:03 18:09	06:13 19:42	18:07 (ML 02) 20:13
21	07:18 17:00	26 16:05 (ML 03) 17:38	06:46	06:01 18:10	06:11 19:43	18:11 (ML 02) 20:14
22	07:18 17:01	28 15:38 (ML 03) 17:40	06:44	06:00 18:11	06:10 19:44	17:56 (ML 02) 20:15
23	07:17 17:03	30 16:08 (ML 03) 17:41	06:43	05:58 18:12	06:08 19:45	18:14 (ML 02) 20:16
24	07:16 17:04	31 16:09 (ML 03) 17:42	06:41	05:56 18:13	06:07 19:46	17:15 (ML 02) 20:17
25	07:16 17:05	32 15:37 (ML 03) 17:43	06:40	05:55 18:14	06:05 19:47	16:58 (ML 02) 20:18
26	07:15 17:06	33 16:10 (ML 03) 17:44	06:38	05:53 18:16	06:04 19:48	16:55 (ML 02) 20:19
27	07:14 17:08	34 16:11 (ML 03) 17:46	06:37	05:51 18:17	06:03 19:50	16:53 (ML 02) 20:20
28	07:13 17:09	35 15:37 (ML 03) 17:47	06:35	05:50 18:18	06:01 19:51	16:51 (ML 02) 20:21
29	07:12 17:10	36 16:13 (ML 03)	06:34	05:48 19:19	06:00 19:52	17:49 (ML 02) 20:22
30	07:12 17:11	36 16:13 (ML 03)	06:33	05:46 19:20	05:59 19:53	17:49 (ML 02) 20:23
31	07:11 17:13	36 16:13 (ML 03)	06:32	06:45 19:21	05:58 19:54	17:47 (ML 02) 20:24
Potential sun hours	297	297	369	399	448	452
Total, worst case	462	431	225	644		

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

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

Shadow receptor: R63 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	17:44 (ML 02) 18:21 (ML 02)	06:53 18:42	06:28 15:11 (ML 03) 16:31
2	05:29 20:34	05:54 20:14	06:24 19:31	17:43 (ML 02) 18:21 (ML 02)	06:55 18:40	06:29 15:11 (ML 03) 16:30
3	05:30 20:34	05:55 20:13	06:25 19:29	17:42 (ML 02) 18:21 (ML 02)	06:56 18:38	06:30 15:10 (ML 03) 16:30
4	05:30 20:34	05:56 20:12	06:26 19:27	17:41 (ML 02) 18:21 (ML 02)	06:57 18:37	06:31 15:09 (ML 03) 16:30
5	05:31 20:34	05:57 20:11	06:27 19:26	17:41 (ML 02) 18:21 (ML 02)	06:58 18:35	06:32 15:08 (ML 03) 16:30
6	05:31 20:33	05:58 20:10	06:28 19:24	17:40 (ML 02) 18:21 (ML 02)	06:59 18:33	06:34 15:09 (ML 03) 16:29
7	05:32 20:33	05:59 20:08	06:29 19:22	17:40 (ML 02) 18:20 (ML 02)	07:00 18:32	06:35 15:08 (ML 03) 16:29
8	05:33 20:33	06:00 20:07	06:30 19:21	17:39 (ML 02) 18:20 (ML 02)	07:01 18:30	06:36 15:08 (ML 03) 16:29
9	05:33 20:32	06:01 20:06	06:31 19:19	17:39 (ML 02) 18:19 (ML 02)	07:02 18:28	06:37 15:07 (ML 03) 16:29
10	05:34 20:32	06:02 20:05	06:32 19:17	17:39 (ML 02) 18:19 (ML 02)	07:03 18:27	06:38 15:08 (ML 03) 16:29
11	05:35 20:31	06:03 20:03	06:33 19:16	17:39 (ML 02) 18:18 (ML 02)	07:04 18:25	06:40 15:08 (ML 03) 16:29
12	05:35 20:31	06:04 20:02	06:34 19:14	17:39 (ML 02) 18:17 (ML 02)	07:05 18:24	06:41 15:08 (ML 03) 16:30
13	05:36 20:31	06:05 20:01	06:35 19:12	17:40 (ML 02) 18:16 (ML 02)	07:06 18:22	06:42 15:09 (ML 03) 16:30
14	05:37 20:30	06:06 19:59	06:36 19:10	17:40 (ML 02) 18:15 (ML 02)	07:07 18:20	06:43 15:09 (ML 03) 16:30
15	05:38 20:29	06:07 19:58	06:37 19:09	17:41 (ML 02) 18:13 (ML 02)	07:08 18:19	06:44 15:09 (ML 03) 16:30
16	05:38 20:29	06:08 19:56	06:38 19:07	17:42 (ML 02) 18:11 (ML 02)	07:09 18:17	06:46 15:10 (ML 03) 16:30
17	05:39 20:28	06:09 19:55	06:39 19:05	17:44 (ML 02) 18:09 (ML 02)	07:11 18:16	06:47 15:11 (ML 03) 16:31
18	05:40 20:28	06:10 19:54	06:40 19:04	17:45 (ML 02) 18:07 (ML 02)	07:12 18:14	06:48 15:12 (ML 03) 16:31
19	05:41 20:27	06:11 19:52	06:41 19:02	17:48 (ML 02) 18:03 (ML 02)	07:13 18:13	06:49 15:12 (ML 03) 16:31
20	05:42 20:26	06:12 19:51	06:42 19:00	17:48 (ML 02) 18:11	07:14 18:11	06:50 15:13 (ML 03) 16:32
21	05:43 20:25	06:13 19:49	06:43 18:59	17:48 (ML 02) 18:10	07:15 18:10	06:51 15:15 (ML 03) 16:32
22	05:43 20:25	06:14 19:48	06:44 18:57	17:48 (ML 02) 18:08	07:16 18:08	06:53 15:16 (ML 03) 16:33
23	05:44 20:24	06:15 19:46	06:45 18:55	17:48 (ML 02) 18:07	07:17 18:07	06:54 15:17 (ML 03) 16:33
24	05:45 20:23	06:16 19:45	06:46 18:53	17:48 (ML 02) 18:06	07:18 18:06	06:55 15:18 (ML 03) 16:34
25	05:46 20:22	06:17 19:43	06:47 18:52	17:56 (ML 02) 18:15 (ML 02)	06:20 17:04	06:56 15:20 (ML 03) 16:34
26	05:47 20:21	06:18 19:42	06:48 18:50	17:54 (ML 02) 18:17 (ML 02)	06:21 17:03	06:57 15:23 (ML 03) 16:35
27	05:48 20:20	06:19 19:40	06:49 18:48	17:52 (ML 02) 18:18 (ML 02)	06:22 17:01	06:58 15:26 (ML 03) 16:36
28	05:49 20:19	06:20 19:39	06:50 18:47	17:50 (ML 02) 18:19 (ML 02)	06:23 17:00	06:59 15:34 (ML 03) 16:36
29	05:50 20:18	06:21 19:37	06:51 18:45	17:47 (ML 02) 18:19 (ML 02)	06:24 16:59	07:00 15:37 (ML 03) 16:37
30	05:51 20:17	06:22 19:35	06:52 18:43	17:46 (ML 02) 18:20 (ML 02)	06:25 16:57	07:02 15:38 (ML 03) 16:38
31	05:52 20:16	06:23 19:34	06:53 18:42	17:45 (ML 02) 18:20 (ML 02)	06:27 16:56	07:23 15:39 (ML 03) 16:38
Potential sun hours	459	428	375	345	298	288
Total, worst case		210	667	96	803	

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

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

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

Gaetano DOronzio / info@gecodor.it
Calculated:

02/04/2024 18:08/4.0.531

SHADOW - Calendar

Shadow receptor: R65 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	15:33 (ML 03) 16:11 (ML 03)	06:34 17:48	06:43 19:22	17:47 (ML 02) 19:54
2	07:23 16:40	07:09 17:15	15:33 (ML 03) 16:11 (ML 03)	06:32 17:49	06:41 19:23	17:47 (ML 02) 19:55
3	07:23 16:41	07:08 17:16	15:33 (ML 03) 16:11 (ML 03)	06:31 17:50	06:40 19:24	17:45 (ML 02) 19:56
4	07:23 16:42	07:07 17:18	15:34 (ML 03) 16:11 (ML 03)	06:29 17:51	06:38 19:25	17:44 (ML 02) 19:57
5	07:23 16:43	07:06 17:19	15:33 (ML 03) 16:10 (ML 03)	06:28 17:52	06:36 19:26	17:44 (ML 02) 19:58
6	07:23 16:44	07:05 17:20	15:34 (ML 03) 16:10 (ML 03)	06:26 17:54	06:35 19:27	17:43 (ML 02) 19:59
7	07:23 16:45	07:03 17:21	15:35 (ML 03) 16:10 (ML 03)	06:24 17:55	06:33 19:28	17:43 (ML 02) 20:00
8	07:23 16:46	07:02 17:23	15:36 (ML 03) 16:09 (ML 03)	06:23 17:56	06:31 19:29	17:43 (ML 02) 20:01
9	07:23 16:47	07:01 17:24	15:37 (ML 03) 16:09 (ML 03)	06:21 17:57	06:30 19:30	17:42 (ML 02) 20:02
10	07:23 16:48	07:00 17:25	15:38 (ML 03) 16:08 (ML 03)	06:20 17:58	06:28 19:31	17:42 (ML 02) 20:03
11	07:23 16:49	06:59 17:26	15:38 (ML 03) 16:07 (ML 03)	06:18 17:59	06:27 19:33	17:42 (ML 02) 20:04
12	07:22 16:50	06:58 17:27	15:40 (ML 03) 16:06 (ML 03)	06:16 18:00	06:25 19:34	17:43 (ML 02) 20:05
13	07:22 16:51	06:56 17:29	15:42 (ML 03) 16:04 (ML 03)	06:15 18:01	06:23 19:35	17:42 (ML 02) 20:06
14	07:22 16:52	15:41 (ML 03) 17:30	06:55 16:02 (ML 03)	06:13 18:03	06:22 19:36	17:43 (ML 02) 20:07
15	07:21 16:53	15:40 (ML 03) 17:31	06:54 15:47 (ML 03)	06:11 18:04	06:20 19:37	17:43 (ML 02) 20:08
16	07:21 16:54	15:38 (ML 03) 17:32	06:52 17:32	06:10 18:05	06:19 19:38	17:43 (ML 02) 20:09
17	07:20 16:56	15:37 (ML 03) 17:34	06:51 17:34	06:08 18:06	06:17 19:39	17:45 (ML 02) 20:10
18	07:20 16:57	15:36 (ML 03) 17:35	06:50 17:35	06:06 18:07	06:16 19:40	17:45 (ML 02) 20:11
19	07:19 16:58	15:35 (ML 03) 17:36	06:48 17:36	06:05 18:08	06:14 19:41	17:47 (ML 02) 20:12
20	07:19 16:59	15:35 (ML 03) 17:37	06:47 17:37	06:03 18:09	06:13 19:42	17:47 (ML 02) 20:13
21	07:18 17:00	16:02 (ML 03) 17:38	06:46 17:38	06:01 18:10	06:11 19:43	17:49 (ML 02) 20:14
22	07:18 17:01	15:33 (ML 03) 17:40	06:44 17:40	06:00 18:11	06:10 19:44	17:52 (ML 02) 20:15
23	07:17 17:03	15:34 (ML 03) 17:41	06:43 17:41	05:58 18:12	06:08 19:45	17:54 (ML 02) 20:16
24	07:16 17:04	16:05 (ML 03) 17:42	06:41 17:42	05:56 18:13	06:07 19:46	18:08 (ML 02) 20:17
25	07:16 17:05	15:33 (ML 03) 17:43	06:40 17:43	05:55 18:14	06:05 19:47	20:18
26	07:15 17:06	15:32 (ML 03) 17:44	06:38 17:44	05:53 18:16	06:04 19:48	20:19
27	07:14 17:08	16:07 (ML 03) 17:46	06:37 17:46	05:51 18:17	8 17:12 (ML 02) 16:59 (ML 02) 19:50	20:20
28	07:13 17:09	15:33 (ML 03) 17:47	06:35 17:47	05:50 18:18	18 17:17 (ML 02) 16:55 (ML 02) 19:51	20:21
29	07:12 17:10	16:09 (ML 03) 17:48	06:34 17:48	05:48 19:19	24 17:19 (ML 02) 17:52 (ML 02) 19:52	20:22
30	07:12 17:11	15:33 (ML 03) 17:49	06:46 17:49	05:46 19:20	28 18:20 (ML 02) 17:51 (ML 02) 19:53	20:23
31	07:11 17:13	16:10 (ML 03) 17:50	06:45 17:50	06:45 19:21	31 18:22 (ML 02) 17:49 (ML 02) 18:23 (ML 02)	20:24
Potential sun hours	297	297	369	399	448	452
Total, worst case	515	461	143	837		

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

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

Shadow receptor: R65 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	17:41 (ML 02) 18:23 (ML 02)	06:53 18:42	06:28 15:07 (ML 03) 15:37 (ML 03)
2	05:29 20:34	05:54 20:14	06:25 19:31	17:40 (ML 02) 18:23 (ML 02)	06:55 18:40	06:29 15:06 (ML 03) 15:39 (ML 03)
3	05:30 20:34	05:55 20:13	06:25 19:29	17:40 (ML 02) 18:23 (ML 02)	06:56 18:38	06:30 15:05 (ML 03) 15:39 (ML 03)
4	05:30 20:34	05:56 20:12	06:26 19:27	17:40 (ML 02) 18:23 (ML 02)	06:57 18:37	06:31 15:04 (ML 03) 15:40 (ML 03)
5	05:31 20:34	05:57 20:11	06:27 19:26	17:39 (ML 02) 18:22 (ML 02)	06:58 18:35	06:32 15:04 (ML 03) 15:40 (ML 03)
6	05:31 20:33	05:58 20:10	06:28 19:24	17:39 (ML 02) 18:22 (ML 02)	06:59 18:33	06:34 15:04 (ML 03) 15:41 (ML 03)
7	05:32 20:33	05:59 20:08	06:29 19:22	17:39 (ML 02) 18:21 (ML 02)	07:00 18:32	06:35 15:04 (ML 03) 15:41 (ML 03)
8	05:33 20:33	06:00 20:07	06:30 19:21	17:39 (ML 02) 18:20 (ML 02)	07:01 18:30	06:36 15:03 (ML 03) 15:41 (ML 03)
9	05:33 20:32	06:01 20:06	06:31 19:19	17:39 (ML 02) 18:19 (ML 02)	07:02 18:28	06:37 15:03 (ML 03) 15:41 (ML 03)
10	05:34 20:32	06:02 20:05	06:32 19:17	17:40 (ML 02) 18:18 (ML 02)	07:03 18:27	06:38 15:04 (ML 03) 15:42 (ML 03)
11	05:35 20:31	06:03 20:03	06:33 19:16	17:40 (ML 02) 18:17 (ML 02)	07:04 18:25	06:40 15:03 (ML 03) 15:41 (ML 03)
12	05:35 20:31	06:04 20:02	06:34 19:14	17:41 (ML 02) 18:15 (ML 02)	07:05 18:24	06:41 15:03 (ML 03) 15:41 (ML 03)
13	05:36 20:31	06:05 20:01	06:35 19:12	17:42 (ML 02) 18:14 (ML 02)	07:06 18:22	06:42 15:04 (ML 03) 15:42 (ML 03)
14	05:37 20:30	06:06 19:59	06:36 19:10	17:43 (ML 02) 18:12 (ML 02)	07:07 18:20	06:43 15:05 (ML 03) 15:41 (ML 03)
15	05:38 20:29	06:07 19:58	06:37 19:09	17:45 (ML 02) 18:09 (ML 02)	07:08 18:19	06:44 15:05 (ML 03) 15:41 (ML 03)
16	05:38 20:29	06:08 19:56	06:38 19:07	17:47 (ML 02) 18:06 (ML 02)	07:09 18:17	06:46 15:05 (ML 03) 15:40 (ML 03)
17	05:39 20:28	06:09 19:55	06:39 19:05	17:51 (ML 02) 18:02 (ML 02)	07:11 18:16	06:47 15:07 (ML 03) 15:41 (ML 03)
18	05:40 20:28	06:10 19:54	06:40 19:04		07:12 18:14	06:48 15:07 (ML 03) 15:40 (ML 03)
19	05:41 20:27	06:11 19:52	06:41 19:02	18:05 (ML 02) 18:09 (ML 02)	07:13 18:13	06:49 15:08 (ML 03) 15:39 (ML 03)
20	05:42 20:26	06:12 19:51	06:42 19:00	17:59 (ML 02) 18:14 (ML 02)	07:14 18:11	06:50 15:08 (ML 03) 15:39 (ML 03)
21	05:43 20:25	06:13 19:49	06:43 18:59	17:56 (ML 02) 18:17 (ML 02)	07:15 18:10	06:51 15:10 (ML 03) 15:39 (ML 03)
22	05:43 20:25	06:14 19:48	06:44 18:57	17:54 (ML 02) 18:19 (ML 02)	07:16 18:08	06:53 15:11 (ML 03) 15:38 (ML 03)
23	05:44 20:24	06:15 19:46	06:45 18:55	17:52 (ML 02) 18:20 (ML 02)	07:17 18:07	06:54 15:12 (ML 03) 15:37 (ML 03)
24	05:45 20:23	06:16 19:45	06:46 18:53	17:50 (ML 02) 18:21 (ML 02)	07:18 18:06	06:55 15:13 (ML 03) 15:36 (ML 03)
25	05:46 20:22	06:17 19:43	06:47 18:52	17:49 (ML 02) 18:22 (ML 02)	06:20 17:04	06:56 15:14 (ML 03) 15:35 (ML 03)
26	05:47 20:21	06:18 19:42	06:48 18:50	17:47 (ML 02) 18:23 (ML 02)	06:21 17:03	06:57 15:17 (ML 03) 15:35 (ML 03)
27	05:48 20:20	06:19 19:40	06:49 18:48	17:46 (ML 02) 18:23 (ML 02)	06:22 17:01	06:58 15:19 (ML 03) 15:34 (ML 03)
28	05:49 20:19	06:20 19:39	06:50 18:47	17:45 (ML 02) 18:24 (ML 02)	06:23 17:00	06:59 15:21 (ML 03) 15:32 (ML 03)
29	05:50 20:18	06:21 19:37	06:51 18:45	17:43 (ML 02) 18:23 (ML 02)	06:24 16:59	07:00 15:26 (ML 03) 15:35 (ML 03)
30	05:51 20:17	06:22 19:35	06:52 18:43	17:42 (ML 02) 18:23 (ML 02)	06:25 16:57	07:02 15:27 (ML 03) 15:36 (ML 03)
31	05:52 20:16	06:23 19:34	06:53 18:42 (ML 02) 18:23 (ML 02)		06:27 16:56	07:23 15:08 (ML 03) 15:37 (ML 03)
Potential sun hours	459	428	375	345	298	288
Total, worst case		391	604	110	877	

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

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

Shadow receptor: R68 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 18:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:40	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:26	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:26 20:28	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:10 16:29
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:47 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:11 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:11 16:29
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:15 16:30
15	07:21 16:53	06:54 17:31	06:12 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 19:09	07:08 18:19	06:45 16:40	07:15 16:30
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:16 16:30
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:19 16:32
21	07:18 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:43 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:09	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:44 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:17 17:04	06:41 17:42	05:56 18:14	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	06:57 16:33	07:22 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:19	06:20 19:39	06:51 18:47	06:23 17:00	07:00 16:32	07:22 16:36
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:01 16:31	07:22 16:37
30	07:12 17:11		06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:34	05:51 20:17	06:22 19:36	06:53 18:43	06:26 16:58	07:02 16:31	07:23 16:38
31	07:11 17:13		06:45 19:21		05:29 20:23		05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
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

Shadow receptor: R70 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	07:06 (ML 02) 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:40	07:09 17:15	06:32 17:49	07:05 (ML 02) 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	07:05 (ML 02) 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	07:05 (ML 02) 19:25	05:53 19:57	05:27 20:26	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:53	07:06 (ML 02) 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	07:06 (ML 02) 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:04 17:21	06:25 17:55	07:06 (ML 02) 19:28	05:50 20:00	05:26 20:28	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	07:09 (ML 02) 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:10 16:29
9	07:23 16:47	07:01 17:24	06:21 17:57	07:19 (ML 02) 19:30	05:47 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:11 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	07:19 (ML 02) 19:31	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:11 16:29
11	07:23 16:49	06:59 17:26	06:18 17:59	07:19 (ML 02) 19:32	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 18:00	07:19 (ML 02) 19:33	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:02	07:19 (ML 02) 19:34	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	07:19 (ML 02) 19:35	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:15 16:30
15	07:21 16:53	06:54 17:31	06:11 18:04	07:19 (ML 02) 19:36	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 19:09	07:08 18:19	06:45 16:40	07:15 16:30
16	07:21 16:55	06:53 17:33	06:10 18:05	07:19 (ML 02) 19:37	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:16 16:30
17	07:21 16:56	06:51 17:34	06:08 18:06	07:19 (ML 02) 19:38	05:39 20:10	05:25 20:33	05:39 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:07 18:07	07:19 (ML 02) 19:39	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:20 16:58	06:49 17:36	06:05 18:08	07:19 (ML 02) 19:40	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	07:19 (ML 02) 19:41	05:36 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:19 16:32
21	07:18 17:00	06:46 17:39	06:02 18:10	07:19 (ML 02) 19:42	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:43 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	07:19 (ML 02) 19:43	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:09	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	07:19 (ML 02) 19:44	05:34 20:16	05:26 20:34	05:44 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:17 17:04	06:41 17:42	05:56 18:14	07:19 (ML 02) 19:45	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:46 18:54	07:19 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	07:19 (ML 02) 19:46	05:32 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 18:52	07:19 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	07:19 (ML 02) 19:47	05:31 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	06:57 16:33	07:22 16:35
27	07:14 17:07	06:37 17:46	05:51 18:17	07:19 (ML 02) 19:48	05:31 20:20	05:27 20:34	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	07:19 (ML 02) 19:49	05:31 20:21	05:28 20:35	05:49 20:19	06:20 19:39	06:51 18:47	07:23 17:00	07:00 16:32	07:22 16:36
29	07:13 17:10	06:34 17:48	05:48 18:19	07:19 (ML 02) 19:50	05:30 20:22	05:28 20:34	05:50 20:18	06:21 19:37	06:52 18:45	07:24 16:59	07:01 16:32	07:22 16:37
30	07:12 17:11	06:33 17:49	05:46 18:20	07:19 (ML 02) 19:51	05:29 20:23	05:28 20:34	05:51 20:17	06:22 19:35	06:53 18:43	07:25 16:58	07:02 16:33	07:23 16:38
31	07:11 17:13	06:32 17:50	05:45 18:21	07:19 (ML 02) 19:52	05:28 20:24	05:27 20:34	05:52 20:16	06:23 19:34	06:54 18:42	07:26 16:56	07:03 16:34	07:23 16:39
Potential sun hours	297	297	297	297	297	297	297	297	297	297	297	297
Total, worst case	297	297	297	297	297	297	297	297	297	297	297	297

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

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

Shadow receptor: R75 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:54 19:57	05:27 20:26	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
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13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:15 16:30
15	07:22 16:53	06:54 17:31	06:12 18:04	06:21 19:37	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40	07:15 16:30
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:16 16:30
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:37 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	06:50 16:36	07:19 16:32
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34
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27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	07:00 16:32	07:22 16:36
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:01 16:31	07:23 16:37
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31	07:11 17:13		06:45 19:21		05:29 20:23		05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
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

Shadow receptor: R76 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 18:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:42 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
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21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	06:57 16:33	07:22 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	07:00 16:32	07:22 16:36
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:01 16:31	07:23 16:37
30	07:12 17:11		06:46 19:20	05:59 19:53	05:30 20:22	05:28 20:34	05:51 20:18	06:22 19:36	06:53 18:43	06:26 16:58	07:02 16:31	07:23 16:38
31	07:11 17:13		06:45 19:21		05:29 20:23		05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
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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Project:

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

Gaetano DOronzio / info@gecodor.it

Calculated:

02/04/2024 18:08/4.0.531

SHADOW - Calendar

Shadow receptor: R77 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (17)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:52 (ML 01) 06:06 (ML 01)	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55
2	07:23 16:41	07:09 17:15	06:32 17:49	06:42 19:23	05:56 19:55	05:28 20:24	05:50 (ML 01) 05:53 (ML 01)	05:29 20:34	05:52 (ML 01) 06:05 (ML 01)	05:54 19:31	06:25 18:40	06:55 16:54
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:49 (ML 01) 05:54 (ML 01)	05:30 20:34	05:53 (ML 01) 06:06 (ML 01)	05:55 20:13	06:26 19:29	06:56 18:38
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:54 19:57	05:27 20:26	05:49 (ML 01) 05:55 (ML 01)	05:30 20:34	05:53 (ML 01) 06:05 (ML 01)	05:56 20:12	06:27 19:27	06:57 18:37
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26	05:49 (ML 01) 05:57 (ML 01)	05:31 20:34	05:54 (ML 01) 06:05 (ML 01)	05:57 20:11	06:28 19:26	06:58 18:35
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:48 (ML 01) 05:57 (ML 01)	05:32 20:33	05:54 (ML 01) 06:04 (ML 01)	05:58 20:10	06:29 19:24	06:59 18:33
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:26 20:28	05:48 (ML 01) 05:58 (ML 01)	05:32 20:33	05:55 (ML 01) 06:03 (ML 01)	05:59 20:09	06:30 19:22	07:00 18:32
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	05:49 20:01	05:26 20:28	05:48 (ML 01) 05:59 (ML 01)	05:33 20:33	05:56 (ML 01) 06:03 (ML 01)	06:00 20:07	06:31 19:21	07:01 18:30
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:48 20:02	05:26 20:29	05:48 (ML 01) 06:00 (ML 01)	05:34 20:33	05:56 (ML 01) 06:01 (ML 01)	06:01 20:06	06:32 19:19	07:02 18:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:48 (ML 01) 06:01 (ML 01)	05:34 20:32	05:57 (ML 01) 06:01 (ML 01)	06:02 20:05	06:33 19:17	07:03 18:27
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:47 (ML 01) 06:01 (ML 01)	05:35 20:32	05:57 (ML 01) 06:01 (ML 01)	06:03 20:03	06:34 19:16	07:04 18:25
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:47 (ML 01) 06:01 (ML 01)	05:36 20:31	06:04 (ML 01) 20:02	06:04 19:14	06:35 18:24	07:05 16:43
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:47 (ML 01) 06:02 (ML 01)	05:36 20:31	06:05 (ML 01) 20:01	06:05 19:12	06:36 18:22	07:06 16:42
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:47 (ML 01) 06:02 (ML 01)	05:37 20:30	06:06 (ML 01) 19:59	06:37 19:11	07:07 18:21	06:43 16:41
15	07:22 16:53	06:54 17:31	06:12 18:04	06:21 19:37	05:41 20:08	05:25 20:32	05:47 (ML 01) 06:03 (ML 01)	05:38 20:30	06:07 (ML 01) 19:58	06:38 19:09	07:09 18:19	06:45 16:40
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:47 (ML 01) 06:03 (ML 01)	05:39 20:29	06:08 (ML 01) 19:57	06:39 19:07	07:10 18:17	06:46 16:39
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:47 (ML 01) 06:04 (ML 01)	05:39 20:28	06:09 (ML 01) 19:55	06:40 19:06	07:11 18:16	06:47 16:38
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:48 (ML 01) 06:05 (ML 01)	05:40 20:28	06:10 (ML 01) 19:54	06:41 19:04	07:12 18:14	06:48 16:38
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:48 (ML 01) 06:05 (ML 01)	05:41 20:27	06:11 (ML 01) 19:52	06:42 19:02	07:13 18:13	06:49 16:37
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:37 20:13	05:25 20:33	05:48 (ML 01) 06:05 (ML 01)	05:42 20:26	06:12 (ML 01) 19:51	06:43 19:00	07:14 18:11	06:50 16:36
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:48 (ML 01) 06:05 (ML 01)	05:43 20:26	06:13 (ML 01) 19:49	06:44 18:59	07:15 18:10	06:52 16:36
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:48 (ML 01) 06:05 (ML 01)	05:44 20:25	06:14 (ML 01) 19:48	06:45 18:57	07:16 18:09	06:53 16:35
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:49 (ML 01) 06:06 (ML 01)	05:45 20:24	06:15 (ML 01) 19:46	06:46 18:55	07:17 18:07	06:54 16:34
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34	05:49 (ML 01) 06:06 (ML 01)	05:45 20:23	06:16 (ML 01) 19:45	06:47 18:54	07:19 18:06	06:55 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:49 (ML 01) 06:06 (ML 01)	05:46 20:22	06:17 (ML 01) 19:43	06:48 18:52	06:20 17:04	06:56 16:33
26	07:15 17:06	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:49 (ML 01) 06:05 (ML 01)	05:47 20:21	06:18 (ML 01) 19:42	06:49 18:50	06:21 17:03	06:57 16:33
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35	05:50 (ML 01) 06:06 (ML 01)	05:48 20:20	06:19 (ML 01) 19:40	06:50 18:48	06:22 17:02	06:58 16:32
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:50 (ML 01) 06:06 (ML 01)	05:49 20:20	06:20 (ML 01) 19:39	06:51 18:47	06:23 17:00	07:00 16:32
29	07:13 17:10	07:13 17:48	06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35	05:51 (ML 01) 06:06 (ML 01)	05:50 20:19	06:21 (ML 01) 19:37	06:52 18:45	06:24 16:59	07:01 16:31
30	07:12 17:11	07:12 17:49	06:46 19:20	05:59 19:53	05:30 20:22	05:28 20:34	05:51 (ML 01) 06:06 (ML 01)	05:51 20:18	06:22 (ML 01) 19:36	06:53 18:43	06:26 16:58	07:02 16:31
31	07:11 17:13	07:11 17:49	06:45 19:21	05:59 19:53	05:29 20:23	05:29 20:34	05:52 20:16	05:52 20:16	06:23 (ML 01) 19:34	06:27 16:56	06:27 16:56	07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case						398		98				

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

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

SHADOW - Calendar

Shadow receptor: R82 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	07:12 (ML 01) 08:13 (ML 01)	05:57 19:54
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	07:11 (ML 01) 08:13 (ML 01)	05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	07:10 (ML 01) 08:13 (ML 01)	05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	06:38 19:25	07:10 (ML 01) 08:13 (ML 01)	05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	07:09 (ML 01) 08:13 (ML 01)	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	07:08 (ML 01) 08:12 (ML 01)	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	07:08 (ML 01) 08:13 (ML 01)	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	07:07 (ML 01) 08:12 (ML 01)	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	07:08 (ML 01) 08:12 (ML 01)	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	07:07 (ML 01) 08:11 (ML 01)	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	07:07 (ML 01) 08:10 (ML 01)	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	07:07 (ML 01) 08:10 (ML 01)	05:44 20:05
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	07:07 (ML 01) 08:09 (ML 01)	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	07:07 (ML 01) 08:09 (ML 01)	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:21 19:37	07:07 (ML 01) 08:07 (ML 01)	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	07:08 (ML 01) 08:07 (ML 01)	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	07:08 (ML 01) 08:06 (ML 01)	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	07:09 (ML 01) 08:05 (ML 01)	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	07:09 (ML 01) 08:03 (ML 01)	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	07:10 (ML 01) 08:03 (ML 01)	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	06:29 (ML 01) 07:03 (ML 01)	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	06:26 (ML 01) 07:04 (ML 01)	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	06:24 (ML 01) 07:07 (ML 01)	05:34 20:16
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	06:22 (ML 01) 07:08 (ML 01)	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	06:20 (ML 01) 07:09 (ML 01)	05:33 20:18
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	06:19 (ML 01) 07:10 (ML 01)	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	06:17 (ML 01) 07:11 (ML 01)	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	06:16 (ML 01) 07:11 (ML 01)	05:31 20:20
29	07:13 17:10		06:48 19:19	06:00 19:52	07:15 (ML 01) 08:12 (ML 01)	05:30 20:21
30	07:12 17:11		06:46 19:20	05:59 19:53	07:14 (ML 01) 08:12 (ML 01)	05:29 20:22
31	07:11 17:13		06:45 19:21	05:58 08:12 (ML 01)	07:12 (ML 01) 08:12 (ML 01)	05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case			593	1602	6	

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

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

Shadow receptor: R82 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December	
1	05:29 20:34	05:53 20:15	06:24 19:32	07:06 (ML 01) 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	07:05 (ML 01) 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	07:05 (ML 01) 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	07:04 (ML 01) 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	07:04 (ML 01) 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	07:04 (ML 01) 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:04 (ML 01) 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:04 (ML 01) 19:21	07:01 18:30	06:36 16:47	07:10 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:04 (ML 01) 19:19	07:02 18:29	06:37 16:46	07:11 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:04 (ML 01) 19:17	07:03 18:27	06:39 16:45	07:11 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 (ML 01) 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	07:36 (ML 01) 07:47 (ML 01)	06:35 19:14	07:04 (ML 01) 18:24	07:05 16:43	06:41 16:30
13	05:36 20:31	06:05 20:01	07:31 (ML 01) 07:51 (ML 01)	06:36 19:12	07:05 (ML 01) 18:22	07:06 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	07:28 (ML 01) 07:54 (ML 01)	06:37 19:11	07:05 (ML 01) 18:21	07:07 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	07:26 (ML 01) 07:56 (ML 01)	06:38 19:09	07:06 (ML 01) 18:19	07:09 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	07:24 (ML 01) 07:58 (ML 01)	06:39 19:07	07:06 (ML 01) 18:17	07:10 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	07:22 (ML 01) 08:00 (ML 01)	06:40 19:06	07:07 (ML 01) 18:16	07:11 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	07:20 (ML 01) 08:01 (ML 01)	06:41 19:04	07:08 (ML 01) 18:14	07:12 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	07:18 (ML 01) 08:03 (ML 01)	06:42 19:02	07:09 (ML 01) 18:13	07:13 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	07:17 (ML 01) 08:04 (ML 01)	06:43 19:00	07:10 (ML 01) 18:11	07:14 16:36	07:19 16:32
21	05:43 20:26	06:13 19:49	07:16 (ML 01) 08:05 (ML 01)	06:44 18:59	07:12 (ML 01) 18:10	07:15 16:36	07:19 16:32
22	05:44 20:25	06:14 19:48	07:15 (ML 01) 08:06 (ML 01)	06:45 18:57	07:14 (ML 01) 18:09	07:16 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	07:13 (ML 01) 08:07 (ML 01)	06:46 18:55	07:16 (ML 01) 18:07	07:17 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	07:12 (ML 01) 08:07 (ML 01)	06:47 18:54	07:19 (ML 01) 18:06	07:19 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	07:11 (ML 01) 08:08 (ML 01)	06:48 18:52	07:24 (ML 01) 17:04	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	07:11 (ML 01) 08:08 (ML 01)	06:49 18:50	06:21 17:03	06:57 16:33	07:22 16:35
27	05:48 20:20	06:19 19:40	07:10 (ML 01) 08:09 (ML 01)	06:50 18:48	06:22 17:02	06:58 16:32	07:22 16:36
28	05:49 20:20	06:20 19:39	07:09 (ML 01) 08:09 (ML 01)	06:51 18:47	06:23 17:00	07:00 16:32	07:22 16:36
29	05:50 20:19	06:21 19:37	07:08 (ML 01) 08:10 (ML 01)	06:52 18:45	06:24 16:59	07:01 16:31	07:23 16:37
30	05:51 20:18	06:22 19:36	07:08 (ML 01) 08:10 (ML 01)	06:53 18:43	06:26 16:58	07:02 16:31	07:23 16:38
31	05:52 20:16	06:23 19:34	07:07 (ML 01) 08:10 (ML 01)	06:54 18:43	06:27 16:57	07:02 16:31	07:23 16:39
Potential sun hours	459	428	375	345	298	288	
Total, worst case		921	1318				

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

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

Shadow receptor: R83 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March		April		May		June		
1	07:23 16:40	07:10 17:14	06:34 17:48		06:43 19:22		07:07 (ML 01) 08:01 (ML 01)	05:57 19:54		07:14 (ML 01) 07:37 (ML 01)	05:28 20:23
2	07:23 16:41	07:09 17:15	06:32 17:49		06:41 19:23		07:06 (ML 01) 08:02 (ML 01)	05:56 19:55		07:16 (ML 01) 07:33 (ML 01)	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50		06:40 19:24		07:04 (ML 01) 08:02 (ML 01)	05:55 19:56		07:23 (ML 01) 07:27 (ML 01)	05:28 20:25
4	07:24 16:42	07:07 17:18	06:29 17:51		06:38 19:25		07:04 (ML 01) 08:02 (ML 01)	05:53 19:57			05:27 20:26
5	07:24 16:43	07:06 17:19	06:28 17:53		06:37 19:26		07:03 (ML 01) 08:02 (ML 01)	05:52 19:58			05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54		06:35 19:27		07:02 (ML 01) 08:02 (ML 01)	05:51 19:59			05:27 20:27
7	07:23 16:45	07:04 17:21	06:25 17:55		06:33 19:28		07:02 (ML 01) 08:02 (ML 01)	05:50 20:00			05:26 20:28
8	07:23 16:46	07:03 17:23	06:23 17:56		06:32 19:30		07:01 (ML 01) 08:02 (ML 01)	05:49 20:01			05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57		06:30 19:31		07:01 (ML 01) 08:02 (ML 01)	05:48 20:02			05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58		06:28 19:32		07:00 (ML 01) 08:01 (ML 01)	05:46 20:03			05:26 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59		06:27 19:33		07:00 (ML 01) 08:01 (ML 01)	05:45 20:04			05:25 20:30
12	07:23 16:50	06:58 17:28	06:16 18:00		06:25 19:34		07:00 (ML 01) 08:01 (ML 01)	05:44 20:05			05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:02		06:24 19:35		06:59 (ML 01) 08:00 (ML 01)	05:43 20:06			05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03		06:22 19:36		07:00 (ML 01) 08:00 (ML 01)	05:42 20:07			05:25 20:31
15	07:22 16:53	06:54 17:31	06:12 18:04		06:21 19:37		06:59 (ML 01) 07:59 (ML 01)	05:41 20:08			05:25 20:32
16	07:21 16:55	06:53 17:33	06:10 18:05		06:19 19:38		07:00 (ML 01) 07:59 (ML 01)	05:40 20:09			05:25 20:32
17	07:21 16:56	06:51 17:34	06:08 18:06		06:17 19:39		07:00 (ML 01) 07:57 (ML 01)	05:39 20:10			05:25 20:33
18	07:20 16:57	06:50 17:35	06:07 18:07		06:16 19:40		07:00 (ML 01) 07:57 (ML 01)	05:38 20:11			05:25 20:33
19	07:20 16:58	06:49 17:36	06:05 18:08		06:14 19:41		07:00 (ML 01) 07:56 (ML 01)	05:37 20:12			05:25 20:33
20	07:19 16:59	06:47 17:37	06:03 18:09		06:13 19:42		07:01 (ML 01) 07:55 (ML 01)	05:36 20:13			05:25 20:33
21	07:19 17:00	06:46 17:39	06:02 18:10		06:11 19:43		07:01 (ML 01) 07:54 (ML 01)	05:36 20:14			05:26 20:34
22	07:18 17:02	06:44 17:40	06:00 18:11		06:10 19:44	06:31 (ML 01)	07:02 (ML 01) 07:53 (ML 01)	05:35 20:15			05:26 20:34
23	07:17 17:03	06:43 17:41	05:58 18:12	12	06:26 (ML 01) 06:08	06:43 (ML 01)	07:02 (ML 01) 07:51 (ML 01)	05:34 20:16			05:26 20:34
24	07:17 17:04	06:41 17:42	05:57 18:14	22	06:22 (ML 01) 06:07	06:48 (ML 01)	07:03 (ML 01) 07:50 (ML 01)	05:33 20:17			05:26 20:34
25	07:16 17:05	06:40 17:43	05:55 18:15	29	06:19 (ML 01) 06:06	06:51 (ML 01)	07:05 (ML 01) 07:49 (ML 01)	05:33 20:18			05:27 20:34
26	07:15 17:06	06:38 17:45	05:53 18:16	34	06:17 (ML 01) 06:04	06:53 (ML 01)	07:05 (ML 01) 07:47 (ML 01)	05:32 20:19			05:27 20:34
27	07:14 17:08	06:37 17:46	05:51 18:17	39	06:14 (ML 01) 06:03	06:56 (ML 01)	07:07 (ML 01) 07:46 (ML 01)	05:31 20:19			05:27 20:35
28	07:13 17:09	06:35 17:47	05:50 18:18	43	06:12 (ML 01) 06:01	06:57 (ML 01)	07:07 (ML 01) 07:43 (ML 01)	05:31 20:20			05:28 20:35
29	07:13 17:10		06:48 19:19	46	07:11 (ML 01) 06:00	06:58 (ML 01)	07:09 (ML 01) 07:42 (ML 01)	05:30 20:21			05:28 20:35
30	07:12 17:11		06:46 19:20	48	07:09 (ML 01) 05:59	07:11 (ML 01)	07:11 (ML 01) 07:40 (ML 01)	05:29 20:22			05:28 20:34
31	07:11 17:13		06:45 19:21	51	07:08 (ML 01) 08:00 (ML 01)	07:08 (ML 01)		05:29 20:23			
Potential sun hours	297	297	369		399		448				452
Total, worst case			376		1597		44				

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

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

Shadow receptor: R83 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December	
1	05:29 20:34	05:53 20:15	06:24 19:32	06:59 (ML 01) 18:42	06:28 16:55	07:03 16:31	
2	05:29 20:34	05:54 20:14	06:25 19:31	06:58 (ML 01) 18:40	06:29 16:54	07:04 16:30	
3	05:30 20:34	05:55 20:13	06:26 19:29	06:58 (ML 01) 18:38	06:30 16:53	07:05 16:30	
4	05:30 20:34	05:56 20:12	06:27 19:27	06:58 (ML 01) 18:37	06:31 16:51	07:06 16:30	
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 (ML 01) 18:35	06:33 16:50	07:07 16:30	
6	05:32 20:33	05:58 20:10	06:29 19:24	06:58 (ML 01) 18:33	06:34 16:49	07:08 16:30	
7	05:32 20:33	05:59 20:09	06:30 19:22	06:58 (ML 01) 18:32	07:00 16:48	07:09 16:30	
8	05:33 20:33	06:00 20:07	06:31 19:21	06:58 (ML 01) 18:30	06:36 16:47	07:10 16:29	
9	05:34 20:33	06:01 20:06	06:32 19:19	06:58 (ML 01) 18:29	06:37 16:46	07:11 16:29	
10	05:34 20:32	06:02 20:05	06:33 19:17	06:59 (ML 01) 18:27	06:39 16:45	07:11 16:29	
11	05:35 20:32	06:03 20:03	07:28 (ML 01) 07:43 (ML 01)	06:34 19:16	06:59 (ML 01) 18:25	07:04 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	07:24 (ML 01) 07:46 (ML 01)	06:35 19:14	07:00 (ML 01) 18:24	06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	07:43 (ML 01) 07:48 (ML 01)	06:36 19:12	07:00 (ML 01) 18:22	06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	07:16 (ML 01) 07:50 (ML 01)	06:37 19:11	07:01 (ML 01) 18:21	06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	07:15 (ML 01) 07:51 (ML 01)	06:38 19:09	07:02 (ML 01) 18:19	06:45 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	07:13 (ML 01) 07:53 (ML 01)	06:39 19:07	07:03 (ML 01) 18:17	06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	07:11 (ML 01) 07:54 (ML 01)	06:40 19:06	07:05 (ML 01) 18:16	06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	07:10 (ML 01) 07:55 (ML 01)	06:41 19:04	07:06 (ML 01) 18:14	06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	07:09 (ML 01) 07:56 (ML 01)	06:42 19:02	07:08 (ML 01) 18:13	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	07:08 (ML 01) 07:57 (ML 01)	06:43 19:00	07:11 (ML 01) 18:11	06:50 16:36	07:19 16:32
21	05:43 20:26	06:13 19:49	07:07 (ML 01) 07:58 (ML 01)	06:44 18:59	07:15 (ML 01) 18:10	06:52 16:36	07:19 16:32
22	05:44 20:25	06:14 19:48	07:06 (ML 01) 07:58 (ML 01)	06:45 18:57	07:16 (ML 01) 18:09	06:53 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	07:05 (ML 01) 07:59 (ML 01)	06:46 18:55	07:17 (ML 01) 18:07	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	07:04 (ML 01) 08:00 (ML 01)	06:47 18:54	07:19 (ML 01) 18:06	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	07:03 (ML 01) 08:00 (ML 01)	06:48 18:52	06:20 17:04	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	07:02 (ML 01) 08:00 (ML 01)	06:49 18:50	06:21 17:03	06:57 16:33	07:22 16:35
27	05:48 20:20	06:19 19:40	07:02 (ML 01) 08:01 (ML 01)	06:50 18:48	06:22 17:02	06:58 16:32	07:22 16:36
28	05:49 20:20	06:20 19:39	07:01 (ML 01) 08:01 (ML 01)	06:51 18:47	06:23 17:00	07:00 16:32	07:22 16:36
29	05:50 20:19	06:21 19:37	07:01 (ML 01) 08:01 (ML 01)	06:52 18:45	06:24 16:59	07:01 16:31	07:23 16:37
30	05:51 20:18	06:22 19:36	07:00 (ML 01) 08:01 (ML 01)	06:53 18:43	06:26 16:58	07:02 16:31	07:23 16:38
31	05:52 20:16	06:23 19:34	07:00 (ML 01) 08:01 (ML 01)	06:54 18:43	06:27 16:56	07:23 16:39	07:23 16:39
Potential sun hours	459	428	375	345	298	288	
Total, worst case		1007	1039				

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

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

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

Gaetano DOronzio / info@gecodor.it
Calculated:

02/04/2024 18:08/4.0.531

SHADOW - Calendar

Shadow receptor: R87 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	07:02 (ML 01) 17:48	06:43 19:22	05:57 19:54
2	07:23 16:41	07:09 17:15	06:32 17:49	07:00 (ML 01) 17:49	06:41 19:23	05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:59 (ML 01) 17:50	06:40 19:24	05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	06:57 (ML 01) 17:51	06:38 19:25	05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	06:57 (ML 01) 17:53	06:37 19:26	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:55 (ML 01) 17:54	06:35 19:27	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:54 (ML 01) 17:55	06:33 19:28	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:54 (ML 01) 17:56	06:32 19:30	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:53 (ML 01) 17:57	06:30 19:31	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:52 (ML 01) 17:58	06:28 19:32	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:52 (ML 01) 17:59	06:27 19:33	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:51 (ML 01) 18:00	06:25 19:34	05:44 20:05
13	07:22 16:51	06:57 17:29	06:15 18:02	06:52 (ML 01) 18:02	06:24 19:35	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:51 (ML 01) 18:03	06:22 19:36	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:50 (ML 01) 18:04	06:21 19:37	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:51 (ML 01) 18:05	06:19 19:38	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:51 (ML 01) 18:06	06:17 19:39	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:50 (ML 01) 18:07	06:16 19:40	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:50 (ML 01) 18:08	06:14 19:41	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:51 (ML 01) 18:09	06:13 19:42	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:51 (ML 01) 18:10	06:11 19:43	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:52 (ML 01) 18:11	06:10 19:44	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:53 (ML 01) 18:12	06:08 19:45	05:34 20:16
24	07:17 17:04	06:41 17:42	05:57 18:14	06:54 (ML 01) 18:14	06:07 19:47	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 07:13 (ML 01)	06:54 (ML 01) 18:15	06:06 19:48	05:33 20:18
26	07:15 17:06	06:38 17:45	05:53 07:29 (ML 01)	06:56 (ML 01) 18:16	06:04 19:49	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 07:35 (ML 01)	06:58 (ML 01) 18:17	06:03 19:50	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 07:04 (ML 01)	06:59 (ML 01) 18:18	06:01 19:51	05:31 20:20
29	07:13 17:10		05:48 07:37 (ML 01)	08:03 (ML 01) 19:19	06:00 19:52	05:30 20:21
30	07:12 17:11		06:46 19:20	08:21 (ML 01) 19:20	05:59 19:53	05:29 20:22
31	07:11 17:13		06:45 19:21	08:13 (ML 01) 19:21	05:29 20:23	05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case		101	1293			

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

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

Shadow receptor: R87 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)
Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:31 (ML 01) 08:23 (ML 01)	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:31 (ML 01) 08:23 (ML 01)	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:30 (ML 01) 08:22 (ML 01)	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:30 (ML 01) 08:22 (ML 01)	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:30 (ML 01) 08:21 (ML 01)	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:31 (ML 01) 08:20 (ML 01)	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	07:31 (ML 01) 08:19 (ML 01)	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:31 (ML 01) 08:18 (ML 01)	06:36 16:47	07:10 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	07:32 (ML 01) 08:17 (ML 01)	06:37 16:46	07:11 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:32 (ML 01) 08:16 (ML 01)	06:39 16:45	07:11 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	07:33 (ML 01) 08:14 (ML 01)	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	07:35 (ML 01) 08:13 (ML 01)	06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	07:36 (ML 01) 08:11 (ML 01)	06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	07:38 (ML 01) 08:09 (ML 01)	06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	07:40 (ML 01) 08:07 (ML 01)	06:45 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	07:42 (ML 01) 08:03 (ML 01)	06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	07:46 (ML 01) 07:59 (ML 01)	06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	07:43 (ML 01)	06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	07:41 (ML 01)	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	08:20 (ML 01)	06:51 16:36	07:19 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	07:38 (ML 01)	06:52 16:36	07:19 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	07:37 (ML 01)	06:53 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	07:36 (ML 01)	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	07:35 (ML 01)	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	07:34 (ML 01)	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	08:24 (ML 01)	06:57 16:33	07:22 16:35
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	07:33 (ML 01)	06:58 16:32	07:22 16:36
28	05:49 20:20	06:20 19:39	06:51 18:47	07:23 17:00	08:24 (ML 01)	07:00 16:32	07:22 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	07:31 (ML 01)	07:01 16:31	07:23 16:37
30	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58	08:24 (ML 01)	07:02 16:31	07:23 16:38
31	05:52 20:17	06:23 19:34		06:27 16:56			07:23 16:39
Potential sun hours	459	428	375	345	298	288	
Total, worst case			714	698			

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

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

Shadow receptor: R87a - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	07:04 (ML 01) 07:48 (ML 01)	06:43 19:22	05:57 19:54
2	07:23 16:40	07:09 17:15	06:32 17:49	07:02 (ML 01) 07:49 (ML 01)	06:41 19:23	05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	07:02 (ML 01) 07:50 (ML 01)	06:40 19:24	05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	07:00 (ML 01) 07:50 (ML 01)	06:38 19:25	05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	07:00 (ML 01) 07:51 (ML 01)	06:37 19:26	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:59 (ML 01) 07:51 (ML 01)	06:35 19:27	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:58 (ML 01) 07:51 (ML 01)	06:33 19:28	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:58 (ML 01) 07:52 (ML 01)	06:32 19:30	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:57 (ML 01) 07:51 (ML 01)	06:30 19:31	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:56 (ML 01) 07:51 (ML 01)	06:28 19:32	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:56 (ML 01) 07:51 (ML 01)	06:27 19:33	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:56 (ML 01) 07:50 (ML 01)	06:25 19:34	05:44 20:05
13	07:22 16:51	06:57 17:29	06:15 18:02	06:56 (ML 01) 07:51 (ML 01)	06:24 19:35	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:56 (ML 01) 07:50 (ML 01)	06:22 19:36	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:55 (ML 01) 07:49 (ML 01)	06:21 19:37	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:56 (ML 01) 07:49 (ML 01)	06:19 19:38	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:56 (ML 01) 07:48 (ML 01)	06:17 19:39	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:56 (ML 01) 07:46 (ML 01)	06:16 19:40	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:56 (ML 01) 07:45 (ML 01)	06:14 19:41	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:57 (ML 01) 07:44 (ML 01)	06:13 19:42	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:57 (ML 01) 07:43 (ML 01)	06:11 19:43	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:58 (ML 01) 07:41 (ML 01)	06:10 19:44	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:59 (ML 01) 07:40 (ML 01)	06:08 19:45	05:34 20:16
24	07:17 17:04	06:41 17:42	05:57 18:14	07:00 (ML 01) 07:38 (ML 01)	06:07 19:47	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 18:15	07:01 (ML 01) 07:35 (ML 01)	06:06 19:48	05:33 20:18
26	07:15 17:06	06:38 17:45	05:53 18:16	07:03 (ML 01) 07:34 (ML 01)	06:04 19:49	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 18:17	07:05 (ML 01) 07:30 (ML 01)	06:03 19:50	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 18:18	07:08 (ML 01) 07:26 (ML 01)	06:01 19:51	05:31 20:20
29	07:13 17:10		06:48 19:19	08:15 (ML 01) 08:19 (ML 01)	06:00 19:52	05:30 20:21
30	07:12 17:11		06:46 19:20		05:59 19:53	05:29 20:22
31	07:11 17:13		06:45 19:21		05:29 20:23	05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case		207	1311			

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

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

Shadow receptor: R87a - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:35 (ML 01) 08:30 (ML 01)	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:35 (ML 01) 08:30 (ML 01)	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:34 (ML 01) 08:29 (ML 01)	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:34 (ML 01) 08:29 (ML 01)	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:34 (ML 01) 08:28 (ML 01)	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:34 (ML 01) 08:28 (ML 01)	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	07:34 (ML 01) 08:27 (ML 01)	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:34 (ML 01) 08:26 (ML 01)	06:36 16:47	07:10 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	07:35 (ML 01) 08:25 (ML 01)	06:37 16:46	07:11 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:35 (ML 01) 08:24 (ML 01)	06:39 16:45	07:11 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	07:35 (ML 01) 08:23 (ML 01)	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	07:37 (ML 01) 08:23 (ML 01)	06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	07:38 (ML 01) 08:21 (ML 01)	06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	07:39 (ML 01) 08:20 (ML 01)	06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	07:40 (ML 01) 08:18 (ML 01)	06:45 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	07:41 (ML 01) 08:16 (ML 01)	06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	07:43 (ML 01) 08:13 (ML 01)	06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	07:45 (ML 01) 08:10 (ML 01)	06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	07:49 (ML 01) 08:08 (ML 01)	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	07:55 (ML 01) 08:00 (ML 01)	06:50 16:36	07:19 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	07:15 16:36	06:52 16:32	07:19 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	07:16 16:35	06:53 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	07:17 16:34	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	07:19 16:34	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	07:19 16:33	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	07:38 (ML 01) 08:30 (ML 01)	06:57 16:33	07:22 16:35
27	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	07:38 (ML 01) 08:30 (ML 01)	06:58 16:32	07:22 16:36
28	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	07:37 (ML 01) 08:30 (ML 01)	07:00 16:32	07:22 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:36 (ML 01) 08:30 (ML 01)	07:01 16:31	07:23 16:37
30	05:51 20:18	06:22 19:36	06:53 18:43	06:26 16:58	07:36 (ML 01) 08:30 (ML 01)	07:02 16:31	07:23 16:38
31	05:52 20:17	06:23 19:34		06:27 16:56			07:23 16:39
Potential sun hours	459	428	375	345	298	288	
Total, worst case			679	862			

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

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

Shadow receptor: R88 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March		April		May	June
1	07:23 16:40	07:10 17:14	06:34 17:48		07:05 (ML 01) 06:43		07:55 (ML 01) 05:57	05:28 20:23
2	07:23 16:41	07:09 17:15	06:32 17:49	15	07:20 (ML 01) 06:41	16	08:11 (ML 01) 05:56	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50	23	07:23 (ML 01) 06:40		05:55 19:55	05:28 20:25
4	07:24 16:42	07:07 17:18	06:29 17:51	28	07:26 (ML 01) 06:38		19:56 05:53	20:26 05:27
5	07:24 16:43	07:06 17:19	06:28 17:53	33	06:54 (ML 01) 06:37		05:52 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54	36	07:30 (ML 01) 06:35		05:51 19:59	05:27 20:27
7	07:23 16:45	07:04 17:21	06:25 17:55	39	06:50 (ML 01) 06:33		05:50 20:00	05:26 20:28
8	07:23 16:46	07:03 17:23	06:23 17:56	41	07:31 (ML 01) 06:32		05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	44	06:48 (ML 01) 06:30		05:48 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	45	07:33 (ML 01) 06:31		20:03 05:46	20:29 05:26
11	07:23 16:49	06:59 17:26	06:18 17:59	47	06:46 (ML 01) 06:28		05:45 20:04	05:25 20:30
12	07:23 16:50	06:58 17:28	06:16 18:00	48	07:34 (ML 01) 06:27		05:44 20:05	05:25 20:30
13	07:22 16:51	06:57 17:29	06:15 18:02	49	06:45 (ML 01) 06:24		05:43 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	50	06:44 (ML 01) 06:22		05:42 20:07	05:25 20:31
15	07:22 16:53	06:54 17:31	06:12 18:04	50	07:34 (ML 01) 06:21		20:07 05:41	20:31 05:25
16	07:21 16:55	06:53 17:33	06:10 18:05	51	07:34 (ML 01) 06:21		20:08 05:40	20:32 05:25
17	07:21 16:56	06:51 17:34	06:08 18:06	51	06:43 (ML 01) 06:19		20:09 20:10	20:32 20:33
18	07:20 16:57	06:50 17:35	06:07 18:07	51	07:34 (ML 01) 06:19		20:10 20:11	20:33 20:33
19	07:20 16:58	06:49 17:36	06:05 18:08	51	06:42 (ML 01) 06:16		20:11 05:38	20:33 05:25
20	07:19 16:59	06:47 17:37	06:03 18:09	51	07:32 (ML 01) 06:14		20:12 05:37	20:33 05:25
21	07:19 17:00	06:46 17:39	06:02 18:10	50	07:32 (ML 01) 06:13		20:13 20:14	20:34 20:34
22	07:18 17:02	06:44 17:40	06:00 18:11	49	06:42 (ML 01) 06:11		05:36 20:15	05:26 20:34
23	07:17 17:03	06:43 17:41	05:58 18:12	49	06:43 (ML 01) 06:11		05:34 20:16	05:26 20:34
24	07:17 17:04	06:41 17:42	05:57 18:14	46	06:43 (ML 01) 06:07		05:33 20:17	05:26 20:34
25	07:16 17:05	06:40 17:43	05:55 18:15	45	07:28 (ML 01) 06:06		05:33 20:18	05:27 20:34
26	07:15 17:06	06:38 17:45	05:53 18:16	43	06:43 (ML 01) 06:06		05:32 20:19	05:27 20:34
27	07:14 17:08	06:37 17:46	05:51 18:17	41	06:45 (ML 01) 06:04		05:31 20:19	05:27 20:35
28	07:13 17:10	06:35 17:47	05:50 18:18	39	07:24 (ML 01) 06:03		05:31 20:20	05:28 20:35
29	07:13 17:11		06:48 19:19	35	07:21 (ML 01) 06:01		05:30 20:21	05:28 20:35
30	07:12 17:11		06:46 19:20	32	07:48 (ML 01) 06:00		05:29 20:22	05:28 20:35
31	07:11 17:13		06:45 19:21	27	08:20 (ML 01) 06:00		05:29 20:23	
Potential sun hours	297	297	369	23	08:14 (ML 01)	399	448	452
Total, worst case				1279		16		

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

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

Shadow receptor: R88 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September		October		November	December	
1	05:29 20:34	05:53 20:15	06:24 19:32		06:54 18:42	50	07:24 (ML 01) 08:14 (ML 01)	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31		06:55 18:40	49	07:24 (ML 01) 08:13 (ML 01)	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29		06:56 18:38	47	07:25 (ML 01) 08:12 (ML 01)	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27		06:57 18:37	46	07:25 (ML 01) 08:11 (ML 01)	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26		06:58 18:35	45	07:25 (ML 01) 08:10 (ML 01)	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24		06:59 18:33	42	07:26 (ML 01) 08:08 (ML 01)	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22		07:00 18:32	40	07:27 (ML 01) 08:07 (ML 01)	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21		07:01 18:30	37	07:28 (ML 01) 08:05 (ML 01)	06:36 16:47	07:10 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19		07:02 18:29	34	07:29 (ML 01) 08:03 (ML 01)	06:37 16:46	07:11 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17		07:03 18:27	31	07:30 (ML 01) 08:01 (ML 01)	06:39 16:45	07:11 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	14	07:04 08:02 (ML 01)	26	07:32 (ML 01) 07:58 (ML 01)	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	22	07:05 08:06 (ML 01)	20	07:36 (ML 01) 07:56 (ML 01)	06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	27	07:06 08:08 (ML 01)	11	07:40 (ML 01) 07:51 (ML 01)	06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	31	07:07 08:10 (ML 01)		07:07 18:21	06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	34	07:09 08:11 (ML 01)		07:09 18:19	06:45 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	38	07:10 08:13 (ML 01)		07:10 18:17	06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	41	07:11 08:14 (ML 01)		07:11 18:16	06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	42	07:12 08:14 (ML 01)		07:12 18:14	06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	44	07:13 08:15 (ML 01)		07:13 18:13	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	06:43 19:00	46	07:14 08:16 (ML 01)		07:14 18:11	06:51 16:36	07:19 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	47	07:15 08:16 (ML 01)		07:15 18:10	06:52 16:36	07:19 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	48	07:16 08:16 (ML 01)		07:16 18:09	06:53 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	06:46 18:55	49	07:17 08:16 (ML 01)		07:17 18:07	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	50	07:19 08:16 (ML 01)		07:19 18:06	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	50	07:20 08:16 (ML 01)		07:20 17:04	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	06:49 18:50	51	07:21 08:16 (ML 01)		07:21 17:02	06:57 16:32	07:22 16:36
27	05:48 20:20	06:19 19:40	06:50 18:48	51	07:22 08:16 (ML 01)		07:22 17:02	06:58 16:32	07:22 16:36
28	05:49 20:20	06:20 19:39	06:51 18:47	50	07:23 08:15 (ML 01)		07:23 17:00	07:00 16:32	07:22 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	51	07:24 08:15 (ML 01)		07:24 16:59	07:01 16:31	07:23 16:37
30	05:51 20:18	06:22 19:36	06:53 18:43	50	07:24 (ML 01) 08:14 (ML 01)		06:26 16:58	07:02 16:31	07:23 16:38
31	05:52 20:17	06:23 19:34			06:27 16:56				07:23 16:39
Potential sun hours	459	428	375		345		298		288
Total, worst case			836		478				

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

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

Shadow receptor: R92 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	07:00 (ML 01) 07:36 (ML 01)	06:43 19:22	05:57 19:54
2	07:23 16:41	07:09 17:15	06:32 17:49	06:58 (ML 01) 07:36 (ML 01)	06:41 19:23	05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:57 (ML 01) 07:38 (ML 01)	06:40 19:24	05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	06:56 (ML 01) 07:38 (ML 01)	06:38 19:25	05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	06:55 (ML 01) 07:39 (ML 01)	06:37 19:26	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:54 (ML 01) 07:39 (ML 01)	06:35 19:27	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:53 (ML 01) 07:39 (ML 01)	06:33 19:28	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:53 (ML 01) 07:40 (ML 01)	06:32 19:30	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:52 (ML 01) 07:40 (ML 01)	06:30 19:31	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:51 (ML 01) 07:39 (ML 01)	06:28 19:32	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:51 (ML 01) 07:40 (ML 01)	06:27 19:33	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:51 (ML 01) 07:39 (ML 01)	06:25 19:34	05:44 20:05
13	07:22 16:51	06:57 17:29	06:15 18:02	06:51 (ML 01) 07:39 (ML 01)	06:24 19:35	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:51 (ML 01) 07:38 (ML 01)	06:22 19:36	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:51 (ML 01) 07:37 (ML 01)	06:21 19:37	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:51 (ML 01) 07:37 (ML 01)	06:19 19:38	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:51 (ML 01) 07:36 (ML 01)	06:17 19:39	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:51 (ML 01) 07:34 (ML 01)	06:16 19:40	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:51 (ML 01) 07:33 (ML 01)	06:14 19:41	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:53 (ML 01) 07:32 (ML 01)	06:13 19:42	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:53 (ML 01) 07:30 (ML 01)	06:11 19:43	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:54 (ML 01) 07:28 (ML 01)	06:10 19:44	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:56 (ML 01) 07:27 (ML 01)	06:08 19:45	05:34 20:16
24	07:17 17:04	06:41 17:42	07:15 (ML 01) 07:23 (ML 01)	06:57 (ML 01) 07:24 (ML 01)	06:07 19:47	05:33 20:17
25	07:16 17:05	06:40 17:43	07:09 (ML 01) 07:27 (ML 01)	06:59 (ML 01) 07:21 (ML 01)	06:06 19:48	05:33 20:18
26	07:15 17:06	06:38 17:45	07:06 (ML 01) 07:31 (ML 01)	07:03 (ML 01) 07:18 (ML 01)	06:04 19:49	05:32 20:19
27	07:14 17:08	06:37 17:46	07:03 (ML 01) 07:32 (ML 01)	07:03 (ML 01) 07:18 (ML 01)	06:03 19:50	05:31 20:19
28	07:13 17:09	06:35 17:47	07:01 (ML 01) 07:34 (ML 01)	07:01 (ML 01) 07:18 (ML 01)	06:01 19:51	05:31 20:20
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35
30	07:12 17:11		06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:35
31	07:11 17:13		06:45 19:21		05:29 20:23	
Potential sun hours	297	297	369	399	448	452
Total, worst case		113	1054			

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

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

Shadow receptor: R92 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October	November	December	
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:30 (ML 01) 08:18 (ML 01)	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	48 07:30 (ML 01) 08:18 (ML 01)	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	48 07:30 (ML 01) 08:18 (ML 01)	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	48 07:29 (ML 01) 08:17 (ML 01)	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	48 07:29 (ML 01) 08:17 (ML 01)	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	47 07:29 (ML 01) 08:16 (ML 01)	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	46 07:29 (ML 01) 08:15 (ML 01)	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	44 07:30 (ML 01) 08:14 (ML 01)	06:36 16:47	07:10 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	43 07:30 (ML 01) 08:13 (ML 01)	06:37 16:46	07:11 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	42 07:30 (ML 01) 08:12 (ML 01)	06:39 16:45	07:11 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	40 07:31 (ML 01) 08:11 (ML 01)	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	37 07:33 (ML 01) 08:10 (ML 01)	06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	34 07:34 (ML 01) 08:08 (ML 01)	06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	31 07:35 (ML 01) 08:06 (ML 01)	06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	27 07:37 (ML 01) 08:04 (ML 01)	06:45 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	22 07:39 (ML 01) 08:01 (ML 01)	06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	15 07:42 (ML 01) 07:57 (ML 01)	06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14		06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13		06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11		06:51 16:36	07:19 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10		06:52 16:36	07:19 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09		06:53 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07		06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06		06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04		06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03		06:57 16:33	07:22 16:35
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02		06:58 16:32	07:22 16:36
28	05:49 20:20	06:20 19:39	06:51 18:47	07:23 17:00		07:00 16:32	07:22 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59		07:01 16:31	07:23 16:37
30	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58		07:02 16:31	07:23 16:38
31	05:52 20:17	06:23 19:34		06:27 16:56			07:23 16:39
Potential sun hours	459	428	375	345	668	298	288
Total, worst case			513				

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

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

Shadow receptor: R95a - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June	
1	07:23 16:40	07:10 17:14	07:43 (ML 01)	06:34 17:48	06:43 19:22	05:28 20:23	
2	07:23 16:40	07:09 17:15	07:42 (ML 01)	06:32 17:49	06:41 19:23	05:28 20:24	
3	07:23 16:41	07:08 17:16	07:42 (ML 01)	06:31 17:50	06:40 19:24	05:28 20:25	
4	07:24 16:42	07:07 17:18	07:42 (ML 01)	06:29 17:51	06:38 19:25	05:27 20:26	
5	07:24 16:43	07:06 17:19	07:42 (ML 01)	06:28 17:53	06:37 19:26	05:27 20:26	
6	07:24 16:44	07:05 17:20	07:41 (ML 01)	06:26 17:54	06:35 19:27	05:27 20:27	
7	07:23 16:45	07:04 17:21	07:41 (ML 01)	06:25 17:55	06:33 19:28	05:26 20:00	
8	07:23 16:46	07:03 17:23	07:41 (ML 01)	06:23 17:56	06:32 19:30	05:26 20:28	
9	07:23 16:47	07:01 17:24	07:41 (ML 01)	06:21 17:57	06:30 19:31	05:26 20:29	
10	07:23 16:48	07:00 17:25	07:41 (ML 01)	06:20 17:58	06:28 19:32	05:26 20:29	
11	07:23 16:49	06:59 17:26	07:42 (ML 01)	06:18 17:59	06:27 19:33	05:25 20:30	
12	07:23 16:50	06:58 17:28	07:41 (ML 01)	06:16 18:00	06:25 19:34	05:25 20:30	
13	07:22 16:51	06:57 17:29	07:42 (ML 01)	06:15 18:02	06:24 19:35	05:25 20:31	
14	07:22 16:52	06:55 17:30	07:42 (ML 01)	06:13 18:03	06:22 19:36	05:25 20:31	
15	07:22 16:53	06:54 17:31	07:42 (ML 01)	06:12 18:04	06:21 19:37	05:25 20:32	
16	07:21 16:55	06:53 17:33	07:43 (ML 01)	06:10 18:05	06:19 19:38	05:25 20:32	
17	07:21 16:56	06:51 17:34	07:44 (ML 01)	06:08 18:06	06:17 19:39	05:25 20:33	
18	07:20 16:57	06:50 17:35	07:44 (ML 01)	06:07 18:07	06:16 19:40	05:25 20:33	
19	07:20 16:58	06:49 17:36	07:46 (ML 01)	06:05 18:08	06:14 19:41	05:25 20:33	
20	07:19 16:59	06:47 17:37	07:46 (ML 01)	06:03 18:09	06:13 19:42	05:25 20:34	
21	07:19 17:00	07:54 (ML 01) 08:07 (ML 01)	06:46 17:39	07:48 (ML 01) 08:19 (ML 01)	06:02 18:10	06:11 19:43	05:26 20:34
22	07:18 17:02	07:52 (ML 01) 08:10 (ML 01)	06:44 17:40	07:50 (ML 01) 08:17 (ML 01)	06:00 18:11	06:10 19:44	05:26 20:34
23	07:17 17:03	07:50 (ML 01) 08:12 (ML 01)	06:43 17:41	07:51 (ML 01) 08:14 (ML 01)	05:58 18:12	06:08 19:45	05:26 20:34
24	07:17 17:04	07:48 (ML 01) 08:14 (ML 01)	06:41 17:42	07:55 (ML 01) 08:12 (ML 01)	05:57 18:14	06:07 19:47	05:26 20:34
25	07:16 17:05	07:47 (ML 01) 08:15 (ML 01)	06:40 17:43	07:59 (ML 01) 08:05 (ML 01)	05:55 18:15	06:06 19:48	05:27 20:34
26	07:15 17:06	07:47 (ML 01) 08:18 (ML 01)	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:35
27	07:14 17:08	07:46 (ML 01) 08:19 (ML 01)	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35
28	07:13 17:09	07:45 (ML 01) 08:20 (ML 01)	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35
29	07:13 17:10	07:44 (ML 01) 08:21 (ML 01)	06:35 17:47	06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35
30	07:12 17:11	07:44 (ML 01) 08:22 (ML 01)	06:35 17:47	06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:35
31	07:11 17:13	07:43 (ML 01) 08:23 (ML 01)	06:35 17:47	06:45 19:21	05:59 20:23	05:29 20:23	05:28 20:35
Potential sun hours	297	297	369	399	448	452	
Total, worst case	321	956					

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

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

Shadow receptor: R95a - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

	July	August	September	October		November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42		06:28 16:55	07:10 (ML 01) 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40		06:29 16:54	07:11 (ML 01) 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38		06:30 16:53	07:10 (ML 01) 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37		06:31 16:51	07:10 (ML 01) 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35		06:33 16:50	07:11 (ML 01) 16:30
6	05:32 20:34	05:58 20:10	06:29 19:24	06:59 18:33		06:34 16:49	07:11 (ML 01) 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32		06:35 16:48	07:12 (ML 01) 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30		06:36 16:47	07:12 (ML 01) 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29		06:37 16:46	07:13 (ML 01) 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27		06:39 16:45	07:13 (ML 01) 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25		06:40 16:44	07:14 (ML 01) 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24		06:41 16:43	07:16 (ML 01) 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22		06:42 16:42	07:16 (ML 01) 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21		06:43 16:41	07:17 (ML 01) 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19		06:45 16:40	07:18 (ML 01) 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17		06:46 16:39	07:20 (ML 01) 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	12	08:28 (ML 01) 08:40 (ML 01)	06:47 16:38
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	19	08:24 (ML 01) 08:43 (ML 01)	06:48 16:38
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	25	08:22 (ML 01) 08:47 (ML 01)	06:49 16:37
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	28	08:20 (ML 01) 08:48 (ML 01)	06:51 16:36
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	32	08:18 (ML 01) 08:50 (ML 01)	06:52 16:36
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	35	08:16 (ML 01) 08:51 (ML 01)	06:53 16:35
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	37	08:15 (ML 01) 08:52 (ML 01)	06:54 16:34
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	38	08:15 (ML 01) 08:53 (ML 01)	06:55 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	41	07:13 (ML 01) 07:54 (ML 01)	06:56 16:33
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	41	07:13 (ML 01) 07:54 (ML 01)	06:57 16:33
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	43	07:12 (ML 01) 07:55 (ML 01)	06:58 16:32
28	05:49 20:20	06:20 19:37	06:51 18:45	07:23 17:00	44	07:11 (ML 01) 07:55 (ML 01)	07:00 16:32
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	45	07:11 (ML 01) 07:56 (ML 01)	07:01 16:31
30	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58	45	07:11 (ML 01) 07:56 (ML 01)	07:02 16:31
31	05:52 20:17	06:23 19:34		07:26 16:56	46	07:10 (ML 01) 07:56 (ML 01)	07:23 16:30
Potential sun hours	459	428	375	345		298	288
Total, worst case				531		766	

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

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

Shadow receptor: R99 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (25)

Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June	
1	07:23 16:40	07:10 17:14	45 07:46 (ML 01)	06:34 17:48	06:43 19:22	05:57 20:23	
2	07:23 16:40	07:09 17:15	46 07:45 (ML 01)	06:32 17:49	06:41 19:23	05:56 20:24	
3	07:23 16:41	07:08 17:16	47 07:45 (ML 01)	06:31 17:50	06:40 19:24	05:55 20:25	
4	07:24 16:42	07:07 17:18	47 07:45 (ML 01)	06:29 17:51	06:38 19:25	05:53 20:26	
5	07:24 16:43	07:06 17:19	48 07:45 (ML 01)	06:28 17:53	06:37 19:26	05:52 20:26	
6	07:24 16:44	07:05 17:20	48 07:45 (ML 01)	06:26 17:54	06:35 19:27	05:51 20:27	
7	07:23 16:45	07:04 17:21	48 07:44 (ML 01)	06:25 17:55	06:33 19:28	05:50 20:28	
8	07:23 16:46	07:03 17:23	48 07:45 (ML 01)	06:23 17:56	06:32 19:30	05:49 20:28	
9	07:23 16:47	07:01 17:24	48 07:45 (ML 01)	06:21 17:57	06:30 19:31	05:48 20:29	
10	07:23 16:48	07:00 17:25	48 07:45 (ML 01)	06:20 17:58	06:28 19:32	05:46 20:29	
11	07:23 16:49	06:59 17:26	47 07:46 (ML 01)	06:18 17:59	06:27 19:33	05:45 20:30	
12	07:23 16:50	06:58 17:28	47 07:45 (ML 01)	06:16 18:00	06:25 19:34	05:44 20:30	
13	07:22 16:51	06:57 17:29	46 07:46 (ML 01)	06:15 18:02	06:24 19:35	05:43 20:31	
14	07:22 16:52	06:55 17:30	44 07:47 (ML 01)	06:13 18:03	06:22 19:36	05:42 20:31	
15	07:22 16:53	06:54 17:31	43 07:47 (ML 01)	06:12 18:04	06:21 19:37	05:41 20:32	
16	07:21 16:55	06:53 17:33	42 07:48 (ML 01)	06:10 18:05	06:19 19:38	05:40 20:32	
17	07:21 16:56	08:01 (ML 01) 08:08 (ML 01)	06:51 17:34	07:49 (ML 01) 08:29 (ML 01)	06:08 18:06	06:17 19:39	05:39 20:33
18	07:20 16:57	07:57 (ML 01) 08:12 (ML 01)	06:50 17:35	07:49 (ML 01) 08:27 (ML 01)	06:07 18:07	06:16 19:40	05:38 20:33
19	07:20 16:58	15 07:56 (ML 01) 19 08:15 (ML 01)	06:49 17:36	07:51 (ML 01) 08:26 (ML 01)	06:05 18:08	06:14 19:41	05:37 20:33
20	07:19 16:59	07:54 (ML 01) 23 08:17 (ML 01)	06:47 17:37	07:51 (ML 01) 08:24 (ML 01)	06:03 18:09	06:13 19:42	05:36 20:34
21	07:19 17:00	07:52 (ML 01) 26 08:18 (ML 01)	06:46 17:39	07:53 (ML 01) 08:23 (ML 01)	06:02 18:10	06:11 19:43	05:36 20:34
22	07:18 17:02	07:52 (ML 01) 29 08:21 (ML 01)	06:44 17:40	07:56 (ML 01) 08:21 (ML 01)	06:00 18:11	06:10 19:44	05:35 20:34
23	07:17 17:03	07:51 (ML 01) 31 08:22 (ML 01)	06:43 17:41	07:58 (ML 01) 08:18 (ML 01)	05:58 18:12	06:08 19:45	05:34 20:34
24	07:17 17:04	07:50 (ML 01) 33 08:23 (ML 01)	06:41 17:42	08:02 (ML 01) 08:14 (ML 01)	05:57 18:14	06:07 19:47	05:33 20:34
25	07:16 17:05	07:49 (ML 01) 35 08:24 (ML 01)	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:38	05:27 20:34
26	07:15 17:06	07:49 (ML 01) 37 08:26 (ML 01)	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:35
27	07:14 17:08	07:48 (ML 01) 39 08:27 (ML 01)	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35
28	07:13 17:09	07:47 (ML 01) 41 08:28 (ML 01)	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35
29	07:13 17:10	07:47 (ML 01) 42 08:29 (ML 01)	06:35 17:47	06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35
30	07:12 17:11	07:46 (ML 01) 43 08:29 (ML 01)	06:35 17:47	06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:35
31	07:11 17:13	07:46 (ML 01) 44 08:30 (ML 01)	06:35 17:47	06:45 19:21	05:29 20:23	05:29 20:23	05:28 20:35
Potential sun hours	297	297	369	399	448	452	
Total, worst case	464	975					

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

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

Shadow receptor: R99 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (25)

Assumptions for shadow calculations

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

- The sun is shining all the day, from sunrise to sunset
- The rotor plane is always perpendicular to the line from the WTG to the sun
- The WTG is always operating

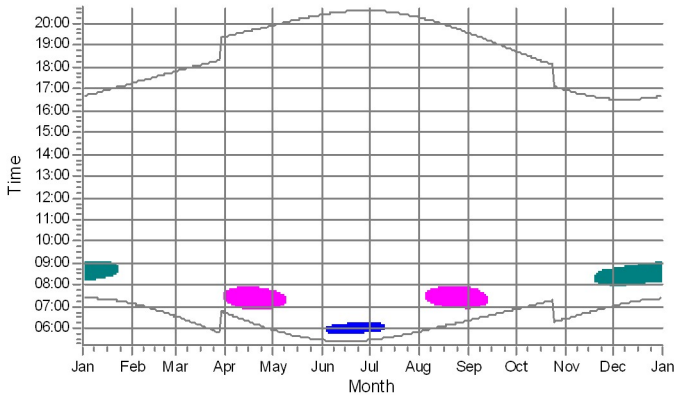
	July	August	September	October		November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42		06:28 16:55	07:14 (ML 01) 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40		06:29 16:54	07:15 (ML 01) 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38		06:30 16:53	07:14 (ML 01) 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37		06:31 16:51	07:14 (ML 01) 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35		06:33 16:50	07:15 (ML 01) 16:30
6	05:32 20:34	05:58 20:10	06:29 19:24	06:59 18:33		06:34 16:49	07:15 (ML 01) 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32		06:35 16:48	07:15 (ML 01) 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30		06:36 16:47	07:15 (ML 01) 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29		06:37 16:46	07:16 (ML 01) 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27		06:39 16:45	07:17 (ML 01) 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25		06:40 16:44	07:17 (ML 01) 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24		06:41 16:43	07:18 (ML 01) 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22		06:42 16:42	07:19 (ML 01) 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21		06:43 16:41	07:19 (ML 01) 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19		06:45 16:40	07:20 (ML 01) 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17		06:46 16:39	07:22 (ML 01) 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16		06:47 16:38	07:23 (ML 01) 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	15	08:31 (ML 01) 08:46 (ML 01)	06:48 16:38
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	22	08:28 (ML 01) 08:50 (ML 01)	06:49 16:37
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	26	08:26 (ML 01) 08:52 (ML 01)	06:51 16:36
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	31	08:23 (ML 01) 08:54 (ML 01)	06:52 16:36
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	33	08:22 (ML 01) 08:55 (ML 01)	06:53 16:35
23	05:44 20:24	06:15 19:46	06:46 18:55	07:17 18:07	36	08:20 (ML 01) 08:56 (ML 01)	06:54 16:34
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	38	08:20 (ML 01) 08:58 (ML 01)	06:55 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	41	07:18 (ML 01) 07:59 (ML 01)	06:56 16:33
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	43	07:17 (ML 01) 08:00 (ML 01)	06:57 16:33
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	44	07:16 (ML 01) 08:00 (ML 01)	06:58 16:32
28	05:49 20:20	06:20 19:39	06:51 18:47	07:23 17:00	44	07:16 (ML 01) 08:00 (ML 01)	07:00 16:32
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	45	07:16 (ML 01) 08:01 (ML 01)	07:01 16:31
30	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58	47	07:15 (ML 01) 08:02 (ML 01)	07:02 16:31
31	05:52 20:17	06:23 19:34	06:54 18:42	07:26 16:57	47	07:15 (ML 01) 08:02 (ML 01)	07:23 16:31
Potential sun hours	459	428	375	345		298	288
Total, worst case					512		937

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

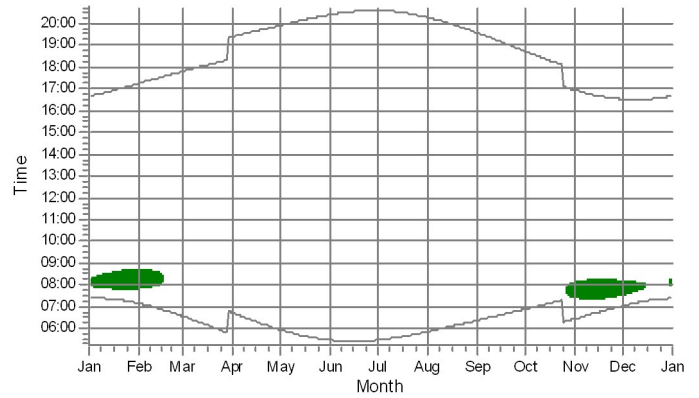
Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar, graphical

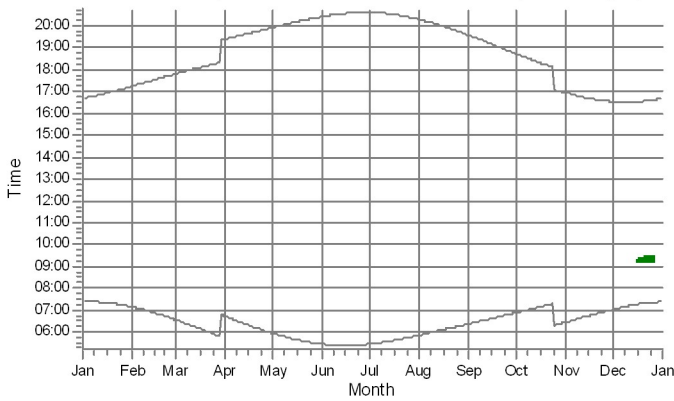
R02: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (1)



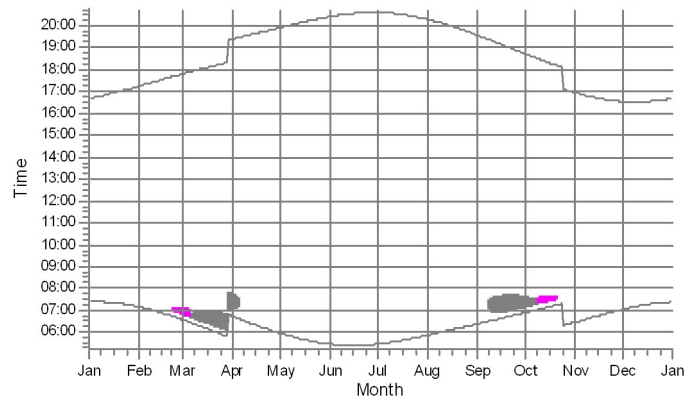
R103: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (26)



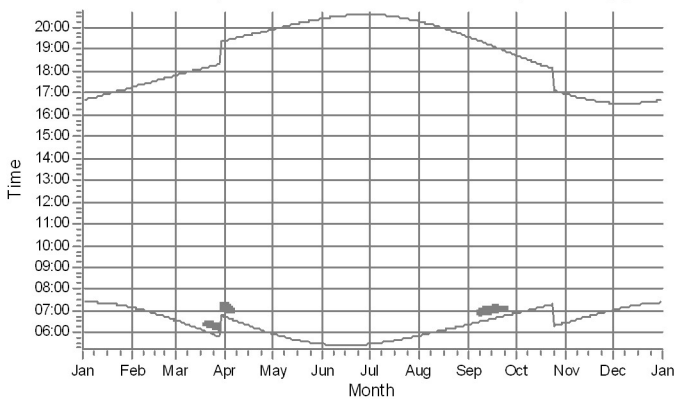
R107: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (27)



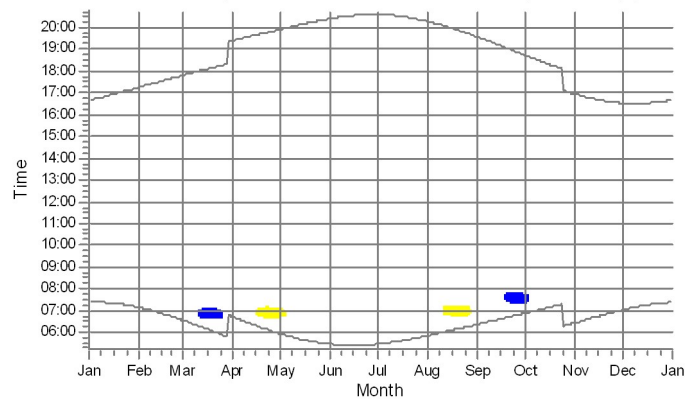
R12: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (2)



R14: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (3)



R21: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (4)

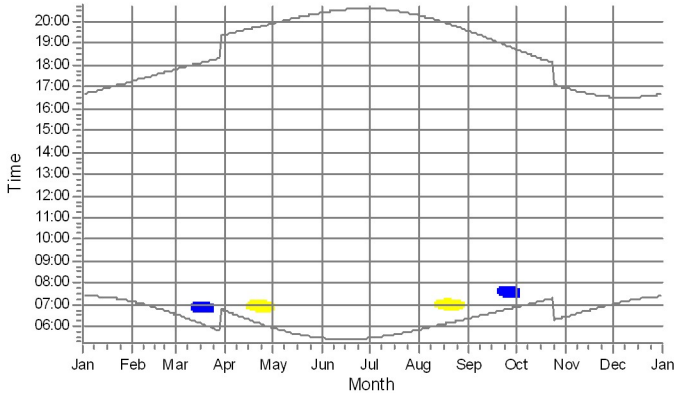


WTGs

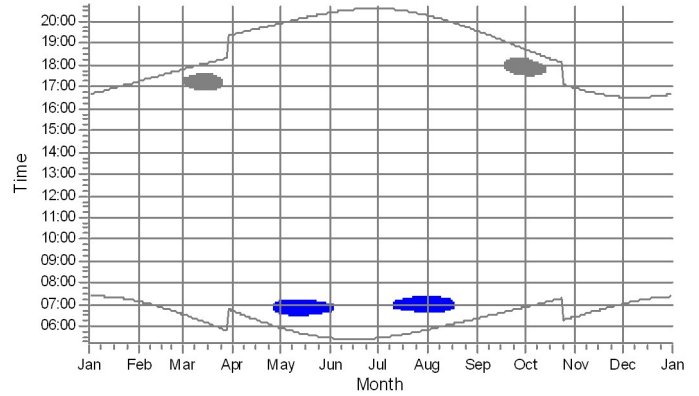
- ML 01: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (1)
- ML 02: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (2)
- ML 03: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)
- ML 04: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (4)
- ML 05: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (5)
- ML 06: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (6)

SHADOW - Calendar, graphical

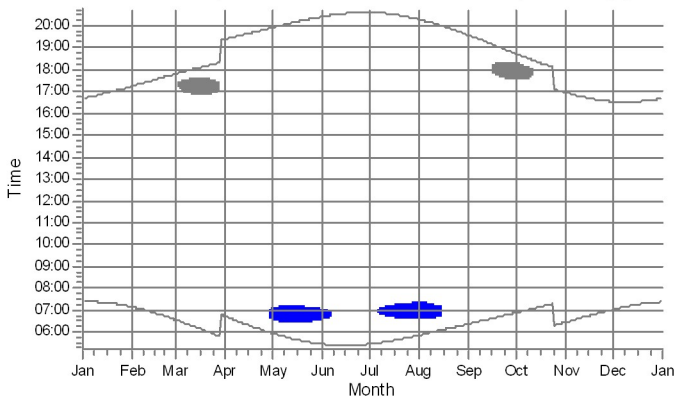
R23: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (5)



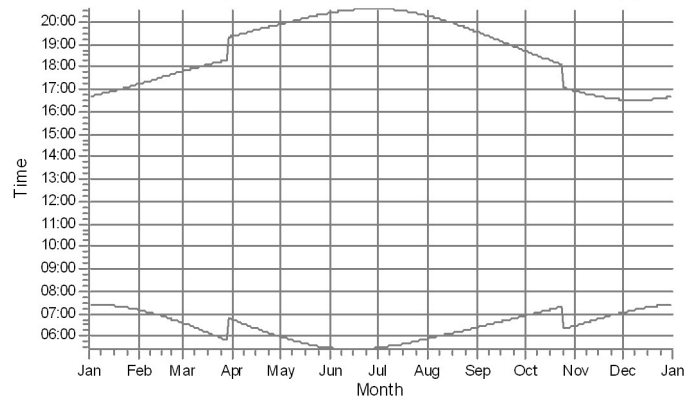
R31: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (6)



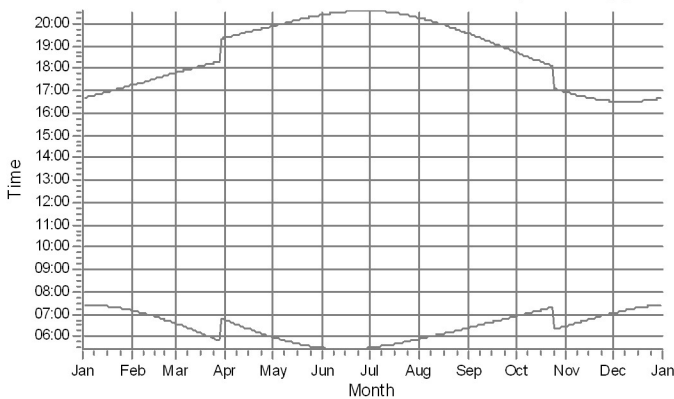
R32: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (7)



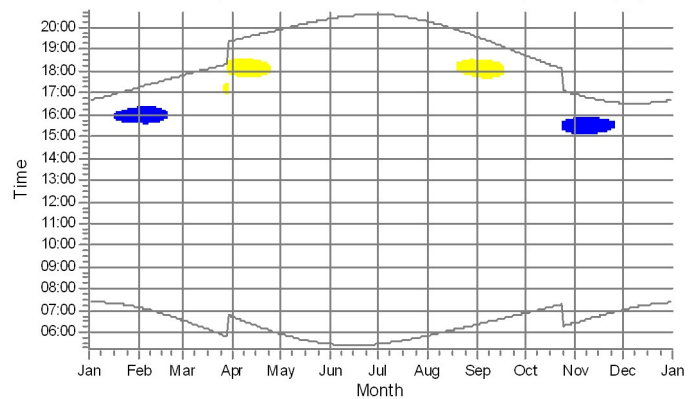
R43: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (8)



R51: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (9)



R61: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

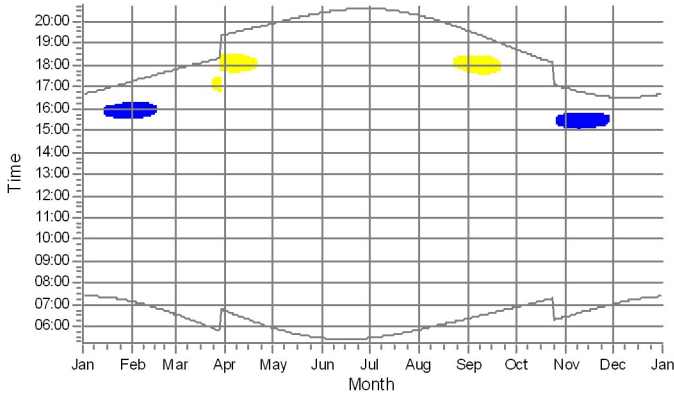


WTGs

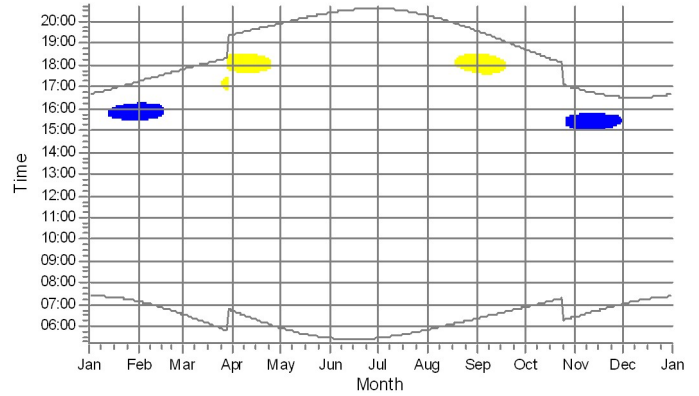
- ML 02: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (2)
- ML 03: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)
- ML 04: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (4)

SHADOW - Calendar, graphical

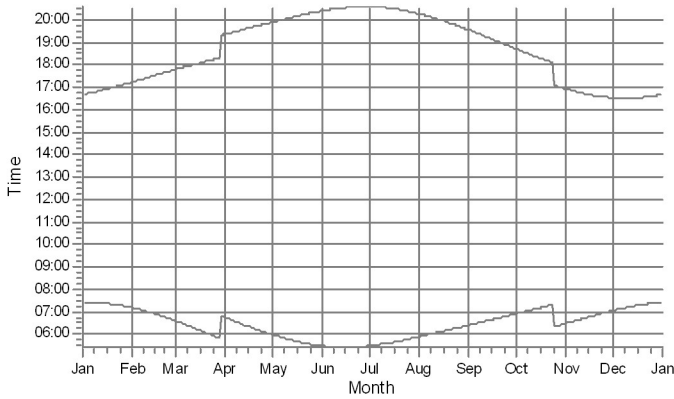
R63: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)



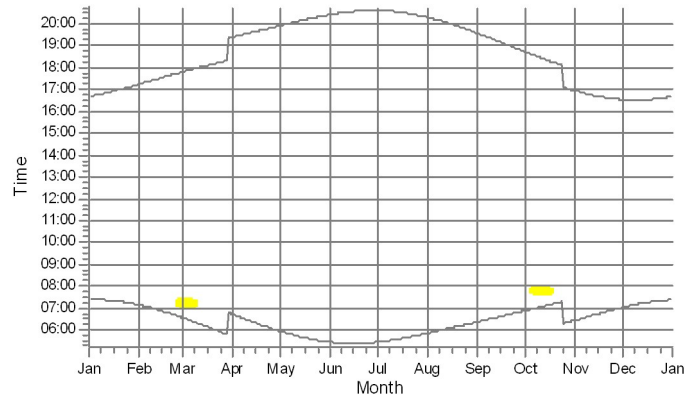
R65: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)



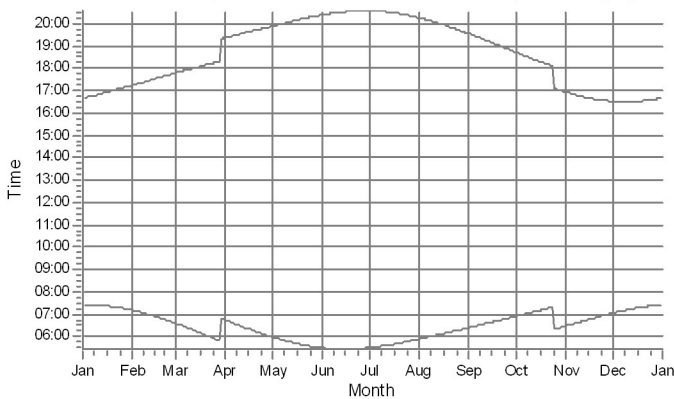
R68: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)



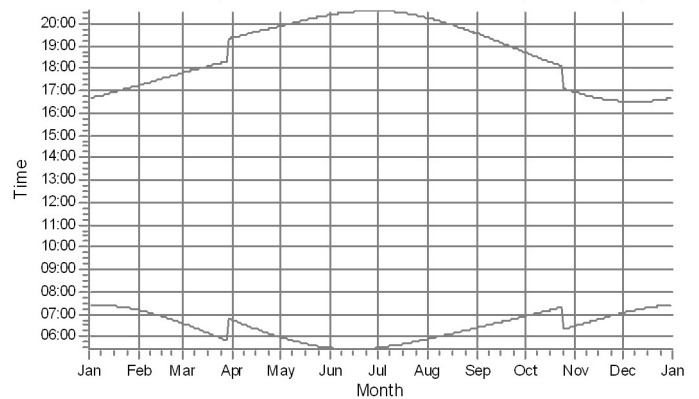
R70: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)



R75: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)



R76: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)



WTGs

- ML 02: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (2)
- ML 03: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)

Project:

WF Melfi_shadow flickering

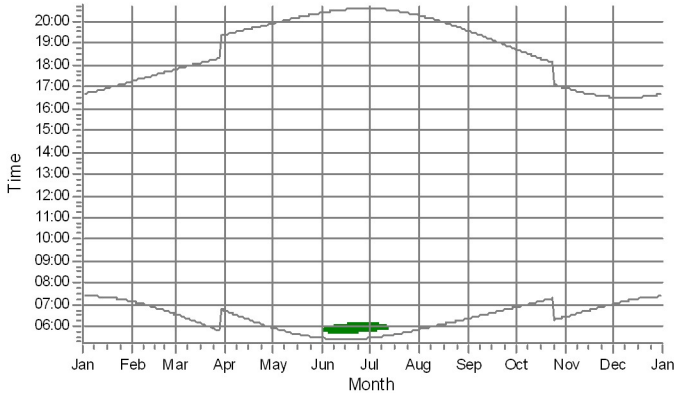
Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

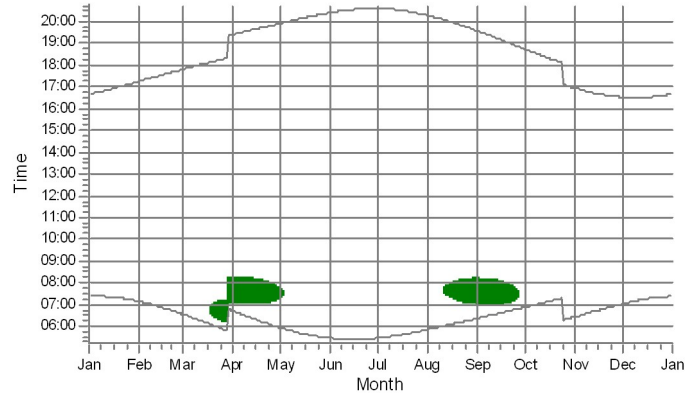
Gaetano DOronzio / info@gecodor.it
Calculated:
02/04/2024 18:08/4.0.531

SHADOW - Calendar, graphical

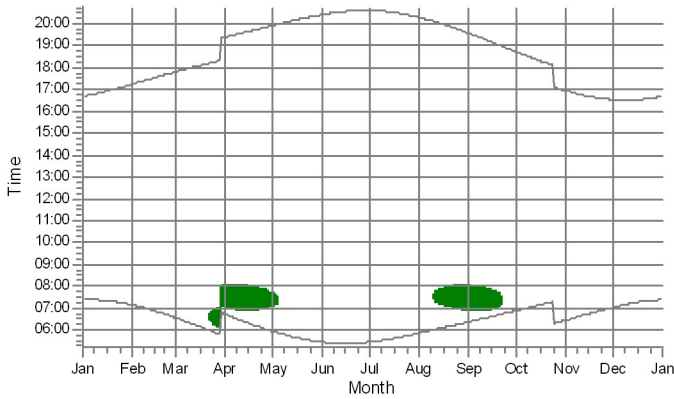
R77: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)



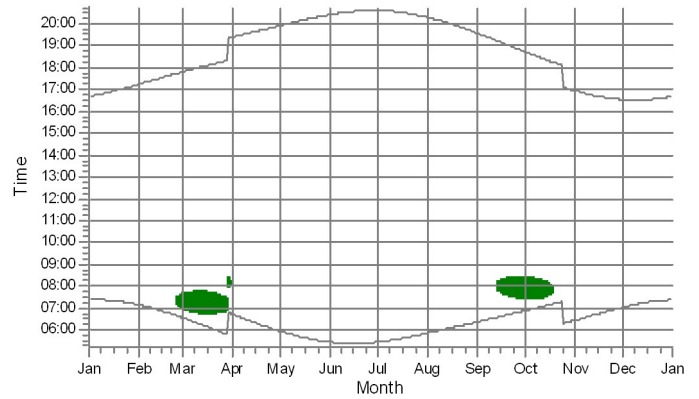
R82: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)



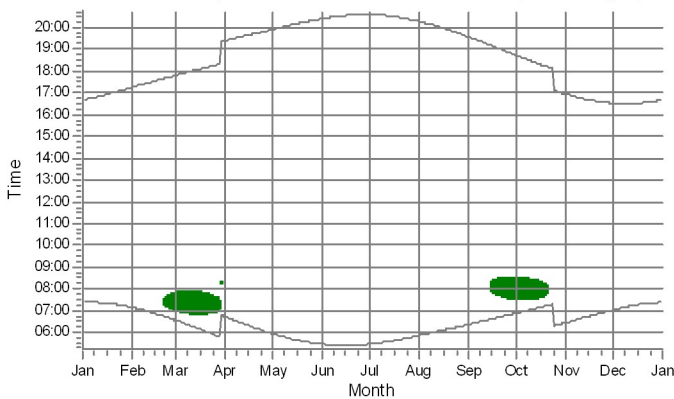
R83: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)



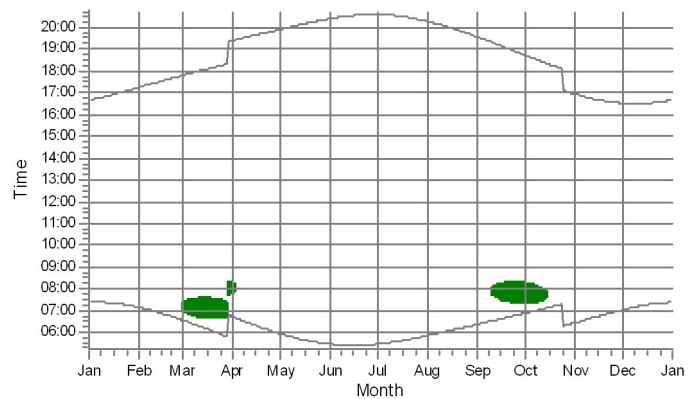
R87: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)



R87a: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)



R88: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

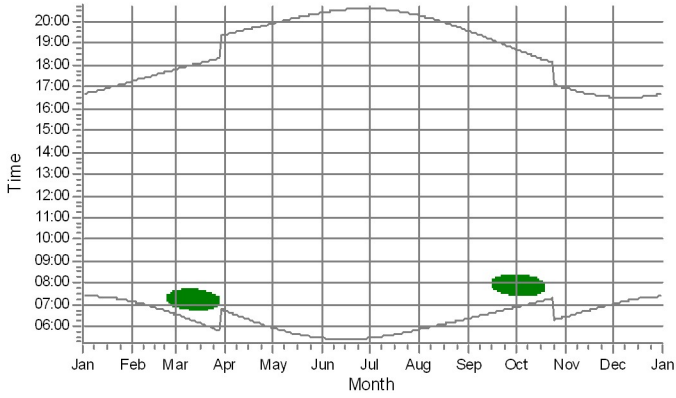


WTGs

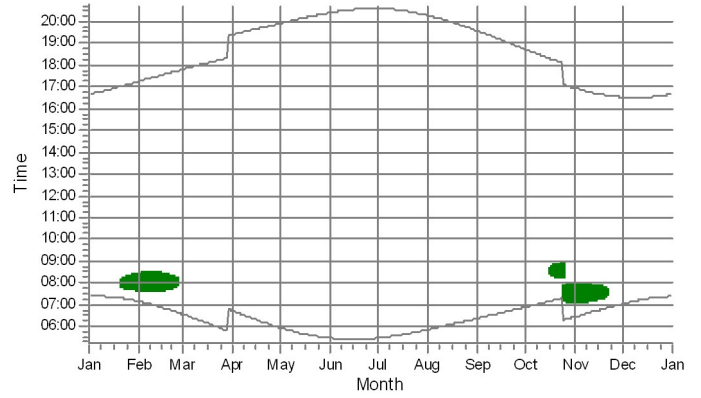
ML 01: Siemens Gamesa SG 6.0-170 6000 170.0 !0! hub: 135,0 m (TOT: 220,0 m) (1)

SHADOW - Calendar, graphical

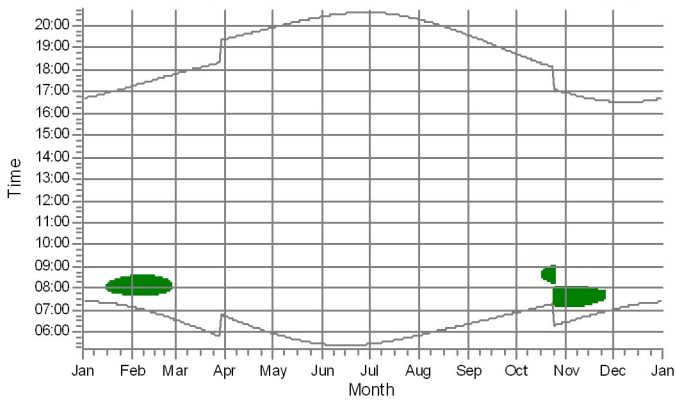
R92: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)



R95a: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)



R99: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (25)



WTGs

ML 01: Siemens Gamesa SG 6.0-170 6000 170.0 !0! hub: 135,0 m (TOT: 220,0 m) (1)

SHADOW - Calendar per WTG

WTG: ML 01 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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
1	07:23 08:01-08:13/12 16:40	07:10 07:43-08:39/56 17:14	06:34 07:00-07:48/48 17:48	06:43 07:07-08:13/66 19:22	05:57 07:14-07:37/23 19:54	05:28 20:23
2	07:23 08:00-08:14/14 16:40	07:09 07:42-08:39/57 17:15	06:32 06:58-07:49/51 17:49	06:41 07:06-08:13/67 19:23	05:56 07:16-07:33/17 19:55	05:28 05:50-05:53/3 20:24
3	07:23 08:00-08:16/16 16:41	07:08 07:42-08:39/57 17:16	06:31 06:57-07:50/53 17:50	06:40 07:04-08:13/69 19:24	05:55 07:23-07:27/4 19:56	05:28 05:49-05:54/5 20:25
4	07:23 07:59-08:17/18 16:42	07:07 07:42-08:38/56 17:18	06:29 06:55-07:50/55 17:51	06:38 07:04-08:13/69 19:25	05:53 19:57	05:27 05:49-05:55/6 20:26
5	07:23 07:59-08:19/20 16:43	07:06 07:42-08:38/56 17:19	06:28 06:54-07:51/57 17:53	06:37 07:03-08:13/70 19:26	05:52 19:58	05:27 05:49-05:57/8 20:26
6	07:23 07:58-08:20/22 16:44	07:05 07:41-08:38/57 17:20	06:26 06:52-07:51/59 17:54	06:35 07:02-08:12/70 19:27	05:51 19:59	05:26 05:48-05:57/9 20:27
7	07:23 07:57-08:21/24 16:45	07:04 07:41-08:36/55 17:21	06:25 06:50-07:51/61 17:55	06:33 07:02-08:13/71 19:28	05:50 20:00	05:26 05:48-05:58/10 20:28
8	07:23 07:57-08:22/25 16:46	07:02 07:41-08:36/55 17:23	06:23 06:49-07:52/63 17:56	06:32 07:01-08:12/71 19:29	05:49 20:01	05:26 05:48-05:59/11 20:28
9	07:23 07:56-08:24/28 16:47	07:01 07:41-08:35/54 17:24	06:21 06:48-07:51/63 17:57	06:30 07:01-08:12/71 19:31	05:47 20:02	05:26 05:48-06:00/12 20:29
10	07:23 07:56-08:25/29 16:48	07:00 07:41-08:34/53 17:25	06:20 06:46-07:51/65 17:58	06:28 07:00-08:11/71 19:32	05:46 20:03	05:26 05:48-06:01/13 20:29
11	07:23 07:55-08:26/31 16:49	06:59 07:42-08:33/51 17:26	06:18 06:46-07:51/65 17:59	06:27 07:00-08:10/70 19:33	05:45 20:04	05:25 05:47-06:01/14 20:30
12	07:22 07:55-08:27/32 16:50	06:58 07:41-08:32/51 17:28	06:16 06:45-07:50/65 18:00	06:25 07:00-08:10/70 19:34	05:44 20:05	05:25 05:47-06:01/14 20:30
13	07:22 07:55-08:29/34 16:51	06:56 07:42-08:32/50 17:29	06:15 06:45-07:51/66 18:02	06:24 06:59-08:09/70 19:35	05:43 20:06	05:25 05:47-06:02/15 20:31
14	07:22 07:55-08:29/34 16:52	06:55 07:42-08:31/49 17:30	06:13 06:44-07:50/66 18:03	06:22 07:00-08:09/69 19:36	05:42 20:07	05:25 05:47-06:02/15 20:31
15	07:21 07:55-08:30/35 16:53	06:54 07:42-08:30/48 17:31	06:12 06:43-07:49/66 18:04	06:20 06:59-08:07/68 19:37	05:41 20:08	05:25 05:47-06:03/16 20:32
16	07:21 07:54-08:31/37 16:55	06:53 07:43-08:30/47 17:33	06:10 06:43-07:49/66 18:05	06:19 07:00-08:07/67 19:38	05:40 20:09	05:25 05:47-06:03/16 20:32
17	07:21 07:54-08:32/38 16:56	06:51 07:44-08:29/45 17:34	06:08 06:43-07:48/65 18:06	06:17 07:00-08:06/66 19:39	05:39 20:10	05:25 05:47-06:04/17 20:33
18	07:20 07:54-08:33/39 16:57	06:50 07:44-08:27/43 17:35	06:07 06:42-07:46/64 18:07	06:16 07:00-08:05/65 19:40	05:38 20:11	05:25 05:48-06:05/17 20:33
19	07:20 07:54-08:34/40 16:58	06:49 07:46-08:26/40 17:36	06:05 06:36-07:45/69 18:08	06:14 07:00-08:03/63 19:41	05:37 20:12	05:25 05:48-06:05/17 20:33
20	07:19 07:54-08:34/40 16:59	06:47 07:46-08:24/38 17:37	06:03 06:32-07:44/72 18:09	06:13 07:01-08:03/62 19:42	05:36 20:13	05:25 05:48-06:05/17 20:33
21	07:18 07:52-08:35/43 17:00	06:46 07:48-08:23/35 17:39	06:02 06:29-07:43/74 18:10	06:11 07:01-08:01/60 19:43	05:36 20:14	05:26 05:48-06:05/17 20:34
22	07:18 07:52-08:36/44 17:02	06:44 07:50-08:21/31 17:40	06:00 06:26-07:41/75 18:11	06:10 07:02-08:00/58 19:44	05:35 20:15	05:26 05:48-06:05/17 20:34
23	07:17 07:50-08:36/46 17:03	06:43 07:51-08:18/27 17:41	05:58 06:24-07:40/76 18:12	06:08 07:02-07:58/56 19:45	05:34 20:16	05:26 05:49-06:06/17 20:34
24	07:17 07:48-08:37/49 17:04	06:41 07:55-08:14/19 17:42	05:56 06:22-07:38/76 18:14	06:07 07:03-07:57/54 19:46	05:33 20:17	05:26 05:49-06:06/17 20:34
25	07:16 07:47-08:37/50 17:05	06:40 07:59-08:05/6 17:43	05:55 06:19-07:35/76 18:15	06:06 07:05-07:55/50 19:48	05:33 20:18	05:27 05:49-06:06/17 20:34
26	07:15 07:47-08:38/51 17:06	06:38 07:06-07:45/39 17:44	05:53 06:17-07:34/77 18:16	06:04 07:05-07:53/48 19:49	05:32 20:19	05:27 05:49-06:05/16 20:34
27	07:14 07:46-08:38/52 17:08	06:37 07:03-07:46/43 17:46	05:51 06:14-07:30/76 18:17	06:03 07:07-07:51/44 19:50	05:31 20:19	05:27 05:50-06:06/16 20:35
28	07:13 07:45-08:39/54 17:09	06:35 07:01-07:47/46 17:47	05:50 06:12-07:26/74 18:18	06:01 07:07-07:48/41 19:51	05:31 20:20	05:28 05:50-06:06/16 20:35
29	07:13 07:44-08:39/55 17:10		06:48 07:11-08:21/70 19:19	06:00 07:09-07:46/37 19:52	05:30 20:21	05:28 05:51-06:06/15 20:35
30	07:12 07:44-08:39/55 17:11		06:46 07:09-08:17/68 19:20	05:59 07:11-07:43/32 19:53	05:29 20:22	05:28 05:51-06:06/15 20:34
31	07:11 07:43-08:39/56 17:13		06:45 07:08-08:14/66 19:21		05:29 20:23	
Potential sun hours	297	297	369	399	448	452
Sum of minutes with flicker	1123	1356	2047	1845	44	398

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

WTG: ML 01 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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

	July	August	September	October	November	December
1	05:29 05:52-06:06/14 20:34	05:53 20:15	06:24 06:59-08:09/70 19:32	06:54 07:24-08:30/66 18:42	06:28 07:10-08:03/53 16:55	07:03 07:37-08:08/31 16:31
2	05:29 05:52-06:05/13 20:34	05:54 20:14	06:25 06:58-08:09/71 19:31	06:55 07:24-08:30/66 18:40	06:29 07:11-08:05/54 16:54	07:04 07:39-08:08/29 16:30
3	05:30 05:53-06:06/13 20:34	05:55 20:13	06:26 06:58-08:09/71 19:29	06:56 07:25-08:29/64 18:38	06:30 07:10-08:06/56 16:53	07:05 07:40-08:08/28 16:30
4	05:30 05:53-06:05/12 20:34	05:56 20:12	06:27 06:58-08:09/71 19:27	06:57 07:25-08:29/64 18:37	06:31 07:10-08:06/56 16:51	07:06 07:42-08:07/25 16:30
5	05:31 05:54-06:05/11 20:34	05:57 20:11	06:28 06:58-08:09/71 19:26	06:58 07:25-08:28/63 18:35	06:33 07:11-08:08/57 16:50	07:07 07:43-08:07/24 16:30
6	05:32 05:54-06:04/10 20:33	05:58 20:10	06:29 06:58-08:08/70 19:24	06:59 07:26-08:28/62 18:33	06:34 07:11-08:08/57 16:49	07:08 07:44-08:06/22 16:30
7	05:32 05:55-06:03/8 20:33	05:59 20:09	06:30 06:58-08:08/70 19:22	07:00 07:27-08:27/60 18:32	06:35 07:12-08:08/56 16:48	07:09 07:45-08:05/20 16:30
8	05:33 05:56-06:03/7 20:33	06:00 20:07	06:31 06:58-08:07/69 19:21	07:01 07:28-08:26/58 18:30	06:36 07:12-08:09/57 16:47	07:10 07:46-08:04/18 16:29
9	05:33 05:56-06:01/5 20:32	06:01 20:06	06:32 06:58-08:07/69 19:19	07:02 07:29-08:25/56 18:29	06:37 07:13-08:10/57 16:46	07:11 07:48-08:04/16 16:29
10	05:34 05:57-06:01/4 20:32	06:02 07:28-07:38/10 20:05	06:33 06:59-08:06/67 19:17	07:03 07:30-08:24/54 18:27	06:39 07:13-08:10/57 16:45	07:11 07:49-08:03/14 16:29
11	05:35 05:57-05:58/1 20:32	06:03 07:24-07:43/19 20:03	06:34 06:59-08:06/67 19:16	07:04 07:31-08:23/52 18:25	06:40 07:14-08:10/56 16:44	07:12 07:51-08:03/12 16:30
12	05:36 20:31	06:04 07:21-07:47/26 20:02	06:35 07:00-08:06/66 19:14	07:05 07:33-08:23/50 18:24	06:41 07:16-08:11/55 16:43	07:13 07:53-08:02/9 16:30
13	05:36 20:31	06:05 07:18-07:51/33 20:01	06:36 07:00-08:08/68 19:12	07:06 07:34-08:21/47 18:22	06:42 07:16-08:11/55 16:42	07:14 07:56-08:00/4 16:30
14	05:37 20:30	06:06 07:16-07:54/38 19:59	06:37 07:01-08:10/69 19:11	07:07 07:35-08:20/45 18:21	06:43 07:17-08:11/54 16:41	07:15 16:30
15	05:38 20:30	06:07 07:15-07:56/41 19:58	06:38 07:02-08:16/74 19:09	07:08 07:37-08:18/41 18:19	06:45 07:18-08:10/52 16:40	07:15 16:30
16	05:39 20:29	06:08 07:13-07:58/45 19:57	06:39 07:03-08:19/76 19:07	07:10 07:39-08:16/37 18:17	06:46 07:20-08:11/51 16:39	07:16 16:30
17	05:39 20:28	06:09 07:11-08:00/49 19:55	06:39 07:05-08:21/76 19:06	07:11 08:28-08:40/12 18:16	06:47 07:21-08:11/50 16:38	07:17 09:15-09:17/2 16:31
18	05:40 20:28	06:10 07:10-08:01/51 19:54	06:40 07:06-08:23/77 19:04	07:12 08:24-08:46/22 18:14	06:48 07:22-08:11/49 16:38	07:17 09:14-09:20/6 16:31
19	05:41 20:27	06:11 07:09-08:03/54 19:52	06:41 07:08-08:25/77 19:02	07:13 08:22-08:50/28 18:13	06:49 07:24-08:10/46 16:37	07:18 09:14-09:21/7 16:31
20	05:42 20:26	06:12 07:08-08:04/56 19:51	06:42 07:10-08:26/76 19:00	07:14 08:20-08:52/32 18:11	06:50 07:27-08:11/44 16:36	07:19 09:13-09:22/9 16:32
21	05:43 20:26	06:13 07:07-08:05/58 19:49	06:43 07:12-08:27/75 18:59	07:15 08:18-08:54/36 18:10	06:52 07:28-08:11/43 16:36	07:19 09:14-09:23/9 16:32
22	05:44 20:25	06:14 07:06-08:06/60 19:48	06:44 07:14-08:28/74 18:57	07:16 08:16-08:55/39 18:08	06:53 07:30-08:10/40 16:35	07:20 09:14-09:23/9 16:33
23	05:44 20:24	06:15 07:05-08:07/62 19:46	06:45 07:16-08:28/72 18:55	07:17 08:15-08:56/41 18:07	06:54 07:30-08:10/40 16:34	07:20 09:15-09:24/9 16:33
24	05:45 20:23	06:16 07:04-08:07/63 19:45	06:46 07:19-08:29/70 18:54	07:19 08:15-08:58/43 18:06	06:55 07:31-08:10/39 16:34	07:21 09:15-09:24/9 16:34
25	05:46 20:22	06:17 07:03-08:08/65 19:43	06:48 07:24-08:30/66 18:52	06:20 07:13-07:59/46 17:04	06:56 07:32-08:10/38 16:33	07:21 09:16-09:23/7 16:34
26	05:47 20:21	06:18 07:02-08:08/66 19:42	06:49 07:25-08:30/65 18:50	06:21 07:13-08:00/47 17:03	06:57 07:33-08:10/37 16:33	07:22 09:19-09:23/4 16:35
27	05:48 20:20	06:19 07:02-08:09/67 19:40	06:50 07:25-08:30/65 18:48	06:22 07:12-08:00/48 17:02	06:58 07:34-08:09/35 16:32	07:22 16:36
28	05:49 20:19	06:20 07:01-08:09/68 19:39	06:51 07:25-08:30/65 18:47	06:23 07:11-08:00/49 17:00	07:00 07:35-08:09/34 16:32	07:22 16:36
29	05:50 20:19	06:21 07:01-08:10/69 19:37	06:52 07:24-08:30/66 18:45	06:24 07:11-08:01/50 16:59	07:01 07:35-08:09/34 16:31	07:23 16:37
30	05:51 20:18	06:22 07:00-08:10/70 19:36	06:53 07:24-08:30/66 18:43	06:26 07:11-08:02/51 16:58	07:02 07:36-08:08/32 16:31	07:23 16:38
31	05:52 20:16	06:23 07:00-08:10/70 19:34		06:27 07:10-08:02/52 16:56		07:23 08:03-08:10/7 16:39
Potential sun hours	459	428	375	345	298	288
Sum of minutes with flicker	98	1140	2109	1561	1444	330

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

WTG: ML 02 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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 16:40	07:10 17:14	06:34 07:06-07:24/18 17:48	06:43 17:46-18:26/40 19:22	05:57 06:48-07:00/12 19:54	05:28 20:23
2	07:23 16:40	07:09 17:15	06:32 07:05-07:24/19 17:49	06:41 17:46-18:27/41 19:23	05:56 06:50-06:56/6 19:55	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 07:05-07:25/20 17:50	06:40 17:45-18:28/43 19:24	05:55 19:56	05:28 20:25
4	07:23 16:42	07:07 17:18	06:29 07:05-07:24/19 17:51	06:38 17:44-18:28/44 19:25	05:53 19:57	05:27 20:25
5	07:23 16:43	07:06 17:19	06:28 07:06-07:24/18 17:52	06:36 17:44-18:29/45 19:26	05:52 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 07:06-07:22/16 17:54	06:35 17:43-18:28/45 19:27	05:51 19:59	05:26 20:27
7	07:23 16:45	07:04 17:21	06:24 07:06-07:20/14 17:55	06:33 17:43-18:29/46 19:28	05:50 20:00	05:26 20:27
8	07:23 16:46	07:02 17:23	06:23 07:09-07:19/10 17:56	06:32 17:43-18:28/45 19:29	05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 17:42-18:28/46 19:30	05:47 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 17:42-18:28/46 19:32	05:46 20:03	05:25 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 17:42-18:27/45 19:33	05:45 20:04	05:25 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 17:43-18:27/44 19:34	05:44 20:05	05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:01	06:24 17:42-18:26/44 19:35	05:43 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 17:43-18:26/43 19:36	05:42 20:07	05:25 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 17:43-18:25/42 19:37	05:41 20:08	05:25 20:32
16	07:21 16:55	06:52 17:32	06:10 18:05	06:19 17:43-18:23/40 19:38	05:40 20:09	05:25 20:32
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 17:45-18:23/38 19:39	05:39 20:10	05:25 20:32
18	07:20 16:57	06:50 17:35	06:06 18:07	06:16 17:45-18:21/36 19:40	05:38 20:11	05:25 20:33
19	07:20 16:58	06:48 17:36	06:05 18:08	06:14 17:47-18:20/33 19:41	05:37 20:12	05:25 20:33
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 17:47-18:18/31 19:42	05:36 20:13	05:25 20:33
21	07:18 17:00	06:46 17:38	06:01 18:10	06:11 17:49-18:16/27 19:43	05:36 20:14	05:26 20:34
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 17:52-18:14/22 19:44	05:35 20:15	05:26 20:34
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 17:54-18:10/16 19:45	05:34 20:16	05:26 20:34
24	07:16 17:04	06:41 17:42	05:56 17:02-17:15/13 18:13	06:07 06:44-07:07/23 19:46	05:33 20:17	05:26 20:34
25	07:16 17:05	06:40 07:11-07:20/9 17:43	05:55 16:58-17:18/20 18:14	06:05 06:45-07:07/22 19:47	05:33 20:18	05:26 20:34
26	07:15 17:06	06:38 07:10-07:23/13 17:44	05:53 16:55-17:19/24 18:16	06:04 06:44-07:05/21 19:49	05:32 20:18	05:27 20:34
27	07:14 17:08	06:37 07:08-07:23/15 17:46	05:51 16:53-17:22/29 18:17	06:03 06:45-07:05/20 19:50	05:31 20:19	05:27 20:34
28	07:13 17:09	06:35 07:06-07:24/18 17:47	05:50 16:51-17:23/32 18:18	06:01 06:44-07:03/19 19:51	05:31 20:20	05:28 20:34
29	07:12 17:10		06:48 17:49-18:23/34 19:19	06:00 06:45-07:03/18 19:52	05:30 20:21	05:28 20:34
30	07:12 17:11		06:46 17:49-18:25/36 19:20	05:59 06:47-07:02/15 19:53	05:29 20:22	05:28 20:34
31	07:11 17:13		06:45 17:47-18:25/38 19:21		05:29 20:23	
Potential sun hours	297	297	369	399	448	452
Sum of minutes with flicker	0	55	360	1200	18	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

WTG: ML 02 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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	05:29 20:34	05:53 20:15	06:24 19:32	17:41-18:26/45 18:42	06:54 18:42	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	17:40-18:26/46 18:40	06:55 18:40	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	17:40-18:26/46 18:38	06:56 18:38	06:30 16:52	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	17:40-18:25/45 18:37	06:57 18:37	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	17:39-18:25/46 18:35	06:58 18:35	07:47-07:54/7 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	17:39-18:24/45 18:33	06:59 18:33	07:44-07:56/12 16:49	07:08 16:30
7	05:32 20:33	05:59 20:08	06:30 19:22	17:39-18:24/45 18:32	07:00 18:32	07:42-07:57/15 16:48	07:09 16:29
8	05:33 20:33	06:00 20:07	06:30 19:21	17:39-18:23/44 18:30	07:01 18:30	07:41-07:58/17 16:47	07:10 16:29
9	05:33 20:32	06:01 20:06	06:31 19:19	17:39-18:22/43 18:28	07:02 18:28	07:40-07:58/18 16:46	07:10 16:29
10	05:34 20:32	06:02 20:05	06:32 19:17	17:39-18:21/42 18:27	07:03 18:27	07:39-07:58/19 16:45	07:11 16:29
11	05:35 20:32	06:03 20:03	06:33 19:16	17:39-18:19/40 18:25	07:04 18:25	07:39-07:58/19 16:44	07:12 16:29
12	05:36 20:31	06:04 20:02	06:34 19:14	17:39-18:18/39 18:24	07:05 18:24	07:39-07:58/19 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	06:35 19:12	17:40-18:16/36 18:22	07:06 18:22	07:39-07:58/19 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	06:36 19:11	17:40-18:15/35 18:20	07:07 18:20	07:40-07:57/17 16:41	07:15 16:30
15	05:38 20:29	06:07 19:58	06:37 19:09	17:41-18:13/32 18:19	07:08 18:19	07:41-07:55/14 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	06:38 19:07	17:42-18:11/29 18:17	07:09 18:17	07:42-07:53/11 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	06:39 19:05	17:44-18:09/25 18:16	07:11 18:16	07:44-07:50/6 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	06:40 19:04	17:45-18:07/22 18:14	07:12 18:14	06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	06:41 19:02	17:48-18:03/15 18:13	07:13 18:13	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	06:42 19:00	17:59-18:16/17 18:11	07:14 18:11	06:50 16:36	07:19 16:32
21	05:43 20:25	06:13 19:49	06:43 18:59	17:56-18:19/23 18:10	07:15 18:10	06:52 16:35	07:19 16:32
22	05:44 20:25	06:14 19:48	06:44 18:57	17:54-18:21/27 18:08	07:16 18:08	06:53 16:35	07:20 16:33
23	05:44 20:24	06:15 19:46	06:45 18:55	17:52-18:23/31 18:07	07:17 18:07	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	06:46 18:53	17:50-18:24/34 18:06	07:18 18:06	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	06:47 18:52	17:49-18:25/36 18:04	06:20 17:04	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	06:48 18:50	17:47-18:26/39 17:03	06:21 17:03	06:57 16:33	07:21 16:35
27	05:48 20:20	06:19 19:40	06:49 18:48	17:46-18:26/40 17:01	06:22 17:01	06:58 16:32	07:22 16:36
28	05:49 20:19	06:20 19:39	06:50 18:47	17:45-18:27/42 17:00	06:23 17:00	06:59 16:32	07:22 16:36
29	05:50 20:18	06:21 19:37	06:51 18:45	17:43-18:26/43 16:59	06:24 16:59	07:01 16:31	07:22 16:37
30	05:51 20:17	06:22 19:35	06:53 18:43	17:42-18:26/44 16:57	06:25 16:57	07:02 16:31	07:23 16:38
31	05:52 20:16	06:23 19:34	17:42-18:26/44 16:56		06:27 16:56		07:23 16:39
Potential sun hours	459	428	375	345	298	288	
Sum of minutes with flicker	0	740	720	193	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

WTG: ML 03 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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
1	07:23 16:40	07:10 15:33-16:16/43 17:14	06:34 17:48	06:43 19:22	05:57 06:40-07:07/27 19:54	05:28 06:42-07:00/18 20:23
2	07:23 16:40	07:09 15:33-16:16/43 17:15	06:32 17:49	06:41 19:23	05:56 06:38-07:07/29 19:55	05:28 06:44-06:59/15 20:24
3	07:23 16:41	07:08 15:33-16:16/43 17:16	06:31 17:50	06:40 19:24	05:55 06:37-07:08/31 19:56	05:28 06:45-06:57/12 20:25
4	07:23 16:42	07:07 15:34-16:17/43 17:18	06:29 17:51	06:38 19:25	05:53 06:36-07:09/33 19:57	05:27 06:46-06:56/10 20:25 05:55-06:01/6
5	07:23 16:43	07:06 15:33-16:16/43 17:19	06:28 17:52	06:36 19:26	05:52 06:36-07:09/33 19:58	05:27 06:49-06:55/6 20:26 05:54-06:03/9
6	07:23 16:44	07:05 15:34-16:16/42 17:20	06:26 17:54	06:35 19:27	05:51 06:35-07:10/35 19:59	05:26 05:53-06:03/10 20:27
7	07:23 16:45	07:03 15:35-16:16/41 17:21	06:24 17:55	06:33 19:28	05:50 06:34-07:09/35 20:00	05:26 05:53-06:04/11 20:27
8	07:23 16:46	07:02 15:36-16:16/40 17:23	06:23 17:56	06:32 19:29	05:49 06:33-07:09/36 20:01	05:26 05:52-06:05/13 20:28
9	07:23 16:47	07:01 15:37-16:16/39 17:24	06:21 17:57	06:30 19:30	05:47 06:33-07:09/36 20:02	05:26 05:52-06:06/14 20:29
10	07:23 16:48	07:00 15:38-16:16/38 17:25	06:20 17:58	06:28 19:32	05:46 06:33-07:10/37 20:03	05:25 05:52-06:07/15 20:29
11	07:23 16:49	06:59 15:38-16:14/36 17:26	06:18 06:51-06:59/8 17:59	06:27 19:33	05:45 06:32-07:10/38 20:04	05:25 05:51-06:06/15 20:30
12	07:22 16:50	06:58 15:40-16:14/34 17:28	06:16 06:48-07:01/13 18:00	06:25 19:34	05:44 06:32-07:09/37 20:05	05:25 05:51-06:07/16 20:30
13	07:22 16:51	06:56 15:42-16:13/31 17:29	06:15 06:46-07:02/16 18:01	06:24 19:35	05:43 06:32-07:09/37 20:06	05:25 05:51-06:07/16 20:31
14	07:22 15:41-15:51/10 16:52	06:55 15:44-16:11/27 17:30	06:13 06:45-07:04/19 18:03	06:22 19:36	05:42 06:32-07:09/37 20:07	05:25 05:51-06:08/17 20:31
15	07:21 15:40-15:55/15 16:53	06:54 15:47-16:10/23 17:31	06:11 06:44-07:04/20 18:04	06:20 19:37	05:41 06:32-07:09/37 20:08	05:25 05:51-06:08/17 20:32
16	07:21 15:38-15:57/19 16:55	06:52 15:51-16:08/17 17:32	06:10 06:43-07:04/21 18:05	06:19 19:38	05:40 06:32-07:08/36 20:09	05:25 05:51-06:09/18 20:32
17	07:20 15:37-16:00/23 16:56	06:51 15:53-16:04/11 17:34	06:08 06:43-07:04/21 18:06	06:17 19:39	05:39 06:32-07:08/36 20:10	05:25 05:51-06:09/18 20:32
18	07:20 15:36-16:01/25 16:57	06:50 15:54-16:05/12 17:35	06:06 06:42-07:03/21 18:07	06:16 19:40	05:38 06:33-07:08/35 20:11	05:25 05:52-06:10/18 20:33
19	07:19 15:35-16:02/27 16:58	06:48 15:55-16:06/13 17:36	06:05 06:41-07:03/22 18:08	06:14 19:41	05:37 06:33-07:08/35 20:12	05:25 05:52-06:10/18 20:33
20	07:19 15:35-16:05/30 16:59	06:47 15:56-16:07/14 17:37	06:03 06:42-07:02/20 18:09	06:13 19:42	05:36 06:33-07:07/34 20:13	05:25 05:52-06:10/18 20:33
21	07:18 15:34-16:05/31 17:00	06:46 15:57-16:08/15 17:38	06:01 06:42-07:01/19 18:10	06:11 19:43	05:36 06:34-07:06/32 20:14	05:26 05:52-06:10/18 20:34
22	07:18 15:33-16:06/33 17:02	06:44 15:58-16:09/16 17:40	06:00 06:42-06:59/17 18:11	06:10 19:44	05:35 06:35-07:07/32 20:15	05:26 05:52-06:10/18 20:34
23	07:17 15:34-16:08/34 17:03	06:43 15:59-16:10/17 17:41	05:58 06:44-06:58/14 18:12	06:08 19:45	05:34 06:35-07:06/31 20:16	05:26 05:53-06:11/18 20:34
24	07:16 15:33-16:09/36 17:04	06:41 15:59-16:11/18 17:42	05:56 06:46-06:56/10 18:13	06:07 19:46	05:33 06:35-07:05/30 20:17	05:26 05:53-06:11/18 20:34
25	07:16 15:33-16:10/37 17:05	06:40 15:59-16:12/19 17:43	05:55 06:46-06:57/11 18:14	06:05 19:47	05:33 06:37-07:05/28 20:18	05:27 05:53-06:11/18 20:34
26	07:15 15:32-16:11/39 17:06	06:38 15:59-16:13/20 17:44	05:53 06:46-06:58/12 18:16	06:04 19:48	05:32 06:37-07:04/27 20:18	05:27 05:53-06:11/18 20:34
27	07:14 15:32-16:12/40 17:08	06:37 15:59-16:14/21 17:46	05:51 06:46-06:59/13 18:17	06:03 06:48-06:59/11 19:50	05:31 06:37-07:03/26 20:19	05:27 05:54-06:11/17 20:34
28	07:13 15:33-16:13/40 17:09	06:35 15:59-16:15/22 17:47	05:50 06:46-07:00/14 18:18	06:01 06:44-07:02/18 19:51	05:31 06:39-07:03/24 20:20	05:28 05:54-06:11/17 20:34
29	07:12 15:33-16:14/41 17:10	06:34 15:59-16:16/23 17:48	05:48 06:46-07:01/15 19:19	06:00 06:42-07:04/22 19:52	05:30 06:39-07:02/23 20:21	05:28 05:55-06:12/17 20:34
30	07:12 15:32-16:15/43 17:11	06:33 15:59-16:17/24 17:49	05:46 06:46-07:02/16 19:20	05:59 06:41-07:05/24 19:53	05:29 06:40-07:01/21 20:22	05:28 05:55-06:11/16 20:34
31	07:11 15:33-16:15/42 17:13	06:32 15:59-16:18/25 17:50	05:45 06:46-07:03/17 19:21	05:58 06:41-07:06/25 19:54	05:29 06:41-07:00/19 20:23	05:28 05:55-06:11/16 20:34
Potential sun hours	297	297	369	399	448	452
Sum of minutes with flicker	565	594	241	75	987	485

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

WTG: ML 03 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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

	July	August	September	October	November	December
1	05:29 05:56-06:12/16 20:34	05:53 06:43-07:20/37 20:15	06:24 19:32	06:54 07:27-07:42/15 18:42	06:28 15:07-15:45/38 16:55	07:03 16:31
2	05:29 05:56-06:11/15 20:34	05:54 06:43-07:20/37 20:14	06:25 19:31	06:55 07:28-07:39/11 18:40	06:29 15:06-15:46/40 16:54	07:04 16:30
3	05:30 05:57-06:11/14 20:34	05:55 06:43-07:20/37 20:13	06:26 19:29	06:56 18:38	06:30 15:05-15:46/41 16:53	07:05 16:30
4	05:30 05:57-06:11/14 20:34	05:56 06:44-07:20/36 20:12	06:27 19:27	06:57 18:37	06:31 15:04-15:46/42 16:51	07:06 16:30
5	05:31 05:58-06:11/13 20:34	05:57 06:44-07:20/36 20:11	06:28 19:26	06:58 18:35	06:32 15:04-15:46/42 16:50	07:07 16:30
6	05:32 05:59-06:10/11 20:33	05:58 06:44-07:20/36 20:10	06:29 19:24	06:59 18:33	06:34 15:04-15:47/43 16:49	07:08 16:30
7	05:32 06:57-06:59/2 20:33 06:00-06:09/9	05:59 06:45-07:19/34 20:08	06:30 19:22	07:00 18:32	06:35 15:04-15:47/43 16:48	07:09 16:29
8	05:33 06:53-07:02/9 20:33 06:02-06:09/7	06:00 06:46-07:19/33 20:07	06:30 19:21	07:01 18:30	06:36 15:03-15:46/43 16:47	07:09 16:29
9	05:33 06:52-07:04/12 20:32 06:04-06:06/2	06:01 06:45-07:17/32 20:06	06:31 19:19	07:02 18:28	06:37 15:03-15:46/43 16:46	07:10 16:29
10	05:34 06:52-07:06/14 20:32	06:02 06:46-07:16/30 20:05	06:32 19:17	07:03 18:27	06:38 15:04-15:47/43 16:45	07:11 16:29
11	05:35 06:50-07:06/16 20:32	06:03 06:47-07:15/28 20:03	06:33 19:16	07:04 18:25	06:40 15:03-15:46/43 16:44	07:12 16:29
12	05:36 06:49-07:08/19 20:31	06:04 06:48-07:14/26 20:02	06:34 19:14	07:05 18:24	06:41 15:03-15:46/43 16:43	07:13 16:30
13	05:36 06:49-07:09/20 20:31	06:05 06:49-07:13/24 20:01	06:35 19:12	07:06 18:22	06:42 15:04-15:46/42 16:42	07:14 16:30
14	05:37 06:49-07:10/21 20:30	06:06 06:51-07:11/20 19:59	06:36 19:11	07:07 18:20	06:43 15:05-15:45/40 16:41	07:15 16:30
15	05:38 06:47-07:11/24 20:29	06:07 06:53-07:09/16 19:58	06:37 19:09	07:08 18:19	06:44 15:05-15:45/40 16:40	07:15 16:30
16	05:39 06:47-07:12/25 20:29	06:08 06:56-07:05/9 19:57	06:38 19:07	07:09 18:17	06:46 15:05-15:44/39 16:39	07:16 16:30
17	05:39 06:46-07:13/27 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 15:07-15:44/37 16:38	07:17 16:31
18	05:40 06:46-07:14/28 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 15:07-15:43/36 16:38	07:17 16:31
19	05:41 06:46-07:15/29 20:27	06:11 19:52	06:41 07:34-07:42/8 19:02	07:13 18:13	06:49 15:08-15:42/34 16:37	07:18 16:31
20	05:42 06:45-07:15/30 20:26	06:12 19:51	06:42 07:31-07:44/13 19:00	07:14 18:11	06:50 15:08-15:41/33 16:36	07:19 16:32
21	05:43 06:44-07:16/32 20:25	06:13 19:49	06:43 07:29-07:46/17 18:59	07:15 18:10	06:51 15:10-15:41/31 16:35	07:19 16:32
22	05:44 06:44-07:17/33 20:25	06:14 19:48	06:44 07:28-07:46/18 18:57	07:16 18:08	06:53 15:11-15:41/30 16:35	07:20 16:33
23	05:44 06:44-07:17/33 20:24	06:15 19:46	06:45 07:27-07:47/20 18:55	07:17 18:07	06:54 15:12-15:40/28 16:34	07:20 16:33
24	05:45 06:44-07:18/34 20:23	06:16 19:45	06:46 07:26-07:47/21 18:53	07:18 18:06	06:55 15:13-15:38/25 16:34	07:21 16:34
25	05:46 06:44-07:19/35 20:22	06:17 19:43	06:47 07:25-07:47/22 18:52	07:19 15:23-15:36/13 17:04	06:56 15:14-15:37/23 16:33	07:21 16:34
26	05:47 06:43-07:18/35 20:21	06:18 19:42	06:48 07:25-07:47/22 18:50	07:20 15:20-15:38/18 17:03	06:57 15:17-15:36/19 16:33	07:21 16:35
27	05:48 06:43-07:19/36 20:20	06:19 19:40	06:49 07:25-07:46/21 18:48	07:21 15:16-15:40/24 17:01	06:58 15:19-15:34/15 16:32	07:22 16:36
28	05:49 06:43-07:19/36 20:19	06:20 19:39	06:50 07:25-07:46/21 18:47	07:22 15:13-15:41/28 17:00	06:59 15:21-15:32/11 16:32	07:22 16:36
29	05:50 06:43-07:19/36 20:18	06:21 19:37	06:51 07:25-07:45/20 18:45	07:23 15:12-15:43/31 16:59	07:00 15:26-15:27/1 16:31	07:22 16:37
30	05:51 06:43-07:20/37 20:17	06:22 19:35	06:53 07:26-07:43/17 18:43	07:24 15:10-15:44/34 16:57	07:02 16:31	07:23 16:38
31	05:52 06:43-07:20/37 20:16	06:23 19:34		07:25 15:08-15:44/36 16:56		07:23 16:39
Potential sun hours	459	428	375	345	298	288
Sum of minutes with flicker	761	471	220	210	988	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

WTG: ML 05 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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 16:40	07:10 17:14	06:34 06:53-07:03/10 17:48	06:43 07:25-07:34/9 19:22	05:57 07:04-07:39/35 19:54	05:28 20:23
2	07:23 16:40	07:09 17:15	06:32 06:51-07:02/11 17:49	06:41 07:19-07:39/20 19:23	05:56 07:04-07:37/33 19:55	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 06:50-07:01/11 17:50	06:40 07:16-07:41/25 19:24	05:55 07:06-07:35/29 19:56	05:28 20:25
4	07:23 16:42	07:07 17:18	06:29 06:48-06:58/10 17:51	06:38 07:14-07:44/30 19:25	05:53 07:07-07:34/27 19:57	05:27 20:25
5	07:23 16:43	07:06 17:19	06:28 17:53	06:36 07:11-07:45/34 19:26	05:52 07:09-07:32/23 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 07:09-07:46/37 19:27	05:51 07:12-07:29/17 19:59	05:27 20:27
7	07:23 16:45	07:04 17:21	06:24 17:55	06:33 07:08-07:48/40 19:28	05:50 07:15-07:24/9 20:00	05:26 20:27
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 07:06-07:48/42 19:29	05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 07:05-07:49/44 19:30	05:47 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 07:04-07:49/45 19:32	05:46 20:03	05:26 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 07:02-07:49/47 19:33	05:45 20:04	05:25 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 07:02-07:50/48 19:34	05:44 20:05	05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 07:01-07:50/49 19:35	05:43 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 07:01-07:50/49 19:36	05:42 20:07	05:25 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 07:00-07:50/50 19:37	05:41 20:08	05:25 20:32
16	07:21 16:55	06:53 17:32	06:10 18:05	06:19 07:00-07:50/50 19:38	05:40 20:09	05:25 20:32
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 06:59-07:50/51 19:39	05:39 20:10	05:25 20:32
18	07:20 16:57	06:50 17:35	06:06 18:07	06:16 06:59-07:50/51 19:40	05:38 20:11	05:25 20:33
19	07:20 16:58	06:48 17:36	06:05 18:08	06:14 06:59-07:49/50 19:41	05:37 20:12	05:25 20:33
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 06:59-07:49/50 19:42	05:36 20:13	05:25 20:33
21	07:18 17:00	06:46 17:39	06:01 18:10	06:11 06:58-07:48/50 19:43	05:36 20:14	05:26 20:34
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 06:59-07:48/49 19:44	05:35 20:15	05:26 20:34
23	07:17 17:03	06:43 07:02-07:04/2 17:41	05:58 18:12	06:08 06:58-07:46/48 19:45	05:34 20:16	05:26 20:34
24	07:16 17:04	06:41 07:01-07:05/4 17:42	05:56 18:13	06:07 06:59-07:46/47 19:46	05:33 20:17	05:26 20:34
25	07:16 17:05	06:40 06:59-07:05/6 17:43	05:55 18:15	06:06 07:00-07:46/46 19:47	05:33 20:18	05:27 20:34
26	07:15 17:06	06:38 06:58-07:05/7 17:44	05:53 18:16	06:04 06:59-07:44/45 19:49	05:32 20:18	05:27 20:34
27	07:14 17:08	06:37 06:56-07:04/8 17:46	05:51 18:17	06:03 07:00-07:44/44 19:50	05:31 20:19	05:27 20:34
28	07:13 17:09	06:35 06:54-07:04/10 17:47	05:50 18:18	06:01 07:00-07:42/42 19:51	05:31 20:20	05:28 20:34
29	07:12 17:10		06:48 19:19	06:00 07:01-07:41/40 19:52	05:30 20:21	05:28 20:34
30	07:12 17:11		06:46 19:20	05:59 07:02-07:40/38 19:53	05:29 20:22	05:28 20:34
31	07:11 17:13		06:45 19:21		05:29 20:23	
Potential sun hours	297	297	369	399	448	452
Sum of minutes with flicker	0	37	42	1270	173	0

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

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

WTG: ML 05 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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	05:29 20:34	05:53 20:15	06:24 07:01-07:48/47 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 07:02-07:47/45 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 07:02-07:46/44 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 07:03-07:45/42 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 07:04-07:44/40 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 07:24-07:36/12 20:10	06:29 07:05-07:42/37 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 07:21-07:40/19 20:08	06:30 07:06-07:40/34 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 07:18-07:42/24 20:07	06:31 07:08-07:38/30 19:21	07:01 18:30	06:36 16:47	07:10 16:29
9	05:34 20:32	06:01 07:16-07:44/28 20:06	06:32 07:10-07:36/26 19:19	07:02 07:24-07:31/7 18:28	06:37 16:46	07:10 16:29
10	05:34 20:32	06:02 07:14-07:45/31 20:05	06:33 07:12-07:32/20 19:17	07:03 07:23-07:34/11 18:27	06:38 16:45	07:11 16:29
11	05:35 20:32	06:03 07:12-07:46/34 20:03	06:34 07:17-07:27/10 19:16	07:04 07:24-07:35/11 18:25	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 07:11-07:47/36 20:02	06:35 19:14	07:05 07:26-07:37/11 18:24	06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 07:10-07:48/38 20:01	06:35 19:12	07:06 07:27-07:37/10 18:22	06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 07:09-07:49/40 19:59	06:36 19:11	07:07 07:28-07:37/9 18:21	06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 07:08-07:50/42 19:58	06:37 19:09	07:08 07:29-07:37/8 18:19	06:44 16:40	07:15 16:30
16	05:39 20:29	06:08 07:07-07:50/43 19:57	06:38 19:07	07:10 07:30-07:37/7 18:17	06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 07:06-07:51/45 19:55	06:39 19:05	07:11 07:31-07:36/5 18:16	06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 07:05-07:52/47 19:54	06:40 19:04	07:12 07:32-07:35/3 18:14	06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 07:05-07:52/47 19:52	06:41 19:02	07:13 07:34-07:35/1 18:13	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 07:04-07:52/48 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:19 16:32
21	05:43 20:25	06:13 07:04-07:52/48 19:49	06:43 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	05:44 20:25	06:14 07:03-07:53/50 19:48	06:44 18:57	07:16 18:08	06:53 16:35	07:20 16:33
23	05:44 20:24	06:15 07:03-07:53/50 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 07:02-07:53/51 19:45	06:46 18:54	07:18 18:06	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 07:02-07:53/51 19:43	06:47 18:52	06:20 17:04	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 07:02-07:52/50 19:42	06:48 18:50	06:21 17:03	06:57 16:33	07:21 16:35
27	05:48 20:20	06:19 07:02-07:52/50 19:40	06:49 18:48	06:22 17:01	06:58 16:32	07:22 16:36
28	05:49 20:19	06:20 07:02-07:52/50 19:39	06:51 18:47	06:23 17:00	06:59 16:32	07:22 16:36
29	05:50 20:18	06:21 07:02-07:51/49 19:37	06:52 18:45	06:24 16:59	07:01 16:31	07:22 16:37
30	05:51 20:17	06:22 07:02-07:51/49 19:35	06:53 18:43	06:25 16:58	07:02 16:31	07:23 16:38
31	05:52 20:16	06:23 07:01-07:49/48 19:34		06:27 16:56		07:23 16:39
Potential sun hours	459	428	375	345	298	288
Sum of minutes with flicker	0	1080	375	83	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

WTG: ML 06 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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	July	August	September	October	November	December
1	07:23 16:40	08:16-08:58/42	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55
2	07:23 16:41	08:16-08:59/43	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54
3	07:23 16:41	08:17-08:59/42	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53
4	07:23 16:42	08:18-08:59/41	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:25	05:31 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51
5	07:23 16:43	08:18-08:59/41	07:06 17:19	06:28 17:53	06:36 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50
6	07:23 16:44	08:18-08:59/41	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49
7	07:23 16:45	08:19-08:59/40	07:04 17:21	06:24 17:55	06:33 19:28	05:50 20:00	05:26 20:27	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48
8	07:23 16:46	08:20-08:59/39	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47
9	07:23 16:47	08:21-09:00/39	07:01 17:24	06:21 17:57	06:30 19:30	05:48 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:28	06:37 16:46
10	07:23 16:48	08:22-09:00/38	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:38 16:45
11	07:23 16:49	08:22-08:59/37	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44
12	07:22 16:50	08:23-08:59/36	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43
13	07:22 16:51	08:24-09:00/36	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42
14	07:22 16:52	08:25-08:59/34	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:36 19:11	07:07 18:21	06:43 16:41
15	07:21 16:53	08:26-08:59/33	06:54 17:31	06:11 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:29	06:07 19:58	06:37 19:09	07:08 18:19	06:44 16:40
16	07:21 16:55	08:27-08:58/31	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:38 19:07	07:10 18:17	06:46 16:39
17	07:21 16:56	08:29-08:58/29	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:32	05:39 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 16:38
18	07:20 16:57	08:30-08:56/26	06:50 17:35	06:06 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38
19	07:20 16:58	08:32-08:56/24	06:48 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37
20	07:19 16:59	08:33-08:54/21	06:47 17:37	06:03 18:09	06:13 19:42	05:37 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36
21	07:18 17:00	08:35-08:52/17	06:46 17:39	06:01 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:25	06:13 19:49	06:43 18:59	07:15 18:10	06:52 16:36
22	07:18 17:02	08:39-08:51/12	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:08	06:53 16:35
23	07:17 17:03		06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34
24	07:16 17:04		06:41 17:42	05:56 18:13	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:46 18:54	07:18 18:06	06:55 16:34
25	07:16 17:05		06:40 17:43	05:55 18:15	06:06 19:47	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:47 18:52	07:19 18:04	06:56 16:33
26	07:15 17:06		06:38 17:44	05:53 18:16	06:04 19:49	05:32 20:18	05:27 20:34	05:47 20:21	06:18 19:42	06:48 18:50	07:20 18:03	06:57 16:33
27	07:14 17:08		06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:49 18:48	07:21 18:02	06:58 16:32
28	07:13 17:09		06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:34	05:49 20:19	06:20 19:39	06:51 18:47	07:22 18:00	06:59 16:32
29	07:12 17:10		06:34 17:47	05:48 18:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:18	06:21 19:37	06:52 18:45	07:23 18:00	07:00 16:31
30	07:12 17:11		06:34 17:47	05:48 18:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:18	06:21 19:37	06:52 18:45	07:23 18:00	07:00 16:31
31	07:11 17:13		06:34 17:47	05:48 18:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:16	06:21 19:34	06:52 18:45	07:23 18:00	07:00 16:31
	Potential sun hours	297	297	369	399	448	452	459	428	375	345	298
	Sum of minutes with flicker	742	0	0	0	0	0	0	0	0	0	1307

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
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SHADOW - Calendar per WTG

WTG: ML 07 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 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

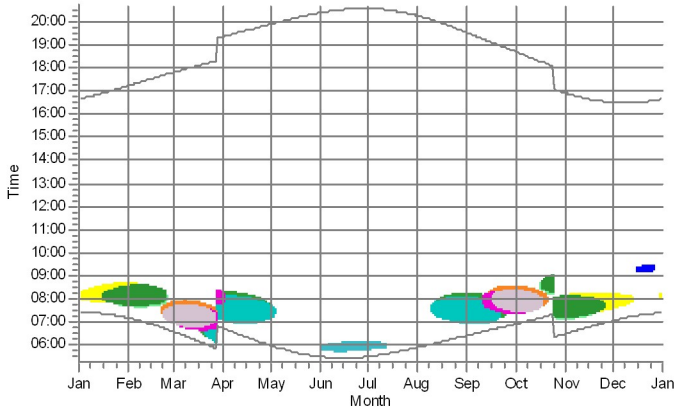
	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:40	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:25	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:52	06:36 19:26	05:52 19:58	05:27 20:26	05:31 20:33	05:57 20:11	06:28 19:26	06:58 18:35	06:32 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:26 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:03 17:21	06:24 17:55	06:33 19:28	05:50 20:00	05:26 20:27	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:08 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:09 16:29
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:30	05:47 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:31 19:19	07:02 18:28	06:37 16:46	07:10 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:31	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:32 19:17	07:03 18:27	06:38 16:45	07:11 16:29
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:31	06:03 20:03	06:33 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:34 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:01	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:30	06:05 20:01	06:35 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:36 19:10	07:07 18:20	06:43 16:41	07:14 16:30
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:29	06:07 19:58	06:37 19:09	07:08 18:19	06:44 16:40	07:15 16:30
16	07:21 16:55	06:52 17:32	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:56	06:38 19:07	07:09 18:17	06:46 16:39	07:16 16:30
17	07:20 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:32	05:39 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:06 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:19 16:58	06:48 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:18 16:32
21	07:18 17:00	06:46 17:38	06:01 18:10	06:11 19:43	05:36 20:14	05:26 20:33	05:43 20:25	06:13 19:49	06:43 18:59	07:15 18:10	06:51 16:35	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:08	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:44 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:16 17:04	06:41 17:42	05:56 18:13	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:46 18:53	07:18 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:14	06:05 19:47	05:33 20:17	05:27 20:34	05:46 20:22	06:17 19:43	06:47 18:52	07:19 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:48	05:32 20:18	05:27 20:34	05:47 20:21	06:18 19:42	06:48 18:50	07:20 17:03	06:57 16:33	07:21 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:49 18:48	07:22 17:01	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:34	05:49 20:19	06:20 19:39	06:50 18:47	07:23 17:00	06:59 16:32	07:22 16:36
29	07:12 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:18	06:21 19:37	06:51 18:45	07:24 16:59	07:00 16:31	07:22 16:37
30	07:12 17:11		06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:34	05:51 20:17	06:22 19:35	06:52 18:43	07:25 16:58	07:01 16:31	07:23 16:38
31	07:11 17:13		06:45 19:21		05:29 20:22		05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
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

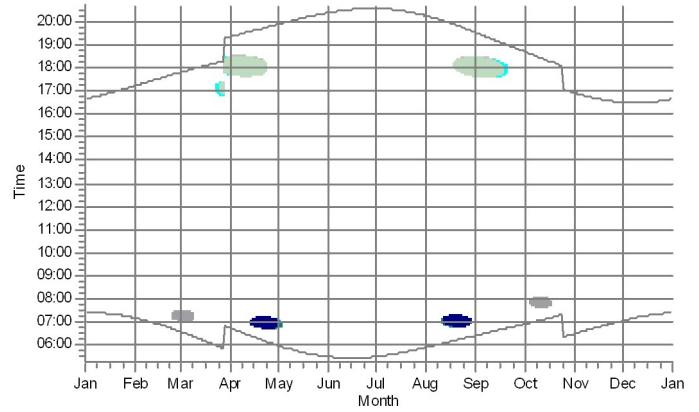
Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	Minutes with flicker

SHADOW - Calendar per WTG, graphical

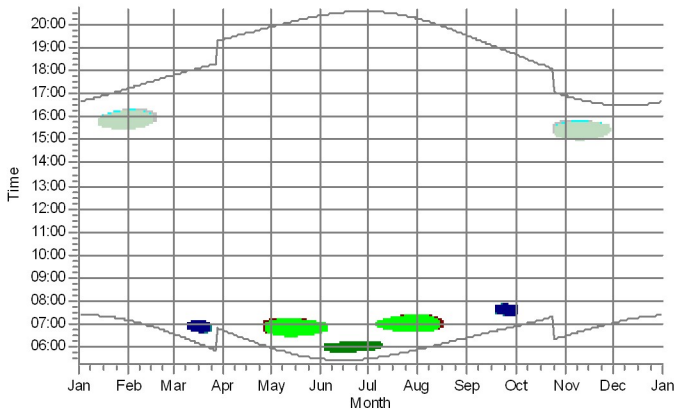
ML 01: Siemens Gamesa SG 6.0-170 6000 170.0 !O!hub: 135,0 m (TOT: 2



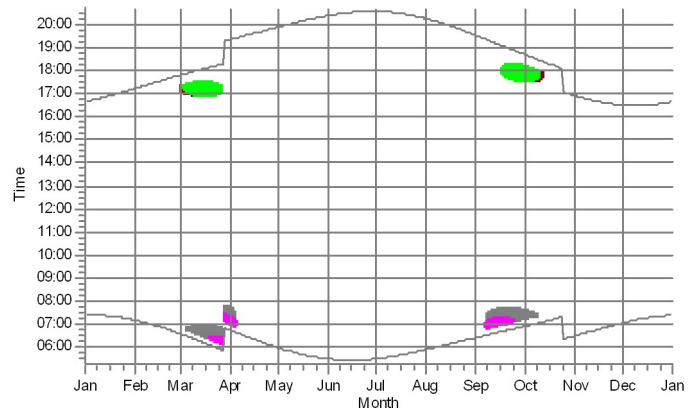
ML 02: Siemens Gamesa SG 6.0-170 6000 170.0 !O!hub: 135,0 m (TOT: 2



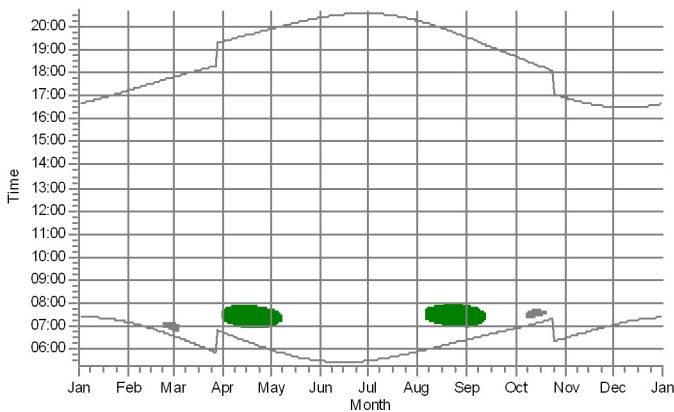
ML 03: Siemens Gamesa SG 6.0-170 6000 170.0 !O!hub: 135,0 m (TOT: 2



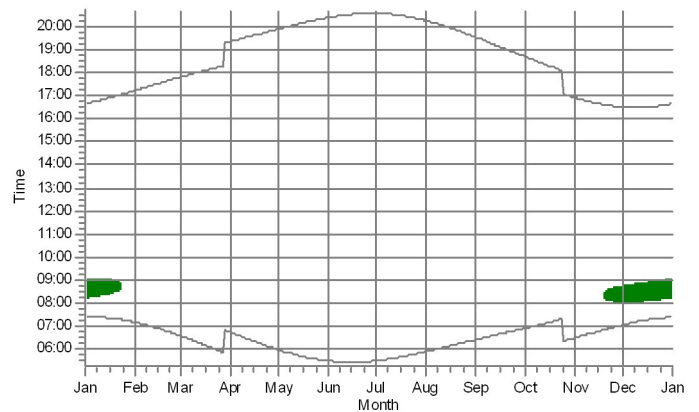
ML 04: Siemens Gamesa SG 6.0-170 6000 170.0 !O!hub: 135,0 m (TOT: 2



ML 05: Siemens Gamesa SG 6.0-170 6000 170.0 !O!hub: 135,0 m (TOT: 2



ML 06: Siemens Gamesa SG 6.0-170 6000 170.0 !O!hub: 135,0 m (TOT: 2

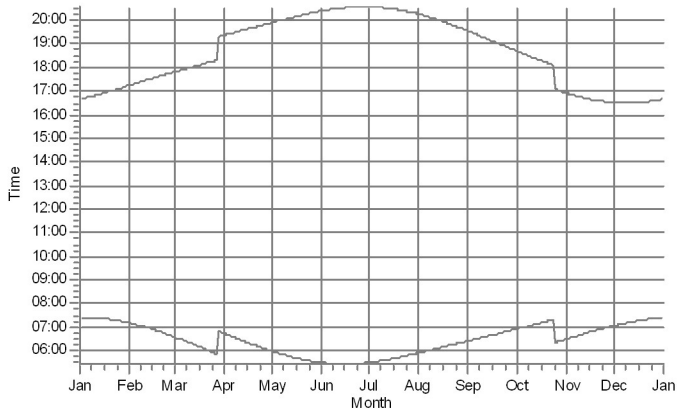


Shadow receptors

R02: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (1)	R32: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (7)	R87: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (20)
R103: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (26)	R61: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (10)	R87a: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (21)
R107: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (27)	R63: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (11)	R88: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (22)
R12: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (2)	R65: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (12)	R92: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (23)
R14: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (3)	R70: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (14)	R95a: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (24)
R21: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (4)	R77: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (17)	R99: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (25)
R23: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (5)	R82: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (18)	
R31: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (6)	R83: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (19)	

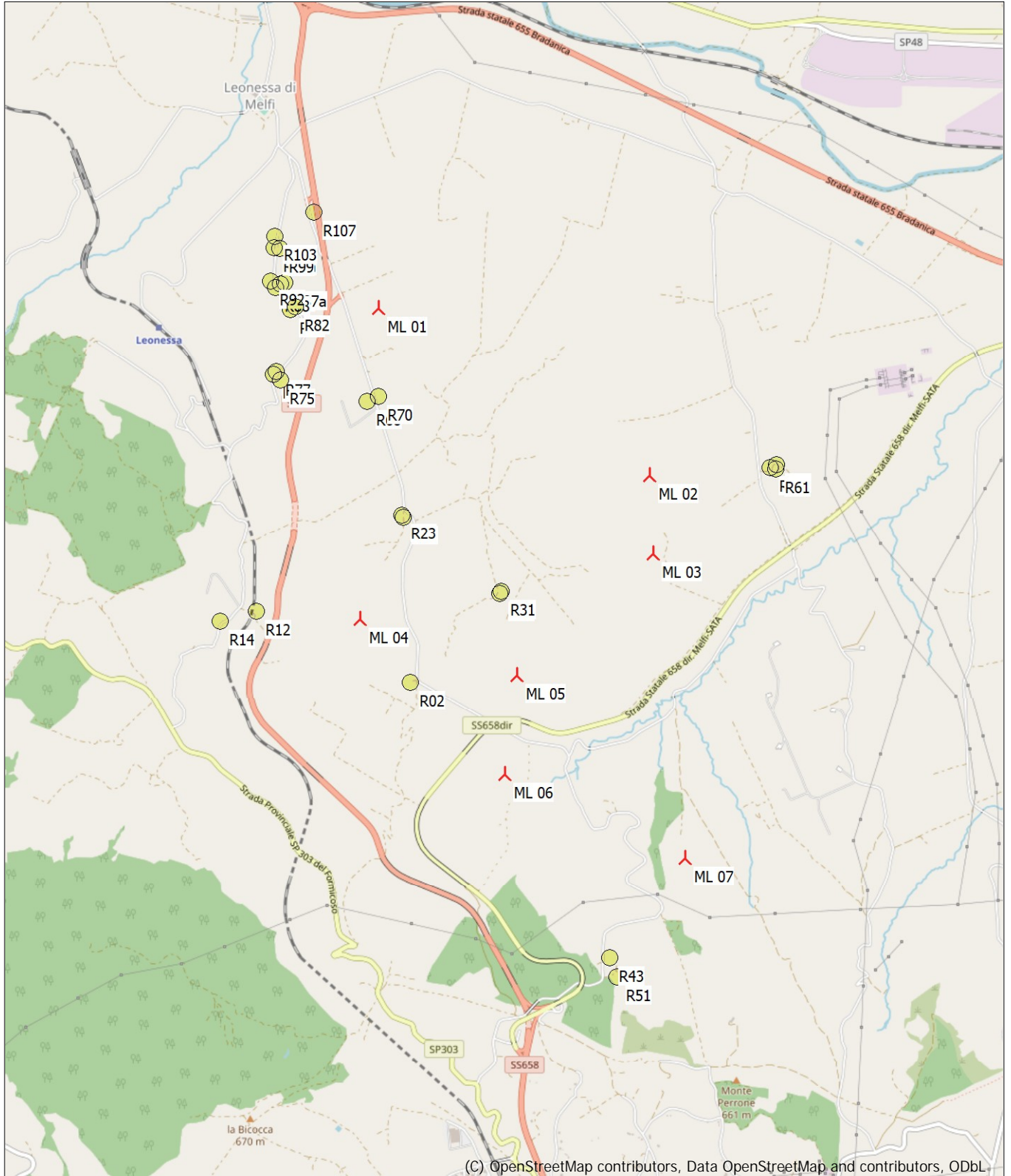
SHADOW - Calendar per WTG, graphical

ML 07: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 2



Shadow receptors

SHADOW - Map



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:40.000, Map center Geo WGS84 East: 15,624422° E North: 41,044850° N

🚧 New WTG

🟡 Shadow receptor

Flicker map level: Elevation Grid Data Object: WF Melfi_shadow flickering_EMDGrid_0.wpg (1)

9. ALLEGATO 2: SHADOW – MAIN RESULT – ELABORAZIONE MEDIANTE IL SOFTWARE WINDPRO 4.0 – EXPECTED VALUES

Project:

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

Gaetano DOronzio / info@gecodor.it

Calculated:

02/04/2024 18:25/4.0.531

SHADOW - Main Result

Calculation: Real Case

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Elevation Grid Data Object: WF Melfi_shadow flickering_EMDGrid_0.wpg (1)

Receptor grid resolution: 1,0 m

Topographic shadow included in calculation

All coordinates are in

Geo [deg]-WGS84

WTGs

	Longitude	Latitude	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
ML 01	15,614143° E	41,063321° N	311,1	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 02	15,637271° E	41,052566° N	431,3	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 03	15,637566° E	41,047448° N	428,1	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 04	15,612564° E	41,043241° N	349,8	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 05	15,625945° E	41,039632° N	381,5	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 06	15,624926° E	41,033221° N	371,4	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8
ML 07	15,640328° E	41,027867° N	446,5	Siemens Gamesa SG 6...	Yes	Siemens Gamesa	SG 6.0-170-6.000	6.000	170,0	135,0	2.040	8,8

Shadow receptor-Input

No.	Longitude	Latitude	Z	Width	Height	Elevation	Slope of	Direction mode	Eye height
			[m]	[m]	[m]	a.g.l.	window		(ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
R02	15,616879° E	41,039196° N	349,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R103	15,605302° E	41,067937° N	283,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R107	15,608597° E	41,069532° N	279,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R12	15,603714° E	41,043744° N	431,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R14	15,600646° E	41,043132° N	463,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R21	15,616249° E	41,049846° N	301,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R23	15,616141° E	41,049958° N	304,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R31	15,624636° E	41,045032° N	335,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R32	15,624487° E	41,044876° N	332,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R43	15,633907° E	41,021396° N	525,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R51	15,634487° E	41,020167° N	535,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R61	15,648103° E	41,052954° N	326,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R63	15,648198° E	41,053198° N	325,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R65	15,647619° E	41,053032° N	326,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R68	15,613144° E	41,057291° N	305,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R70	15,614162° E	41,057596° N	299,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R75	15,605762° E	41,058635° N	349,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R76	15,605161° E	41,059028° N	353,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R77	15,605455° E	41,059233° N	356,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R82	15,607087° E	41,063442° N	314,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R83	15,606657° E	41,063236° N	317,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R87	15,605765° E	41,064884° N	299,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R87a	15,606177° E	41,064972° N	298,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...

SHADOW - Main Result

Calculation: Real Case

...continued from previous page

No.	Longitude	Latitude	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
R88	15,605362° E	41,064671° N	303,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R92	15,604934° E	41,065048° N	299,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R95a	15,605210° E	41,067203° N	286,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R99	15,605708° E	41,067172° N	285,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]
R02	25:38
R103	15:23
R107	0:23
R12	7:47
R14	1:46
R21	4:16
R23	4:12
R31	13:50
R32	14:15
R43	0:00
R51	0:00
R61	17:20
R63	17:26
R65	19:12
R68	0:00
R70	1:38
R75	0:00
R76	0:00
R77	1:52
R82	18:20
R83	16:47
R87	11:40
R87a	12:39
R88	10:56
R92	9:49
R95a	12:08
R99	13:41

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Expected [h/year]
ML 01	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (1)	58:39
ML 02	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (2)	13:45
ML 03	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)	25:42
ML 04	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (4)	14:38
ML 05	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (5)	12:28
ML 06	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (6)	11:29
ML 07	Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (7)	0:00

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

SHADOW - Calendar

Calculation: Real Case Shadow receptor: R02 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (1)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

January		February		March		April		May		June	
1	07:23	08:16 (ML 06)	07:10	06:34	06:43	07:25 (ML 05)	05:57	07:04 (ML 05)	05:29		
	16:40	42 08:58 (ML 06)	17:14	17:48	19:22	9 07:34 (ML 05)	19:54	35 07:39 (ML 05)	20:23		
2	07:23	08:16 (ML 06)	07:09	06:32	06:41	07:19 (ML 05)	05:56	07:04 (ML 05)	05:28		
	16:41	43 08:59 (ML 06)	17:15	17:49	19:23	20 07:39 (ML 05)	19:55	33 07:37 (ML 05)	20:24		
3	07:23	08:17 (ML 06)	07:08	06:31	06:40	07:16 (ML 05)	05:55	07:06 (ML 05)	05:28		
	16:41	42 08:59 (ML 06)	17:16	17:50	19:24	25 07:41 (ML 05)	19:56	29 07:35 (ML 05)	20:25		
4	07:23	08:18 (ML 06)	07:07	06:29	06:38	07:14 (ML 05)	05:54	07:07 (ML 05)	05:27		05:55 (ML 03)
	16:42	41 08:59 (ML 06)	17:18	17:51	19:25	30 07:44 (ML 05)	19:57	27 07:34 (ML 05)	20:26	6	06:01 (ML 03)
5	07:23	08:18 (ML 06)	07:06	06:28	06:37	07:11 (ML 05)	05:52	07:09 (ML 05)	05:27		05:54 (ML 03)
	16:43	41 08:59 (ML 06)	17:19	17:53	19:26	34 07:45 (ML 05)	19:58	23 07:32 (ML 05)	20:26	9	06:03 (ML 03)
6	07:23	08:18 (ML 06)	07:05	06:26	06:35	07:09 (ML 05)	05:51	07:12 (ML 05)	05:27		05:53 (ML 03)
	16:44	41 08:59 (ML 06)	17:20	17:54	19:27	37 07:46 (ML 05)	19:59	17 07:29 (ML 05)	20:27	10	06:03 (ML 03)
7	07:23	08:19 (ML 06)	07:04	06:24	06:33	07:08 (ML 05)	05:50	07:15 (ML 05)	05:26		05:53 (ML 03)
	16:45	40 08:59 (ML 06)	17:21	17:55	19:28	40 07:48 (ML 05)	20:00	9 07:24 (ML 05)	20:28	11	06:04 (ML 03)
8	07:23	08:20 (ML 06)	07:02	06:23	06:32	07:06 (ML 05)	05:49		05:26		05:52 (ML 03)
	16:46	39 08:59 (ML 06)	17:23	17:56	19:29	42 07:48 (ML 05)	20:01		20:28	13	06:05 (ML 03)
9	07:23	08:21 (ML 06)	07:01	06:21	06:30	07:05 (ML 05)	05:48		05:26		05:52 (ML 03)
	16:47	39 09:00 (ML 06)	17:24	17:57	19:31	44 07:49 (ML 05)	20:02		20:29	14	06:06 (ML 03)
10	07:23	08:22 (ML 06)	07:00	06:20	06:28	07:04 (ML 05)	05:46		05:26		05:52 (ML 03)
	16:48	38 09:00 (ML 06)	17:25	17:58	19:32	45 07:49 (ML 05)	20:03		20:29	15	06:07 (ML 03)
11	07:23	08:22 (ML 06)	06:59	06:18	06:27	07:02 (ML 05)	05:45		05:25		05:51 (ML 03)
	16:49	37 08:59 (ML 06)	17:26	17:59	19:33	47 07:49 (ML 05)	20:04		20:30	15	06:06 (ML 03)
12	07:22	08:23 (ML 06)	06:58	06:16	06:25	07:02 (ML 05)	05:44		05:25		05:51 (ML 03)
	16:50	36 08:59 (ML 06)	17:28	18:00	19:34	48 07:50 (ML 05)	20:05		20:30	16	06:07 (ML 03)
13	07:22	08:24 (ML 06)	06:56	06:15	06:24	07:01 (ML 05)	05:43		05:25		05:51 (ML 03)
	16:51	36 09:00 (ML 06)	17:29	18:02	19:35	49 07:50 (ML 05)	20:06		20:31	16	06:07 (ML 03)
14	07:22	08:25 (ML 06)	06:55	06:13	06:22	07:01 (ML 05)	05:42		05:25		05:51 (ML 03)
	16:52	34 08:59 (ML 06)	17:30	18:03	19:36	49 07:50 (ML 05)	20:07		20:31	17	06:08 (ML 03)
15	07:21	08:26 (ML 06)	06:54	06:11	06:20	07:00 (ML 05)	05:41		05:25		05:51 (ML 03)
	16:54	33 08:59 (ML 06)	17:31	18:04	19:37	50 07:50 (ML 05)	20:08		20:32	17	06:08 (ML 03)
16	07:21	08:27 (ML 06)	06:53	06:10	06:19	07:00 (ML 05)	05:40		05:25		05:51 (ML 03)
	16:55	31 08:58 (ML 06)	17:33	18:05	19:38	50 07:50 (ML 05)	20:09		20:32	18	06:09 (ML 03)
17	07:21	08:29 (ML 06)	06:51	06:08	06:17	06:59 (ML 05)	05:39		05:25		05:51 (ML 03)
	16:56	29 08:58 (ML 06)	17:34	18:06	19:39	51 07:50 (ML 05)	20:10		20:32	18	06:09 (ML 03)
18	07:20	08:30 (ML 06)	06:50	06:07	06:16	06:59 (ML 05)	05:38		05:25		05:52 (ML 03)
	16:57	26 08:56 (ML 06)	17:35	18:07	19:40	51 07:50 (ML 05)	20:11		20:33	18	06:10 (ML 03)
19	07:20	08:32 (ML 06)	06:48	06:05	06:14	06:59 (ML 05)	05:37		05:25		05:52 (ML 03)
	16:58	24 08:56 (ML 06)	17:36	18:08	19:41	50 07:49 (ML 05)	20:12		20:33	18	06:10 (ML 03)
20	07:19	08:33 (ML 06)	06:47	06:03	06:13	06:59 (ML 05)	05:37		05:25		05:52 (ML 03)
	16:59	21 08:54 (ML 06)	17:37	18:09	19:42	50 07:49 (ML 05)	20:13		20:33	18	06:10 (ML 03)
21	07:18	08:35 (ML 06)	06:46	06:02	06:11	06:58 (ML 05)	05:36		05:26		05:52 (ML 03)
	17:00	17 08:52 (ML 06)	17:39	18:10	19:43	50 07:48 (ML 05)	20:14		20:34	18	06:10 (ML 03)
22	07:18	08:39 (ML 06)	06:44	06:00	06:10	06:59 (ML 05)	05:35		05:26		05:52 (ML 03)
	17:02	12 08:51 (ML 06)	17:40	18:11	19:44	49 07:48 (ML 05)	20:15		20:34	18	06:10 (ML 03)
23	07:17		06:43	05:58	06:08	06:58 (ML 05)	05:34		05:26		05:53 (ML 03)
	17:03		17:41	18:12	19:45	48 07:46 (ML 05)	20:16		20:34	18	06:11 (ML 03)
24	07:16		06:41	05:56	06:07	06:59 (ML 05)	05:33		05:26		05:53 (ML 03)
	17:04		17:42	18:13	19:46	47 07:46 (ML 05)	20:17		20:34	18	06:11 (ML 03)
25	07:16		06:40	05:55	06:06	07:00 (ML 05)	05:33		05:27		05:53 (ML 03)
	17:05		17:43	18:15	19:48	46 07:46 (ML 05)	20:18		20:34	18	06:11 (ML 03)
26	07:15		06:38	05:53	06:04	06:59 (ML 05)	05:32		05:27		05:53 (ML 03)
	17:06		17:44	18:16	19:49	45 07:44 (ML 05)	20:18		20:34	18	06:11 (ML 03)
27	07:14		06:37	05:51	06:03	07:00 (ML 05)	05:31		05:27		05:54 (ML 03)
	17:08		17:46	18:17	19:50	44 07:44 (ML 05)	20:19		20:34	17	06:11 (ML 03)
28	07:13		06:35	05:50	06:01	07:00 (ML 05)	05:31		05:28		05:54 (ML 03)
	17:09		17:47	18:18	19:51	42 07:42 (ML 05)	20:20		20:34	17	06:11 (ML 03)
29	07:13			06:48	06:00	07:01 (ML 05)	05:30		05:28		05:55 (ML 03)
	17:10			19:19	19:52	40 07:41 (ML 05)	20:21		20:34	17	06:12 (ML 03)
30	07:12			06:46	05:59	07:02 (ML 05)	05:30		05:29		05:55 (ML 03)
	17:11			19:20	19:53	38 07:40 (ML 05)	20:22		20:34	16	06:11 (ML 03)
31	07:11			06:45			05:29				
	17:13			19:21			20:23				
Potential sun hours	297		297	369	399		448		452		
Total, worst case	742				1270		173		424		
Sun reduction	0,69				0,50		0,46		0,44		
Oper. time red.	0,76				0,76		0,76		0,76		
Wind dir. red.	0,55				0,65		0,65		0,68		
Total reduction	0,29				0,25		0,23		0,23		
Total, real	218				318		40		97		

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: Real Case Shadow receptor: R02 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (1)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July	August	September	October	November	December
1	05:29 20:34	05:56 (ML 03) 20:15	05:53 20:14	06:24 19:32	07:01 (ML 05) 18:42	06:28 16:55
2	05:29 20:34	05:56 (ML 03) 20:14	05:54 20:14	06:25 19:31	07:02 (ML 05) 18:40	06:29 16:54
3	05:30 20:34	05:57 (ML 03) 20:13	05:55 20:13	06:26 19:29	07:02 (ML 05) 18:38	06:30 16:53
4	05:31 20:34	05:57 (ML 03) 20:12	05:56 20:12	06:27 19:27	07:03 (ML 05) 18:37	06:31 16:51
5	05:31 20:34	05:58 (ML 03) 20:11	05:57 20:11	06:28 19:26	07:04 (ML 05) 18:35	06:33 16:50
6	05:32 20:33	05:59 (ML 03) 20:10	05:58 20:10	07:24 (ML 05) 19:24	06:29 18:33	06:34 16:49
7	05:32 20:33	06:00 (ML 03) 20:08	05:59 20:08	07:21 (ML 05) 19:22	06:30 18:32	06:35 16:48
8	05:33 20:33	06:02 (ML 03) 20:07	06:00 20:07	07:18 (ML 05) 19:21	06:31 18:30	07:01 16:47
9	05:34 20:32	06:04 (ML 03) 20:06	06:01 20:06	07:16 (ML 05) 19:19	06:32 18:29	07:02 16:46
10	05:34 20:32	06:04 (ML 03) 20:05	06:02 20:05	07:14 (ML 05) 19:17	06:33 18:27	06:39 16:45
11	05:35 20:32	06:03 20:03	06:03 20:03	07:12 (ML 05) 19:16	06:34 18:25	06:40 16:44
12	05:36 20:31	06:04 20:02	06:04 20:02	07:11 (ML 05) 19:14	06:35 18:24	06:41 16:43
13	05:36 20:31	06:05 20:01	06:05 20:01	07:10 (ML 05) 19:12	06:36 18:22	06:42 16:42
14	05:37 20:30	06:06 19:59	06:06 19:59	07:09 (ML 05) 19:11	06:37 18:21	06:43 16:41
15	05:38 20:30	06:07 19:58	06:07 19:58	07:08 (ML 05) 19:09	06:38 18:19	06:44 16:40
16	05:39 20:29	06:08 19:57	06:08 19:57	07:07 (ML 05) 19:07	06:39 18:17	06:46 16:39
17	05:39 20:28	06:09 19:55	06:09 19:55	07:06 (ML 05) 19:05	06:39 18:16	06:47 16:38
18	05:40 20:28	06:10 19:54	06:10 19:54	07:05 (ML 05) 19:04	06:40 18:14	06:48 16:38
19	05:41 20:27	06:11 19:52	06:11 19:52	07:05 (ML 05) 19:02	06:41 18:13	06:49 16:37
20	05:42 20:26	06:12 19:51	06:12 19:51	07:04 (ML 05) 19:00	06:42 18:11	06:50 16:36
21	05:43 20:26	06:13 19:49	06:13 19:49	07:04 (ML 05) 18:59	06:43 18:10	12 16:36
22	05:44 20:25	06:14 19:48	06:14 19:48	07:03 (ML 05) 18:57	06:44 18:09	17 16:35
23	05:45 20:24	06:15 19:46	06:15 19:46	07:03 (ML 05) 18:55	06:45 18:07	21 16:34
24	05:45 20:23	06:16 19:45	06:16 19:45	07:02 (ML 05) 18:54	06:46 18:06	24 16:34
25	05:46 20:22	06:17 19:43	06:17 19:43	07:02 (ML 05) 18:52	06:47 17:04	26 16:33
26	05:47 20:21	06:18 19:42	06:18 19:42	07:02 (ML 05) 18:50	06:49 17:03	29 16:33
27	05:48 20:20	06:19 19:40	06:19 19:40	07:02 (ML 05) 18:48	06:50 17:02	31 16:32
28	05:49 20:19	06:20 19:39	06:20 19:39	07:02 (ML 05) 18:47	06:51 17:00	33 16:32
29	05:50 20:18	06:21 19:37	06:21 19:37	07:02 (ML 05) 18:45	06:52 16:59	35 16:31
30	05:51 20:17	06:22 19:35	06:22 19:35	07:02 (ML 05) 18:43	06:53 16:58	36 16:31
31	05:52 20:16	06:23 19:34	06:23 19:34	07:01 (ML 05) 18:42	06:54 16:56	36 16:30
Potential sun hours	459	428	375	345	298	288
Total, worst case	101	1080	375		298	1307
Sun reduction	0,45	0,48	0,53		0,66	0,71
Oper. time red.	0,76	0,76	0,76		0,76	0,76
Wind dir. red.	0,68	0,65	0,65		0,55	0,55
Total reduction	0,23	0,24	0,27		0,28	0,30
Total, real	24	260	100		85	397

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: Real Case Shadow receptor: R103 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (26)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	
1	07:23 16:40	08:01 (ML 01) 08:13 (ML 01)	07:10 17:14	07:55 (ML 01) 08:39 (ML 01)	06:34 17:48	06:43 19:22	05:28 20:23
2	07:23 16:40	08:00 (ML 01) 08:14 (ML 01)	07:09 17:15	07:55 (ML 01) 08:39 (ML 01)	06:32 17:49	06:41 19:23	05:28 20:24
3	07:23 16:41	08:00 (ML 01) 08:16 (ML 01)	07:08 17:16	07:56 (ML 01) 08:39 (ML 01)	06:31 17:50	06:40 19:24	05:28 20:25
4	07:24 16:42	07:59 (ML 01) 08:17 (ML 01)	07:07 17:18	07:56 (ML 01) 08:38 (ML 01)	06:29 17:51	06:38 19:25	05:27 20:26
5	07:24 16:43	07:59 (ML 01) 08:19 (ML 01)	07:06 17:19	07:57 (ML 01) 08:38 (ML 01)	06:28 17:53	06:37 19:26	05:27 20:26
6	07:24 16:44	07:58 (ML 01) 08:20 (ML 01)	07:05 17:20	07:58 (ML 01) 08:38 (ML 01)	06:26 17:54	06:35 19:27	05:27 20:27
7	07:23 16:45	07:57 (ML 01) 08:21 (ML 01)	07:04 17:21	07:57 (ML 01) 08:36 (ML 01)	06:25 17:55	06:33 19:28	05:26 20:28
8	07:23 16:46	07:57 (ML 01) 08:22 (ML 01)	07:03 17:23	07:59 (ML 01) 08:36 (ML 01)	06:23 17:56	06:32 19:30	05:26 20:28
9	07:23 16:47	07:56 (ML 01) 08:24 (ML 01)	07:01 17:24	08:00 (ML 01) 08:35 (ML 01)	06:21 17:57	06:30 19:31	05:26 20:29
10	07:23 16:48	07:56 (ML 01) 08:25 (ML 01)	07:00 17:25	08:01 (ML 01) 08:34 (ML 01)	06:20 17:58	06:28 19:32	05:26 20:29
11	07:23 16:49	07:55 (ML 01) 08:26 (ML 01)	06:59 17:26	08:03 (ML 01) 08:33 (ML 01)	06:18 17:59	06:27 19:33	05:25 20:30
12	07:23 16:50	07:55 (ML 01) 08:27 (ML 01)	06:58 17:28	08:03 (ML 01) 08:31 (ML 01)	06:16 18:00	06:25 19:34	05:25 20:30
13	07:22 16:51	07:55 (ML 01) 08:29 (ML 01)	06:57 17:29	08:06 (ML 01) 08:29 (ML 01)	06:15 18:02	06:24 19:35	05:25 20:31
14	07:22 16:52	07:55 (ML 01) 08:29 (ML 01)	06:55 17:30	08:08 (ML 01) 08:27 (ML 01)	06:13 18:03	06:22 19:36	05:25 20:31
15	07:22 16:53	07:55 (ML 01) 08:30 (ML 01)	06:54 17:31	08:12 (ML 01) 08:22 (ML 01)	06:12 18:04	06:21 19:37	05:25 20:32
16	07:21 16:55	07:54 (ML 01) 08:31 (ML 01)	06:53 17:33	08:05 (ML 01) 18:05	06:10 19:38	06:19 20:09	05:25 20:32
17	07:21 16:56	07:54 (ML 01) 08:32 (ML 01)	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33
18	07:20 16:57	07:54 (ML 01) 08:33 (ML 01)	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33
19	07:20 16:58	07:54 (ML 01) 08:34 (ML 01)	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33
20	07:19 16:59	07:54 (ML 01) 08:34 (ML 01)	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:34
21	07:19 17:00	07:53 (ML 01) 08:35 (ML 01)	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34
22	07:18 17:02	07:54 (ML 01) 08:36 (ML 01)	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34
23	07:17 17:03	07:53 (ML 01) 08:36 (ML 01)	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34
24	07:17 17:04	07:53 (ML 01) 08:37 (ML 01)	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34
25	07:16 17:05	07:53 (ML 01) 08:37 (ML 01)	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34
26	07:15 17:06	07:54 (ML 01) 08:38 (ML 01)	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:35
27	07:14 17:08	07:54 (ML 01) 08:38 (ML 01)	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35
28	07:13 17:09	07:54 (ML 01) 08:39 (ML 01)	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35
29	07:13 17:10	07:54 (ML 01) 08:39 (ML 01)	06:35 17:47	06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35
30	07:12 17:11	07:54 (ML 01) 08:39 (ML 01)	06:35 17:47	06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:35
31	07:11 17:13	07:54 (ML 01) 08:39 (ML 01)	06:35 17:47	06:45 19:21	05:58 19:54	05:29 20:23	05:28 20:35
Potential sun hours	297	297	369	399	448	452	
Total, worst case	1051	508					
Sun reduction	0,69	0,62					
Oper. time red.	0,76	0,76					
Wind dir. red.	0,58	0,58					
Total reduction	0,30	0,27					
Total, real	318	139					

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R103 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (26)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29	05:53	06:24	06:54	06:28	07:30 (ML 01) 07:03 07:37 (ML 01)
	20:34	20:15	19:32	18:42	16:55	33 08:03 (ML 01) 16:31 31 08:08 (ML 01)
2	05:29	05:54	06:25	06:55	06:29	07:29 (ML 01) 07:04 07:39 (ML 01)
	20:34	20:14	19:31	18:40	16:54	36 08:05 (ML 01) 16:30 29 08:08 (ML 01)
3	05:30	05:55	06:26	06:56	06:30	07:28 (ML 01) 07:05 07:40 (ML 01)
	20:34	20:13	19:29	18:38	16:53	38 08:06 (ML 01) 16:30 28 08:08 (ML 01)
4	05:30	05:56	06:27	06:57	06:31	07:27 (ML 01) 07:06 07:42 (ML 01)
	20:34	20:12	19:27	18:37	16:51	39 08:06 (ML 01) 16:30 25 08:07 (ML 01)
5	05:31	05:57	06:28	06:58	06:33	07:27 (ML 01) 07:07 07:43 (ML 01)
	20:34	20:11	19:26	18:35	16:50	41 08:08 (ML 01) 16:30 24 08:07 (ML 01)
6	05:32	05:58	06:29	06:59	06:34	07:27 (ML 01) 07:08 07:44 (ML 01)
	20:34	20:10	19:24	18:33	16:49	41 08:08 (ML 01) 16:30 22 08:06 (ML 01)
7	05:32	05:59	06:30	07:00	06:35	07:26 (ML 01) 07:09 07:45 (ML 01)
	20:33	20:09	19:22	18:32	16:48	42 08:08 (ML 01) 16:30 20 08:05 (ML 01)
8	05:33	06:00	06:31	07:01	06:36	07:25 (ML 01) 07:10 07:46 (ML 01)
	20:33	20:07	19:21	18:30	16:47	44 08:09 (ML 01) 16:29 18 08:04 (ML 01)
9	05:34	06:01	06:32	07:02	06:37	07:26 (ML 01) 07:11 07:48 (ML 01)
	20:33	20:06	19:19	18:29	16:46	44 08:10 (ML 01) 16:29 16 08:04 (ML 01)
10	05:34	06:02	06:33	07:03	06:39	07:26 (ML 01) 07:11 07:49 (ML 01)
	20:32	20:05	19:17	18:27	16:45	44 08:10 (ML 01) 16:29 14 08:03 (ML 01)
11	05:35	06:03	06:34	07:04	06:40	07:25 (ML 01) 07:12 07:51 (ML 01)
	20:32	20:03	19:16	18:25	16:44	45 08:10 (ML 01) 16:30 12 08:03 (ML 01)
12	05:36	06:04	06:35	07:05	06:41	07:26 (ML 01) 07:13 07:53 (ML 01)
	20:31	20:02	19:14	18:24	16:43	45 08:11 (ML 01) 16:30 9 08:02 (ML 01)
13	05:36	06:05	06:36	07:06	06:42	07:26 (ML 01) 07:14 07:56 (ML 01)
	20:31	20:01	19:12	18:22	16:42	45 08:11 (ML 01) 16:30 4 08:00 (ML 01)
14	05:37	06:06	06:37	07:07	06:43	07:26 (ML 01) 07:15 07:57 (ML 01)
	20:30	19:59	19:11	18:21	16:41	45 08:11 (ML 01) 16:30 07:58 (ML 01)
15	05:38	06:07	06:38	07:09	06:45	07:26 (ML 01) 07:15 08:00 (ML 01)
	20:30	19:58	19:09	18:19	16:40	44 08:10 (ML 01) 16:30 08:01 (ML 01)
16	05:39	06:08	06:39	07:10	06:46	07:27 (ML 01) 07:16 08:02 (ML 01)
	20:29	19:57	19:07	18:17	16:39	44 08:11 (ML 01) 16:30 08:03 (ML 01)
17	05:39	06:09	06:40	07:11	06:47	07:27 (ML 01) 07:17 08:04 (ML 01)
	20:28	19:55	19:06	18:16	16:38	44 08:11 (ML 01) 16:31 08:05 (ML 01)
18	05:40	06:10	06:41	07:12	06:48	07:27 (ML 01) 07:18 08:06 (ML 01)
	20:28	19:54	19:04	18:14	16:38	44 08:11 (ML 01) 16:31 08:07 (ML 01)
19	05:41	06:11	06:42	07:13	06:49	07:27 (ML 01) 07:18 08:08 (ML 01)
	20:27	19:52	19:02	18:13	16:37	43 08:10 (ML 01) 16:31 08:09 (ML 01)
20	05:42	06:12	06:43	07:14	06:51	07:29 (ML 01) 07:19 08:10 (ML 01)
	20:26	19:51	19:00	18:11	16:36	42 08:11 (ML 01) 16:32 08:11 (ML 01)
21	05:43	06:13	06:44	07:15	06:52	07:29 (ML 01) 07:19 08:12 (ML 01)
	20:26	19:49	18:59	18:10	16:36	42 08:11 (ML 01) 16:32 08:13 (ML 01)
22	05:44	06:14	06:45	07:16	06:53	07:30 (ML 01) 07:20 08:14 (ML 01)
	20:25	19:48	18:57	18:09	16:35	40 08:10 (ML 01) 16:33 08:15 (ML 01)
23	05:44	06:15	06:46	07:17	06:54	07:30 (ML 01) 07:20 08:16 (ML 01)
	20:24	19:46	18:55	18:07	16:34	40 08:10 (ML 01) 16:33 08:17 (ML 01)
24	05:45	06:16	06:47	07:19	06:55	07:31 (ML 01) 07:21 08:18 (ML 01)
	20:23	19:45	18:54	18:06	16:34	39 08:10 (ML 01) 16:34 08:19 (ML 01)
25	05:46	06:17	06:48	06:20	06:56	07:32 (ML 01) 07:21 08:20 (ML 01)
	20:22	19:43	18:52	17:04	16:33	38 08:10 (ML 01) 16:34 08:21 (ML 01)
26	05:47	06:18	06:49	06:21	06:57	07:33 (ML 01) 07:22 08:22 (ML 01)
	20:21	19:42	18:50	17:03	16:33	37 08:10 (ML 01) 16:35 08:23 (ML 01)
27	05:48	06:19	06:50	06:22	06:58	07:34 (ML 01) 07:22 08:24 (ML 01)
	20:20	19:40	18:48	17:02	16:32	35 08:09 (ML 01) 16:36 08:25 (ML 01)
28	05:49	06:20	06:51	06:23	07:37 (ML 01)	07:00 07:35 (ML 01) 07:22 08:26 (ML 01)
	20:20	19:39	18:47	17:00	16:32	34 08:09 (ML 01) 16:36 08:27 (ML 01)
29	05:50	06:21	06:52	06:24	07:01	07:35 (ML 01) 07:23 08:28 (ML 01)
	20:19	19:37	18:45	16:59	16:31	34 08:09 (ML 01) 16:37 08:29 (ML 01)
30	05:51	06:22	06:53	06:26	07:33 (ML 01)	07:02 07:36 (ML 01) 07:23 08:30 (ML 01)
	20:18	19:36	18:43	16:58	16:31	32 08:08 (ML 01) 16:38 08:31 (ML 01)
31	05:52	06:23	06:54	06:27	07:31 (ML 01)	07:03 07:37 (ML 01) 07:24 08:32 (ML 01)
	20:17	19:34	18:42	16:56	16:30	31 08:08 (ML 01) 16:39 7 08:10 (ML 01)
Potential sun hours	459	428	375	345	298	288
Total, worst case				115	1214	259
Sun reduction				0,59	0,66	0,71
Oper. time red.				0,76	0,76	0,76
Wind dir. red.				0,58	0,58	0,58
Total reduction				0,26	0,29	0,31
Total, real				30	355	81

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

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

Calculation: Real Case Shadow receptor: R107 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (27)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31	
2	07:23 16:40	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30	
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30	
4	07:24 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:26	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30	
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:07 16:30	
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:26 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30	
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:26 20:28	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30	
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:10 16:29	
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:47 20:02	05:26 20:29	05:33 20:33	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:11 16:29	
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:11 16:29	
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:12 16:30	
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:13 16:30	
13	07:22 16:51	06:57 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:14 16:30	
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:15 16:30	
15	07:22 16:53	06:54 17:31	06:12 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40	07:15 16:30	
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:16 16:30	
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:17 16:31	09:15 (ML 01) 2 09:17 (ML 01)
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38	07:17 16:31	09:14 (ML 01) 6 09:20 (ML 01)
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37	07:18 16:31	09:14 (ML 01) 7 09:21 (ML 01)
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:34	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	06:51 16:36	07:19 16:32	09:13 (ML 01) 9 09:22 (ML 01)
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:19 16:32	09:14 (ML 01) 9 09:23 (ML 01)
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:20 16:33	09:14 (ML 01) 9 09:23 (ML 01)
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:44 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:46 16:34	07:20 16:33	09:15 (ML 01) 9 09:24 (ML 01)
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34	09:15 (ML 01) 9 09:24 (ML 01)
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	06:56 16:33	07:21 16:34	09:16 (ML 01) 7 09:23 (ML 01)
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	06:57 16:33	07:22 16:35	09:19 (ML 01) 4 09:23 (ML 01)
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	06:58 16:32	07:22 16:36	
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	06:57 16:32	07:22 16:36	
29	07:13 17:10	06:33 17:47	05:48 18:19	06:00 19:52	05:30 20:21	05:28 20:35	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:01 16:31	07:23 16:37	
30	07:12 17:11	06:32 17:46	05:47 18:20	05:59 19:53	05:29 20:22	05:28 20:35	05:51 20:18	06:22 19:36	06:53 18:43	06:26 16:58	07:02 16:31	07:23 16:38	
31	07:11 17:13	06:31 17:45	05:46 18:21	05:58 19:21	05:29 20:23	05:29 20:35	05:52 20:17	06:23 19:34	06:54 16:56	06:27 16:56	07:03 16:39	07:23 16:39	
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288	
Total, worst case													71
Sun reduction													0,71
Oper. time red.													0,76
Wind dir. red.													0,60
Total reduction													0,32
Total, real													23

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: Real Case Shadow receptor: R12 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (2)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	06:53 (ML 05) 07:03 (ML 05)	06:43 19:22	07:09 (ML 04) 19:54
2	07:23 16:41	07:09 17:15	06:32 17:49	06:51 (ML 05) 07:02 (ML 05)	06:42 19:23	07:10 (ML 04) 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:50 (ML 05) 07:01 (ML 05)	06:40 19:24	07:12 (ML 04) 19:56
4	07:23 16:42	07:07 17:18	06:29 17:51	06:48 (ML 05) 06:58 (ML 05)	06:38 19:25	07:17 (ML 04) 19:57
5	07:23 16:43	07:06 17:19	06:28 17:53	06:47 (ML 04) 06:48 (ML 04)	06:37 19:26	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:45 (ML 04) 06:49 (ML 04)	06:35 19:27	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:43 (ML 04) 06:50 (ML 04)	06:33 19:28	05:50 20:00
8	07:23 16:46	07:02 17:23	06:23 17:56	06:42 (ML 04) 06:52 (ML 04)	06:32 19:30	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:40 (ML 04) 06:53 (ML 04)	06:30 19:31	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:38 (ML 04) 06:53 (ML 04)	06:28 19:32	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:37 (ML 04) 06:54 (ML 04)	06:27 19:33	05:45 20:04
12	07:22 16:50	06:58 17:28	06:16 18:00	06:35 (ML 04) 06:55 (ML 04)	06:25 19:34	05:44 20:05
13	07:22 16:51	06:56 17:29	06:15 18:02	06:34 (ML 04) 06:56 (ML 04)	06:24 19:35	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:32 (ML 04) 06:56 (ML 04)	06:22 19:36	05:42 20:07
15	07:21 16:54	06:54 17:31	06:12 18:04	06:30 (ML 04) 06:55 (ML 04)	06:21 19:37	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:29 (ML 04) 06:56 (ML 04)	06:19 19:38	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:27 (ML 04) 06:56 (ML 04)	06:17 19:39	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:25 (ML 04) 06:55 (ML 04)	06:16 19:40	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:23 (ML 04) 06:54 (ML 04)	06:14 19:41	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:22 (ML 04) 06:55 (ML 04)	06:13 19:42	05:37 20:13
21	07:18 17:00	06:46 17:39	06:02 18:10	06:20 (ML 04) 06:54 (ML 04)	06:11 19:43	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:18 (ML 04) 06:53 (ML 04)	06:10 19:44	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 07:02 (ML 05)	06:17 (ML 04) 06:53 (ML 04)	06:08 19:45	05:34 20:16
24	07:17 17:04	06:41 17:42	05:57 07:01 (ML 05)	06:15 (ML 04) 06:52 (ML 04)	06:07 19:46	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 07:05 (ML 05)	06:13 (ML 04) 06:51 (ML 04)	06:06 19:48	05:33 20:18
26	07:15 17:07	06:38 17:45	05:53 06:58 (ML 05)	06:12 (ML 04) 06:50 (ML 04)	06:04 19:49	05:32 20:19
27	07:14 17:08	06:37 17:46	05:52 07:04 (ML 05)	06:10 (ML 04) 06:49 (ML 04)	06:03 19:50	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 06:54 (ML 05)	06:08 (ML 04) 06:47 (ML 04)	06:01 19:51	05:31 20:20
29	07:13 17:10		06:48 19:19	07:07 (ML 04) 07:46 (ML 04)	06:00 19:52	05:30 20:21
30	07:12 17:11		06:47 19:20	07:06 (ML 04) 07:44 (ML 04)	05:59 19:53	05:30 20:22
31	07:11 17:13		06:45 19:21	07:07 (ML 04) 07:42 (ML 04)		05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case		37	758	97		
Sun reduction		0,62	0,55	0,50		
Oper. time red.		0,76	0,76	0,76		
Wind dir. red.		0,59	0,63	0,63		
Total reduction		0,28	0,26	0,24		
Total, real		10	200	23		

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: Real Case Shadow receptor: R12 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (2)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:14 (ML 04) 16:28	07:03 16:31
2	05:30 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:15 (ML 04) 16:29	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:16 (ML 04) 16:30	07:05 16:30
4	05:31 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:17 (ML 04) 16:31	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:18 (ML 04) 16:33	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:19 (ML 04) 16:34	07:08 16:30
7	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	07:20 (ML 04) 16:35	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:21 (ML 04) 16:36	07:10 16:30
9	05:34 20:32	06:01 20:06	06:32 19:19	07:02 (ML 04) 18:29	07:22 (ML 05) 16:37	07:11 16:30
10	05:34 20:32	06:02 20:05	06:33 19:17	07:04 (ML 04) 18:27	07:23 (ML 05) 16:39	07:11 16:30
11	05:35 20:32	06:03 20:03	06:34 19:16	07:01 (ML 04) 18:25	07:24 (ML 05) 16:40	07:12 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 (ML 04) 18:24	07:26 (ML 05) 16:41	07:13 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 (ML 04) 18:22	07:27 (ML 05) 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 (ML 04) 18:21	07:28 (ML 05) 16:43	07:15 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 (ML 04) 18:19	07:29 (ML 05) 16:45	07:15 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 (ML 04) 18:18	07:30 (ML 05) 16:46	07:16 16:31
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 (ML 04) 18:16	07:31 (ML 05) 16:47	07:17 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 (ML 04) 18:14	07:32 (ML 05) 16:48	07:17 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 (ML 04) 18:13	07:34 (ML 05) 16:49	07:18 16:32
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 (ML 04) 18:11	07:35 (ML 05) 16:50	07:19 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 (ML 04) 18:10	07:36 (ML 05) 16:52	07:19 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 (ML 04) 18:09	07:37 (ML 05) 16:53	07:20 16:33
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 (ML 04) 18:07	07:38 (ML 05) 16:54	07:20 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 (ML 04) 18:06	07:39 (ML 05) 16:55	07:21 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 (ML 04) 17:04	07:40 (ML 05) 16:56	07:21 16:35
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 (ML 04) 17:03	07:41 (ML 05) 16:57	07:22 16:35
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 (ML 04) 17:02	07:42 (ML 05) 16:58	07:22 16:36
28	05:49 20:19	06:20 19:39	06:51 18:47	07:23 (ML 04) 17:00	07:43 (ML 05) 16:59	07:22 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 (ML 04) 16:59	07:44 (ML 05) 16:31	07:22 16:37
30	05:51 20:17	06:22 19:36	06:53 18:43	07:25 (ML 04) 16:58	07:45 (ML 05) 16:31	07:23 16:38
31	05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	459	428	375	345	298	288
Total, worst case			727		179	
Sun reduction			0,53		0,59	
Oper. time red.			0,76		0,76	
Wind dir. red.			0,63		0,61	
Total reduction			0,25		0,28	
Total, real			184		49	

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

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

Calculation: Real Case Shadow receptor: R14 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (3)
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22								
2	07:23 16:41	07:09 17:15	06:32 17:49	06:42 19:23	16	07:18 (ML 04) 07:00 (ML 04)	05:57 05:56	05:29 05:28	05:29 05:30	05:53 05:54	06:24 06:25	06:28 06:29
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	16	07:16 (ML 04) 06:58 (ML 04)	05:55 05:54	05:28 05:27	05:30 05:31	05:54 05:55	06:24 06:25	06:30 06:31
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	15	07:13 (ML 04) 06:57 (ML 04)	05:56 05:54	05:27 05:26	05:31 05:32	05:56 05:57	06:27 06:28	06:31 06:32
5	07:23 16:43	07:06 17:19	06:28 17:53	06:37 19:26	14	07:11 (ML 04) 06:58 (ML 04)	05:57 05:58	05:27 05:26	05:31 05:32	05:57 05:58	06:28 06:29	06:33 06:34
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	8	07:06 (ML 04)	05:51	05:27	05:32	05:58	06:29	06:34
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28								
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30								
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31								
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32								
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33								
12	07:22 16:50	06:58 17:28	06:16 18:01	06:25 19:34								
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35								
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36								
15	07:21 16:54	06:54 17:31	06:12 18:04	06:21 19:37								
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38								
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39								
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40								
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41								
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42								
21	07:18 17:00	06:46 17:39	06:02 18:10	06:11 19:43								
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44								
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45								
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47								
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48								
26	07:15 17:07	06:38 17:45	05:53 18:16	06:04 19:49								
27	07:14 17:08	06:37 17:46	05:52 18:17	06:03 19:50								
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51								
29	07:13 17:10		06:48 19:19	06:00 19:52								
30	07:12 17:11		06:47 19:20	05:59 19:53								
31	07:11 17:13		06:45 19:21	07:03 (ML 04) 07:19 (ML 04)								
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case			134	69					207			
Sun reduction			0,55	0,50					0,53			
Oper. time red.			0,76	0,76					0,76			
Wind dir. red.			0,64	0,64					0,64			
Total reduction			0,27	0,24					0,26			
Total, real			36	17					54			

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: Real Case Shadow receptor: R21 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (4)
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	06:48 (ML 02) 20:23
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	12 05:56 19:55	06:50 (ML 02) 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	6 05:55 19:56	06:56 (ML 02) 20:25
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:26
5	07:23 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:26 20:28
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:47 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:02	10 06:59 (ML 03) 19:34	06:46 (ML 03) 19:35	05:43 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	15 07:01 (ML 03) 19:35	06:45 (ML 03) 19:36	05:42 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	18 07:03 (ML 03) 19:36	06:44 (ML 03) 19:37	05:41 20:32
16	07:21 16:55	06:53 17:33	06:10 18:05	19 07:03 (ML 03) 19:38	06:43 (ML 03) 19:38	3 06:59 (ML 02) 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	20 07:03 (ML 03) 19:39	06:43 (ML 03) 19:39	06:51 (ML 02) 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	21 07:04 (ML 03) 19:40	06:42 (ML 03) 19:40	11 07:02 (ML 02) 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	21 07:04 (ML 03) 19:41	06:41 (ML 03) 19:41	16 07:05 (ML 02) 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	21 07:02 (ML 03) 19:42	06:42 (ML 03) 19:42	18 07:05 (ML 02) 20:13
21	07:18 17:00	06:46 17:39	06:02 18:10	20 07:02 (ML 03) 19:43	06:42 (ML 03) 19:43	19 07:06 (ML 02) 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	21 07:01 (ML 03) 19:44	06:42 (ML 03) 19:44	21 07:06 (ML 02) 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	20 07:01 (ML 03) 19:45	06:44 (ML 03) 19:45	22 07:07 (ML 02) 20:16
24	07:16 17:04	06:41 17:42	05:56 18:13	14 06:58 (ML 03) 19:46	06:46 (ML 03) 19:46	22 07:06 (ML 02) 20:17
25	07:16 17:05	06:40 17:43	05:55 18:15	10 06:56 (ML 03) 19:47	06:06 19:48	22 07:06 (ML 02) 20:18
26	07:15 17:06	06:38 17:44	05:53 18:16	19 07:06 (ML 02) 19:49	06:04 19:49	21 07:06 (ML 02) 20:19
27	07:14 17:08	06:37 17:46	05:51 18:17	20 07:06 (ML 02) 19:50	06:03 19:50	21 07:06 (ML 02) 20:20
28	07:13 17:09	06:35 17:47	05:50 18:18	20 07:05 (ML 02) 19:51	06:01 19:51	20 07:05 (ML 02) 20:21
29	07:13 17:10	06:48 19:19	06:48 19:19	19 07:03 (ML 02) 19:52	06:00 19:52	19 07:03 (ML 02) 20:22
30	07:12 17:11	06:46 19:20	06:46 19:20	18 07:03 (ML 02) 19:53	05:59 19:53	15 07:02 (ML 02) 20:23
31	07:11 17:13	06:45 19:21	06:45 19:21	15 07:02 (ML 02) 19:54	05:59 19:54	15 07:02 (ML 02) 20:24
Potential sun hours	297	297	369	399	448	452
Total, worst case			225	268		18
Sun reduction			0,55	0,50		0,46
Oper. time red.			0,76	0,76		0,76
Wind dir. red.			0,61	0,66		0,66
Total reduction			0,26	0,25		0,23
Total, real			58	67		4

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: Real Case Shadow receptor: R21 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (4)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:28 (ML 03) 16:28	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:31 (ML 03) 16:29	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:36 (ML 03) 16:30	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:37 (ML 03) 16:31	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:38 (ML 03) 16:32	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:39 (ML 03) 16:33	07:08 16:30
7	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	07:40 (ML 03) 16:34	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:41 (ML 03) 16:35	07:10 16:29
9	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:29	07:42 (ML 03) 16:36	07:11 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:43 (ML 03) 16:37	07:11 16:30
11	05:35 20:32	06:03 20:03	06:58 (ML 02) 07:06 (ML 02)	06:34 19:16	07:04 18:25	06:40 16:44
12	05:36 20:31	06:04 20:02	06:56 (ML 02) 07:08 (ML 02)	06:35 19:14	07:05 18:24	16:30 16:43
13	05:36 20:31	06:05 20:01	06:54 (ML 02) 07:10 (ML 02)	06:36 19:12	07:06 18:22	16:30 16:42
14	05:37 20:30	06:06 19:59	06:53 (ML 02) 07:11 (ML 02)	06:37 19:11	07:07 18:21	16:30 16:41
15	05:38 20:30	06:07 19:58	06:52 (ML 02) 07:11 (ML 02)	06:38 19:09	07:08 18:19	16:30 16:40
16	05:39 20:29	06:08 19:57	06:51 (ML 02) 07:12 (ML 02)	06:38 19:07	07:10 18:17	16:30 16:39
17	05:39 20:28	06:09 19:55	06:51 (ML 02) 07:12 (ML 02)	06:39 19:05	07:11 18:16	16:31 16:38
18	05:40 20:28	06:10 19:54	06:50 (ML 02) 07:12 (ML 02)	06:40 19:04	07:12 18:14	16:31 16:38
19	05:41 20:27	06:11 19:52	06:50 (ML 02) 07:12 (ML 02)	06:41 19:02	07:13 18:13	16:31 16:37
20	05:42 20:26	06:12 19:51	06:50 (ML 02) 07:12 (ML 02)	06:42 19:00	07:14 18:11	16:32 16:36
21	05:43 20:26	06:13 19:49	06:50 (ML 02) 07:11 (ML 02)	06:43 18:59	07:15 18:10	16:32 16:36
22	05:44 20:25	06:14 19:48	06:50 (ML 02) 07:11 (ML 02)	06:44 18:57	07:16 18:09	16:33 16:35
23	05:45 20:24	06:15 19:46	06:51 (ML 02) 07:10 (ML 02)	06:45 18:55	07:17 18:07	16:33 16:34
24	05:45 20:23	06:16 19:45	06:51 (ML 02) 07:09 (ML 02)	06:46 18:54	07:18 18:06	16:34 16:34
25	05:46 20:22	06:17 19:43	06:52 (ML 02) 07:07 (ML 02)	06:47 18:52	07:19 17:04	16:34 16:33
26	05:47 20:21	06:18 19:42	06:54 (ML 02) 07:05 (ML 02)	06:49 18:50	07:20 17:03	16:35 16:33
27	05:48 20:20	06:19 19:40	06:59 (ML 02) 07:00 (ML 02)	06:50 18:48	07:21 17:02	16:36 16:32
28	05:49 20:19	06:20 19:39	06:51 (ML 02) 18:47	06:51 18:47	07:22 (ML 03) 17:00	16:36 16:32
29	05:50 20:18	06:21 19:37	06:52 (ML 02) 18:45	06:52 18:45	07:23 (ML 03) 16:59	16:37 16:31
30	05:51 20:17	06:22 19:35	06:53 (ML 02) 18:43	06:53 18:43	07:24 (ML 03) 16:58	16:38 16:31
31	05:52 20:16	06:23 19:34	06:54 (ML 02) 18:42	06:54 18:42	07:25 (ML 03) 16:57	16:39 16:30
Potential sun hours	459	428	375	345	298	288
Total, worst case		287	215	17		
Sun reduction		0,48	0,53	0,59		
Oper. time red.		0,76	0,76	0,76		
Wind dir. red.		0,66	0,61	0,61		
Total reduction		0,24	0,25	0,28		
Total, real		69	53	5		

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: Real Case Shadow receptor: R23 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (5)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March		April		May	June
1	07:23 16:40	07:10 17:14	06:34 17:48		06:43 19:22		05:57 19:54	05:28 20:23
2	07:23 16:41	07:09 17:15	06:32 17:49		06:41 19:23		05:56 19:55	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50		06:40 19:24		05:55 19:56	05:28 20:25
4	07:23 16:42	07:07 17:18	06:29 17:51		06:38 19:25		05:53 19:57	05:27 20:26
5	07:23 16:43	07:06 17:19	06:28 17:53		06:37 19:26		05:52 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54		06:35 19:27		05:51 19:59	05:27 20:27
7	07:23 16:45	07:04 17:21	06:25 17:55		06:33 19:28		05:50 20:00	05:26 20:28
8	07:23 16:46	07:02 17:23	06:23 17:56		06:32 19:29		05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57		06:30 19:31		05:47 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58		06:28 19:32		05:46 20:03	05:26 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	8	06:51 (ML 03) 06:59 (ML 03)	06:27 19:33	05:45 20:04	05:25 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	13	06:48 (ML 03) 07:01 (ML 03)	06:25 19:34	05:44 20:05	05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:02	16	06:46 (ML 03) 07:02 (ML 03)	06:24 19:35	05:43 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	19	06:45 (ML 03) 07:04 (ML 03)	06:22 19:36	05:42 20:07	05:25 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	20	06:44 (ML 03) 07:04 (ML 03)	06:20 19:37	06:55 (ML 02) 07:01 (ML 02)	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	21	06:43 (ML 03) 07:04 (ML 03)	06:19 19:38	06:52 (ML 02) 07:04 (ML 02)	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	21	06:43 (ML 03) 07:04 (ML 03)	06:17 19:39	06:50 (ML 02) 07:05 (ML 02)	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	21	06:42 (ML 03) 07:03 (ML 03)	06:16 19:40	06:49 (ML 02) 07:07 (ML 02)	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	21	06:42 (ML 03) 07:03 (ML 03)	06:14 19:41	06:47 (ML 02) 07:07 (ML 02)	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	19	06:43 (ML 03) 07:02 (ML 03)	06:13 19:42	06:47 (ML 02) 07:08 (ML 02)	05:36 20:13
21	07:18 17:00	06:46 17:39	06:02 18:10	18	06:43 (ML 03) 07:01 (ML 03)	06:11 19:43	06:46 (ML 02) 07:07 (ML 02)	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	15	06:44 (ML 03) 06:59 (ML 03)	06:10 19:44	06:46 (ML 02) 07:08 (ML 02)	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	11	06:46 (ML 03) 06:57 (ML 03)	06:08 19:45	06:45 (ML 02) 07:07 (ML 02)	05:34 20:16
24	07:16 17:04	06:41 17:42	05:56 18:13			06:07 19:46	06:45 (ML 02) 07:07 (ML 02)	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 18:15			06:06 19:48	06:46 (ML 02) 07:07 (ML 02)	05:33 20:18
26	07:15 17:06	06:38 17:44	05:53 18:16			06:04 19:49	06:45 (ML 02) 07:05 (ML 02)	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 18:17			06:03 19:50	06:46 (ML 02) 07:05 (ML 02)	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 18:18			06:01 19:51	06:46 (ML 02) 07:03 (ML 02)	05:31 20:20
29	07:13 17:10		06:48 19:19			06:00 19:52	06:48 (ML 02) 07:02 (ML 02)	05:30 20:21
30	07:12 17:11		06:46 19:20			05:59 19:53	06:50 (ML 02) 07:00 (ML 02)	05:29 20:22
31	07:11 17:13		06:45 19:21				05:29 20:23	05:29 20:23
Potential sun hours	297	297	369		399		448	452
Total, worst case			223		280			
Sun reduction			0,55		0,50			
Oper. time red.			0,76		0,76			
Wind dir. red.			0,61		0,66			
Total reduction			0,26		0,25			
Total, real			58		70			

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

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

Calculation: Real Case Shadow receptor: R23 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (5)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:27 (ML 03) 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:28 (ML 03) 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:39 (ML 03) 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:00 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:01 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:02 16:49	07:08 16:30
7	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	07:03 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:04 16:47	07:10 16:29
9	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:29	07:05 16:46	07:11 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:06 16:45	07:12 16:30
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	07:07 16:44	07:13 16:30
12	05:36 20:31	06:04 20:02	07:00 (ML 02) 07:05 (ML 02)	06:35 19:14	07:08 18:24	07:14 16:30
13	05:36 20:31	06:05 20:01	06:57 (ML 02) 07:08 (ML 02)	06:36 19:12	07:09 18:22	07:15 16:30
14	05:37 20:30	06:06 19:59	06:55 (ML 02) 07:10 (ML 02)	06:37 19:11	07:10 18:21	07:16 16:30
15	05:38 20:30	06:07 19:58	06:54 (ML 02) 07:11 (ML 02)	06:38 19:09	07:11 18:19	07:17 16:30
16	05:39 20:29	06:08 19:57	06:53 (ML 02) 07:12 (ML 02)	06:38 19:07	07:12 18:17	07:18 16:30
17	05:39 20:28	06:09 19:55	06:52 (ML 02) 07:12 (ML 02)	06:39 19:05	07:13 18:16	07:19 16:31
18	05:40 20:28	06:10 19:54	06:51 (ML 02) 07:13 (ML 02)	06:40 19:04	07:14 18:14	07:20 16:31
19	05:41 20:27	06:11 19:52	06:51 (ML 02) 07:13 (ML 02)	06:41 19:02	07:15 18:13	07:21 16:31
20	05:42 20:26	06:12 19:51	06:51 (ML 02) 07:13 (ML 02)	06:42 19:00	07:14 18:11	07:22 16:32
21	05:43 20:26	06:13 19:49	06:51 (ML 02) 07:12 (ML 02)	06:43 18:59	07:15 18:10	07:23 16:32
22	05:44 20:25	06:14 19:48	06:51 (ML 02) 07:12 (ML 02)	06:44 18:57	07:16 18:09	07:24 16:33
23	05:45 20:24	06:15 19:46	06:51 (ML 02) 07:11 (ML 02)	06:45 18:55	07:17 18:07	07:25 16:33
24	05:45 20:23	06:16 19:45	06:51 (ML 02) 07:11 (ML 02)	06:46 18:54	07:18 18:06	07:26 16:34
25	05:46 20:22	06:17 19:43	06:52 (ML 02) 07:09 (ML 02)	06:47 18:52	07:19 17:04	07:27 16:34
26	05:47 20:21	06:18 19:42	06:53 (ML 02) 07:08 (ML 02)	06:49 18:50	07:20 17:03	07:28 16:35
27	05:48 20:20	06:19 19:40	06:54 (ML 02) 07:06 (ML 02)	06:50 18:48	07:21 17:02	07:29 16:36
28	05:49 20:19	06:20 19:39	06:58 (ML 02) 07:02 (ML 02)	06:51 18:47	07:22 17:00	07:30 16:36
29	05:50 20:18	06:21 19:37	06:52 (ML 02)	06:52 18:45	07:23 (ML 03) 16:59	07:31 16:37
30	05:51 20:17	06:22 19:35	06:53 (ML 02)	06:53 18:43	07:24 (ML 03) 16:58	07:32 16:38
31	05:52 20:16	06:23 19:34		06:54 16:56		07:33 16:39
Potential sun hours	459	428	375	345	298	288
Total, worst case		283	200		26	
Sun reduction		0,48	0,53		0,59	
Oper. time red.		0,76	0,76		0,76	
Wind dir. red.		0,66	0,61		0,61	
Total reduction		0,24	0,25		0,28	
Total, real		68	49		7	

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: Real Case Shadow receptor: R31 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (6)
 Sunshine probability S (Average daily sunshine hours) []
 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time
 N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48		05:57 19:22	06:40 (ML 03) 19:28
2	07:23 16:40	07:09 17:15	06:32 17:49	12 17:08 (ML 04)	19:22 05:56	20:23 06:38 (ML 03)
3	07:23 16:41	07:08 17:16	06:31 17:50	16 17:06 (ML 04)	19:23 05:55	20:24 06:37 (ML 03)
4	07:23 16:42	07:07 17:18	06:29 17:51	20 17:03 (ML 04)	19:24 05:53	20:25 06:37 (ML 03)
5	07:23 16:43	07:06 17:19	06:28 17:53	22 17:02 (ML 04)	19:25 05:52	20:26 06:36 (ML 03)
6	07:23 16:44	07:05 17:20	06:26 17:54	25 17:00 (ML 04)	19:26 05:51	20:27 06:36 (ML 03)
7	07:23 16:45	07:04 17:21	06:24 17:55	27 16:59 (ML 04)	19:27 05:50	20:27 06:34 (ML 03)
8	07:23 16:46	07:02 17:23	06:23 17:56	30 16:58 (ML 04)	19:28 05:49	20:27 06:34 (ML 03)
9	07:23 16:47	07:01 17:24	06:21 17:57	31 16:57 (ML 04)	19:29 05:47	20:28 06:34 (ML 03)
10	07:23 16:48	07:00 17:25	06:20 17:58	33 16:56 (ML 04)	19:30 05:46	20:29 06:34 (ML 03)
11	07:23 16:49	06:59 17:26	06:18 17:59	34 16:56 (ML 04)	19:31 05:45	20:29 06:34 (ML 03)
12	07:22 16:50	06:58 17:28	06:16 18:00	36 16:55 (ML 04)	19:32 05:44	20:30 06:34 (ML 03)
13	07:22 16:51	06:56 17:29	06:15 18:02	37 16:54 (ML 04)	19:33 05:43	20:30 06:34 (ML 03)
14	07:22 16:52	06:55 17:30	06:13 18:03	37 16:55 (ML 04)	19:34 05:42	20:30 06:34 (ML 03)
15	07:21 16:53	06:54 17:31	06:11 18:04	36 16:55 (ML 04)	19:35 05:41	20:30 06:34 (ML 03)
16	07:21 16:55	06:53 17:32	06:10 18:05	37 16:54 (ML 04)	19:36 05:40	20:31 06:34 (ML 03)
17	07:21 16:56	06:51 17:34	06:08 18:06	35 16:55 (ML 04)	19:37 05:39	20:31 06:34 (ML 03)
18	07:20 16:57	06:50 17:35	06:06 18:07	34 16:55 (ML 04)	19:38 05:38	20:32 06:34 (ML 03)
19	07:20 16:58	06:48 17:36	06:05 18:08	32 16:56 (ML 04)	19:39 05:37	20:32 06:36 (ML 03)
20	07:19 16:59	06:47 17:37	06:03 18:09	30 16:57 (ML 04)	19:40 05:36	20:32 06:36 (ML 03)
21	07:18 17:00	06:46 17:39	06:01 18:10	27 16:58 (ML 04)	19:41 05:36	20:33 06:36 (ML 03)
22	07:18 17:02	06:44 17:40	06:00 18:11	24 16:59 (ML 04)	19:42 05:35	20:33 06:38 (ML 03)
23	07:17 17:03	06:43 17:41	05:58 18:12	20 17:01 (ML 04)	19:43 05:34	20:33 06:38 (ML 03)
24	07:16 17:04	06:41 17:42	05:56 18:13	14 17:04 (ML 04)	19:44 05:33	20:34 06:39 (ML 03)
25	07:16 17:05	06:40 17:43	05:55 18:15		19:45 05:33	20:34 06:40 (ML 03)
26	07:15 17:06	06:38 17:44	05:53 18:16		19:46 05:32	20:34 06:41 (ML 03)
27	07:14 17:08	06:37 17:46	05:51 18:17		19:47 05:31	20:34 06:41 (ML 03)
28	07:13 17:09	06:35 17:47	05:50 18:18		19:48 05:31	20:34 06:43 (ML 03)
29	07:12 17:10		06:48 19:19		19:49 05:30	20:34 06:43 (ML 03)
30	07:12 17:11		06:46 19:20		19:50 05:29	20:34 06:45 (ML 03)
31	07:11 17:13		06:45 19:21		19:51 05:29	20:34 06:46 (ML 03)
Potential sun hours	297	297	369	399	448	452
Total, worst case			649		912	8
Sun reduction			0,55		0,46	0,44
Oper. time red.			0,76		0,76	0,76
Wind dir. red.			0,66		0,66	0,66
Total reduction			0,28		0,23	0,22
Total, real			181	19	210	2

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

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

Calculation: Real Case Shadow receptor: R31 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (6)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July	August	September	October	November	December		
1	05:29	05:53	06:44 (ML 03)	06:24	06:54	17:35 (ML 04)	06:28	07:03
	20:34	20:15	07:20 (ML 03)	19:32	18:42	18:11 (ML 04)	16:55	16:31
2	05:29	05:54	06:44 (ML 03)	06:25	06:55	17:34 (ML 04)	06:29	07:04
	20:34	20:14	07:20 (ML 03)	19:31	18:40	18:09 (ML 04)	16:54	16:30
3	05:30	05:55	06:45 (ML 03)	06:26	06:56	17:34 (ML 04)	06:30	07:05
	20:34	20:13	07:20 (ML 03)	19:29	18:38	18:08 (ML 04)	16:53	16:30
4	05:30	05:56	06:45 (ML 03)	06:27	06:57	17:34 (ML 04)	06:31	07:06
	20:34	20:12	07:20 (ML 03)	19:27	18:37	18:07 (ML 04)	16:51	16:30
5	05:31	05:57	06:45 (ML 03)	06:28	06:58	17:34 (ML 04)	06:33	07:07
	20:34	20:11	07:20 (ML 03)	19:26	18:35	18:05 (ML 04)	16:50	16:30
6	05:32	05:58	06:45 (ML 03)	06:29	06:59	17:35 (ML 04)	06:34	07:08
	20:33	20:10	07:20 (ML 03)	19:24	18:33	18:03 (ML 04)	16:49	16:30
7	05:32	05:59	06:46 (ML 03)	06:30	07:00	17:35 (ML 04)	06:35	07:09
	20:33	20:08	07:19 (ML 03)	19:22	18:32	18:02 (ML 04)	16:48	16:30
8	05:33	06:00	06:46 (ML 03)	06:31	07:01	17:36 (ML 04)	06:36	07:10
	20:33	20:07	07:19 (ML 03)	19:21	18:30	18:00 (ML 04)	16:47	16:29
9	05:34	06:01	06:46 (ML 03)	06:32	07:02	17:37 (ML 04)	06:37	07:10
	20:32	20:06	07:17 (ML 03)	19:19	18:28	17:58 (ML 04)	16:46	16:29
10	05:34	06:02	06:46 (ML 03)	06:33	07:03	17:38 (ML 04)	06:39	07:11
	20:32	20:05	07:16 (ML 03)	19:17	18:27	17:56 (ML 04)	16:45	16:29
11	05:35	06:03	06:47 (ML 03)	06:34	07:04	17:40 (ML 04)	06:40	07:12
	20:32	07:02 (ML 03)	20:03	19:16	18:25	17:55 (ML 04)	16:44	16:30
12	05:36	06:04	06:48 (ML 03)	06:35	07:05	17:41 (ML 04)	06:41	07:13
	20:31	07:05 (ML 03)	20:02	19:14	18:24	17:53 (ML 04)	16:43	16:30
13	05:36	06:05	06:49 (ML 03)	06:35	07:06	17:42 (ML 04)	06:42	07:14
	20:31	07:08 (ML 03)	20:01	19:12	18:22	17:54 (ML 04)	16:42	16:30
14	05:37	06:06	06:50 (ML 03)	06:36	07:07	17:43 (ML 04)	06:43	07:15
	20:30	07:09 (ML 03)	19:59	19:11	18:21	17:55 (ML 04)	16:41	16:30
15	05:38	06:07	06:51 (ML 03)	06:37	07:08	17:44 (ML 04)	06:44	07:15
	20:30	07:10 (ML 03)	19:58	19:09	18:19	17:56 (ML 04)	16:40	16:30
16	05:39	06:08	06:52 (ML 03)	06:38	07:10	17:45 (ML 04)	06:45	07:16
	20:29	07:11 (ML 03)	19:57	19:07	18:17	17:57 (ML 04)	16:39	16:30
17	05:39	06:09	06:53 (ML 03)	06:39	07:11	17:46 (ML 04)	06:47	07:17
	20:28	07:13 (ML 03)	19:55	19:05	18:16	17:58 (ML 04)	16:38	16:31
18	05:40	06:10	06:54 (ML 03)	06:40	07:12	17:47 (ML 04)	06:48	07:17
	20:28	07:14 (ML 03)	19:54	19:04	18:14	17:59 (ML 04)	16:38	16:31
19	05:41	06:11	06:55 (ML 03)	06:41	07:13	17:48 (ML 04)	06:49	07:18
	20:27	07:15 (ML 03)	19:52	19:02	18:13	18:00 (ML 04)	16:37	16:31
20	05:42	06:12	06:56 (ML 03)	06:42	07:14	17:49 (ML 04)	06:50	07:19
	20:26	07:16 (ML 03)	19:51	19:00	18:11	18:01 (ML 04)	16:36	16:32
21	05:43	06:13	06:57 (ML 03)	06:43	07:15	17:50 (ML 04)	06:52	07:19
	20:25	07:16 (ML 03)	19:49	18:59	23	18:02 (ML 04)	16:36	16:32
22	05:44	06:14	06:58 (ML 03)	06:44	07:16	17:51 (ML 04)	06:53	07:20
	20:25	07:17 (ML 03)	19:48	18:57	26	18:03 (ML 04)	16:35	16:33
23	05:44	06:15	06:59 (ML 03)	06:45	07:17	17:52 (ML 04)	06:54	07:20
	20:24	07:17 (ML 03)	19:46	18:55	29	18:04 (ML 04)	16:34	16:33
24	05:45	06:16	07:00 (ML 03)	06:46	07:18	17:53 (ML 04)	06:55	07:21
	20:23	07:18 (ML 03)	19:45	18:54	32	18:05 (ML 04)	16:34	16:34
25	05:46	06:17	07:01 (ML 03)	06:47	07:19	17:54 (ML 04)	06:56	07:21
	20:22	07:19 (ML 03)	19:43	18:52	33	18:06 (ML 04)	16:33	16:34
26	05:47	06:18	07:02 (ML 03)	06:48	07:20	17:55 (ML 04)	06:57	07:21
	20:21	07:18 (ML 03)	19:42	18:50	35	18:07 (ML 04)	16:33	16:35
27	05:48	06:19	07:03 (ML 03)	06:49	07:21	17:56 (ML 04)	06:58	07:22
	20:20	07:19 (ML 03)	19:40	18:48	36	18:08 (ML 04)	16:32	16:36
28	05:49	06:20	07:04 (ML 03)	06:50	07:22	17:57 (ML 04)	06:59	07:22
	20:19	07:19 (ML 03)	19:39	18:47	37	18:09 (ML 04)	16:32	16:36
29	05:50	06:21	07:05 (ML 03)	06:51	07:23	17:58 (ML 04)	07:01	07:22
	20:18	07:19 (ML 03)	19:37	18:45	37	18:10 (ML 04)	16:31	16:37
30	05:51	06:22	07:06 (ML 03)	06:52	07:24	17:59 (ML 04)	07:02	07:23
	20:17	07:20 (ML 03)	19:35	18:43	37	18:11 (ML 04)	16:31	16:38
31	05:52	06:23	07:07 (ML 03)	06:53	07:25	18:00 (ML 04)	07:03	07:23
	20:16	07:20 (ML 03)	19:34	18:42	37	18:12 (ML 04)	16:31	16:39
Potential sun hours	459	428	375	345	298	288		
Total, worst case	542	462	356	311				
Sun reduction	0,45	0,48	0,53	0,59				
Oper. time red.	0,76	0,76	0,76	0,76				
Wind dir. red.	0,66	0,66	0,66	0,66				
Total reduction	0,22	0,24	0,27	0,30				
Total, real	122	111	95	93				

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	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Real Case Shadow receptor: R32 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (7)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

July		August		September		October		November		December	
1	05:29	05:53	06:43 (ML 03)	06:24	06:54	17:36 (ML 04)	06:28	07:03			
	20:34	20:15	35 07:18 (ML 03)	19:32	18:42	35 18:11 (ML 04)	16:55	16:31			
2	05:29	05:54	06:43 (ML 03)	06:25	06:55	17:36 (ML 04)	06:29	07:04			
	20:34	20:14	35 07:18 (ML 03)	19:31	18:40	33 18:09 (ML 04)	16:54	16:30			
3	05:30	05:55	06:43 (ML 03)	06:26	06:56	17:36 (ML 04)	06:30	07:05			
	20:34	20:13	35 07:18 (ML 03)	19:29	18:38	32 18:08 (ML 04)	16:53	16:30			
4	05:30	05:56	06:44 (ML 03)	06:27	06:57	17:37 (ML 04)	06:31	07:06			
	20:34	20:12	34 07:18 (ML 03)	19:27	18:37	29 18:06 (ML 04)	16:51	16:30			
5	05:31	05:57	06:44 (ML 03)	06:28	06:58	17:37 (ML 04)	06:33	07:07			
	20:34	20:11	33 07:17 (ML 03)	19:26	18:35	28 18:05 (ML 04)	16:50	16:30			
6	05:32	05:58	06:44 (ML 03)	06:29	06:59	17:38 (ML 04)	06:34	07:08			
	20:33	20:10	33 07:17 (ML 03)	19:24	18:33	25 18:03 (ML 04)	16:49	16:30			
7	05:32	06:57 (ML 03)	05:59	06:45 (ML 03)	06:30	07:00	17:39 (ML 04)	06:35	07:09		
	20:33	2 06:59 (ML 03)	20:08	31 07:16 (ML 03)	19:22	18:32	22 18:01 (ML 04)	16:48	16:30		
8	05:33	06:53 (ML 03)	06:00	06:46 (ML 03)	06:31	07:01	17:40 (ML 04)	06:36	07:10		
	20:33	9 07:02 (ML 03)	20:07	29 07:15 (ML 03)	19:21	18:30	19 17:59 (ML 04)	16:47	16:29		
9	05:34	06:52 (ML 03)	06:01	06:45 (ML 03)	06:32	07:02	17:42 (ML 04)	06:37	07:10		
	20:32	12 07:04 (ML 03)	20:06	28 07:13 (ML 03)	19:19	18:28	15 17:57 (ML 04)	16:46	16:29		
10	05:34	06:52 (ML 03)	06:02	06:46 (ML 03)	06:33	07:03	17:45 (ML 04)	06:39	07:11		
	20:32	14 07:06 (ML 03)	20:05	26 07:12 (ML 03)	19:17	18:27	11 17:56 (ML 04)	16:45	16:29		
11	05:35	06:50 (ML 03)	06:03	06:47 (ML 03)	06:34	07:04		06:40	07:12		
	20:32	16 07:06 (ML 03)	20:03	24 07:11 (ML 03)	19:16	18:25		16:44	16:30		
12	05:36	06:49 (ML 03)	06:04	06:49 (ML 03)	06:35	07:05		06:41	07:13		
	20:31	19 07:08 (ML 03)	20:02	20 07:09 (ML 03)	19:14	18:24		16:43	16:30		
13	05:36	06:49 (ML 03)	06:05	06:51 (ML 03)	06:35	07:06		06:42	07:14		
	20:31	20 07:09 (ML 03)	20:01	16 07:07 (ML 03)	19:12	18:22		16:42	16:30		
14	05:37	06:49 (ML 03)	06:06	06:54 (ML 03)	06:36	07:07		06:43	07:15		
	20:30	21 07:10 (ML 03)	19:59	10 07:04 (ML 03)	19:11	18:21		16:41	16:30		
15	05:38	06:47 (ML 03)	06:07		06:37	07:08		06:44	07:15		
	20:30	24 07:11 (ML 03)	19:58		19:09	18:19		16:40	16:30		
16	05:39	06:47 (ML 03)	06:08		06:38	07:10		06:46	07:16		
	20:29	25 07:12 (ML 03)	19:57		19:07	18:17		16:39	16:30		
17	05:39	06:46 (ML 03)	06:09		06:39	17:53 (ML 04)	07:11	06:47	07:17		
	20:28	27 07:13 (ML 03)	19:55		19:05	14 18:07 (ML 04)	18:16	16:38	16:31		
18	05:40	06:46 (ML 03)	06:10		06:40	17:50 (ML 04)	07:12	06:48	07:17		
	20:28	28 07:14 (ML 03)	19:54		19:04	20 18:10 (ML 04)	18:14	16:38	16:31		
19	05:41	06:46 (ML 03)	06:11		06:41	17:47 (ML 04)	07:13	06:49	07:18		
	20:27	28 07:14 (ML 03)	19:52		19:02	24 18:11 (ML 04)	18:13	16:37	16:31		
20	05:42	06:45 (ML 03)	06:12		06:42	17:45 (ML 04)	07:14	06:50	07:19		
	20:26	29 07:14 (ML 03)	19:51		19:00	28 18:13 (ML 04)	18:11	16:36	16:32		
21	05:43	06:44 (ML 03)	06:13		06:43	17:44 (ML 04)	07:15	06:52	07:19		
	20:25	31 07:15 (ML 03)	19:49		18:59	30 18:14 (ML 04)	18:10	16:36	16:32		
22	05:44	06:44 (ML 03)	06:14		06:44	17:42 (ML 04)	07:16	06:53	07:20		
	20:25	32 07:16 (ML 03)	19:48		18:57	32 18:14 (ML 04)	18:08	16:35	16:33		
23	05:44	06:44 (ML 03)	06:15		06:45	17:41 (ML 04)	07:17	06:54	07:20		
	20:24	32 07:16 (ML 03)	19:46		18:55	34 18:15 (ML 04)	18:07	16:34	16:33		
24	05:45	06:44 (ML 03)	06:16		06:46	17:40 (ML 04)	07:18	06:55	07:21		
	20:23	33 07:17 (ML 03)	19:45		18:54	35 18:15 (ML 04)	18:06	16:34	16:34		
25	05:46	06:44 (ML 03)	06:17		06:47	17:39 (ML 04)	06:20	06:56	07:21		
	20:22	33 07:17 (ML 03)	19:43		18:52	36 18:15 (ML 04)	17:04	16:33	16:34		
26	05:47	06:43 (ML 03)	06:18		06:48	17:38 (ML 04)	06:21	06:57	07:21		
	20:21	34 07:17 (ML 03)	19:42		18:50	37 18:15 (ML 04)	17:03	16:33	16:35		
27	05:48	06:43 (ML 03)	06:19		06:49	17:37 (ML 04)	06:22	06:58	07:22		
	20:20	34 07:17 (ML 03)	19:40		18:48	38 18:15 (ML 04)	17:01	16:32	16:36		
28	05:49	06:43 (ML 03)	06:20		06:51	17:37 (ML 04)	06:23	06:59	07:22		
	20:19	35 07:18 (ML 03)	19:39		18:47	38 18:15 (ML 04)	17:00	16:32	16:36		
29	05:50	06:43 (ML 03)	06:21		06:52	17:36 (ML 04)	06:24	07:01	07:22		
	20:18	35 07:18 (ML 03)	19:37		18:45	38 18:14 (ML 04)	16:59	16:31	16:37		
30	05:51	06:43 (ML 03)	06:22		06:53	17:36 (ML 04)	06:25	07:02	07:23		
	20:17	35 07:18 (ML 03)	19:35		18:43	36 18:12 (ML 04)	16:58	16:31	16:38		
31	05:52	06:43 (ML 03)	06:23				06:27		07:23		
	20:16	35 07:18 (ML 03)	19:34				16:56		16:39		
Potential sun hours	459	428		375	345		298		288		
Total, worst case	643	389		440	249						
Sun reduction	0,45	0,48		0,53	0,59						
Oper. time red.	0,76	0,76		0,76	0,76						
Wind dir. red.	0,66	0,66		0,66	0,66						
Total reduction	0,22	0,24		0,27	0,30						
Total, real	144	94		117	74						

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	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Real Case Shadow receptor: R43 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (8)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:29 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:25	05:31 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:53	06:36 19:26	05:52 19:58	05:27 20:26	05:31 20:33	05:57 20:11	06:28 19:26	06:58 18:35	06:32 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:03 17:21	06:24 17:55	06:33 19:28	05:50 20:00	05:26 20:27	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:09 16:30
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:30	05:47 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:28	06:37 16:46	07:10 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:31	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:38 16:45	07:11 16:30
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:31	06:03 20:03	06:33 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:34 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:01	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:35 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:36 19:11	07:07 18:21	06:43 16:41	07:14 16:30
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:29	06:07 19:58	06:37 19:09	07:08 18:19	06:44 16:40	07:15 16:30
16	07:21 16:55	06:52 17:32	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:56	06:38 19:07	07:09 18:17	06:46 16:39	07:16 16:30
17	07:20 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:32	05:39 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:06 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:19 16:58	06:48 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:18 16:32
21	07:18 17:00	06:46 17:39	06:01 18:10	06:11 19:43	05:36 20:14	05:26 20:33	05:43 20:25	06:13 19:49	06:43 18:59	07:15 18:10	06:51 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:08	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:16 17:04	06:41 17:42	05:56 18:13	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:46 18:53	07:18 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:14	06:06 19:47	05:33 20:17	05:27 20:34	05:46 20:22	06:17 19:43	06:47 18:52	07:19 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:48	05:32 20:18	05:27 20:34	05:47 20:21	06:18 19:42	06:48 18:50	07:20 17:03	06:57 16:33	07:21 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:49 18:48	07:21 17:01	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:34	05:49 20:19	06:20 19:39	06:50 18:47	07:22 17:00	06:59 16:32	07:22 16:36
29	07:12 17:10	06:32 17:48	05:48 18:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:18	06:21 19:37	06:51 18:45	07:23 16:59	07:00 16:31	07:22 16:37
30	07:12 17:11	06:31 17:49	05:47 18:20	06:00 19:53	05:30 20:22	05:29 20:34	05:51 20:17	06:22 19:35	06:53 18:43	07:24 16:58	07:01 16:31	07:23 16:38
31	07:11 17:13	06:30 17:50	05:46 18:21	06:00 19:54	05:30 20:23	05:29 20:34	05:52 20:16	06:23 19:34	06:54 16:56	07:25 16:57	07:02 16:32	07:24 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	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: Real Case Shadow receptor: R51 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (9)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:29 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:25	05:31 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:53	06:36 19:26	05:52 19:58	05:27 20:26	05:31 20:33	05:57 20:11	06:28 19:26	06:58 18:35	06:32 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:03 17:21	06:24 17:55	06:33 19:28	05:50 20:00	05:26 20:27	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:08 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:09 16:30
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:30	05:47 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:28	06:37 16:46	07:10 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:31	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:38 16:45	07:11 16:30
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:31	06:03 20:03	06:33 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:34 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:01	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:30	06:05 20:01	06:35 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:36 19:11	07:07 18:21	06:43 16:41	07:14 16:30
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:29	06:07 19:58	06:37 19:09	07:08 18:19	06:44 16:40	07:15 16:30
16	07:21 16:55	06:52 17:32	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:56	06:38 19:07	07:09 18:17	06:46 16:39	07:16 16:30
17	07:20 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:32	05:39 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:06 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:19 16:58	06:48 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:18 16:32
21	07:18 17:00	06:46 17:39	06:01 18:10	06:11 19:43	05:36 20:14	05:26 20:33	05:43 20:25	06:13 19:49	06:43 18:59	07:15 18:10	06:51 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:08	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:16 17:04	06:41 17:42	05:56 18:13	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:46 18:53	07:18 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:14	06:06 19:47	05:33 20:17	05:27 20:34	05:46 20:22	06:17 19:43	06:47 18:52	07:19 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:48	05:32 20:18	05:27 20:34	05:47 20:21	06:18 19:42	06:48 18:50	07:20 17:03	06:57 16:33	07:21 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:49 18:48	07:21 17:01	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:34	05:49 20:19	06:20 19:39	06:50 18:47	07:22 17:00	06:59 16:32	07:22 16:36
29	07:12 17:10	06:32 17:48	05:48 18:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:18	06:21 19:37	06:51 18:45	07:23 16:59	07:00 16:31	07:22 16:37
30	07:12 17:11	06:31 17:49	05:47 18:20	06:00 19:53	05:30 20:22	05:29 20:34	05:51 20:17	06:22 19:35	06:53 18:43	07:24 16:58	07:01 16:31	07:23 16:38
31	07:11 17:13	06:30 17:50	05:46 18:21	06:00 19:54	05:30 20:23	05:29 20:34	05:52 20:16	06:23 19:34	06:54 16:56	07:25 16:57	07:02 16:32	07:24 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	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: Real Case Shadow receptor: R61 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14 36	15:40 (ML 03) 16:16 (ML 03)	06:34 17:48	06:43 19:22 34	17:52 (ML 02) 19:54
2	07:23 16:40	07:09 17:15 36	15:40 (ML 03) 16:16 (ML 03)	06:32 17:49	06:41 19:23 35	17:52 (ML 02) 19:55
3	07:23 16:41	07:08 17:16 36	15:40 (ML 03) 16:16 (ML 03)	06:31 17:50	06:40 19:24 38	17:50 (ML 02) 19:56
4	07:23 16:42	07:07 17:18 37	15:40 (ML 03) 16:17 (ML 03)	06:29 17:51	06:38 19:25 39	17:49 (ML 02) 19:57
5	07:23 16:43	07:06 17:19 37	15:39 (ML 03) 16:16 (ML 03)	06:28 17:52	06:36 19:26 40	17:49 (ML 02) 19:58
6	07:23 16:44	07:05 17:20 36	15:40 (ML 03) 16:16 (ML 03)	06:26 17:54	06:35 19:27 40	17:48 (ML 02) 19:59
7	07:23 16:45	07:03 17:21 36	15:40 (ML 03) 16:16 (ML 03)	06:24 17:55	06:33 19:28 41	17:48 (ML 02) 20:00
8	07:23 16:46	07:02 17:23 35	15:41 (ML 03) 16:16 (ML 03)	06:23 17:56	06:31 19:29 41	17:47 (ML 02) 20:01
9	07:23 16:47	07:01 17:24 34	15:42 (ML 03) 16:16 (ML 03)	06:21 17:57	06:30 19:30 41	17:47 (ML 02) 20:02
10	07:23 16:48	07:00 17:25 33	15:43 (ML 03) 16:16 (ML 03)	06:20 17:58	06:28 19:31 41	17:47 (ML 02) 20:03
11	07:23 16:49	06:59 17:26 31	15:43 (ML 03) 16:14 (ML 03)	06:18 17:59	06:27 19:33 40	17:47 (ML 02) 20:04
12	07:22 16:50	06:58 17:27 30	15:44 (ML 03) 16:14 (ML 03)	06:16 18:00	06:25 19:34 40	17:47 (ML 02) 20:05
13	07:22 16:51	06:56 17:29 28	15:45 (ML 03) 16:13 (ML 03)	06:15 18:01	06:23 19:35 39	17:47 (ML 02) 20:06
14	07:22 16:52	06:55 17:30 25	15:46 (ML 03) 16:11 (ML 03)	06:13 18:03	06:22 19:36 38	17:48 (ML 02) 20:07
15	07:21 16:53	06:54 17:31 22	15:48 (ML 03) 16:10 (ML 03)	06:11 18:04	06:20 19:37 37	17:48 (ML 02) 20:08
16	07:21 16:54	06:52 17:32 17	15:51 (ML 03) 16:08 (ML 03)	06:10 18:05	06:19 19:38 35	17:48 (ML 02) 20:09
17	07:20 16:56	06:51 17:34 11	15:53 (ML 03) 16:04 (ML 03)	06:08 18:06	06:17 19:39 34	17:49 (ML 02) 20:10
18	07:20 16:57	6 15:51 (ML 03) 06:50 17:35	15:57 (ML 03) 17:35	06:06 18:07	06:16 19:40 31	17:50 (ML 02) 20:11
19	07:19 16:58	13 15:47 (ML 03) 16:00 (ML 03)	06:48 17:36	06:05 18:08	06:14 19:41 29	17:51 (ML 02) 20:12
20	07:19 16:59	17 16:00 (ML 03) 17:37	06:47 17:37	06:03 18:09	06:13 19:42 26	17:52 (ML 02) 20:13
21	07:18 17:00	20 15:45 (ML 03) 16:05 (ML 03)	06:46 17:38	06:01 18:10	06:11 19:43 22	17:54 (ML 02) 20:14
22	07:18 17:01	23 15:43 (ML 03) 16:06 (ML 03)	06:44 17:40	06:00 18:11	06:10 19:44 17	17:57 (ML 02) 20:15
23	07:17 17:03	25 15:43 (ML 03) 16:08 (ML 03)	06:43 17:41	05:58 18:12	06:08 19:45 10	18:00 (ML 02) 20:16
24	07:16 17:04	27 15:42 (ML 03) 16:09 (ML 03)	06:41 17:42	05:56 18:13	06:07 19:46	17:01 (ML 02) 20:17
25	07:16 17:05	29 15:41 (ML 03) 16:10 (ML 03)	06:40 17:43	05:55 18:14	06:05 19:47	18:21 (ML 02) 20:18
26	07:15 17:06	30 15:41 (ML 03) 16:11 (ML 03)	06:38 17:44	05:53 18:16	06:04 19:48	20:19 20:18
27	07:14 17:08	32 15:40 (ML 03) 16:12 (ML 03)	06:37 17:46	05:51 18:17	06:03 19:50	17:06 (ML 02) 20:19
28	07:13 17:09	32 15:41 (ML 03) 16:13 (ML 03)	06:35 17:47	05:50 18:18	06:01 19:51	17:17 (ML 02) 20:20
29	07:12 17:10	34 15:40 (ML 03) 16:14 (ML 03)	06:35 17:47	05:48 19:19	06:00 20:21	17:58 (ML 02) 20:21
30	07:12 17:11	35 15:40 (ML 03) 16:15 (ML 03)	06:35 17:47	05:46 19:20	05:59 20:22	17:56 (ML 02) 20:22
31	07:11 17:13	35 15:40 (ML 03) 16:15 (ML 03)	06:35 17:47	05:45 19:21	05:59 20:22	17:54 (ML 02) 20:22
Potential sun hours	297	297	369	399	448	452
Total, worst case	358	520	114	788		
Sun reduction	0,69	0,62	0,55	0,50		
Oper. time red.	0,76	0,76	0,76	0,76		
Wind dir. red.	0,67	0,67	0,65	0,65		
Total reduction	0,35	0,32	0,27	0,24		
Total, real	126	166	31	193		

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: Real Case Shadow receptor: R61 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	17:46 (ML 02) 18:26 (ML 02)	06:53 18:42	06:28 15:11 (ML 03)
2	05:29 20:34	05:54 20:14	06:24 19:31	17:45 (ML 02) 18:26 (ML 02)	06:55 18:40	06:29 15:11 (ML 03)
3	05:30 20:34	05:55 20:13	06:25 19:29	17:45 (ML 02) 18:26 (ML 02)	06:56 18:38	06:30 15:11 (ML 03)
4	05:30 20:34	05:56 20:12	06:26 19:27	17:44 (ML 02) 18:25 (ML 02)	06:57 18:37	06:31 15:10 (ML 03)
5	05:31 20:34	05:57 20:11	06:27 19:26	17:44 (ML 02) 18:25 (ML 02)	06:58 18:35	06:32 15:09 (ML 03)
6	05:31 20:33	05:58 20:10	06:28 19:24	17:44 (ML 02) 18:24 (ML 02)	06:59 18:33	06:34 15:10 (ML 03)
7	05:32 20:33	05:59 20:08	06:29 19:22	17:44 (ML 02) 18:24 (ML 02)	07:00 18:32	06:35 15:10 (ML 03)
8	05:33 20:33	06:00 20:07	06:30 19:21	17:44 (ML 02) 18:23 (ML 02)	07:01 18:30	06:36 15:10 (ML 03)
9	05:33 20:32	06:01 20:06	06:31 19:19	17:44 (ML 02) 18:22 (ML 02)	07:02 18:28	06:37 15:10 (ML 03)
10	05:34 20:32	06:02 20:05	06:32 19:17	17:45 (ML 02) 18:21 (ML 02)	07:03 18:27	06:38 15:11 (ML 03)
11	05:35 20:31	06:03 20:03	06:33 19:16	17:45 (ML 02) 18:19 (ML 02)	07:04 18:25	06:40 15:11 (ML 03)
12	05:35 20:31	06:04 20:02	06:34 19:14	17:46 (ML 02) 18:18 (ML 02)	07:05 18:24	06:41 15:11 (ML 03)
13	05:36 20:31	06:05 20:01	06:35 19:12	17:47 (ML 02) 18:16 (ML 02)	07:06 18:22	06:42 15:12 (ML 03)
14	05:37 20:30	06:06 19:59	06:36 19:10	17:49 (ML 02) 18:14 (ML 02)	07:07 18:20	06:43 15:12 (ML 03)
15	05:38 20:29	06:07 19:58	06:37 19:09	17:51 (ML 02) 18:11 (ML 02)	07:08 18:19	06:44 15:13 (ML 03)
16	05:38 20:29	06:08 19:56	06:38 19:07	17:54 (ML 02) 18:07 (ML 02)	07:09 18:17	06:46 15:14 (ML 03)
17	05:39 20:28	06:09 19:55	06:39 19:05	18:07 (ML 02) 18:16	07:11 18:16	06:47 15:15 (ML 03)
18	05:40 20:28	06:10 19:54	06:40 19:04	18:12 (ML 02) 18:14	07:12 18:14	06:48 15:16 (ML 03)
19	05:41 20:27	06:11 19:52	06:41 19:02	18:13 (ML 02) 18:13	07:13 18:13	06:49 15:17 (ML 03)
20	05:42 20:26	06:12 19:51	18:05 (ML 02) 18:16 (ML 02)	06:42 19:00	07:14 18:11	16:37 15:42 (ML 03)
21	05:43 20:25	06:13 19:49	18:01 (ML 02) 18:19 (ML 02)	06:43 18:59	07:15 18:10	16:36 15:41 (ML 03)
22	05:43 20:25	06:14 19:48	17:59 (ML 02) 18:21 (ML 02)	06:44 18:57	07:16 18:08	16:35 15:41 (ML 03)
23	05:44 20:24	06:15 19:46	17:57 (ML 02) 18:23 (ML 02)	06:45 18:55	07:17 18:07	16:34 15:41 (ML 03)
24	05:45 20:23	06:16 19:45	17:55 (ML 02) 18:24 (ML 02)	06:46 18:53	07:18 18:06	16:33 15:41 (ML 03)
25	05:46 20:22	06:17 19:43	17:53 (ML 02) 18:25 (ML 02)	06:47 18:52	06:20 17:04	15:23 (ML 03) 15:36 (ML 03)
26	05:47 20:21	06:18 19:42	17:52 (ML 02) 18:26 (ML 02)	06:48 18:50	06:21 17:03	15:36 (ML 03) 15:38 (ML 03)
27	05:48 20:20	06:19 19:40	17:51 (ML 02) 18:26 (ML 02)	06:49 18:48	06:22 17:01	15:39 (ML 03) 15:40 (ML 03)
28	05:49 20:19	06:20 19:39	17:50 (ML 02) 18:27 (ML 02)	06:50 18:47	06:23 17:00	15:41 (ML 03) 16:32
29	05:50 20:18	06:21 19:37	17:48 (ML 02) 18:26 (ML 02)	06:51 18:45	06:24 16:59	15:42 (ML 03) 16:31
30	05:51 20:17	06:22 19:35	17:47 (ML 02) 18:26 (ML 02)	06:52 18:43	06:25 16:57	15:43 (ML 03) 16:31
31	05:52 20:16	06:23 19:34	17:46 (ML 02) 18:26 (ML 02)	06:53 18:42	06:26 16:56	15:44 (ML 03) 16:31
Potential sun hours	459	428	375	345	298	288
Total, worst case		361	550	171	718	
Sun reduction		0,48	0,53	0,59	0,66	
Oper. time red.		0,76	0,76	0,76	0,76	
Wind dir. red.		0,65	0,65	0,67	0,67	
Total reduction		0,24	0,26	0,30	0,34	
Total, real		85	143	52	244	

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: Real Case Shadow receptor: R63 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June		
1	07:23 16:40	07:10 17:14	15:37 (ML 03) 16:13 (ML 03)	06:34 17:48	06:43 19:22	17:46 (ML 02) 18:25 (ML 02)	05:57 19:54	05:28 20:23
2	07:23 16:40	07:09 17:15	15:37 (ML 03) 16:14 (ML 03)	06:32 17:49	06:41 19:23	17:46 (ML 02) 18:26 (ML 02)	05:56 19:55	05:28 20:24
3	07:23 16:41	07:08 17:16	15:38 (ML 03) 16:14 (ML 03)	06:31 17:50	06:40 19:24	17:45 (ML 02) 18:25 (ML 02)	05:55 19:56	05:27 20:25
4	07:23 16:42	07:07 17:18	15:38 (ML 03) 16:14 (ML 03)	06:29 17:51	06:38 19:25	17:44 (ML 02) 18:25 (ML 02)	05:53 19:57	05:27 20:25
5	07:23 16:43	07:06 17:19	15:38 (ML 03) 16:13 (ML 03)	06:28 17:52	06:36 19:26	17:45 (ML 02) 18:25 (ML 02)	05:52 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	15:38 (ML 03) 16:13 (ML 03)	06:26 17:54	06:35 19:27	17:44 (ML 02) 18:25 (ML 02)	05:51 19:59	05:26 20:27
7	07:23 16:45	07:03 17:21	15:39 (ML 03) 16:13 (ML 03)	06:24 17:55	06:33 19:28	17:44 (ML 02) 18:25 (ML 02)	05:50 20:00	05:26 20:27
8	07:23 16:46	07:02 17:23	15:40 (ML 03) 16:12 (ML 03)	06:23 17:56	06:31 19:29	17:44 (ML 02) 18:24 (ML 02)	05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	15:41 (ML 03) 16:12 (ML 03)	06:21 17:57	06:30 19:30	17:44 (ML 02) 18:23 (ML 02)	05:47 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	15:43 (ML 03) 16:11 (ML 03)	06:20 17:58	06:28 19:31	17:45 (ML 02) 18:23 (ML 02)	05:46 20:03	05:25 20:29
11	07:23 16:49	06:59 17:26	15:43 (ML 03) 16:09 (ML 03)	06:18 17:59	06:27 19:33	17:45 (ML 02) 18:22 (ML 02)	05:45 20:04	05:25 20:30
12	07:22 16:50	06:58 17:27	15:45 (ML 03) 16:08 (ML 03)	06:16 18:00	06:25 19:34	17:46 (ML 02) 18:21 (ML 02)	05:44 20:05	05:25 20:30
13	07:22 16:51	06:56 17:29	15:47 (ML 03) 16:07 (ML 03)	06:15 18:01	06:23 19:35	17:46 (ML 02) 18:20 (ML 02)	05:43 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30	15:49 (ML 03) 16:04 (ML 03)	06:13 18:03	06:22 19:36	17:47 (ML 02) 18:19 (ML 02)	05:42 20:07	05:25 20:31
15	07:21 16:53	15:47 (ML 03) 06:54 17:31	15:53 (ML 03) 16:00 (ML 03)	06:11 18:04	06:20 19:37	17:48 (ML 02) 18:17 (ML 02)	05:41 20:08	05:25 20:32
16	07:21 16:54	8 15:55 (ML 03) 06:52 17:32	15:44 (ML 03) 17:32	06:10 18:05	06:19 19:38	17:49 (ML 02) 18:15 (ML 02)	05:40 20:09	05:25 20:32
17	07:20 16:56	13 15:57 (ML 03) 06:51 17:34	15:43 (ML 03) 17:34	06:08 18:06	06:17 19:39	17:51 (ML 02) 18:14 (ML 02)	05:39 20:10	05:25 20:32
18	07:20 16:57	17 16:00 (ML 03) 06:50 17:35	15:41 (ML 03) 17:35	06:06 18:07	06:16 19:40	17:53 (ML 02) 18:11 (ML 02)	05:38 20:11	05:25 20:33
19	07:19 16:58	20 16:01 (ML 03) 06:48 17:36	15:40 (ML 03) 17:36	06:05 18:08	06:14 19:41	17:56 (ML 02) 18:07 (ML 02)	05:37 20:12	05:25 20:33
20	07:19 16:59	22 16:02 (ML 03) 06:47 17:37	15:40 (ML 03) 17:37	06:03 18:09	06:13 19:42	17:49 (ML 02) 18:09	05:36 20:13	05:25 20:33
21	07:18 17:00	25 16:05 (ML 03) 06:46 17:38	15:39 (ML 03) 17:38	06:01 18:10	06:11 19:43	17:51 (ML 02) 18:10	05:36 20:14	05:25 20:34
22	07:18 17:01	26 16:05 (ML 03) 06:44 17:40	15:38 (ML 03) 17:40	06:00 18:11	06:10 19:44	17:53 (ML 02) 18:11 (ML 02)	05:35 20:15	05:26 20:34
23	07:17 17:03	28 16:06 (ML 03) 06:43 17:41	15:38 (ML 03) 17:41	05:58 18:12	06:08 19:45	17:53 (ML 02) 18:12	05:34 20:16	05:26 20:34
24	07:16 17:04	30 16:08 (ML 03) 06:41 17:42	15:38 (ML 03) 17:42	05:56 18:13	06:07 19:46	17:02 (ML 02) 17:15 (ML 02)	05:33 20:17	05:26 20:34
25	07:16 17:05	31 16:09 (ML 03) 06:40 17:43	15:37 (ML 03) 17:43	05:55 18:14	06:05 19:47	16:58 (ML 02) 17:18 (ML 02)	05:32 20:18	05:26 20:34
26	07:15 17:06	32 16:09 (ML 03) 06:38 17:44	15:37 (ML 03) 17:44	05:53 18:16	06:04 19:48	16:55 (ML 02) 17:19 (ML 02)	05:32 20:18	05:27 20:34
27	07:14 17:08	33 16:10 (ML 03) 06:37 17:46	15:37 (ML 03) 17:46	05:51 18:17	06:03 19:50	16:53 (ML 02) 17:22 (ML 02)	05:31 20:19	05:27 20:34
28	07:13 17:09	34 16:11 (ML 03) 06:35 17:47	15:37 (ML 03) 17:47	05:50 18:18	06:01 19:51	16:51 (ML 02) 17:23 (ML 02)	05:31 20:20	05:27 20:34
29	07:12 17:10	35 16:12 (ML 03) 06:32 17:48	15:37 (ML 03) 17:48	05:48 18:19	06:00 19:52	17:49 (ML 02) 18:23 (ML 02)	05:30 20:21	05:28 20:34
30	07:12 17:11	36 16:13 (ML 03) 06:30 17:49	15:37 (ML 03) 17:49	06:46 19:20	05:59 19:53	17:49 (ML 02) 18:24 (ML 02)	05:29 20:22	05:28 20:34
31	07:11 17:13	36 16:13 (ML 03) 06:28 17:50	15:37 (ML 03) 17:50	06:45 19:21	05:58 19:54	17:47 (ML 02) 18:25 (ML 02)	05:29 20:22	05:29 20:34
Potential sun hours	297	297	369	399	448	452		
Total, worst case	462	431	225	644				
Sun reduction	0,69	0,62	0,55	0,50				
Oper. time red.	0,76	0,76	0,76	0,76				
Wind dir. red.	0,67	0,67	0,65	0,65				
Total reduction	0,35	0,32	0,27	0,25				
Total, real	162	137	62	159				

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: Real Case Shadow receptor: R63 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July	August	September	October	November	December		
1	05:29 20:34	05:53 20:15	06:24 19:32	17:44 (ML 02) 18:21 (ML 02)	06:53 18:42	06:28 16:55	15:11 (ML 03) 15:40 (ML 03)	07:03 16:31
2	05:29 20:34	05:54 20:14	06:24 19:31	17:43 (ML 02) 18:21 (ML 02)	06:55 18:40	06:29 16:54	15:11 (ML 03) 15:42 (ML 03)	07:04 16:30
3	05:30 20:34	05:55 20:13	06:25 19:29	17:42 (ML 02) 18:21 (ML 02)	06:56 18:38	06:30 16:52	15:10 (ML 03) 15:42 (ML 03)	07:05 16:30
4	05:30 20:34	05:56 20:12	06:26 19:27	17:41 (ML 02) 18:21 (ML 02)	06:57 18:37	06:31 16:51	15:09 (ML 03) 15:42 (ML 03)	07:06 16:30
5	05:31 20:34	05:57 20:11	06:27 19:26	17:41 (ML 02) 18:21 (ML 02)	06:58 18:35	06:32 16:50	15:08 (ML 03) 15:43 (ML 03)	07:07 16:30
6	05:31 20:33	05:58 20:10	06:28 19:24	17:40 (ML 02) 18:21 (ML 02)	06:59 18:33	06:34 16:49	15:09 (ML 03) 15:44 (ML 03)	07:08 16:29
7	05:32 20:33	05:59 20:08	06:29 19:22	17:40 (ML 02) 18:20 (ML 02)	07:00 18:32	06:35 16:48	15:08 (ML 03) 15:44 (ML 03)	07:09 16:29
8	05:33 20:33	06:00 20:07	06:30 19:21	17:39 (ML 02) 18:20 (ML 02)	07:01 18:30	06:36 16:47	15:08 (ML 03) 15:44 (ML 03)	07:09 16:29
9	05:33 20:32	06:01 20:06	06:31 19:19	17:39 (ML 02) 18:19 (ML 02)	07:02 18:28	06:37 16:46	15:07 (ML 03) 15:44 (ML 03)	07:10 16:29
10	05:34 20:32	06:02 20:05	06:32 19:17	17:39 (ML 02) 18:19 (ML 02)	07:03 18:27	06:38 16:45	15:08 (ML 03) 15:44 (ML 03)	07:11 16:29
11	05:35 20:31	06:03 20:03	06:33 19:16	17:39 (ML 02) 18:18 (ML 02)	07:04 18:25	06:40 16:44	15:08 (ML 03) 15:44 (ML 03)	07:12 16:29
12	05:35 20:31	06:04 20:02	06:34 19:14	17:39 (ML 02) 18:17 (ML 02)	07:05 18:24	06:41 16:43	15:08 (ML 03) 15:44 (ML 03)	07:13 16:30
13	05:36 20:31	06:05 20:01	06:35 19:12	17:40 (ML 02) 18:16 (ML 02)	07:06 18:22	06:42 16:42	15:09 (ML 03) 15:44 (ML 03)	07:14 16:30
14	05:37 20:30	06:06 19:59	06:36 19:10	17:40 (ML 02) 18:15 (ML 02)	07:07 18:20	06:43 16:41	15:09 (ML 03) 15:44 (ML 03)	07:14 16:30
15	05:38 20:29	06:07 19:58	06:37 19:09	17:41 (ML 02) 18:13 (ML 02)	07:08 18:19	06:44 16:40	15:09 (ML 03) 15:44 (ML 03)	07:15 16:30
16	05:38 20:29	06:08 19:56	06:38 19:07	17:42 (ML 02) 18:11 (ML 02)	07:09 18:17	06:46 16:39	15:10 (ML 03) 15:43 (ML 03)	07:16 16:30
17	05:39 20:28	06:09 19:55	06:39 19:05	17:44 (ML 02) 18:09 (ML 02)	07:11 18:16	06:47 16:38	15:11 (ML 03) 15:43 (ML 03)	07:17 16:31
18	05:40 20:28	06:10 19:54	06:40 19:04	17:45 (ML 02) 18:07 (ML 02)	07:12 18:14	06:48 16:38	15:12 (ML 03) 15:43 (ML 03)	07:17 16:31
19	05:41 20:27	06:11 19:52	06:41 19:02	17:48 (ML 02) 18:03 (ML 02)	07:13 18:13	06:49 16:37	15:12 (ML 03) 15:42 (ML 03)	07:18 16:31
20	05:42 20:26	06:12 19:51	06:42 19:00	18:03 (ML 02) 18:11	07:14 18:11	06:50 16:36	15:13 (ML 03) 15:41 (ML 03)	07:19 16:32
21	05:43 20:25	06:13 19:49	06:43 18:59	18:11 18:10	07:15 18:10	06:51 16:35	15:15 (ML 03) 15:41 (ML 03)	07:19 16:32
22	05:43 20:25	06:14 19:48	06:44 18:57	18:10 18:08	07:16 18:08	06:53 16:35	15:16 (ML 03) 15:41 (ML 03)	07:20 16:33
23	05:44 20:24	06:15 19:46	06:45 18:55	18:07 18:07	07:17 18:07	06:54 16:34	15:17 (ML 03) 15:40 (ML 03)	07:20 16:33
24	05:45 20:23	06:16 19:45	18:00 (ML 02) 18:12 (ML 02)	06:46 18:53	07:18 18:06	06:55 16:34	15:18 (ML 03) 15:38 (ML 03)	07:21 16:34
25	05:46 20:22	06:17 19:43	17:56 (ML 02) 18:15 (ML 02)	06:47 18:52	06:20 17:04	06:56 16:33	15:20 (ML 03) 15:37 (ML 03)	07:21 16:34
26	05:47 20:21	06:18 19:42	17:54 (ML 02) 18:17 (ML 02)	06:48 18:50	06:21 17:03	06:57 16:33	15:23 (ML 03) 15:36 (ML 03)	07:21 16:35
27	05:48 20:20	06:19 19:40	17:52 (ML 02) 18:18 (ML 02)	06:49 18:48	06:22 17:01	06:58 16:32	15:26 (ML 03) 15:34 (ML 03)	07:22 16:36
28	05:49 20:19	06:20 19:39	17:50 (ML 02) 18:19 (ML 02)	06:50 18:47	06:23 17:00	06:59 16:32	15:18 (ML 03) 15:34 (ML 03)	07:22 16:36
29	05:50 20:18	06:21 19:37	17:47 (ML 02) 18:19 (ML 02)	06:51 18:45	06:24 16:59	07:00 16:31	15:16 (ML 03) 15:37 (ML 03)	07:22 16:37
30	05:51 20:17	06:22 19:35	17:46 (ML 02) 18:20 (ML 02)	06:52 18:43	06:25 16:57	07:02 16:31	15:14 (ML 03) 15:38 (ML 03)	07:23 16:38
31	05:52 20:16	06:23 19:34	17:45 (ML 02) 18:20 (ML 02)	06:53 18:43	06:27 16:56	07:23 16:30	15:13 (ML 03) 15:39 (ML 03)	07:23 16:38
Potential sun hours	459	428	375	345	298	288		
Total, worst case		210	667	96	803			
Sun reduction		0,48	0,53	0,59	0,66			
Oper. time red.		0,76	0,76	0,76	0,76			
Wind dir. red.		0,65	0,65	0,67	0,67			
Total reduction		0,24	0,26	0,30	0,34			
Total, real		50	175	29	273			

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: Real Case Shadow receptor: R65 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	15:33 (ML 03) 16:11 (ML 03)	06:34 17:48	06:43 19:22	17:47 (ML 02) 18:24 (ML 02)
2	07:23 16:40	07:09 17:15	15:33 (ML 03) 16:11 (ML 03)	06:32 17:49	06:41 19:23	17:47 (ML 02) 18:25 (ML 02)
3	07:23 16:41	07:08 17:16	15:33 (ML 03) 16:11 (ML 03)	06:31 17:50	06:40 19:24	17:45 (ML 02) 18:25 (ML 02)
4	07:23 16:42	07:07 17:18	15:34 (ML 03) 16:11 (ML 03)	06:29 17:51	06:38 19:25	17:44 (ML 02) 18:25 (ML 02)
5	07:23 16:43	07:06 17:19	15:33 (ML 03) 16:10 (ML 03)	06:28 17:52	06:36 19:26	17:44 (ML 02) 18:26 (ML 02)
6	07:23 16:44	07:05 17:20	15:34 (ML 03) 16:10 (ML 03)	06:26 17:54	06:35 19:27	17:43 (ML 02) 18:25 (ML 02)
7	07:23 16:45	07:03 17:21	15:35 (ML 03) 16:10 (ML 03)	06:24 17:55	06:33 19:28	17:43 (ML 02) 18:26 (ML 02)
8	07:23 16:46	07:02 17:23	15:36 (ML 03) 16:09 (ML 03)	06:23 17:56	06:31 19:29	17:43 (ML 02) 18:26 (ML 02)
9	07:23 16:47	07:01 17:24	15:37 (ML 03) 16:09 (ML 03)	06:21 17:57	06:30 19:30	17:42 (ML 02) 18:25 (ML 02)
10	07:23 16:48	07:00 17:25	15:38 (ML 03) 16:08 (ML 03)	06:20 17:58	06:28 19:31	17:42 (ML 02) 18:25 (ML 02)
11	07:23 16:49	06:59 17:26	15:38 (ML 03) 16:07 (ML 03)	06:18 17:59	06:27 19:33	17:42 (ML 02) 18:24 (ML 02)
12	07:22 16:50	06:58 17:27	15:40 (ML 03) 16:06 (ML 03)	06:16 18:00	06:25 19:34	17:43 (ML 02) 18:24 (ML 02)
13	07:22 16:51	06:56 17:29	15:42 (ML 03) 16:04 (ML 03)	06:15 18:01	06:23 19:35	17:42 (ML 02) 18:23 (ML 02)
14	07:22 16:52	15:41 (ML 03) 06:55 17:30	15:44 (ML 03) 15:51 (ML 03)	06:13 18:03	06:22 19:36	17:43 (ML 02) 18:23 (ML 02)
15	07:21 16:53	15:40 (ML 03) 06:54 17:31	15:47 (ML 03) 15:59 (ML 03)	06:11 18:04	06:20 19:37	17:43 (ML 02) 18:22 (ML 02)
16	07:21 16:54	15:38 (ML 03) 06:52 17:32	15:38 (ML 03) 15:56 (ML 03)	06:10 18:05	06:19 19:38	17:43 (ML 02) 18:20 (ML 02)
17	07:20 16:56	15:37 (ML 03) 06:51 17:34	15:37 (ML 03) 15:58 (ML 03)	06:08 18:06	06:17 19:39	17:45 (ML 02) 18:20 (ML 02)
18	07:20 16:57	15:36 (ML 03) 06:50 17:35	15:36 (ML 03) 15:59 (ML 03)	06:06 18:07	06:16 19:40	17:45 (ML 02) 18:18 (ML 02)
19	07:19 16:58	15:35 (ML 03) 06:48 17:36	15:35 (ML 03) 16:00 (ML 03)	06:05 18:08	06:14 19:41	17:47 (ML 02) 18:17 (ML 02)
20	07:19 16:59	15:34 (ML 03) 06:47 17:37	15:35 (ML 03) 16:02 (ML 03)	06:03 18:09	06:13 19:42	17:47 (ML 02) 18:15 (ML 02)
21	07:18 17:00	15:34 (ML 03) 06:46 17:38	15:34 (ML 03) 16:03 (ML 03)	06:01 18:10	06:11 19:43	17:49 (ML 02) 18:14 (ML 02)
22	07:18 17:04	15:33 (ML 03) 06:44 17:40	15:33 (ML 03) 16:04 (ML 03)	06:00 18:11	06:10 19:44	17:52 (ML 02) 18:12 (ML 02)
23	07:17 17:03	15:34 (ML 03) 06:43 17:41	15:34 (ML 03) 16:05 (ML 03)	05:58 18:12	06:08 19:45	17:54 (ML 02) 18:08 (ML 02)
24	07:16 17:04	15:33 (ML 03) 06:41 17:42	15:33 (ML 03) 16:06 (ML 03)	05:56 18:13	06:07 19:46	17:53 (ML 02) 20:17
25	07:16 17:05	15:33 (ML 03) 06:40 17:43	15:33 (ML 03) 16:07 (ML 03)	05:55 18:14	06:05 19:47	17:53 (ML 02) 20:18
26	07:15 17:06	15:32 (ML 03) 06:38 17:44	15:32 (ML 03) 16:07 (ML 03)	05:53 18:16	06:04 19:48	17:04 (ML 02) 17:12 (ML 02)
27	07:14 17:08	15:32 (ML 03) 06:37 17:46	15:32 (ML 03) 16:08 (ML 03)	05:51 18:17	06:03 19:50	16:59 (ML 02) 17:17 (ML 02)
28	07:13 17:09	15:33 (ML 03) 06:35 17:47	15:33 (ML 03) 16:09 (ML 03)	05:50 18:18	06:01 19:51	16:55 (ML 02) 17:19 (ML 02)
29	07:12 17:10	15:33 (ML 03) 06:34 17:48	15:33 (ML 03) 16:10 (ML 03)	05:48 18:19	06:00 19:52	17:52 (ML 02) 18:20 (ML 02)
30	07:12 17:11	15:32 (ML 03) 06:33 17:49	15:32 (ML 03) 16:10 (ML 03)	05:46 18:20	05:59 19:53	17:51 (ML 02) 18:22 (ML 02)
31	07:11 17:13	15:33 (ML 03) 06:32 17:50	15:33 (ML 03) 16:10 (ML 03)	05:45 18:21	05:58 19:54	17:50 (ML 02) 18:23 (ML 02)
Potential sun hours	297	297	369	399	448	452
Total, worst case	515	461	143	837		
Sun reduction	0,69	0,62	0,55	0,50		
Oper. time red.	0,76	0,76	0,76	0,76		
Wind dir. red.	0,67	0,67	0,65	0,65		
Total reduction	0,35	0,32	0,27	0,25		
Total, real	181	146	39	206		

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: Real Case Shadow receptor: R65 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July		August		September		October		November		December	
1	05:29	20:34	05:53	20:15	06:24	17:41 (ML 02)	06:53	18:23 (ML 02)	06:28	15:07 (ML 03)	07:03	16:31
2	05:29	20:34	05:54	20:14	06:25	17:40 (ML 02)	06:55	18:23 (ML 02)	06:29	15:06 (ML 03)	07:04	16:30
3	05:30	20:34	05:55	20:13	06:25	17:40 (ML 02)	06:56	18:23 (ML 02)	06:30	15:05 (ML 03)	07:05	16:30
4	05:30	20:34	05:56	20:12	06:26	17:40 (ML 02)	06:57	18:23 (ML 02)	06:31	15:04 (ML 03)	07:06	16:29
5	05:31	20:34	05:57	20:11	06:27	17:39 (ML 02)	06:58	18:22 (ML 02)	06:32	15:04 (ML 03)	07:07	16:29
6	05:31	20:33	05:58	20:10	06:28	17:39 (ML 02)	06:59	18:22 (ML 02)	06:34	15:04 (ML 03)	07:08	16:29
7	05:32	20:33	05:59	20:08	06:29	17:39 (ML 02)	07:00	18:21 (ML 02)	06:35	15:04 (ML 03)	07:09	16:29
8	05:33	20:33	06:00	20:07	06:30	17:39 (ML 02)	07:01	18:21 (ML 02)	06:36	15:03 (ML 03)	07:09	16:29
9	05:33	20:32	06:01	20:06	06:31	17:39 (ML 02)	07:02	18:20 (ML 02)	06:37	15:03 (ML 03)	07:10	16:29
10	05:34	20:32	06:02	20:05	06:32	17:40 (ML 02)	07:03	18:19 (ML 02)	06:38	15:04 (ML 03)	07:11	16:29
11	05:35	20:31	06:03	20:03	06:33	17:40 (ML 02)	07:04	18:18 (ML 02)	06:40	15:03 (ML 03)	07:12	16:29
12	05:35	20:31	06:04	20:02	06:34	17:41 (ML 02)	07:05	18:17 (ML 02)	06:41	15:03 (ML 03)	07:13	16:30
13	05:36	20:31	06:05	20:01	06:35	17:42 (ML 02)	07:06	18:16 (ML 02)	06:42	15:04 (ML 03)	07:14	16:30
14	05:37	20:30	06:06	19:59	06:36	17:43 (ML 02)	07:07	18:15 (ML 02)	06:43	15:05 (ML 03)	07:14	16:30
15	05:38	20:29	06:07	19:58	06:37	17:45 (ML 02)	07:08	18:14 (ML 02)	06:44	15:05 (ML 03)	07:15	16:30
16	05:38	20:29	06:08	19:56	06:38	17:47 (ML 02)	07:09	18:13 (ML 02)	06:46	15:05 (ML 03)	07:16	16:30
17	05:39	20:28	06:09	19:55	06:39	17:51 (ML 02)	07:11	18:12 (ML 02)	06:47	15:07 (ML 03)	07:17	16:30
18	05:40	20:28	06:10	19:54	06:40	18:02 (ML 02)	07:16	18:11 (ML 02)	06:48	15:07 (ML 03)	07:17	16:31
19	05:41	20:27	06:11	19:52	06:41	18:05 (ML 02)	07:13	18:10 (ML 02)	06:49	15:08 (ML 03)	07:18	16:31
20	05:42	20:26	06:12	19:51	06:42	18:09 (ML 02)	07:14	18:09 (ML 02)	06:50	15:08 (ML 03)	07:19	16:32
21	05:43	20:25	06:13	19:49	06:43	18:14 (ML 02)	07:15	18:08 (ML 02)	06:51	15:10 (ML 03)	07:19	16:32
22	05:43	20:25	06:14	19:48	06:44	18:17 (ML 02)	07:16	18:07 (ML 02)	06:53	15:11 (ML 03)	07:20	16:33
23	05:44	20:24	06:15	19:46	06:45	18:19 (ML 02)	07:17	18:06 (ML 02)	06:54	15:12 (ML 03)	07:20	16:33
24	05:45	20:23	06:16	19:45	06:46	18:20 (ML 02)	07:18	18:05 (ML 02)	06:55	15:13 (ML 03)	07:21	16:34
25	05:46	20:22	06:17	19:43	06:47	18:23 (ML 02)	07:19	18:04 (ML 02)	06:56	15:14 (ML 03)	07:21	16:34
26	05:47	20:21	06:18	19:42	06:48	18:22 (ML 02)	07:20	18:03 (ML 02)	06:57	15:15 (ML 03)	07:21	16:35
27	05:48	20:20	06:19	19:40	06:49	18:23 (ML 02)	07:22	18:02 (ML 02)	06:58	15:16 (ML 03)	07:22	16:36
28	05:49	20:19	06:20	19:39	06:50	18:24 (ML 02)	07:23	18:01 (ML 02)	06:59	15:17 (ML 03)	07:22	16:36
29	05:50	20:18	06:21	19:37	06:51	18:23 (ML 02)	07:24	18:00 (ML 02)	07:00	15:18 (ML 03)	07:22	16:37
30	05:51	20:17	06:22	19:35	06:52	18:23 (ML 02)	07:25	17:59 (ML 02)	07:02	15:19 (ML 03)	07:23	16:38
31	05:52	20:16	06:23	19:34	06:53	18:23 (ML 02)	07:26	17:58 (ML 02)	07:03	15:20 (ML 03)	07:23	16:38
Potential sun hours	459	428	391	375	345	298	288					
Total, worst case			0,48	0,53	0,59	0,66						
Sun reduction			0,76	0,76	0,76	0,76						
Oper. time red.			0,65	0,65	0,67	0,67						
Wind dir. red.			0,24	0,26	0,30	0,34						
Total reduction			92	158	33	297						

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: Real Case Shadow receptor: R68 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:40	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:26	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:26 20:28	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:10 16:29
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:47 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:11 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:11 16:29
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:15 16:30
15	07:21 16:53	06:54 17:31	06:12 18:04	06:20 19:37	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 19:09	07:08 18:19	06:45 16:40	07:15 16:30
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:16 16:30
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:41 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:36 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:19 16:32
21	07:18 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:43 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 18:57	07:16 18:09	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:44 20:24	06:15 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:17 17:04	06:41 17:42	05:56 18:14	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	06:57 16:33	07:22 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:19	06:20 19:39	06:51 18:47	07:23 17:00	07:00 16:32	07:22 16:36
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	07:01 16:31	07:22 16:37
30	07:12 17:11		06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:34	05:51 20:17	06:22 19:36	06:53 18:43	07:25 16:58	07:02 16:31	07:23 16:38
31	07:11 17:13		06:45 19:21		05:29 20:23		05:52 20:16	06:23 19:34		07:26 16:56		07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

Gaetano DOronzio / info@gecodor.it
Calculated:

02/04/2024 18:25/4.0.531

SHADOW - Calendar

Calculation: Real Case Shadow receptor: R70 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (14)
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	07:06 (ML 02) 19:22	06:43 19:54	05:57 20:23	05:28 20:34	05:29 20:15	05:53 19:32	06:24 18:42	06:54 18:35	06:28 16:55
2	07:23 16:40	07:09 17:15	06:32 17:49	07:05 (ML 02) 19:23	06:41 19:55	05:56 20:24	05:28 20:34	05:29 20:14	05:54 19:31	06:25 18:40	06:55 18:40	06:29 16:54
3	07:23 16:41	07:08 17:16	06:31 17:50	07:05 (ML 02) 19:24	06:40 19:56	05:55 20:25	05:28 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:56 18:38	06:30 16:53
4	07:23 16:42	07:07 17:18	06:29 17:51	07:05 (ML 02) 19:25	06:38 19:57	05:53 20:26	05:27 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:57 18:37	06:31 16:51
5	07:23 16:43	07:06 17:19	06:28 17:53	07:06 (ML 02) 19:26	06:37 19:58	05:52 20:26	05:27 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:47 (ML 02) 07:54 (ML 02)	06:33 16:50
6	07:23 16:44	07:05 17:20	06:26 17:54	07:06 (ML 02) 19:27	06:35 19:59	05:51 20:27	05:27 20:33	05:58 20:10	06:29 19:24	06:59 18:33	7 07:56 (ML 02)	06:34 16:49
7	07:23 16:45	07:04 17:21	06:25 17:55	07:06 (ML 02) 19:28	06:33 20:00	05:50 20:28	05:26 20:33	05:59 20:08	06:30 19:22	07:00 18:32	12 07:42 (ML 02)	06:35 16:48
8	07:23 16:46	07:02 17:23	06:23 17:56	07:09 (ML 02) 19:29	06:32 20:01	05:49 20:28	05:26 20:33	06:00 20:07	06:31 19:21	07:01 18:30	15 07:57 (ML 02)	06:36 16:48
9	07:23 16:47	07:01 17:24	06:21 17:57	07:19 (ML 02) 19:30	06:29 20:02	05:47 20:29	05:26 20:32	06:01 20:06	06:32 19:19	07:02 18:29	17 07:58 (ML 02)	06:37 16:46
10	07:23 16:48	07:00 17:25	06:20 17:58	07:19 (ML 02) 19:31	06:28 20:02	05:46 20:29	05:26 20:32	06:02 20:05	06:33 19:17	07:03 18:27	18 07:58 (ML 02)	06:39 16:45
11	07:23 16:49	06:59 17:26	06:18 17:59	07:19 (ML 02) 19:32	06:27 20:03	05:45 20:29	05:25 20:32	06:03 20:05	06:34 19:17	07:04 18:27	19 07:58 (ML 02)	06:40 16:44
12	07:22 16:50	06:58 17:28	06:16 18:00	07:20 (ML 02) 19:33	06:25 20:04	05:44 20:30	05:25 20:32	06:04 20:03	06:35 19:16	07:05 18:25	19 07:58 (ML 02)	06:41 16:44
13	07:22 16:51	06:56 17:29	06:15 18:02	07:24 (ML 02) 19:34	06:24 20:05	05:43 20:30	05:25 20:31	06:05 20:02	06:36 19:14	07:06 18:24	19 07:58 (ML 02)	06:42 16:43
14	07:22 16:52	06:55 17:30	06:13 18:03	07:24 (ML 02) 19:35	06:22 20:06	05:42 20:31	05:25 20:31	06:06 20:01	06:37 19:12	07:07 18:22	19 07:58 (ML 02)	06:43 16:42
15	07:21 16:53	06:54 17:31	06:11 18:04	07:24 (ML 02) 19:36	06:20 20:07	05:41 20:31	05:25 20:30	06:07 19:59	06:38 19:11	07:08 18:21	17 07:57 (ML 02)	06:45 16:41
16	07:21 16:55	06:53 17:33	06:10 18:05	07:24 (ML 02) 19:37	06:19 20:08	05:40 20:32	05:25 20:30	06:08 19:58	06:39 19:09	07:10 18:19	14 07:55 (ML 02)	06:46 16:40
17	07:21 16:56	06:51 17:34	06:08 18:06	07:24 (ML 02) 19:38	06:17 20:09	05:39 20:32	05:25 20:29	06:09 19:57	06:39 19:07	07:11 18:17	11 07:53 (ML 02)	06:47 16:39
18	07:20 16:57	06:50 17:35	06:07 18:07	07:24 (ML 02) 19:39	06:16 20:10	05:38 20:33	05:25 20:28	06:10 19:55	06:40 19:05	07:12 18:16	6 07:50 (ML 02)	06:48 16:38
19	07:20 16:58	06:49 17:36	06:05 18:08	07:24 (ML 02) 19:40	06:14 20:11	05:37 20:33	05:25 20:28	06:11 19:54	06:41 19:04	07:13 18:14	14 07:55 (ML 02)	06:49 16:38
20	07:19 16:59	06:47 17:37	06:03 18:09	07:24 (ML 02) 19:41	06:13 20:12	05:36 20:33	05:25 20:27	06:12 19:52	06:42 19:02	07:14 18:13	14 07:55 (ML 02)	06:50 16:37
21	07:18 17:00	06:46 17:39	06:02 18:10	07:24 (ML 02) 19:42	06:11 20:13	05:36 20:33	05:26 20:26	06:13 19:51	06:43 19:00	07:15 18:11	14 07:55 (ML 02)	06:52 16:36
22	07:18 17:02	06:44 17:40	06:00 18:11	07:24 (ML 02) 19:43	06:10 20:14	05:35 20:34	05:26 20:26	06:14 19:49	06:44 18:59	07:16 18:10	14 07:55 (ML 02)	06:53 16:36
23	07:17 17:03	06:43 17:41	05:58 18:12	07:24 (ML 02) 19:44	06:08 20:15	05:34 20:34	05:26 20:25	06:15 19:48	06:45 18:57	07:17 18:09	14 07:55 (ML 02)	06:54 16:35
24	07:17 17:04	06:41 17:42	05:56 18:14	07:24 (ML 02) 19:45	06:07 20:16	05:33 20:34	05:26 20:24	06:16 19:46	06:46 18:55	07:19 18:07	14 07:55 (ML 02)	06:55 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	07:24 (ML 02) 19:46	06:06 20:17	05:33 20:34	05:27 20:23	06:17 19:45	06:48 18:54	07:20 18:06	14 07:55 (ML 02)	06:56 16:34
26	07:15 17:06	06:38 17:44	05:53 18:16	07:24 (ML 02) 19:47	06:04 20:18	05:32 20:34	05:27 20:22	06:18 19:43	06:49 18:52	07:21 17:04	14 07:55 (ML 02)	06:57 16:33
27	07:14 17:07	06:37 17:46	05:51 18:17	07:24 (ML 02) 19:48	06:03 20:19	05:31 20:34	05:27 20:21	06:19 19:42	06:50 18:50	07:22 17:03	14 07:55 (ML 02)	06:58 16:33
28	07:13 17:09	06:35 17:47	05:50 18:18	07:24 (ML 02) 19:49	06:01 20:20	05:28 20:35	05:28 20:19	06:20 19:39	06:51 18:47	07:23 17:00	14 07:55 (ML 02)	06:59 16:32
29	07:13 17:10	06:34 17:48	05:49 18:19	07:24 (ML 02) 19:50	06:00 20:21	05:28 20:36	05:28 20:18	06:21 19:37	06:52 18:45	07:24 17:00	14 07:55 (ML 02)	07:00 16:31
30	07:12 17:11	06:33 17:49	05:48 18:20	07:24 (ML 02) 19:51	05:59 20:22	05:27 20:37	05:28 20:17	06:22 19:35	06:53 18:43	07:25 17:00	14 07:55 (ML 02)	07:01 16:30
31	07:11 17:13	06:32 17:50	05:47 18:21	07:24 (ML 02) 19:52	05:58 20:23	05:26 20:38	05:28 20:16	06:23 19:34	06:54 18:43	07:26 17:00	14 07:55 (ML 02)	07:02 16:29
Potential sun hours	297	297	369	399	448	452	459	428	375	345	193	288
Total, worst case		55	134							193		
Sun reduction		0,62	0,55							0,59		
Oper. time red.		0,76	0,76							0,76		
Wind dir. red.		0,58	0,58							0,58		
Total reduction		0,27	0,24							0,26		
Total, real		15	33							50		

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: Real Case Shadow receptor: R75 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:54 19:57	05:27 20:26	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
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8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:10 16:30
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11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:15 16:30
15	07:22 16:53	06:54 17:31	06:12 18:04	06:21 19:37	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40	07:15 16:30
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:16 16:30
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:37 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	06:50 16:36	07:19 16:32
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	06:57 16:33	07:22 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:20	06:20 19:39	06:51 18:47	07:23 17:00	07:00 16:32	07:22 16:36
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	07:01 16:31	07:23 16:37
30	07:12 17:11		06:46 19:20	05:59 19:53	05:30 20:22	05:28 20:34	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58	07:02 16:31	07:23 16:38
31	07:11 17:13		06:45 19:21	05:29 20:23			05:52 20:16	06:23 19:34	06:27 16:56			07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	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: Real Case Shadow receptor: R76 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:42 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:54 19:57	05:27 20:26	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:26 20:28	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:10 16:30
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:48 20:02	05:26 20:29	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:11 16:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:11 16:30
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:12 16:30
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:15 16:30
15	07:22 16:53	06:54 17:31	06:12 18:04	06:21 19:37	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40	07:15 16:30
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:16 16:30
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38	07:17 16:31
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37	07:18 16:31
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:37 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	06:50 16:36	07:19 16:32
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	06:57 16:33	07:22 16:35
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:20	06:20 19:39	06:51 18:47	07:23 17:00	07:00 16:32	07:22 16:36
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	07:01 16:31	07:23 16:37
30	07:12 17:11		06:46 19:20	05:59 19:53	05:30 20:22	05:28 20:34	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58	07:02 16:31	07:23 16:38
31	07:11 17:13		06:45 19:21	05:59 20:23	05:29 20:23		05:52 20:16	06:23 19:34	06:54 16:56	07:26 16:56	07:03 16:31	07:24 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	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: Real Case Shadow receptor: R77 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:52 (ML 01) 06:06 (ML 01)	05:53 19:32	06:24 18:42	06:54 16:55	06:28 16:31
2	07:23 16:41	07:09 17:15	06:32 17:49	06:42 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:52 (ML 01) 06:05 (ML 01)	05:54 19:31	06:25 18:40	06:55 16:54	06:29 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:53 (ML 01) 06:06 (ML 01)	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:54 19:57	05:27 20:26	05:30 20:34	05:53 (ML 01) 06:05 (ML 01)	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:54 (ML 01) 06:05 (ML 01)	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:54 (ML 01) 06:04 (ML 01)	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	05:50 20:00	05:26 20:28	05:32 20:33	05:55 (ML 01) 06:03 (ML 01)	05:59 20:09	06:30 19:22	07:00 18:32	06:35 16:48
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	05:49 20:01	05:26 20:28	05:33 20:33	05:56 (ML 01) 06:03 (ML 01)	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	05:48 20:02	05:26 20:29	05:34 20:33	05:57 (ML 01) 06:01 (ML 01)	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:34 20:32	05:57 (ML 01) 06:01 (ML 01)	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	05:57 (ML 01) 06:01 (ML 01)	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	05:47 (ML 01) 06:01 (ML 01)	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	05:47 (ML 01) 06:02 (ML 01)	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	05:47 (ML 01) 06:02 (ML 01)	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41
15	07:22 16:53	06:54 17:31	06:12 18:04	06:21 19:37	05:41 20:08	05:25 20:32	05:38 20:30	05:47 (ML 01) 06:03 (ML 01)	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	05:47 (ML 01) 06:03 (ML 01)	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	05:39 20:10	05:25 20:33	05:39 20:28	05:47 (ML 01) 06:04 (ML 01)	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	05:48 (ML 01) 06:05 (ML 01)	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	05:37 20:12	05:23 20:33	05:41 20:27	05:48 (ML 01) 06:05 (ML 01)	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	05:37 20:13	05:25 20:33	05:42 20:26	05:48 (ML 01) 06:05 (ML 01)	06:12 19:51	06:43 19:00	07:14 18:11	06:50 16:36
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	05:48 (ML 01) 06:05 (ML 01)	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:32
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	05:48 (ML 01) 06:05 (ML 01)	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	05:49 (ML 01) 06:06 (ML 01)	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	05:33 20:17	05:26 20:34	05:45 20:23	05:49 (ML 01) 06:06 (ML 01)	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	05:49 (ML 01) 06:06 (ML 01)	06:17 19:43	06:48 18:52	06:20 17:04	06:56 16:33
26	07:15 17:06	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	05:49 (ML 01) 06:05 (ML 01)	06:18 19:42	06:49 18:50	06:21 17:03	06:57 16:33
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19	05:27 20:35	05:48 20:20	05:50 (ML 01) 06:06 (ML 01)	06:19 19:40	06:50 18:48	06:22 17:02	06:58 16:32
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20	05:28 20:35	05:49 20:20	05:50 (ML 01) 06:06 (ML 01)	06:20 19:39	06:51 18:47	06:23 17:00	07:00 16:32
29	07:13 17:10	06:48 19:19	06:00 19:52	06:00 20:21	05:30 20:21	05:28 20:35	05:50 20:19	05:51 (ML 01) 06:06 (ML 01)	06:21 19:37	06:52 18:45	06:24 16:59	07:01 16:31
30	07:12 17:11	06:46 19:20	05:59 19:53	05:30 20:22	05:28 20:34	05:28 20:34	05:51 20:18	05:51 (ML 01) 06:06 (ML 01)	06:22 19:36	06:53 18:43	06:26 16:58	07:02 16:31
31	07:11 17:13	06:45 19:21	06:45 19:21	05:29 20:23	05:29 20:23	05:29 20:23	05:29 20:16	05:52 20:16	06:23 19:34	06:27 16:56	06:27 16:56	07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Total, worst case						398						
Sun reduction						0,44						
Oper. time red.						0,76						
Wind dir. red.						0,68						
Total reduction						0,23						
Total, real						90						

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: Real Case Shadow receptor: R82 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	07:12 (ML 01) 08:13 (ML 01)	05:57 19:54
2	07:23 16:41	07:07 17:15	06:32 17:49	06:41 19:23	07:11 (ML 01) 08:13 (ML 01)	05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	07:10 (ML 01) 08:13 (ML 01)	05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	06:38 19:25	07:10 (ML 01) 08:13 (ML 01)	05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	07:09 (ML 01) 08:13 (ML 01)	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	07:08 (ML 01) 08:12 (ML 01)	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	07:08 (ML 01) 08:13 (ML 01)	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	07:07 (ML 01) 08:12 (ML 01)	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	07:08 (ML 01) 08:12 (ML 01)	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	07:07 (ML 01) 08:11 (ML 01)	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	07:07 (ML 01) 08:10 (ML 01)	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	07:07 (ML 01) 08:10 (ML 01)	05:44 20:05
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	07:07 (ML 01) 08:09 (ML 01)	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	07:07 (ML 01) 08:09 (ML 01)	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:21 19:37	07:07 (ML 01) 08:07 (ML 01)	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	07:08 (ML 01) 08:07 (ML 01)	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	07:08 (ML 01) 08:06 (ML 01)	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	07:09 (ML 01) 08:05 (ML 01)	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	07:09 (ML 01) 08:03 (ML 01)	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	07:10 (ML 01) 08:03 (ML 01)	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	07:10 (ML 01) 08:01 (ML 01)	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	07:11 (ML 01) 08:00 (ML 01)	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	07:11 (ML 01) 07:58 (ML 01)	05:34 20:16
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	07:13 (ML 01) 07:57 (ML 01)	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	07:15 (ML 01) 07:55 (ML 01)	05:33 20:18
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	07:15 (ML 01) 07:53 (ML 01)	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	07:17 (ML 01) 07:51 (ML 01)	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	07:18 (ML 01) 07:48 (ML 01)	05:31 20:20
29	07:13 17:10		06:48 19:19	06:00 19:52	07:21 (ML 01) 07:46 (ML 01)	05:30 20:21
30	07:12 17:11		06:46 19:20	05:59 19:53	07:24 (ML 01) 08:12 (ML 01)	05:29 20:22
31	07:11 17:13		06:45 19:21	05:58 19:54	07:12 (ML 01) 08:12 (ML 01)	05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case			593	1602		6
Sun reduction			0,55	0,50		0,46
Oper. time red.			0,76	0,76		0,76
Wind dir. red.			0,64	0,64		0,64
Total reduction			0,27	0,24		0,22
Total, real			160	387		1

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: Real Case Shadow receptor: R82 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	07:06 (ML 01) 08:09 (ML 01)	06:54 18:42	06:28 16:55
2	05:29 20:34	05:54 20:14	06:25 19:31	07:05 (ML 01) 08:09 (ML 01)	06:55 18:40	06:29 16:54
3	05:30 20:34	05:55 20:13	06:26 19:29	07:05 (ML 01) 08:09 (ML 01)	06:56 18:38	06:30 16:53
4	05:30 20:34	05:56 20:12	06:27 19:27	07:04 (ML 01) 08:09 (ML 01)	06:57 18:37	06:31 16:51
5	05:31 20:34	05:57 20:11	06:28 19:26	07:04 (ML 01) 08:09 (ML 01)	06:58 18:35	06:33 16:50
6	05:32 20:33	05:58 20:10	06:29 19:24	07:04 (ML 01) 08:08 (ML 01)	06:59 18:33	06:34 16:49
7	05:32 20:33	05:59 20:09	06:30 19:22	07:04 (ML 01) 08:08 (ML 01)	07:00 18:32	06:35 16:48
8	05:33 20:33	06:00 20:07	06:31 19:21	07:04 (ML 01) 08:07 (ML 01)	07:01 18:30	06:36 16:47
9	05:34 20:33	06:01 20:06	06:32 19:19	07:04 (ML 01) 08:07 (ML 01)	07:02 18:29	06:37 16:46
10	05:34 20:32	06:02 20:05	06:33 19:17	07:04 (ML 01) 08:06 (ML 01)	07:03 18:27	06:39 16:45
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 (ML 01) 08:06 (ML 01)	07:04 18:25	06:40 16:44
12	05:36 20:31	06:04 20:02	06:35 19:14	07:04 (ML 01) 08:05 (ML 01)	07:05 18:24	06:41 16:43
13	05:36 20:31	06:05 20:01	06:36 19:12	07:05 (ML 01) 08:04 (ML 01)	07:06 18:22	06:42 16:42
14	05:37 20:30	06:06 19:59	06:37 19:11	07:05 (ML 01) 08:03 (ML 01)	07:07 18:21	06:43 16:41
15	05:38 20:30	06:07 19:58	06:38 19:09	07:06 (ML 01) 08:02 (ML 01)	07:09 18:19	06:45 16:40
16	05:39 20:29	06:08 19:57	06:39 19:07	07:06 (ML 01) 08:00 (ML 01)	07:10 18:17	06:46 16:39
17	05:39 20:28	06:09 19:55	06:40 19:06	07:07 (ML 01) 07:59 (ML 01)	07:11 18:16	06:47 16:38
18	05:40 20:28	06:10 19:54	06:41 19:04	07:08 (ML 01) 07:57 (ML 01)	07:12 18:14	06:48 16:38
19	05:41 20:27	06:11 19:52	06:42 19:02	07:09 (ML 01) 07:56 (ML 01)	07:13 18:13	06:49 16:37
20	05:42 20:26	06:12 19:51	06:43 19:00	07:10 (ML 01) 07:54 (ML 01)	07:14 18:11	06:50 16:36
21	05:43 20:26	06:13 19:49	06:44 18:59	07:12 (ML 01) 07:51 (ML 01)	07:15 18:10	06:52 16:36
22	05:44 20:25	06:14 19:48	06:45 18:57	07:14 (ML 01) 07:49 (ML 01)	07:16 18:09	06:53 16:35
23	05:45 20:24	06:15 19:46	06:46 18:55	07:16 (ML 01) 07:46 (ML 01)	07:17 18:07	06:54 16:34
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 (ML 01) 07:42 (ML 01)	07:19 18:06	06:55 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:22 (ML 01) 07:36 (ML 01)	06:20 17:04	06:56 16:33
26	05:47 20:21	06:18 19:42	06:49 18:50	07:11 (ML 01) 08:08 (ML 01)	06:21 17:03	06:57 16:33
27	05:48 20:20	06:19 19:40	06:50 18:48	07:10 (ML 01) 08:09 (ML 01)	06:22 17:02	06:58 16:32
28	05:49 20:20	06:20 19:39	06:51 18:47	07:09 (ML 01) 08:09 (ML 01)	06:23 17:00	07:00 16:32
29	05:50 20:19	06:21 19:37	06:52 18:45	07:08 (ML 01) 08:10 (ML 01)	06:24 16:59	07:01 16:31
30	05:51 20:18	06:22 19:36	06:53 18:43	07:08 (ML 01) 08:10 (ML 01)	06:26 16:58	07:02 16:31
31	05:52 20:16	06:23 19:34	06:54 18:41	07:07 (ML 01) 08:10 (ML 01)	06:27 16:56	07:03 16:30
Potential sun hours	459	428	375	345	298	288
Total, worst case		921	1318			
Sun reduction		0,48	0,53			
Oper. time red.		0,76	0,76			
Wind dir. red.		0,64	0,64			
Total reduction		0,23	0,26			
Total, real		214	339			

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: Real Case Shadow receptor: R83 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	07:07 (ML 01) 08:01 (ML 01)	05:57 19:54
2	07:23 16:41	07:09 17:15	06:32 17:49	06:41 19:23	07:06 (ML 01) 08:02 (ML 01)	23 07:37 (ML 01) 05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	07:04 (ML 01) 08:02 (ML 01)	17 07:33 (ML 01) 05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	06:38 19:25	07:04 (ML 01) 08:02 (ML 01)	4 07:27 (ML 01) 05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	06:37 19:26	07:03 (ML 01) 08:02 (ML 01)	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	07:02 (ML 01) 08:02 (ML 01)	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:33 19:28	07:02 (ML 01) 08:02 (ML 01)	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:32 19:30	07:01 (ML 01) 08:02 (ML 01)	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:31	07:01 (ML 01) 08:02 (ML 01)	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	07:00 (ML 01) 08:01 (ML 01)	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	07:00 (ML 01) 08:01 (ML 01)	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:25 19:34	07:00 (ML 01) 08:01 (ML 01)	05:44 20:05
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	06:59 (ML 01) 08:00 (ML 01)	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	07:00 (ML 01) 08:00 (ML 01)	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:21 19:37	06:59 (ML 01) 07:59 (ML 01)	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:19 19:38	07:00 (ML 01) 07:59 (ML 01)	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	07:00 (ML 01) 07:57 (ML 01)	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:16 19:40	07:00 (ML 01) 07:57 (ML 01)	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:14 19:41	07:00 (ML 01) 07:56 (ML 01)	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	07:01 (ML 01) 07:55 (ML 01)	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:11 19:43	07:01 (ML 01) 07:54 (ML 01)	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	07:02 (ML 01) 07:53 (ML 01)	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	07:02 (ML 01) 07:51 (ML 01)	05:34 20:16
24	07:17 17:04	06:41 17:42	05:57 18:14	06:07 19:47	07:03 (ML 01) 07:50 (ML 01)	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:48	07:05 (ML 01) 07:49 (ML 01)	05:33 20:18
26	07:15 17:06	06:38 17:45	05:53 18:16	06:04 19:49	07:05 (ML 01) 07:47 (ML 01)	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	07:07 (ML 01) 07:46 (ML 01)	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	07:07 (ML 01) 07:43 (ML 01)	05:31 20:20
29	07:13 17:10	06:48 19:19	06:48 19:19	06:00 19:52	07:09 (ML 01) 07:42 (ML 01)	05:30 20:21
30	07:12 17:11	06:46 19:20	06:46 19:20	05:59 19:53	07:09 (ML 01) 07:40 (ML 01)	05:29 20:22
31	07:11 17:13	06:45 19:21	06:45 19:21	05:58 19:54	07:08 (ML 01) 08:00 (ML 01)	05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case			376	1597		44
Sun reduction			0,55	0,50		0,46
Oper. time red.			0,76	0,76		0,76
Wind dir. red.			0,64	0,64		0,64
Total reduction			0,27	0,24		0,22
Total, real			102	389		10

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R83 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:59 (ML 01) 18:42	06:54 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:58 (ML 01) 18:40	06:55 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:58 (ML 01) 18:38	06:56 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:58 (ML 01) 18:37	06:57 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 (ML 01) 18:35	06:58 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:58 (ML 01) 18:33	06:59 16:49	07:08 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	06:58 (ML 01) 18:32	07:00 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	06:58 (ML 01) 18:30	07:01 16:47	07:10 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	06:58 (ML 01) 18:29	07:02 16:46	07:11 16:29
10	05:34 20:32	06:02 20:05	07:28 (ML 01) 19:17	06:33 19:17	06:59 (ML 01) 18:27	07:03 16:45
11	05:35 20:32	06:03 20:03	07:24 (ML 01) 19:16	06:34 19:16	06:59 (ML 01) 18:25	07:04 16:44
12	05:36 20:31	06:04 20:02	07:21 (ML 01) 19:14	06:35 19:14	07:00 (ML 01) 18:24	07:05 16:43
13	05:36 20:31	06:05 20:01	07:18 (ML 01) 19:12	06:36 19:12	07:00 (ML 01) 18:22	07:06 16:42
14	05:37 20:30	06:06 19:59	07:16 (ML 01) 19:11	06:37 19:11	07:01 (ML 01) 18:21	07:07 16:41
15	05:38 20:30	06:07 19:58	07:15 (ML 01) 19:09	06:38 19:09	07:02 (ML 01) 18:19	07:09 16:40
16	05:39 20:29	06:08 19:57	07:13 (ML 01) 19:07	06:39 19:07	07:03 (ML 01) 18:17	07:10 16:39
17	05:39 20:28	06:09 19:55	07:11 (ML 01) 19:06	06:40 19:06	07:05 (ML 01) 18:16	07:11 16:38
18	05:40 20:28	06:10 19:54	07:10 (ML 01) 19:04	06:41 19:04	07:06 (ML 01) 18:14	07:12 16:38
19	05:41 20:27	06:11 19:52	07:09 (ML 01) 19:02	06:42 19:02	07:08 (ML 01) 18:13	07:13 16:37
20	05:42 20:26	06:12 19:51	07:08 (ML 01) 19:00	06:43 19:00	07:11 (ML 01) 18:11	07:14 16:36
21	05:43 20:26	06:13 19:49	07:07 (ML 01) 18:59	06:44 18:59	07:15 (ML 01) 18:10	07:15 16:36
22	05:44 20:25	06:14 19:48	07:06 (ML 01) 18:57	06:45 18:57	07:16 18:09	07:20 16:35
23	05:45 20:24	06:15 19:46	07:05 (ML 01) 18:55	06:46 18:55	07:17 18:07	07:20 16:34
24	05:45 20:23	06:16 19:45	07:04 (ML 01) 18:54	06:47 18:54	07:19 18:06	07:21 16:34
25	05:46 20:22	06:17 19:43	07:03 (ML 01) 18:52	06:48 18:52	06:20 17:04	07:21 16:33
26	05:47 20:21	06:18 19:42	07:02 (ML 01) 18:50	06:49 18:50	06:21 17:03	07:22 16:33
27	05:48 20:20	06:19 19:40	07:02 (ML 01) 18:48	06:50 18:48	06:22 17:02	07:22 16:32
28	05:49 20:20	06:20 19:39	07:01 (ML 01) 18:47	06:51 18:47	06:23 17:00	07:22 16:32
29	05:50 20:19	06:21 19:37	07:01 (ML 01) 18:45	06:52 18:45	06:24 16:59	07:23 16:31
30	05:51 20:18	06:22 19:36	07:00 (ML 01) 18:43	06:53 18:43	06:26 16:58	07:23 16:31
31	05:52 20:16	06:23 19:34	07:00 (ML 01) 18:41	06:54 18:41	06:27 16:56	07:23 16:30
Potential sun hours	459	428	375	345	298	288
Total, worst case		1007	1039			
Sun reduction		0,48	0,53			
Oper. time red.		0,76	0,76			
Wind dir. red.		0,64	0,64			
Total reduction		0,23	0,26			
Total, real		236	269			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R87 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	07:02 (ML 01) 07:39 (ML 01)	06:43 19:22	05:57 19:54
2	07:23 16:41	07:09 17:15	06:32 17:49	07:00 (ML 01) 07:40 (ML 01)	06:41 19:23	05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:59 (ML 01) 07:41 (ML 01)	06:40 19:24	05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	06:57 (ML 01) 07:42 (ML 01)	06:38 19:25	05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	06:57 (ML 01) 07:43 (ML 01)	06:37 19:26	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:55 (ML 01) 07:43 (ML 01)	06:35 19:27	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:54 (ML 01) 07:43 (ML 01)	06:33 19:28	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:54 (ML 01) 07:44 (ML 01)	06:32 19:30	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:53 (ML 01) 07:44 (ML 01)	06:30 19:31	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:52 (ML 01) 07:44 (ML 01)	06:28 19:32	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:52 (ML 01) 07:44 (ML 01)	06:27 19:33	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:51 (ML 01) 07:44 (ML 01)	06:25 19:34	05:44 20:05
13	07:22 16:51	06:57 17:29	06:15 18:02	06:52 (ML 01) 07:44 (ML 01)	06:24 19:35	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:51 (ML 01) 07:44 (ML 01)	06:22 19:36	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:50 (ML 01) 07:43 (ML 01)	06:21 19:37	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:51 (ML 01) 07:43 (ML 01)	06:19 19:38	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:51 (ML 01) 07:42 (ML 01)	06:17 19:39	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:50 (ML 01) 07:41 (ML 01)	06:16 19:40	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:50 (ML 01) 07:39 (ML 01)	06:14 19:41	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:51 (ML 01) 07:39 (ML 01)	06:13 19:42	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:51 (ML 01) 07:38 (ML 01)	06:11 19:43	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:52 (ML 01) 07:36 (ML 01)	06:10 19:44	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:53 (ML 01) 07:35 (ML 01)	06:08 19:45	05:34 20:16
24	07:17 17:04	06:41 17:42	05:57 18:14	06:54 (ML 01) 07:33 (ML 01)	06:07 19:47	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 07:13 (ML 01)	06:54 (ML 01) 06:54 (ML 01)	06:06 06:06	05:33 05:27
26	07:15 17:06	06:38 17:45	05:53 07:10 (ML 01)	06:56 (ML 01) 07:33 (ML 01)	06:04 19:49	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 07:06 (ML 01)	06:58 (ML 01) 07:27 (ML 01)	06:03 19:50	05:31 20:19
28	07:13 17:09	06:35 17:47	05:50 07:04 (ML 01)	06:59 (ML 01) 07:24 (ML 01)	06:01 19:51	05:31 20:20
29	07:13 17:10		06:48 19:19	08:03 (ML 01) 08:21 (ML 01)	06:00 19:52	05:30 20:21
30	07:12 17:11		06:46 19:20	08:09 (ML 01) 08:13 (ML 01)	05:59 19:53	05:29 20:22
31	07:11 17:13		06:45 19:21		05:29 20:23	20:35
Potential sun hours	297	297	369	399	448	452
Total, worst case		101	1293			
Sun reduction		0,62	0,55			
Oper. time red.		0,76	0,76			
Wind dir. red.		0,59	0,59			
Total reduction		0,28	0,25			
Total, real		28	320			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R87 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:31 (ML 01) 08:23 (ML 01)	06:28 16:55
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:31 (ML 01) 08:23 (ML 01)	06:29 16:54
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:30 (ML 01) 08:22 (ML 01)	06:30 16:53
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:30 (ML 01) 08:22 (ML 01)	06:31 16:51
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:30 (ML 01) 08:21 (ML 01)	06:33 16:50
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:31 (ML 01) 08:20 (ML 01)	06:34 16:49
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	07:31 (ML 01) 08:19 (ML 01)	06:35 16:48
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:31 (ML 01) 08:18 (ML 01)	06:36 16:47
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	07:32 (ML 01) 08:17 (ML 01)	06:37 16:46
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:32 (ML 01) 08:16 (ML 01)	06:39 16:45
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	07:33 (ML 01) 08:14 (ML 01)	06:40 16:44
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	07:35 (ML 01) 08:13 (ML 01)	06:41 16:43
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	07:36 (ML 01) 08:11 (ML 01)	06:42 16:42
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	07:38 (ML 01) 08:09 (ML 01)	06:43 16:41
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	07:40 (ML 01) 08:07 (ML 01)	06:45 16:40
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	07:42 (ML 01) 08:03 (ML 01)	06:46 16:39
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	07:46 (ML 01) 07:59 (ML 01)	06:47 16:38
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	07:43 (ML 01) 08:19 (ML 01)	06:48 16:38
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	07:41 (ML 01) 08:20 (ML 01)	06:49 16:37
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	07:40 (ML 01) 08:21 (ML 01)	06:51 16:36
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	07:38 (ML 01) 08:22 (ML 01)	06:52 16:36
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	07:37 (ML 01) 08:23 (ML 01)	06:53 16:35
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	07:36 (ML 01) 08:23 (ML 01)	06:54 16:34
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	07:35 (ML 01) 08:24 (ML 01)	06:55 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	07:34 (ML 01) 08:24 (ML 01)	06:56 16:33
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	07:33 (ML 01) 08:24 (ML 01)	06:57 16:33
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	07:33 (ML 01) 08:24 (ML 01)	06:58 16:32
28	05:49 20:20	06:20 19:39	06:51 18:47	07:23 17:00	07:32 (ML 01) 08:24 (ML 01)	07:00 16:32
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	07:31 (ML 01) 08:24 (ML 01)	07:01 16:31
30	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58	07:31 (ML 01) 08:24 (ML 01)	07:02 16:31
31	05:52 20:17	06:23 19:34		07:26 16:56		07:23 16:30
Potential sun hours	459	428	375	345	298	288
Total, worst case			714		698	
Sun reduction			0,53		0,59	
Oper. time red.			0,76		0,76	
Wind dir. red.			0,59		0,59	
Total reduction			0,24		0,26	
Total, real			168		185	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R87a - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	07:04 (ML 01) 07:48 (ML 01)	06:43 19:22	05:57 19:54
2	07:23 16:40	07:09 17:15	06:32 17:49	07:02 (ML 01) 07:49 (ML 01)	06:41 19:23	05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	07:02 (ML 01) 07:50 (ML 01)	06:40 19:24	05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	07:00 (ML 01) 07:50 (ML 01)	06:38 19:25	05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	07:00 (ML 01) 07:51 (ML 01)	06:37 19:26	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:59 (ML 01) 07:51 (ML 01)	06:35 19:27	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:58 (ML 01) 07:51 (ML 01)	06:33 19:28	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:58 (ML 01) 07:52 (ML 01)	06:32 19:30	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:57 (ML 01) 07:51 (ML 01)	06:30 19:31	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:56 (ML 01) 07:51 (ML 01)	06:28 19:32	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:56 (ML 01) 07:51 (ML 01)	06:27 19:33	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:56 (ML 01) 07:50 (ML 01)	06:25 19:34	05:44 20:05
13	07:22 16:51	06:57 17:29	06:15 18:02	06:56 (ML 01) 07:51 (ML 01)	06:24 19:35	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:56 (ML 01) 07:50 (ML 01)	06:22 19:36	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:55 (ML 01) 07:49 (ML 01)	06:21 19:37	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:56 (ML 01) 07:49 (ML 01)	06:19 19:38	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:56 (ML 01) 07:48 (ML 01)	06:17 19:39	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:56 (ML 01) 07:46 (ML 01)	06:16 19:40	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:56 (ML 01) 07:45 (ML 01)	06:14 19:41	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:57 (ML 01) 07:44 (ML 01)	06:13 19:42	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:57 (ML 01) 07:43 (ML 01)	06:11 19:43	05:36 20:14
22	07:18 17:02	06:44 17:40	07:22 (ML 01) 07:33 (ML 01)	06:00 18:11	06:10 19:44	05:35 20:15
23	07:17 17:03	06:43 17:41	07:16 (ML 01) 07:37 (ML 01)	05:58 18:12	06:08 19:45	05:34 20:16
24	07:17 17:04	06:41 17:42	07:14 (ML 01) 07:41 (ML 01)	05:57 18:14	06:07 19:47	05:33 20:17
25	07:16 17:05	06:40 17:43	07:11 (ML 01) 07:42 (ML 01)	05:55 18:15	06:06 19:48	05:33 20:18
26	07:15 17:06	06:38 17:45	07:09 (ML 01) 07:45 (ML 01)	05:53 18:16	06:04 19:49	05:32 20:19
27	07:14 17:08	06:37 17:46	07:07 (ML 01) 07:46 (ML 01)	05:51 18:17	06:03 19:50	05:31 20:19
28	07:13 17:09	06:35 17:47	07:05 (ML 01) 07:47 (ML 01)	05:50 18:18	06:01 19:51	05:31 20:20
29	07:13 17:10		06:48 19:19	08:15 (ML 01) 08:19 (ML 01)	06:00 19:52	05:30 20:21
30	07:12 17:11		06:46 19:20		05:59 19:53	05:29 20:22
31	07:11 17:13		06:45 19:21		05:29 20:23	05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case		207	1311			
Sun reduction		0,62	0,55			
Oper. time red.		0,76	0,76			
Wind dir. red.		0,58	0,58			
Total reduction		0,27	0,24			
Total, real		57	320			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R87a - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July	August	September	October	November	December	
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:35 (ML 01) 08:30 (ML 01)	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:35 (ML 01) 08:30 (ML 01)	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:34 (ML 01) 08:29 (ML 01)	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:34 (ML 01) 08:29 (ML 01)	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:34 (ML 01) 08:28 (ML 01)	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:34 (ML 01) 08:28 (ML 01)	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	07:34 (ML 01) 08:27 (ML 01)	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:34 (ML 01) 08:26 (ML 01)	06:36 16:47	07:10 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	07:35 (ML 01) 08:25 (ML 01)	06:37 16:46	07:11 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:35 (ML 01) 08:24 (ML 01)	06:39 16:45	07:11 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	07:35 (ML 01) 08:23 (ML 01)	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	07:37 (ML 01) 08:23 (ML 01)	06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	07:38 (ML 01) 08:21 (ML 01)	06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	07:39 (ML 01) 08:20 (ML 01)	06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	07:40 (ML 01) 08:18 (ML 01)	06:45 16:40	07:15 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	07:41 (ML 01) 08:16 (ML 01)	06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	07:43 (ML 01) 08:13 (ML 01)	06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	07:45 (ML 01) 08:10 (ML 01)	06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	07:49 (ML 01) 08:08 (ML 01)	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	07:46 (ML 01) 08:00 (ML 01)	06:50 16:36	07:19 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	07:44 (ML 01) 08:27 (ML 01)	06:52 16:36	07:19 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	07:43 (ML 01) 08:28 (ML 01)	06:53 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	07:42 (ML 01) 08:28 (ML 01)	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	07:40 (ML 01) 08:29 (ML 01)	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	07:20 17:04	07:39 (ML 01) 08:30 (ML 01)	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	06:49 18:50	07:21 17:03	07:38 (ML 01) 08:30 (ML 01)	06:57 16:33	07:22 16:35
27	05:48 20:20	06:19 19:40	06:50 18:48	07:22 17:02	07:38 (ML 01) 08:30 (ML 01)	06:58 16:32	07:22 16:36
28	05:49 20:20	06:20 19:39	06:51 18:47	07:23 17:00	07:37 (ML 01) 08:30 (ML 01)	07:00 16:32	07:22 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	07:24 16:59	07:36 (ML 01) 08:30 (ML 01)	07:01 16:31	07:23 16:37
30	05:51 20:18	06:22 19:36	06:53 18:43	07:25 16:58	07:36 (ML 01) 08:30 (ML 01)	07:02 16:31	07:23 16:38
31	05:52 20:17	06:23 19:34		07:26 16:56			07:23 16:39
Potential sun hours	459	428	375	345	298	288	
Total, worst case			679	862			
Sun reduction			0,53	0,59			
Oper. time red.			0,76	0,76			
Wind dir. red.			0,58	0,58			
Total reduction			0,23	0,26			
Total, real			158	225			

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: Real Case Shadow receptor: R88 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March		April		May	June	
1	07:23 16:40	07:10 17:14	06:34 17:48	15	07:05 (ML 01) 07:20 (ML 01)	06:43 19:22	07:55 (ML 01) 08:11 (ML 01)	05:57 19:54	05:28 20:23
2	07:23 16:41	07:09 17:15	06:32 17:49	23	07:00 (ML 01) 07:23 (ML 01)	06:41 19:23		05:56 19:55	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50	28	06:58 (ML 01) 07:26 (ML 01)	06:40 19:24		05:55 19:56	05:28 20:25
4	07:24 16:42	07:07 17:18	06:29 17:51	33	06:55 (ML 01) 07:28 (ML 01)	06:38 19:25		05:53 19:57	05:27 20:26
5	07:24 16:43	07:06 17:19	06:28 17:53	36	06:54 (ML 01) 07:30 (ML 01)	06:37 19:26		05:52 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54	39	06:52 (ML 01) 07:31 (ML 01)	06:35 19:27		05:51 19:59	05:27 20:27
7	07:23 16:45	07:04 17:21	06:25 17:55	41	06:50 (ML 01) 07:31 (ML 01)	06:33 19:28		05:50 20:00	05:26 20:28
8	07:23 16:46	07:03 17:23	06:23 17:56	44	06:49 (ML 01) 07:33 (ML 01)	06:32 19:30		05:49 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	45	06:48 (ML 01) 07:33 (ML 01)	06:30 19:31		05:48 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	47	06:46 (ML 01) 07:33 (ML 01)	06:28 19:32		05:46 20:03	05:26 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	48	06:46 (ML 01) 07:34 (ML 01)	06:27 19:33		05:45 20:04	05:25 20:30
12	07:23 16:50	06:58 17:28	06:16 18:00	49	06:45 (ML 01) 07:34 (ML 01)	06:25 19:34		05:44 20:05	05:25 20:30
13	07:22 16:51	06:57 17:29	06:15 18:02	50	06:45 (ML 01) 07:35 (ML 01)	06:24 19:35		05:43 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	50	06:44 (ML 01) 07:34 (ML 01)	06:22 19:36		05:42 20:07	05:25 20:31
15	07:22 16:53	06:54 17:31	06:12 18:04	51	06:43 (ML 01) 07:34 (ML 01)	06:21 19:37		05:41 20:08	05:25 20:32
16	07:21 16:55	06:53 17:33	06:10 18:05	51	06:43 (ML 01) 07:34 (ML 01)	06:19 19:38		05:40 20:09	05:25 20:32
17	07:21 16:56	06:51 17:34	06:08 18:06	51	06:43 (ML 01) 07:34 (ML 01)	06:17 19:39		05:39 20:10	05:25 20:33
18	07:20 16:57	06:50 17:35	06:07 18:07	51	06:42 (ML 01) 07:33 (ML 01)	06:16 19:40		05:38 20:11	05:25 20:33
19	07:20 16:58	06:49 17:36	06:05 18:08	50	06:42 (ML 01) 07:32 (ML 01)	06:14 19:41		05:37 20:12	05:25 20:33
20	07:19 16:59	06:47 17:37	06:03 18:09	49	06:43 (ML 01) 07:32 (ML 01)	06:13 19:42		05:36 20:13	05:25 20:34
21	07:19 17:00	06:46 17:39	06:02 18:10	49	06:42 (ML 01) 07:31 (ML 01)	06:11 19:43		05:36 20:14	05:26 20:34
22	07:18 17:02	06:44 17:40	06:00 18:11	48	06:42 (ML 01) 07:30 (ML 01)	06:10 19:44		05:35 20:15	05:26 20:34
23	07:17 17:03	06:43 17:41	05:58 18:12	46	06:43 (ML 01) 07:29 (ML 01)	06:08 19:45		05:34 20:16	05:26 20:34
24	07:17 17:04	06:41 17:42	05:57 18:14	45	06:43 (ML 01) 07:28 (ML 01)	06:07 19:47		05:33 20:17	05:26 20:34
25	07:16 17:05	06:40 17:43	05:55 18:15	43	06:43 (ML 01) 07:26 (ML 01)	06:06 19:48		05:33 20:18	05:27 20:34
26	07:15 17:06	06:38 17:45	05:53 18:16	41	06:45 (ML 01) 07:26 (ML 01)	06:04 19:49		05:32 20:19	05:27 20:34
27	07:14 17:08	06:37 17:46	05:51 18:17	39	06:45 (ML 01) 07:24 (ML 01)	06:03 19:50		05:31 20:19	05:27 20:35
28	07:13 17:09	06:35 17:47	05:50 18:18	35	06:46 (ML 01) 07:21 (ML 01)	06:01 19:51		05:31 20:20	05:28 20:35
29	07:13 17:10		06:48 19:19	32	07:48 (ML 01) 08:20 (ML 01)	06:00 19:52		05:30 20:21	05:28 20:35
30	07:12 17:11		06:46 19:20	27	07:50 (ML 01) 08:17 (ML 01)	05:59 19:53		05:29 20:22	05:28 20:35
31	07:11 17:13		06:45 19:21	23	07:51 (ML 01) 08:14 (ML 01)			05:29 20:23	
Potential sun hours	297	297	369		399			448	452
Total, worst case				1279		16			
Sun reduction				0,55		0,50			
Oper. time red.				0,76		0,76			
Wind dir. red.				0,60		0,60			
Total reduction				0,25		0,23			
Total, real				323		4			

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

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

Calculation: Real Case Shadow receptor: R88 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:24 (ML 01) 08:14 (ML 01)	06:28 16:55
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:24 (ML 01) 08:13 (ML 01)	06:29 16:54
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:25 (ML 01) 08:12 (ML 01)	06:30 16:53
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:25 (ML 01) 08:11 (ML 01)	06:31 16:51
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:25 (ML 01) 08:10 (ML 01)	06:33 16:50
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:26 (ML 01) 08:08 (ML 01)	06:34 16:49
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	07:27 (ML 01) 08:07 (ML 01)	06:35 16:48
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:28 (ML 01) 08:05 (ML 01)	06:36 16:47
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	07:29 (ML 01) 08:03 (ML 01)	06:37 16:46
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:30 (ML 01) 08:01 (ML 01)	06:39 16:45
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	07:32 (ML 01) 07:58 (ML 01)	06:40 16:44
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	07:44 (ML 01) 08:06 (ML 01)	06:41 16:43
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	07:41 (ML 01) 08:08 (ML 01)	06:42 16:42
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	07:39 (ML 01) 08:10 (ML 01)	06:43 16:41
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	07:37 (ML 01) 08:11 (ML 01)	06:45 16:40
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	07:35 (ML 01) 08:13 (ML 01)	06:46 16:39
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	07:33 (ML 01) 08:14 (ML 01)	06:47 16:38
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	07:32 (ML 01) 08:14 (ML 01)	06:48 16:38
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	07:31 (ML 01) 08:15 (ML 01)	06:49 16:37
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	07:30 (ML 01) 08:16 (ML 01)	06:51 16:36
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	07:29 (ML 01) 08:16 (ML 01)	06:52 16:36
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	07:28 (ML 01) 08:16 (ML 01)	06:53 16:35
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	07:27 (ML 01) 08:16 (ML 01)	06:54 16:34
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	07:26 (ML 01) 08:16 (ML 01)	06:55 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	07:26 (ML 01) 08:16 (ML 01)	06:56 16:33
26	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	07:25 (ML 01) 08:16 (ML 01)	06:57 16:33
27	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	07:25 (ML 01) 08:16 (ML 01)	06:58 16:32
28	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	07:25 (ML 01) 08:15 (ML 01)	07:00 16:32
29	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:24 (ML 01) 08:15 (ML 01)	07:01 16:31
30	05:51 20:18	06:22 19:36	06:53 18:43	06:26 16:58	07:24 (ML 01) 08:14 (ML 01)	07:02 16:31
31	05:52 20:17	06:23 19:34		06:27 16:56		07:23 16:30
Potential sun hours	459	428	375	345	298	288
Total, worst case			836		478	
Sun reduction			0,53		0,59	
Oper. time red.			0,76		0,76	
Wind dir. red.			0,60		0,60	
Total reduction			0,24		0,27	
Total, real			201		129	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R92 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	07:00 (ML 01) 07:36 (ML 01)	06:43 19:22	05:57 19:54
2	07:23 16:41	07:09 17:15	06:32 17:49	06:58 (ML 01) 07:36 (ML 01)	06:41 19:23	05:56 19:55
3	07:23 16:41	07:08 17:16	06:31 17:50	06:57 (ML 01) 07:38 (ML 01)	06:40 19:24	05:55 19:56
4	07:24 16:42	07:07 17:18	06:29 17:51	06:56 (ML 01) 07:38 (ML 01)	06:38 19:25	05:53 19:57
5	07:24 16:43	07:06 17:19	06:28 17:53	06:55 (ML 01) 07:39 (ML 01)	06:37 19:26	05:52 19:58
6	07:23 16:44	07:05 17:20	06:26 17:54	06:54 (ML 01) 07:39 (ML 01)	06:35 19:27	05:51 19:59
7	07:23 16:45	07:04 17:21	06:25 17:55	06:53 (ML 01) 07:39 (ML 01)	06:33 19:28	05:50 20:00
8	07:23 16:46	07:03 17:23	06:23 17:56	06:53 (ML 01) 07:40 (ML 01)	06:32 19:30	05:49 20:01
9	07:23 16:47	07:01 17:24	06:21 17:57	06:52 (ML 01) 07:40 (ML 01)	06:30 19:31	05:48 20:02
10	07:23 16:48	07:00 17:25	06:20 17:58	06:51 (ML 01) 07:39 (ML 01)	06:28 19:32	05:46 20:03
11	07:23 16:49	06:59 17:26	06:18 17:59	06:51 (ML 01) 07:40 (ML 01)	06:27 19:33	05:45 20:04
12	07:23 16:50	06:58 17:28	06:16 18:00	06:51 (ML 01) 07:39 (ML 01)	06:25 19:34	05:44 20:05
13	07:22 16:51	06:57 17:29	06:15 18:02	06:51 (ML 01) 07:39 (ML 01)	06:24 19:35	05:43 20:06
14	07:22 16:52	06:55 17:30	06:13 18:03	06:51 (ML 01) 07:38 (ML 01)	06:22 19:36	05:42 20:07
15	07:22 16:53	06:54 17:31	06:12 18:04	06:51 (ML 01) 07:37 (ML 01)	06:21 19:37	05:41 20:08
16	07:21 16:55	06:53 17:33	06:10 18:05	06:51 (ML 01) 07:37 (ML 01)	06:19 19:38	05:40 20:09
17	07:21 16:56	06:51 17:34	06:08 18:06	06:51 (ML 01) 07:36 (ML 01)	06:17 19:39	05:39 20:10
18	07:20 16:57	06:50 17:35	06:07 18:07	06:51 (ML 01) 07:34 (ML 01)	06:16 19:40	05:38 20:11
19	07:20 16:58	06:49 17:36	06:05 18:08	06:51 (ML 01) 07:33 (ML 01)	06:14 19:41	05:37 20:12
20	07:19 16:59	06:47 17:37	06:03 18:09	06:53 (ML 01) 07:32 (ML 01)	06:13 19:42	05:36 20:13
21	07:19 17:00	06:46 17:39	06:02 18:10	06:53 (ML 01) 07:30 (ML 01)	06:11 19:43	05:36 20:14
22	07:18 17:02	06:44 17:40	06:00 18:11	06:54 (ML 01) 07:28 (ML 01)	06:10 19:44	05:35 20:15
23	07:17 17:03	06:43 17:41	05:58 18:12	06:56 (ML 01) 07:27 (ML 01)	06:08 19:45	05:34 20:16
24	07:17 17:04	06:41 17:42	05:57 07:15 (ML 01) 07:23 (ML 01)	06:57 (ML 01) 18:14	06:07 19:47	05:33 20:17
25	07:16 17:05	06:40 17:43	05:55 07:09 (ML 01) 07:27 (ML 01)	06:59 (ML 01) 18:15	06:06 19:48	05:33 20:18
26	07:15 17:06	06:38 17:45	05:53 07:06 (ML 01) 07:31 (ML 01)	07:03 (ML 01) 18:16	06:04 19:49	05:32 20:19
27	07:14 17:08	06:37 17:46	05:51 07:03 (ML 01) 07:32 (ML 01)	06:03 18:17	05:31 19:50	05:27 20:19
28	07:13 17:09	06:35 17:47	05:50 07:01 (ML 01) 07:34 (ML 01)	06:01 18:18	05:31 20:20	05:28 20:35
29	07:13 17:10		06:48 19:19	06:00 19:52	05:30 20:21	05:28 20:35
30	07:12 17:11		06:46 19:20	05:59 19:53	05:29 20:22	05:28 20:35
31	07:11 17:13		06:45 19:21		05:29 20:23	
Potential sun hours	297	297	369	399	448	452
Total, worst case		113	1054			
Sun reduction		0,62	0,55			
Oper. time red.		0,76	0,76			
Wind dir. red.		0,59	0,59			
Total reduction		0,28	0,25			
Total, real		31	261			

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: Real Case Shadow receptor: R92 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	07:30 (ML 01) 08:18 (ML 01)	06:28 16:55
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	07:30 (ML 01) 08:18 (ML 01)	06:29 16:54
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	07:30 (ML 01) 08:18 (ML 01)	06:30 16:53
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	07:29 (ML 01) 08:17 (ML 01)	06:31 16:51
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	07:29 (ML 01) 08:17 (ML 01)	06:33 16:50
6	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	07:29 (ML 01) 08:16 (ML 01)	06:34 16:49
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	07:29 (ML 01) 08:15 (ML 01)	06:35 16:48
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	07:30 (ML 01) 08:14 (ML 01)	06:36 16:47
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	07:30 (ML 01) 08:13 (ML 01)	06:37 16:46
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	07:30 (ML 01) 08:12 (ML 01)	06:39 16:45
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	07:31 (ML 01) 08:11 (ML 01)	06:40 16:44
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	07:33 (ML 01) 08:10 (ML 01)	06:41 16:43
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	07:34 (ML 01) 08:08 (ML 01)	06:42 16:42
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	07:35 (ML 01) 08:06 (ML 01)	06:43 16:41
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	07:37 (ML 01) 08:04 (ML 01)	06:45 16:40
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	07:39 (ML 01) 08:01 (ML 01)	06:46 16:39
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	07:42 (ML 01) 07:57 (ML 01)	06:47 16:38
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	08:05 (ML 01) 08:09 (ML 01)	06:48 16:38
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	07:45 (ML 01) 08:11 (ML 01)	06:49 16:37
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	07:43 (ML 01) 08:13 (ML 01)	06:51 16:36
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	07:41 (ML 01) 08:14 (ML 01)	06:52 16:36
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	07:39 (ML 01) 08:15 (ML 01)	06:53 16:35
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	07:38 (ML 01) 08:16 (ML 01)	06:54 16:34
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	07:36 (ML 01) 08:17 (ML 01)	06:55 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	07:35 (ML 01) 08:18 (ML 01)	06:56 16:33
26	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	07:34 (ML 01) 08:18 (ML 01)	06:57 16:33
27	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	07:33 (ML 01) 08:18 (ML 01)	06:58 16:32
28	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	07:32 (ML 01) 08:19 (ML 01)	07:00 16:32
29	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:31 (ML 01) 08:19 (ML 01)	07:01 16:31
30	05:51 20:18	06:22 19:36	06:53 18:43	06:26 16:58	07:31 (ML 01) 08:19 (ML 01)	07:02 16:31
31	05:52 20:17	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	459	428	375	345	298	288
Total, worst case			513		668	
Sun reduction			0,53		0,59	
Oper. time red.			0,76		0,76	
Wind dir. red.			0,59		0,59	
Total reduction			0,24		0,26	
Total, real			121		177	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R95a - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	07:43 (ML 01) 08:24 (ML 01)	06:34 17:48	06:43 19:22	05:28 19:54
2	07:23 16:40	07:09 17:15	07:42 (ML 01) 08:24 (ML 01)	06:32 17:49	06:41 19:23	05:28 19:55
3	07:23 16:41	07:08 17:16	07:42 (ML 01) 08:25 (ML 01)	06:31 17:50	06:40 19:24	05:28 19:56
4	07:24 16:42	07:07 17:18	07:42 (ML 01) 08:26 (ML 01)	06:29 17:51	06:38 19:25	05:27 19:57
5	07:24 16:43	07:06 17:19	07:42 (ML 01) 08:26 (ML 01)	06:28 17:53	06:37 19:26	05:27 19:58
6	07:24 16:44	07:05 17:20	07:41 (ML 01) 08:27 (ML 01)	06:26 17:54	06:35 19:27	05:27 19:59
7	07:23 16:45	07:04 17:21	07:41 (ML 01) 08:26 (ML 01)	06:25 17:55	06:33 19:28	05:26 20:00
8	07:23 16:46	07:03 17:23	07:41 (ML 01) 08:26 (ML 01)	06:23 17:56	06:32 19:30	05:26 20:01
9	07:23 16:47	07:01 17:24	07:41 (ML 01) 08:27 (ML 01)	06:21 17:57	06:30 19:31	05:26 20:02
10	07:23 16:48	07:00 17:25	07:41 (ML 01) 08:27 (ML 01)	06:20 17:58	06:28 19:32	05:26 20:03
11	07:23 16:49	06:59 17:26	07:42 (ML 01) 08:27 (ML 01)	06:18 17:59	06:27 19:33	05:25 20:04
12	07:23 16:50	06:58 17:28	07:41 (ML 01) 08:26 (ML 01)	06:16 18:00	06:25 19:34	05:25 20:05
13	07:22 16:51	06:57 17:29	07:42 (ML 01) 08:26 (ML 01)	06:15 18:02	06:24 19:35	05:25 20:06
14	07:22 16:52	06:55 17:30	07:42 (ML 01) 08:26 (ML 01)	06:13 18:03	06:22 19:36	05:25 20:07
15	07:22 16:53	06:54 17:31	07:42 (ML 01) 08:25 (ML 01)	06:12 18:04	06:21 19:37	05:25 20:08
16	07:21 16:55	06:53 17:33	07:43 (ML 01) 08:24 (ML 01)	06:10 18:05	06:19 19:38	05:25 20:09
17	07:21 16:56	06:51 17:34	07:44 (ML 01) 08:24 (ML 01)	06:08 18:06	06:17 19:39	05:25 20:10
18	07:20 16:57	06:50 17:35	07:44 (ML 01) 08:22 (ML 01)	06:07 18:07	06:16 19:40	05:25 20:11
19	07:20 16:58	06:49 17:36	07:46 (ML 01) 08:22 (ML 01)	06:05 18:08	06:14 19:41	05:25 20:12
20	07:19 16:59	06:47 17:37	07:46 (ML 01) 08:20 (ML 01)	06:03 18:09	06:13 19:42	05:25 20:13
21	07:19 17:00	06:46 08:07 (ML 01)	07:48 (ML 01) 08:19 (ML 01)	06:02 18:10	06:11 19:43	05:26 20:14
22	07:18 17:02	07:52 (ML 01) 08:10 (ML 01)	06:44 17:40	07:50 (ML 01) 08:17 (ML 01)	06:00 18:11	05:35 19:44
23	07:17 17:03	07:50 (ML 01) 08:12 (ML 01)	06:43 17:41	07:51 (ML 01) 08:14 (ML 01)	05:58 18:12	05:34 19:45
24	07:17 17:04	07:48 (ML 01) 08:14 (ML 01)	06:41 17:42	07:55 (ML 01) 08:12 (ML 01)	05:57 18:14	05:33 19:47
25	07:16 17:05	07:47 (ML 01) 08:15 (ML 01)	06:40 17:43	07:59 (ML 01) 08:05 (ML 01)	05:55 18:15	05:33 19:48
26	07:15 17:06	07:47 (ML 01) 08:18 (ML 01)	06:38 17:45	05:53 18:16	06:04 19:49	05:27 20:19
27	07:14 17:08	07:46 (ML 01) 08:19 (ML 01)	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19
28	07:13 17:09	07:45 (ML 01) 08:20 (ML 01)	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20
29	07:13 17:10	07:44 (ML 01) 08:21 (ML 01)		06:48 19:19	06:00 19:52	05:30 20:21
30	07:12 17:11	07:44 (ML 01) 08:22 (ML 01)		06:46 19:20	05:59 19:53	05:29 20:22
31	07:11 17:13	07:43 (ML 01) 08:23 (ML 01)		06:45 19:21	05:29 20:23	05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case	321	956				
Sun reduction	0,69	0,62				
Oper. time red.	0,76	0,76				
Wind dir. red.	0,58	0,58				
Total reduction	0,31	0,28				
Total, real	98	264				

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: Real Case Shadow receptor: R95a - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:10 (ML 01) 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:11 (ML 01) 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:10 (ML 01) 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:10 (ML 01) 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:11 (ML 01) 16:30
6	05:32 20:34	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:11 (ML 01) 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	06:35 16:48	07:12 (ML 01) 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:12 (ML 01) 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:13 (ML 01) 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:13 (ML 01) 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:14 (ML 01) 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:16 (ML 01) 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:16 (ML 01) 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:17 (ML 01) 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40	07:18 (ML 01) 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:20 (ML 01) 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:21 (ML 01) 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38	07:22 (ML 01) 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37	07:24 (ML 01) 16:31
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	06:51 16:36	07:27 (ML 01) 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:30 (ML 01) 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:20 16:33
23	05:45 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	06:57 16:33	07:22 16:35
27	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	06:58 16:32	07:22 16:36
28	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	07:11 (ML 01) 16:32	07:22 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:11 (ML 01) 16:31	07:23 16:37
30	05:51 20:18	06:22 19:36	06:53 18:43	06:26 16:58	07:11 (ML 01) 16:31	07:23 16:38
31	05:52 20:17	06:23 19:34	06:54 18:42	06:27 16:56	07:10 (ML 01) 16:31	07:23 16:39
Potential sun hours	459	428	375	345	298	288
Total, worst case				531	766	
Sun reduction				0,59	0,66	
Oper. time red.				0,76	0,76	
Wind dir. red.				0,58	0,58	
Total reduction				0,26	0,30	
Total, real				140	226	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R99 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (25)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	07:46 (ML 01) 08:31 (ML 01)	06:34 17:48	06:43 19:22	05:28 19:54
2	07:23 16:40	07:09 17:15	07:45 (ML 01) 08:31 (ML 01)	06:32 17:49	06:41 19:23	05:28 19:55
3	07:23 16:41	07:08 17:16	07:45 (ML 01) 08:32 (ML 01)	06:31 17:50	06:40 19:24	05:28 19:56
4	07:24 16:42	07:07 17:18	07:45 (ML 01) 08:32 (ML 01)	06:29 17:51	06:38 19:25	05:53 19:57
5	07:24 16:43	07:06 17:19	07:45 (ML 01) 08:33 (ML 01)	06:28 17:53	06:37 19:26	05:52 19:58
6	07:24 16:44	07:05 17:20	07:45 (ML 01) 08:33 (ML 01)	06:26 17:54	06:35 19:27	05:51 19:59
7	07:23 16:45	07:04 17:21	07:44 (ML 01) 08:32 (ML 01)	06:25 17:55	06:33 19:28	05:50 20:00
8	07:23 16:46	07:03 17:23	07:45 (ML 01) 08:33 (ML 01)	06:23 17:56	06:32 19:30	05:49 20:01
9	07:23 16:47	07:01 17:24	07:45 (ML 01) 08:33 (ML 01)	06:21 17:57	06:30 19:31	05:48 20:02
10	07:23 16:48	07:00 17:25	07:45 (ML 01) 08:33 (ML 01)	06:20 17:58	06:28 19:32	05:46 20:03
11	07:23 16:49	06:59 17:26	07:46 (ML 01) 08:33 (ML 01)	06:18 17:59	06:27 19:33	05:45 20:04
12	07:23 16:50	06:58 17:28	07:45 (ML 01) 08:32 (ML 01)	06:16 18:00	06:25 19:34	05:44 20:05
13	07:22 16:51	06:57 17:29	07:46 (ML 01) 08:32 (ML 01)	06:15 18:02	06:24 19:35	05:43 20:06
14	07:22 16:52	06:55 17:30	07:47 (ML 01) 08:31 (ML 01)	06:13 18:03	06:22 19:36	05:42 20:07
15	07:22 16:53	06:54 17:31	07:47 (ML 01) 08:30 (ML 01)	06:12 18:04	06:21 19:37	05:41 20:08
16	07:21 16:55	06:53 17:33	07:48 (ML 01) 08:30 (ML 01)	06:10 18:05	06:19 19:38	05:40 20:09
17	07:21 16:56	06:51 08:01 (ML 01) 08:08 (ML 01)	07:49 (ML 01) 08:29 (ML 01)	06:08 18:06	06:17 19:39	05:39 20:10
18	07:20 16:57	07:57 (ML 01) 08:12 (ML 01)	06:50 17:35	07:49 (ML 01) 08:27 (ML 01)	06:07 18:07	05:38 19:40
19	07:20 16:58	07:56 (ML 01) 08:15 (ML 01)	06:49 17:36	07:51 (ML 01) 08:26 (ML 01)	06:05 18:08	05:37 19:41
20	07:19 16:59	07:54 (ML 01) 08:17 (ML 01)	06:47 17:37	07:51 (ML 01) 08:24 (ML 01)	06:03 18:09	05:36 19:42
21	07:19 17:00	07:52 (ML 01) 08:18 (ML 01)	06:46 17:39	07:53 (ML 01) 08:23 (ML 01)	06:02 18:10	05:36 19:43
22	07:18 17:02	07:52 (ML 01) 08:21 (ML 01)	06:44 17:40	07:56 (ML 01) 08:21 (ML 01)	06:00 18:11	05:35 19:44
23	07:17 17:03	07:51 (ML 01) 08:22 (ML 01)	06:43 17:41	07:58 (ML 01) 08:18 (ML 01)	05:58 18:12	05:34 19:45
24	07:17 17:04	07:50 (ML 01) 08:23 (ML 01)	06:41 17:42	08:02 (ML 01) 08:14 (ML 01)	05:57 18:14	05:33 19:47
25	07:16 17:05	07:49 (ML 01) 08:24 (ML 01)	06:40 17:43	05:55 18:15	06:06 19:48	05:33 20:18
26	07:15 17:06	07:49 (ML 01) 08:26 (ML 01)	06:38 17:45	05:53 18:16	06:04 19:49	05:32 20:19
27	07:14 17:08	07:48 (ML 01) 08:27 (ML 01)	06:37 17:46	05:51 18:17	06:03 19:50	05:31 20:19
28	07:13 17:09	07:47 (ML 01) 08:28 (ML 01)	06:35 17:47	05:50 18:18	06:01 19:51	05:31 20:20
29	07:13 17:10	07:47 (ML 01) 08:29 (ML 01)	06:35 17:47	06:48 19:19	06:00 19:52	05:30 20:21
30	07:12 17:11	07:46 (ML 01) 08:29 (ML 01)	06:35 17:47	06:46 19:20	05:59 19:53	05:29 20:22
31	07:11 17:13	07:46 (ML 01) 08:30 (ML 01)	06:35 17:47	06:45 19:21	05:29 20:23	05:29 20:23
Potential sun hours	297	297	369	399	448	452
Total, worst case	464	975				
Sun reduction	0,69	0,62				
Oper. time red.	0,76	0,76				
Wind dir. red.	0,58	0,58				
Total reduction	0,31	0,28				
Total, real	142	269				

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Real Case Shadow receptor: R99 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (25)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:14 (ML 01) 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:15 (ML 01) 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:14 (ML 01) 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:14 (ML 01) 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	06:58 18:35	06:33 16:50	07:15 (ML 01) 16:30
6	05:32 20:34	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:15 (ML 01) 16:30
7	05:32 20:33	05:59 20:09	06:30 19:22	07:00 18:32	06:35 16:48	07:15 (ML 01) 16:30
8	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:15 (ML 01) 16:29
9	05:34 20:33	06:01 20:06	06:32 19:19	07:02 18:29	06:37 16:46	07:16 (ML 01) 16:29
10	05:34 20:32	06:02 20:05	06:33 19:17	07:03 18:27	06:39 16:45	07:17 (ML 01) 16:29
11	05:35 20:32	06:03 20:03	06:34 19:16	07:04 18:25	06:40 16:44	07:17 (ML 01) 16:30
12	05:36 20:31	06:04 20:02	06:35 19:14	07:05 18:24	06:41 16:43	07:18 (ML 01) 16:30
13	05:36 20:31	06:05 20:01	06:36 19:12	07:06 18:22	06:42 16:42	07:19 (ML 01) 16:30
14	05:37 20:30	06:06 19:59	06:37 19:11	07:07 18:21	06:43 16:41	07:19 (ML 01) 16:30
15	05:38 20:30	06:07 19:58	06:38 19:09	07:09 18:19	06:45 16:40	07:20 (ML 01) 16:30
16	05:39 20:29	06:08 19:57	06:39 19:07	07:10 18:17	06:46 16:39	07:22 (ML 01) 16:30
17	05:39 20:28	06:09 19:55	06:40 19:06	07:11 18:16	06:47 16:38	07:23 (ML 01) 16:31
18	05:40 20:28	06:10 19:54	06:41 19:04	07:12 18:14	06:48 16:38	07:24 (ML 01) 16:31
19	05:41 20:27	06:11 19:52	06:42 19:02	07:13 18:13	06:49 16:37	07:25 (ML 01) 16:31
20	05:42 20:26	06:12 19:51	06:43 19:00	07:14 18:11	06:51 16:36	07:27 (ML 01) 16:32
21	05:43 20:26	06:13 19:49	06:44 18:59	07:15 18:10	06:52 16:36	07:28 (ML 01) 16:32
22	05:44 20:25	06:14 19:48	06:45 18:57	07:16 18:09	06:53 16:35	07:30 (ML 01) 16:33
23	05:44 20:24	06:15 19:46	06:46 18:55	07:17 18:07	06:54 16:34	07:32 (ML 01) 16:33
24	05:45 20:23	06:16 19:45	06:47 18:54	07:19 18:06	06:55 16:34	07:34 (ML 01) 16:34
25	05:46 20:22	06:17 19:43	06:48 18:52	06:20 17:04	06:56 16:33	07:39 (ML 01) 16:34
26	05:47 20:21	06:18 19:42	06:49 18:50	06:21 17:03	06:57 16:33	07:40 (ML 01) 16:35
27	05:48 20:20	06:19 19:40	06:50 18:48	06:22 17:02	06:58 16:32	07:41 (ML 01) 16:36
28	05:49 20:20	06:20 19:39	06:51 18:47	06:23 17:00	07:00 16:32	07:42 (ML 01) 16:36
29	05:50 20:19	06:21 19:37	06:52 18:45	06:24 16:59	07:01 16:31	07:43 (ML 01) 16:37
30	05:51 20:18	06:22 19:36	06:53 18:43	06:26 16:58	07:02 16:31	07:44 (ML 01) 16:38
31	05:52 20:17	06:23 19:34	06:54 18:42	06:27 16:56	07:03 16:30	07:45 (ML 01) 16:39
Potential sun hours	459	428	375	345	298	288
Total, worst case				512	937	
Sun reduction				0,59	0,66	
Oper. time red.				0,76	0,76	
Wind dir. red.				0,58	0,58	
Total reduction				0,26	0,29	
Total, real				135	276	

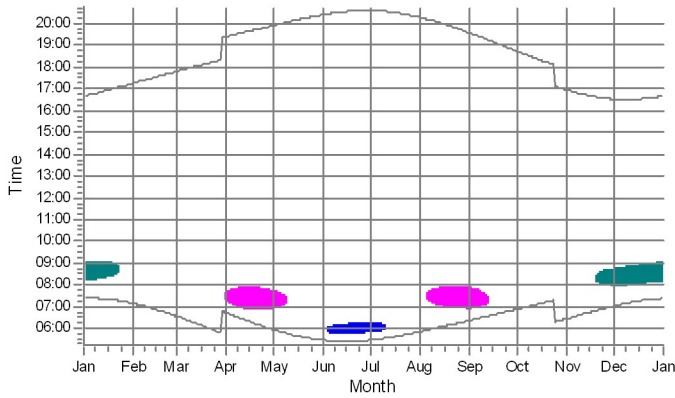
Table layout: For each day in each month the following matrix apply

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)

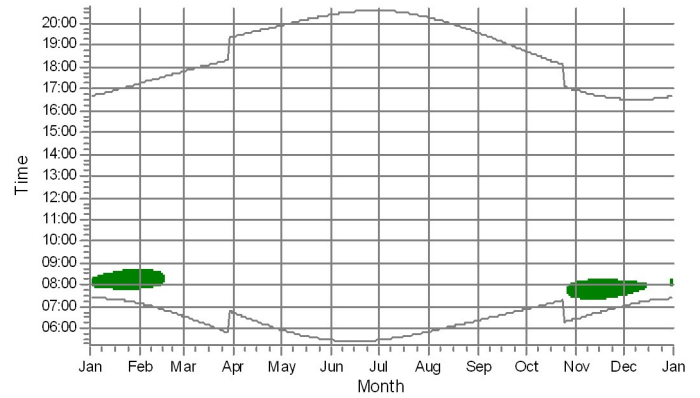
SHADOW - Calendar, graphical

Calculation: Real Case

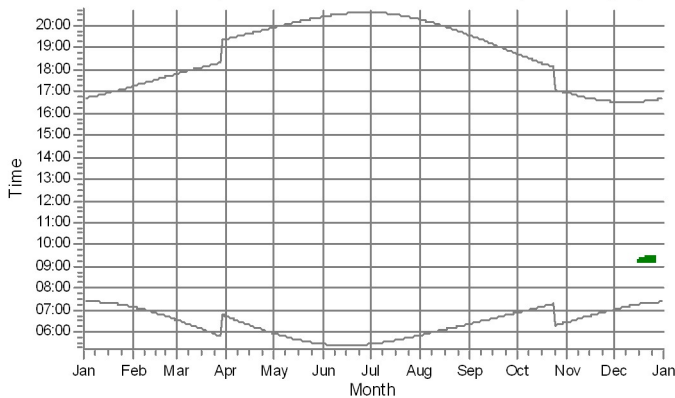
R02: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (1)



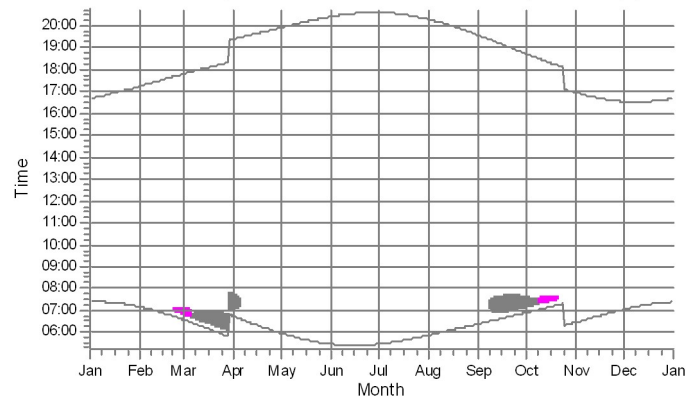
R103: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (26)



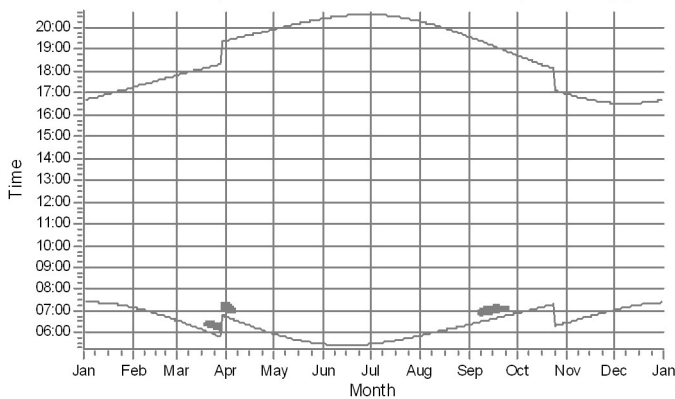
R107: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (27)



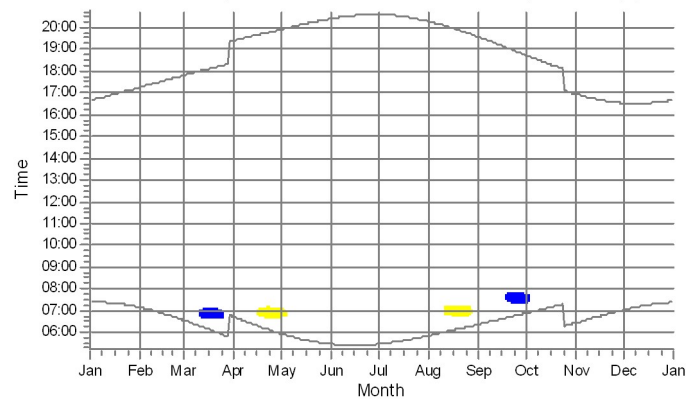
R12: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (2)



R14: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (3)



R21: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (4)



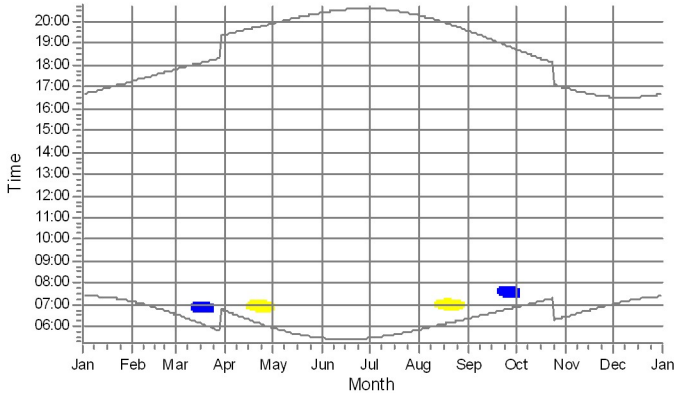
WTGs

- ML 01: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (1)
- ML 02: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (2)
- ML 03: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)
- ML 04: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (4)
- ML 05: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (5)
- ML 06: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (6)

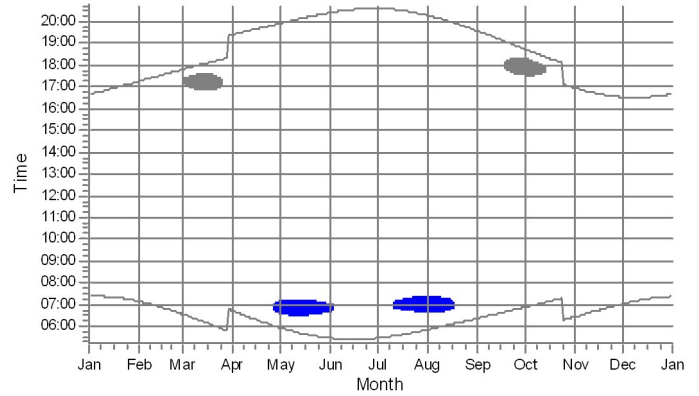
SHADOW - Calendar, graphical

Calculation: Real Case

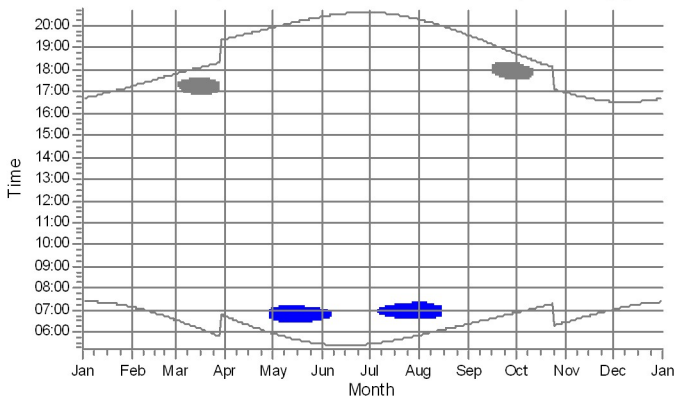
R23: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (5)



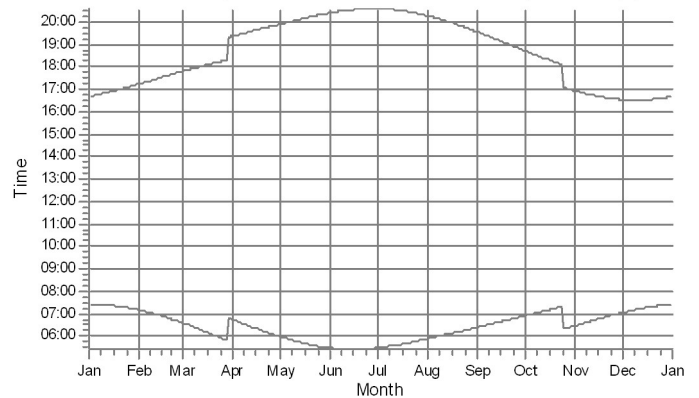
R31: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (6)



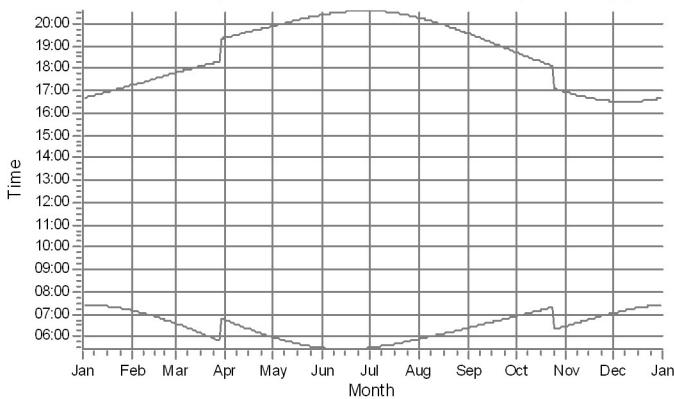
R32: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (7)



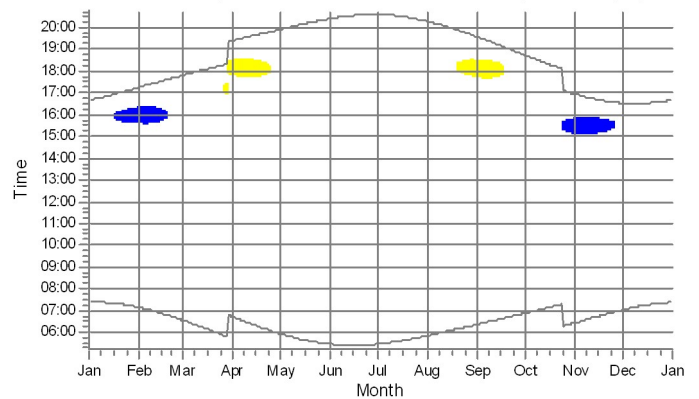
R43: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (8)



R51: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (9)



R61: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (10)



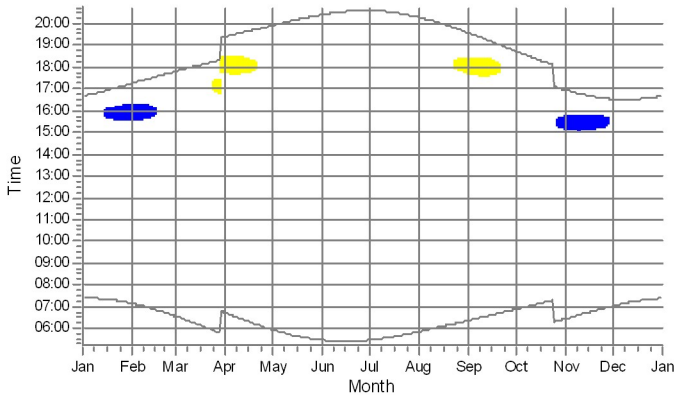
WTGs

- ML 02: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (2)
- ML 03: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)
- ML 04: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (4)

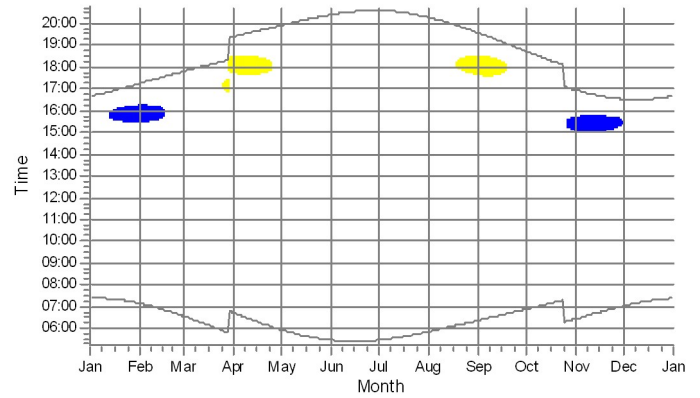
SHADOW - Calendar, graphical

Calculation: Real Case

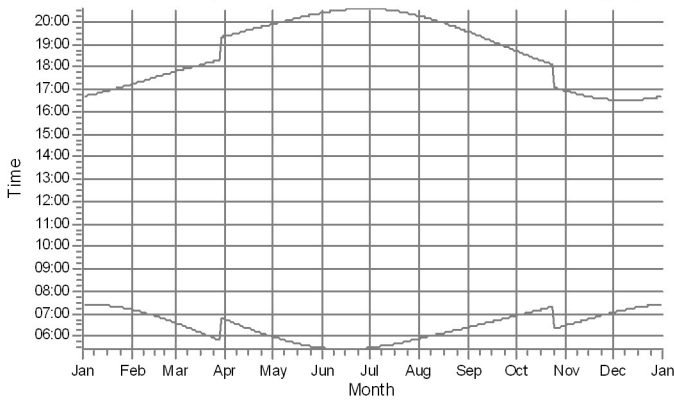
R63: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (11)



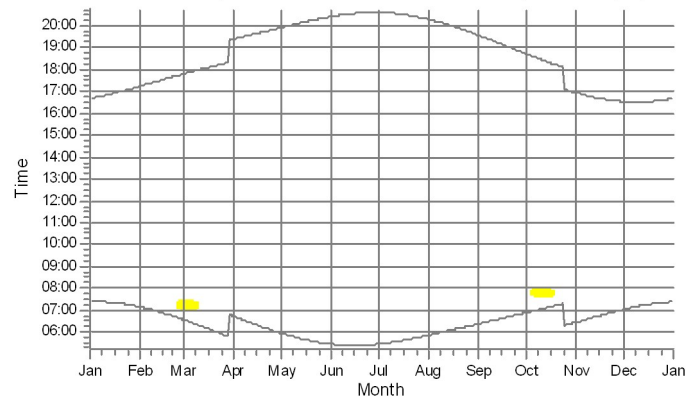
R65: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (12)



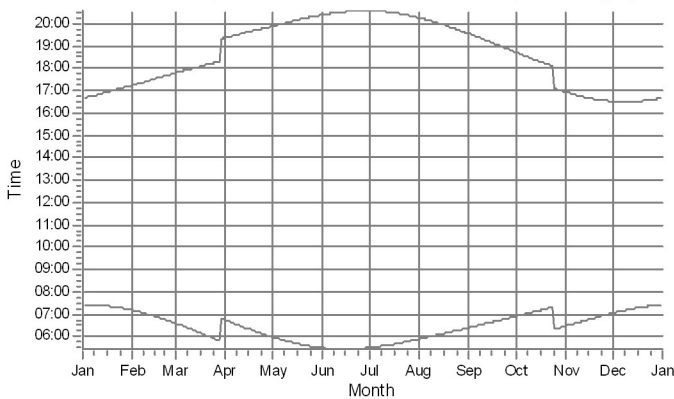
R68: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (13)



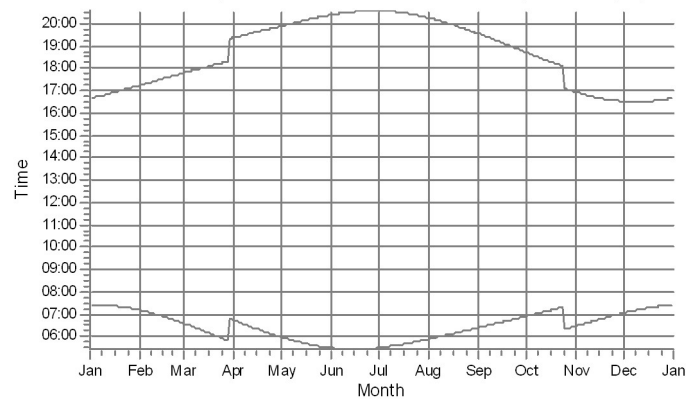
R70: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (14)



R75: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)



R76: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)



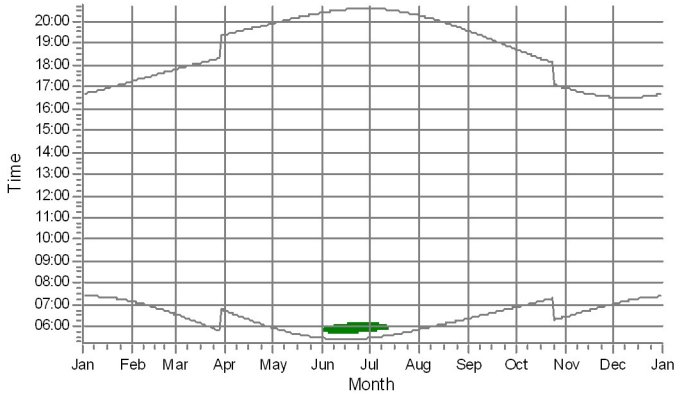
WTGs

- ML 02: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (2)
- ML 03: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)

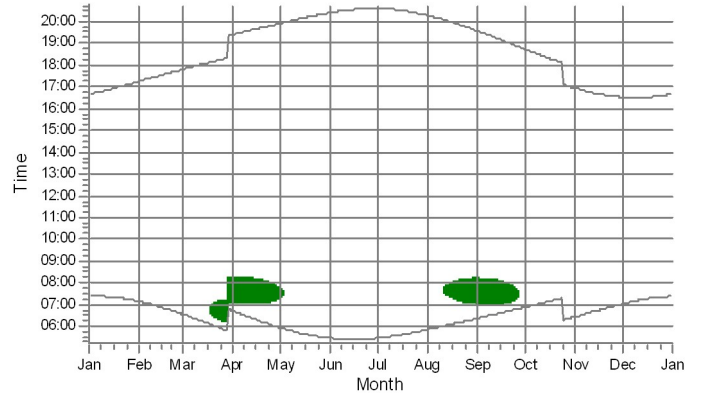
SHADOW - Calendar, graphical

Calculation: Real Case

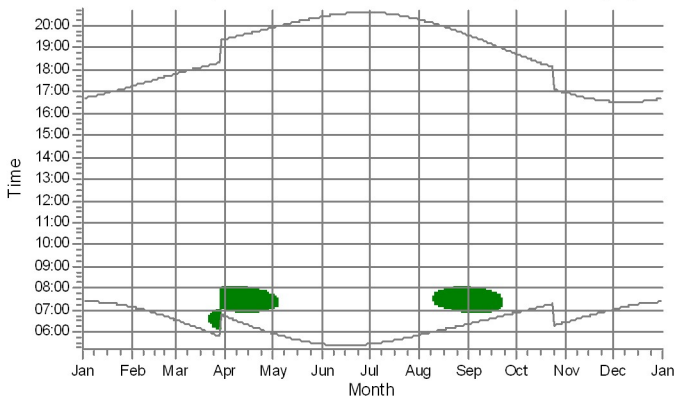
R77: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)



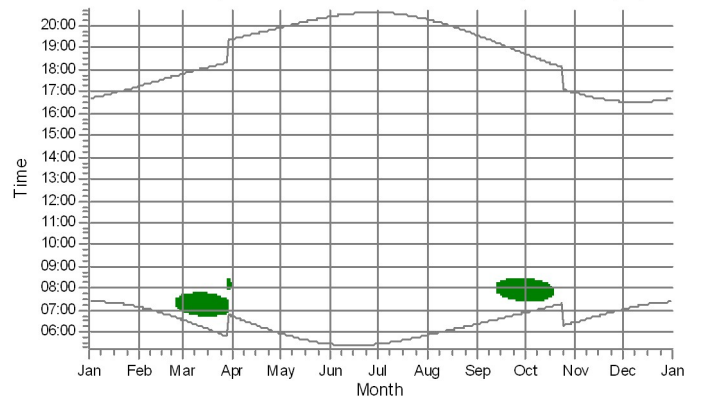
R82: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)



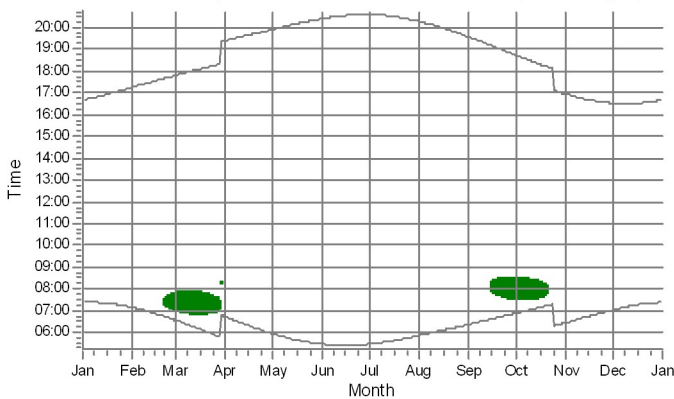
R83: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (19)



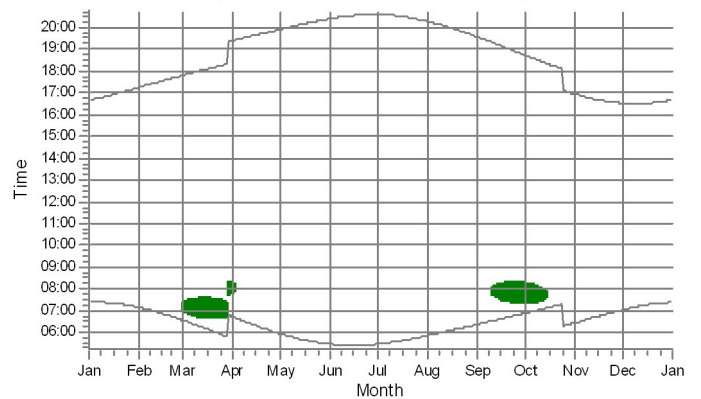
R87: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (20)



R87a: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)



R88: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)



WTGs

ML 01: Siemens Gamesa SG 6.0-170 6000 170.0 !0! hub: 135,0 m (TOT: 220,0 m) (1)

Project:

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

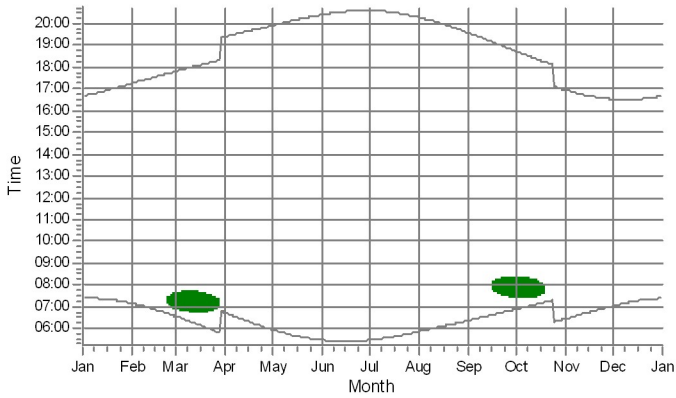
Gaetano DOronzio / info@gecodor.it
Calculated:

02/04/2024 18:25/4.0.531

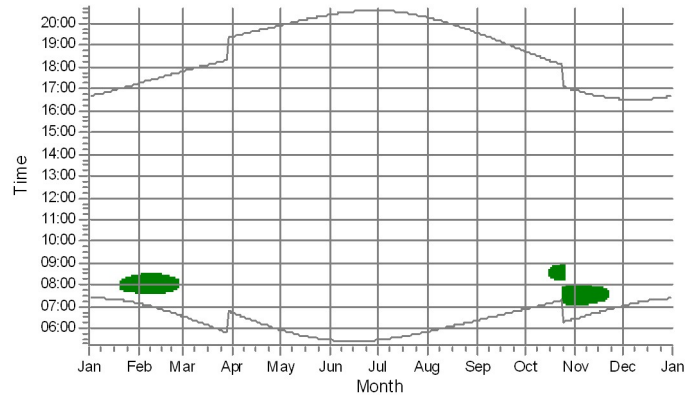
SHADOW - Calendar, graphical

Calculation: Real Case

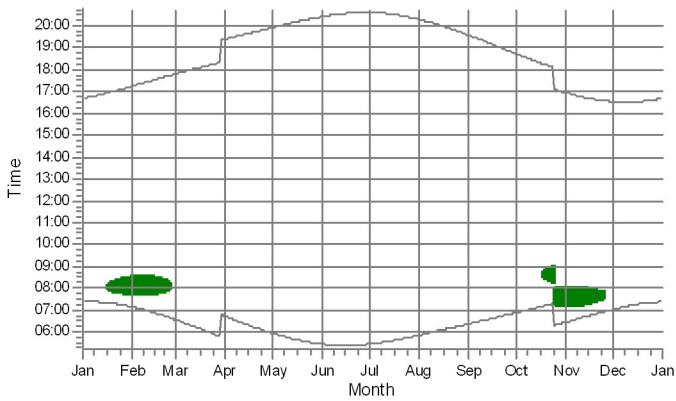
R92: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (23)



R95a: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (24)



R99: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (25)



WTGs

ML 01: Siemens Gamesa SG 6.0-170 6000 170.0 !0! hub: 135,0 m (TOT: 220,0 m) (1)

SHADOW - Calendar per WTG

Calculation: Real Case WTG: ML 01 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (1)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	
1	07:23 08:01-08:13/12 16:40	07:10 07:43-08:39/56 17:14	06:34 07:00-07:48/48 17:48	06:43 07:07-08:13/66 19:22	05:57 07:14-07:37/23 19:54	05:28 20:23	
2	07:23 08:00-08:14/14 16:40	07:09 07:42-08:39/57 17:15	06:32 06:58-07:49/51 17:49	06:41 07:06-08:13/67 19:23	05:56 07:16-07:33/17 19:55	05:28 05:50-05:53/3 20:24	
3	07:23 08:00-08:16/16 16:41	07:08 07:42-08:39/57 17:16	06:31 06:57-07:50/53 17:50	06:40 07:04-08:13/69 19:24	05:55 07:23-07:27/4 19:56	05:28 05:49-05:54/5 20:25	
4	07:23 07:59-08:17/18 16:42	07:07 07:42-08:38/56 17:18	06:29 06:55-07:50/55 17:51	06:38 07:04-08:13/69 19:25	05:53 19:57	05:27 05:49-05:55/6 20:26	
5	07:23 07:59-08:19/20 16:43	07:06 07:42-08:38/56 17:19	06:28 06:54-07:51/57 17:53	06:37 07:03-08:13/70 19:26	05:52 19:58	05:27 05:49-05:57/8 20:26	
6	07:23 07:58-08:20/22 16:44	07:05 07:41-08:38/57 17:20	06:26 06:52-07:51/59 17:54	06:35 07:02-08:12/70 19:27	05:51 19:59	05:26 05:48-05:57/9 20:27	
7	07:23 07:57-08:21/24 16:45	07:04 07:41-08:36/55 17:21	06:25 06:50-07:51/61 17:55	06:33 07:02-08:13/71 19:28	05:50 20:00	05:26 05:48-05:58/10 20:28	
8	07:23 07:57-08:22/25 16:46	07:02 07:41-08:36/55 17:23	06:23 06:49-07:52/63 17:56	06:32 07:01-08:12/71 19:29	05:49 20:01	05:26 05:48-05:59/11 20:28	
9	07:23 07:56-08:24/28 16:47	07:01 07:41-08:35/54 17:24	06:21 06:48-07:51/63 17:57	06:30 07:01-08:12/71 19:31	05:47 20:02	05:26 05:48-06:00/12 20:29	
10	07:23 07:56-08:25/29 16:48	07:00 07:41-08:34/53 17:25	06:20 06:46-07:51/65 17:58	06:28 07:00-08:11/71 19:32	05:46 20:03	05:26 05:48-06:01/13 20:29	
11	07:23 07:55-08:26/31 16:49	06:59 07:42-08:33/51 17:26	06:18 06:46-07:51/65 17:59	06:27 07:00-08:10/70 19:33	05:45 20:04	05:25 05:47-06:01/14 20:30	
12	07:22 07:55-08:27/32 16:50	06:58 07:41-08:32/51 17:28	06:16 06:45-07:50/65 18:00	06:25 07:00-08:10/70 19:34	05:44 20:05	05:25 05:47-06:01/14 20:30	
13	07:22 07:55-08:29/34 16:51	06:56 07:42-08:32/50 17:29	06:15 06:45-07:51/66 18:02	06:24 06:59-08:09/70 19:35	05:43 20:06	05:25 05:47-06:02/15 20:31	
14	07:22 07:55-08:29/34 16:52	06:55 07:42-08:31/49 17:30	06:13 06:44-07:50/66 18:03	06:22 07:00-08:09/69 19:36	05:42 20:07	05:25 05:47-06:02/15 20:31	
15	07:21 07:55-08:30/35 16:53	06:54 07:42-08:30/48 17:31	06:12 06:43-07:49/66 18:04	06:20 06:59-08:07/68 19:37	05:41 20:08	05:25 05:47-06:03/16 20:32	
16	07:21 07:54-08:31/37 16:55	06:53 07:43-08:30/47 17:33	06:10 06:43-07:49/66 18:05	06:19 07:00-08:07/67 19:38	05:40 20:09	05:25 05:47-06:03/16 20:32	
17	07:21 07:54-08:32/38 16:56	06:51 07:44-08:29/45 17:34	06:08 06:43-07:48/65 18:06	06:17 07:00-08:06/66 19:39	05:39 20:10	05:25 05:47-06:04/17 20:33	
18	07:20 07:54-08:33/39 16:57	06:50 07:44-08:27/43 17:35	06:07 06:42-07:46/64 18:07	06:16 07:00-08:05/65 19:40	05:38 20:11	05:25 05:48-06:05/17 20:33	
19	07:20 07:54-08:34/40 16:58	06:49 07:46-08:26/40 17:36	06:05 06:36-07:45/69 18:08	06:14 07:00-08:03/63 19:41	05:37 20:12	05:25 05:48-06:05/17 20:33	
20	07:19 07:54-08:34/40 16:59	06:47 07:46-08:24/38 17:37	06:03 06:32-07:44/72 18:09	06:13 07:01-08:03/62 19:42	05:36 20:13	05:25 05:48-06:05/17 20:33	
21	07:18 07:52-08:35/43 17:00	06:46 07:48-08:23/35 17:39	06:02 06:29-07:43/74 18:10	06:11 07:01-08:01/60 19:43	05:36 20:14	05:26 05:48-06:05/17 20:34	
22	07:18 07:52-08:36/44 17:02	06:44 07:50-08:21/31 17:40	06:00 06:26-07:41/75 18:11	06:10 07:02-08:00/58 19:44	05:35 20:15	05:26 05:48-06:05/17 20:34	
23	07:17 07:50-08:36/46 17:03	06:43 07:51-08:18/27 17:41	05:58 06:24-07:40/76 18:12	06:08 07:02-07:58/56 19:45	05:34 20:16	05:26 05:49-06:06/17 20:34	
24	07:17 07:48-08:37/49 17:04	06:41 07:55-08:14/19 17:42	05:56 06:22-07:38/76 18:14	06:07 07:03-07:57/54 19:46	05:33 20:17	05:26 05:49-06:06/17 20:34	
25	07:16 07:47-08:37/50 17:05	06:40 07:59-08:05/6 17:43	05:55 06:19-07:35/76 18:15	06:06 07:05-07:55/50 19:48	05:33 20:18	05:27 05:49-06:06/17 20:34	
26	07:15 07:47-08:38/51 17:06	06:38 07:06-07:45/39 17:44	05:53 06:17-07:34/77 18:16	06:04 07:05-07:53/48 19:49	05:32 20:19	05:27 05:49-06:05/16 20:34	
27	07:14 07:46-08:38/52 17:08	06:37 07:03-07:46/43 17:46	05:51 06:14-07:30/76 18:17	06:03 07:07-07:51/44 19:50	05:31 20:19	05:27 05:50-06:06/16 20:35	
28	07:13 07:45-08:39/54 17:09	06:35 07:01-07:47/46 17:47	05:50 06:12-07:26/74 18:18	06:01 07:07-07:48/41 19:51	05:31 20:20	05:28 05:50-06:06/16 20:35	
29	07:13 07:44-08:39/55 17:10		06:48 07:11-08:21/70 19:19	06:00 07:09-07:46/37 19:52	05:30 20:21	05:28 05:51-06:06/15 20:35	
30	07:12 07:44-08:39/55 17:11		06:46 07:09-08:17/68 19:20	05:59 07:11-07:43/32 19:53	05:29 20:22	05:28 05:51-06:06/15 20:34	
31	07:11 07:43-08:39/56 17:13		06:45 07:08-08:14/66 19:21		05:29 20:23		
	Potential sun hours Sum of minutes with flicker	297 1123	297 1356	369 2047	399 1845	448 44	452 398

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

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

SHADOW - Calendar per WTG

Calculation: Real Case WTG: ML 01 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (1)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December	
1	05:29 05:52-06:06/14 20:34	05:53 20:15	06:24 06:59-08:09/70 19:32	06:54 07:24-08:30/66 18:42	06:28 07:10-08:03/53 16:55	07:03 07:37-08:08/31 16:31	
2	05:29 05:52-06:05/13 20:34	05:54 20:14	06:25 06:58-08:09/71 19:31	06:55 07:24-08:30/66 18:40	06:29 07:11-08:05/54 16:54	07:04 07:39-08:08/29 16:30	
3	05:30 05:53-06:06/13 20:34	05:55 20:13	06:26 06:58-08:09/71 19:29	06:56 07:25-08:29/64 18:38	06:30 07:10-08:06/56 16:53	07:05 07:40-08:08/28 16:30	
4	05:30 05:53-06:05/12 20:34	05:56 20:12	06:27 06:58-08:09/71 19:27	06:57 07:25-08:29/64 18:37	06:31 07:10-08:06/56 16:51	07:06 07:42-08:07/25 16:30	
5	05:31 05:54-06:05/11 20:34	05:57 20:11	06:28 06:58-08:09/71 19:26	06:58 07:25-08:28/63 18:35	06:33 07:11-08:08/57 16:50	07:07 07:43-08:07/24 16:30	
6	05:32 05:54-06:04/10 20:33	05:58 20:10	06:29 06:58-08:08/70 19:24	06:59 07:26-08:28/62 18:33	06:34 07:11-08:08/57 16:49	07:08 07:44-08:06/22 16:30	
7	05:32 05:55-06:03/8 20:33	05:59 20:09	06:30 06:58-08:08/70 19:22	07:00 07:27-08:27/60 18:32	06:35 07:12-08:08/56 16:48	07:09 07:45-08:05/20 16:30	
8	05:33 05:56-06:03/7 20:33	06:00 20:07	06:31 06:58-08:07/69 19:21	07:01 07:28-08:26/58 18:30	06:36 07:12-08:09/57 16:47	07:10 07:46-08:04/18 16:29	
9	05:33 05:56-06:01/5 20:32	06:01 20:06	06:32 06:58-08:07/69 19:19	07:02 07:29-08:25/56 18:29	06:37 07:13-08:10/57 16:46	07:11 07:48-08:04/16 16:29	
10	05:34 05:57-06:01/4 20:32	06:02 07:28-07:38/10 20:05	06:33 06:59-08:06/67 19:17	07:03 07:30-08:24/54 18:27	06:39 07:13-08:10/57 16:45	07:11 07:49-08:03/14 16:29	
11	05:35 05:57-05:58/1 20:32	06:03 07:24-07:43/19 20:03	06:34 06:59-08:06/67 19:16	07:04 07:31-08:23/52 18:25	06:40 07:14-08:10/56 16:44	07:12 07:51-08:03/12 16:30	
12	05:36 20:31	06:04 07:21-07:47/26 20:02	06:35 07:00-08:06/66 19:14	07:05 07:33-08:23/50 18:24	06:41 07:16-08:11/55 16:43	07:13 07:53-08:02/9 16:30	
13	05:36 20:31	06:05 07:18-07:51/33 20:01	06:36 07:00-08:08/68 19:12	07:06 07:34-08:21/47 18:22	06:42 07:16-08:11/55 16:42	07:14 07:56-08:00/4 16:30	
14	05:37 20:30	06:06 07:16-07:54/38 19:59	06:37 07:01-08:10/69 19:11	07:07 07:35-08:20/45 18:21	06:43 07:17-08:11/54 16:41	07:15 16:30	
15	05:38 20:30	06:07 07:15-07:56/41 19:58	06:38 07:02-08:16/74 19:09	07:08 07:37-08:18/41 18:19	06:45 07:18-08:10/52 16:40	07:15 16:30	
16	05:39 20:29	06:08 07:13-07:58/45 19:57	06:39 07:03-08:19/76 19:07	07:10 07:39-08:16/37 18:17	06:46 07:20-08:11/51 16:39	07:16 16:30	
17	05:39 20:28	06:09 07:11-08:00/49 19:55	06:39 07:05-08:21/76 19:06	07:11 08:28-08:40/12 18:16	06:47 07:21-08:11/50 16:38	07:17 09:15-09:17/2 16:31	
18	05:40 20:28	06:10 07:10-08:01/51 19:54	06:40 07:06-08:23/77 19:04	07:12 08:24-08:46/22 18:14	06:48 07:22-08:11/49 16:38	07:17 09:14-09:20/6 16:31	
19	05:41 20:27	06:11 07:09-08:03/54 19:52	06:41 07:08-08:25/77 19:02	07:13 08:22-08:50/28 18:13	06:49 07:24-08:10/46 16:37	07:18 09:14-09:21/7 16:31	
20	05:42 20:26	06:12 07:08-08:04/56 19:51	06:42 07:10-08:26/76 19:00	07:14 08:20-08:52/32 18:11	06:50 07:27-08:11/44 16:36	07:19 09:13-09:22/9 16:32	
21	05:43 20:26	06:13 07:07-08:05/58 19:49	06:43 07:12-08:27/75 18:59	07:15 08:18-08:54/36 18:10	06:52 07:28-08:11/43 16:36	07:19 09:14-09:23/9 16:32	
22	05:44 20:25	06:14 07:06-08:06/60 19:48	06:44 07:14-08:28/74 18:57	07:16 08:16-08:55/39 18:08	06:53 07:30-08:10/40 16:35	07:20 09:14-09:23/9 16:33	
23	05:44 20:24	06:15 07:05-08:07/62 19:46	06:45 07:16-08:28/72 18:55	07:17 08:15-08:56/41 18:07	06:54 07:30-08:10/40 16:34	07:20 09:15-09:24/9 16:33	
24	05:45 20:23	06:16 07:04-08:07/63 19:45	06:46 07:19-08:29/70 18:54	07:19 08:15-08:58/43 18:06	06:55 07:31-08:10/39 16:34	07:21 09:15-09:24/9 16:34	
25	05:46 20:22	06:17 07:03-08:08/65 19:43	06:48 07:24-08:30/66 18:52	06:20 07:13-07:59/46 17:04	06:56 07:32-08:10/38 16:33	07:21 09:16-09:23/7 16:34	
26	05:47 20:21	06:18 07:02-08:08/66 19:42	06:49 07:25-08:30/65 18:50	06:21 07:13-08:00/47 17:03	06:57 07:33-08:10/37 16:33	07:22 09:19-09:23/4 16:35	
27	05:48 20:20	06:19 07:02-08:09/67 19:40	06:50 07:25-08:30/65 18:48	06:22 07:12-08:00/48 17:02	06:58 07:34-08:09/35 16:32	07:22 16:36	
28	05:49 20:19	06:20 07:01-08:09/68 19:39	06:51 07:25-08:30/65 18:47	06:23 07:11-08:00/49 17:00	07:00 07:35-08:09/34 16:32	07:22 16:36	
29	05:50 20:19	06:21 07:01-08:10/69 19:37	06:52 07:24-08:30/66 18:45	06:24 07:11-08:01/50 16:59	07:01 07:35-08:09/34 16:31	07:23 16:37	
30	05:51 20:18	06:22 07:00-08:10/70 19:36	06:53 07:24-08:30/66 18:43	06:26 07:11-08:02/51 16:58	07:02 07:36-08:08/32 16:31	07:23 16:38	
31	05:52 20:16	06:23 07:00-08:10/70 19:34		06:27 07:10-08:02/52 16:56		07:23 08:03-08:10/7 16:39	
	Potential sun hours Sum of minutes with flicker	459 98	428 1140	375 2109	345 1561	298 1444	288 330

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

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

SHADOW - Calendar per WTG

Calculation: Real Case WTG: ML 02 - Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 135,0 m (TOT: 220,0 m) (2)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

January	February	March	April	May	June
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1	07:23 16:40	07:10 17:14	06:34 17:48	07:06-07:24/18	06:43 19:22	17:46-18:26/40	05:57 19:54	06:48-07:00/12	05:28 20:23
2	07:23 16:40	07:09 17:15	06:32 17:49	07:05-07:24/19	06:41 19:23	17:46-18:27/41	05:56 19:55	06:50-06:56/6	05:28 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50	07:05-07:25/20	06:40 19:24	17:45-18:28/43	05:55 19:56		05:28 20:25
4	07:23 16:42	07:07 17:18	06:29 17:51	07:05-07:24/19	06:38 19:25	17:44-18:28/44	05:53 19:57		05:27 20:25
5	07:23 16:43	07:06 17:19	06:28 17:52	07:06-07:24/18	06:36 19:26	17:44-18:29/45	05:52 19:58		05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54	07:06-07:22/16	06:35 19:27	17:43-18:28/45	05:51 19:59		05:26 20:27
7	07:23 16:45	07:04 17:21	06:24 17:55	07:06-07:20/14	06:33 19:28	17:43-18:29/46	05:50 20:00		05:26 20:27
8	07:23 16:46	07:02 17:23	06:23 17:56	07:09-07:19/10	06:32 19:29	17:43-18:28/45	05:49 20:01		05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	07:01	06:30 19:30	17:42-18:28/46	05:47 20:02		05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	07:00	06:28 19:32	17:42-18:28/46	05:46 20:03		05:25 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	07:00	06:27 19:33	17:42-18:27/45	05:45 20:04		05:25 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	07:00	06:25 19:34	17:43-18:27/44	05:44 20:05		05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:01	07:00	06:24 19:35	17:42-18:26/44	05:43 20:06		05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	07:00	06:22 19:36	17:43-18:26/43	05:42 20:07		05:25 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	07:00	06:20 19:37	17:43-18:25/42	05:41 20:08		05:25 20:32
16	07:21 16:55	06:52 17:32	06:10 18:05	07:00	06:19 19:38	17:43-18:23/40	05:40 20:09		05:25 20:32
17	07:21 16:56	06:51 17:34	06:08 18:06	07:00	06:17 19:39	17:45-18:23/38	05:39 20:10		05:25 20:32
18	07:20 16:57	06:50 17:35	06:06 18:07	07:00	06:16 19:40	17:45-18:21/36	05:38 20:11		05:25 20:33
19	07:20 16:58	06:48 17:36	06:05 18:08	07:00	06:14 19:41	17:47-18:20/33	05:37 20:12		05:25 20:33
20	07:19 16:59	06:47 17:37	06:03 18:09	07:00	06:13 19:42	17:47-18:18/31	05:36 20:13		05:25 20:33
21	07:18 17:00	06:46 17:38	06:01 18:10	07:00	06:11 19:43	17:49-18:16/27	05:36 20:14		05:26 20:34
22	07:18 17:01	06:44 17:40	06:00 18:11	07:00	06:10 19:44	17:52-18:14/22	05:35 20:15		05:26 20:34
23	07:17 17:03	06:43 17:41	05:58 18:12	07:00	06:08 19:45	17:54-18:10/16	05:34 20:16		05:26 20:34
24	07:16 17:04	06:41 17:42	05:56 18:13	17:02-17:15/13	06:07 19:46	06:44-07:07/23	05:33 20:17		05:26 20:34
25	07:16 17:05	06:40 17:43	05:55 18:14	16:58-17:18/20	06:05 19:47	06:45-07:07/22	05:33 20:18		05:26 20:34
26	07:15 17:06	06:38 17:44	05:53 18:16	16:55-17:19/24	06:04 19:49	06:44-07:05/21	05:32 20:18		05:27 20:34
27	07:14 17:08	06:37 17:46	05:51 18:17	16:53-17:22/29	06:03 19:50	06:45-07:05/20	05:31 20:19		05:27 20:34
28	07:13 17:09	06:35 17:47	05:50 18:18	07:06-07:24/18	06:01 19:51	06:44-07:03/19	05:31 20:20		05:28 20:34
29	07:12 17:10		06:48 19:19	17:49-18:23/34	06:00 19:52	06:45-07:03/18	05:30 20:21		05:28 20:34
30	07:12 17:11		06:46 19:20	17:49-18:25/36	05:59 19:53	06:47-07:02/15	05:29 20:22		05:28 20:34
31	07:11 17:13		06:45 19:21	17:47-18:25/38			05:29 20:23		
Potential sun hours	297	297	369	399	448				452
Sum of minutes with flicker	0	55	360	1200	18				0

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

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

Calculation: Real Case WTG: ML 02 - Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 135,0 m (TOT: 220,0 m) (2)
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60	6,60

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	181	266	141	50	54	115	1.214	1.508	510	974	1.221	6.672

July	August	September	October	November	December
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1	05:29 20:34	05:53 20:15	06:24 19:32	17:41-18:26/45	06:54 18:42	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 19:31	17:40-18:26/46	06:55 18:40	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 19:29	17:40-18:26/46	06:56 18:38	06:30 16:52	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 19:27	17:40-18:25/45	06:57 18:37	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 19:26	17:39-18:25/46	06:58 18:35	07:47-07:54/7	06:33 16:50
6	05:32 20:33	05:58 20:10	06:29 19:24	17:39-18:24/45	06:59 18:33	07:44-07:56/12	06:34 16:49
7	05:32 20:33	05:59 20:08	06:30 19:22	17:39-18:24/45	07:00 18:32	07:42-07:57/15	06:35 16:48
8	05:33 20:33	06:00 20:07	06:30 19:21	17:39-18:23/44	07:01 18:30	07:41-07:58/17	06:36 16:47
9	05:33 20:32	06:01 20:06	06:31 19:19	17:39-18:22/43	07:02 18:28	07:40-07:58/18	06:37 16:46
10	05:34 20:32	06:02 20:05	06:32 19:17	17:39-18:21/42	07:03 18:27	07:39-07:58/19	06:38 16:45
11	05:35 20:32	06:03 20:03	06:33 19:16	17:39-18:19/40	07:04 18:25	07:39-07:58/19	06:40 16:44
12	05:36 20:31	06:04 20:02	06:34 19:14	17:39-18:18/39	07:05 18:24	07:39-07:58/19	06:41 16:43
13	05:36 20:31	06:05 20:01	06:35 19:12	17:40-18:16/36	07:06 18:22	07:39-07:58/19	06:42 16:42
14	05:37 20:30	06:06 19:59	06:36 19:11	17:40-18:15/35	07:07 18:20	07:40-07:57/17	06:43 16:41
15	05:38 20:29	06:07 19:58	06:37 19:09	17:41-18:13/32	07:08 18:19	07:41-07:55/14	06:44 16:40
16	05:39 20:29	06:08 19:57	06:38 19:07	17:42-18:11/29	07:09 18:17	07:42-07:53/11	06:46 16:39
17	05:39 20:28	06:09 19:55	06:39 19:05	17:44-18:09/25	07:11 18:16	07:44-07:50/6	06:47 16:38
18	05:40 20:28	06:10 19:54	06:40 19:04	17:45-18:07/22	07:12 18:14		06:48 16:38
19	05:41 20:27	06:11 19:52	06:41 19:02	17:48-18:03/15	07:13 18:13		06:49 16:37
20	05:42 20:26	06:12 19:51	06:42 19:00		07:14 18:11		06:50 16:36
21	05:43 20:25	06:13 19:49	06:43 18:59		07:15 18:10		06:52 16:35
22	05:44 20:25	06:14 19:48	06:44 18:57		07:16 18:08		06:53 16:35
23	05:44 20:24	06:15 19:46	06:45 18:55		07:17 18:07		06:54 16:34
24	05:45 20:23	06:16 19:45	06:46 18:53		07:18 18:06		06:55 16:34
25	05:46 20:22	06:17 19:43	06:47 18:52		06:20 17:04		06:56 16:33
26	05:47 20:21	06:18 19:42	06:48 18:50		06:21 17:03		06:57 16:33
27	05:48 20:20	06:19 19:40	06:49 18:48		06:22 17:01		06:58 16:32
28	05:49 20:19	06:20 19:39	06:50 18:47		06:23 17:00		06:59 16:32
29	05:50 20:18	06:21 19:37	06:51 18:45		06:24 16:59		07:01 16:31
30	05:51 20:17	06:22 19:35	06:53 18:43		06:25 16:57		07:02 16:31
31	05:52 20:16	06:23 19:34			06:27 16:56		07:23 16:39
Potential sun hours	459	428	375	720	345	298	288
Sum of minutes with flicker	0	740	720	193	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: Real Case WTG: ML 03 - Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 135,0 m (TOT: 220,0 m) (3)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 15:33-16:16/43 17:14	06:34 17:48	06:43 19:22	05:57 06:40-07:07/27 19:54	05:28 06:42-07:00/18 20:23
2	07:23 16:40	07:09 15:33-16:16/43 17:15	06:32 17:49	06:41 19:23	05:56 06:38-07:07/29 19:55	05:28 06:44-06:59/15 20:24
3	07:23 16:41	07:08 15:33-16:16/43 17:16	06:31 17:50	06:40 19:24	05:55 06:37-07:08/31 19:56	05:28 06:45-06:57/12 20:25
4	07:23 16:42	07:07 15:34-16:17/43 17:18	06:29 17:51	06:38 19:25	05:53 06:36-07:09/33 19:57	05:27 06:46-06:56/10 20:25 05:55-06:01/6
5	07:23 16:43	07:06 15:33-16:16/43 17:19	06:28 17:52	06:36 19:26	05:52 06:36-07:09/33 19:58	05:27 06:49-06:55/6 20:26 05:54-06:03/9
6	07:23 16:44	07:05 15:34-16:16/42 17:20	06:26 17:54	06:35 19:27	05:51 06:35-07:10/35 19:59	05:26 05:53-06:03/10 20:27
7	07:23 16:45	07:03 15:35-16:16/41 17:21	06:24 17:55	06:33 19:28	05:50 06:34-07:09/35 20:00	05:26 05:53-06:04/11 20:27
8	07:23 16:46	07:02 15:36-16:16/40 17:23	06:23 17:56	06:32 19:29	05:49 06:33-07:09/36 20:01	05:26 05:52-06:05/13 20:28
9	07:23 16:47	07:01 15:37-16:16/39 17:24	06:21 17:57	06:30 19:30	05:47 06:33-07:09/36 20:02	05:26 05:52-06:06/14 20:29
10	07:23 16:48	07:00 15:38-16:16/38 17:25	06:20 17:58	06:28 19:32	05:46 06:33-07:10/37 20:03	05:25 05:52-06:07/15 20:29
11	07:23 16:49	06:59 15:38-16:14/36 17:26	06:18 06:51-06:59/8 17:59	06:27 19:33	05:45 06:32-07:10/38 20:04	05:25 05:51-06:06/15 20:30
12	07:22 16:50	06:58 15:40-16:14/34 17:28	06:16 06:48-07:01/13 18:00	06:25 19:34	05:44 06:32-07:09/37 20:05	05:25 05:51-06:07/16 20:30
13	07:22 16:51	06:56 15:42-16:13/31 17:29	06:15 06:46-07:02/16 18:01	06:24 19:35	05:43 06:32-07:09/37 20:06	05:25 05:51-06:07/16 20:31
14	07:22 15:41-15:51/10 16:52	06:55 15:44-16:11/27 17:30	06:13 06:45-07:04/19 18:03	06:22 19:36	05:42 06:32-07:09/37 20:07	05:25 05:51-06:08/17 20:31
15	07:21 15:40-15:55/15 16:53	06:54 15:47-16:10/23 17:31	06:11 06:44-07:04/20 18:04	06:20 19:37	05:41 06:32-07:09/37 20:08	05:25 05:51-06:08/17 20:32
16	07:21 15:38-15:57/19 16:55	06:52 15:51-16:08/17 17:32	06:10 06:43-07:04/21 18:05	06:19 19:38	05:40 06:32-07:08/36 20:09	05:25 05:51-06:09/18 20:32
17	07:20 15:37-16:00/23 16:56	06:51 15:53-16:04/11 17:34	06:08 06:43-07:04/21 18:06	06:17 19:39	05:39 06:32-07:08/36 20:10	05:25 05:51-06:09/18 20:32
18	07:20 15:36-16:01/25 16:57	06:50 15:36-16:01/25 17:35	06:06 06:42-07:03/21 18:07	06:16 19:40	05:38 06:33-07:08/35 20:11	05:25 05:52-06:10/18 20:33
19	07:19 15:35-16:02/27 16:58	06:48 15:35-16:02/27 17:36	06:05 06:41-07:03/22 18:08	06:14 19:41	05:37 06:33-07:08/35 20:12	05:25 05:52-06:10/18 20:33
20	07:19 15:35-16:05/30 16:59	06:47 15:35-16:05/30 17:37	06:03 06:42-07:02/20 18:09	06:13 19:42	05:36 06:33-07:07/34 20:13	05:25 05:52-06:10/18 20:33
21	07:18 15:34-16:05/31 17:00	06:46 15:34-16:05/31 17:38	06:01 06:42-07:01/19 18:10	06:11 19:43	05:36 06:34-07:06/32 20:14	05:26 05:52-06:10/18 20:34
22	07:18 15:33-16:06/33 17:02	06:44 15:33-16:06/33 17:40	06:00 06:42-06:59/17 18:11	06:10 19:44	05:35 06:35-07:07/32 20:15	05:26 05:52-06:10/18 20:34
23	07:17 15:34-16:08/34 17:03	06:43 15:34-16:08/34 17:41	05:58 06:44-06:58/14 18:12	06:08 19:45	05:34 06:35-07:06/31 20:16	05:26 05:53-06:11/18 20:34
24	07:16 15:33-16:09/36 17:04	06:41 15:33-16:09/36 17:42	05:56 06:46-06:56/10 18:13	06:07 19:46	05:33 06:35-07:05/30 20:17	05:26 05:53-06:11/18 20:34
25	07:16 15:33-16:10/37 17:05	06:40 15:33-16:10/37 17:43	05:55 15:33-16:10/37 18:14	06:05 19:47	05:33 06:37-07:05/28 20:18	05:27 05:53-06:11/18 20:34
26	07:15 15:32-16:11/39 17:06	06:38 15:32-16:11/39 17:44	05:53 15:32-16:11/39 18:16	06:04 19:48	05:32 06:37-07:04/27 20:18	05:27 05:53-06:11/18 20:34
27	07:14 15:32-16:12/40 17:08	06:37 15:32-16:12/40 17:46	05:51 15:32-16:12/40 18:17	06:03 06:48-06:59/11 19:50	05:31 06:37-07:03/26 20:19	05:27 05:54-06:11/17 20:34
28	07:13 15:33-16:13/40 17:09	06:35 15:33-16:13/40 17:47	05:50 15:33-16:13/40 18:18	06:01 06:44-07:02/18 19:51	05:31 06:39-07:03/24 20:20	05:28 05:54-06:11/17 20:34
29	07:12 15:33-16:14/41 17:10	06:34 15:33-16:14/41 17:48	05:48 15:33-16:14/41 19:19	06:00 06:42-07:04/22 19:52	05:30 06:39-07:02/23 20:21	05:28 05:55-06:12/17 20:34
30	07:12 15:32-16:15/43 17:11	06:33 15:32-16:15/43 17:49	05:46 15:32-16:15/43 19:20	05:59 06:41-07:05/24 19:53	05:29 06:40-07:01/21 20:22	05:28 05:55-06:11/16 20:34
31	07:11 15:33-16:15/42 17:13	06:32 15:33-16:15/42 17:50	05:45 15:33-16:15/42 19:21	05:58 15:33-16:15/42 19:54	05:29 06:41-07:00/19 20:23	05:28 05:55-06:11/16 20:34
Potential sun hours	297	297	369	399	448	452
Sum of minutes with flicker	565	594	241	75	987	485

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

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

SHADOW - Calendar per WTG

Calculation: Real Case WTG: ML 03 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (3)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 05:56-06:12/16 20:34	05:53 06:43-07:20/37 20:15	06:24 19:32	06:54 07:27-07:42/15 18:42	06:28 15:07-15:45/38 16:55	07:03 16:31
2	05:29 05:56-06:11/15 20:34	05:54 06:43-07:20/37 20:14	06:25 19:31	06:55 07:28-07:39/11 18:40	06:29 15:06-15:46/40 16:54	07:04 16:30
3	05:30 05:57-06:11/14 20:34	05:55 06:43-07:20/37 20:13	06:26 19:29	06:56 18:38	06:30 15:05-15:46/41 16:53	07:05 16:30
4	05:30 05:57-06:11/14 20:34	05:56 06:44-07:20/36 20:12	06:27 19:27	06:57 18:37	06:31 15:04-15:46/42 16:51	07:06 16:30
5	05:31 05:58-06:11/13 20:34	05:57 06:44-07:20/36 20:11	06:28 19:26	06:58 18:35	06:32 15:04-15:46/42 16:50	07:07 16:30
6	05:32 05:59-06:10/11 20:33	05:58 06:44-07:20/36 20:10	06:29 19:24	06:59 18:33	06:34 15:04-15:47/43 16:49	07:08 16:30
7	05:32 06:57-06:59/2 20:33 06:00-06:09/9	05:59 06:45-07:19/34 20:08	06:30 19:22	07:00 18:32	06:35 15:04-15:47/43 16:48	07:09 16:29
8	05:33 06:53-07:02/9 20:33 06:02-06:09/7	06:00 06:46-07:19/33 20:07	06:30 19:21	07:01 18:30	06:36 15:03-15:46/43 16:47	07:09 16:29
9	05:33 06:52-07:04/12 20:32 06:04-06:06/2	06:01 06:45-07:17/32 20:06	06:31 19:19	07:02 18:28	06:37 15:03-15:46/43 16:46	07:10 16:29
10	05:34 06:52-07:06/14 20:32	06:02 06:46-07:16/30 20:05	06:32 19:17	07:03 18:27	06:38 15:04-15:47/43 16:45	07:11 16:29
11	05:35 06:50-07:06/16 20:32	06:03 06:47-07:15/28 20:03	06:33 19:16	07:04 18:25	06:40 15:03-15:46/43 16:44	07:12 16:29
12	05:36 06:49-07:08/19 20:31	06:04 06:48-07:14/26 20:02	06:34 19:14	07:05 18:24	06:41 15:03-15:46/43 16:43	07:13 16:30
13	05:36 06:49-07:09/20 20:31	06:05 06:49-07:13/24 20:01	06:35 19:12	07:06 18:22	06:42 15:04-15:46/42 16:42	07:14 16:30
14	05:37 06:49-07:10/21 20:30	06:06 06:51-07:11/20 19:59	06:36 19:11	07:07 18:20	06:43 15:05-15:45/40 16:41	07:15 16:30
15	05:38 06:47-07:11/24 20:29	06:07 06:53-07:09/16 19:58	06:37 19:09	07:08 18:19	06:44 15:05-15:45/40 16:40	07:15 16:30
16	05:39 06:47-07:12/25 20:29	06:08 06:56-07:05/9 19:57	06:38 19:07	07:09 18:17	06:46 15:05-15:44/39 16:39	07:16 16:30
17	05:39 06:46-07:13/27 20:28	06:09 19:55	06:39 19:05	07:11 18:16	06:47 15:07-15:44/37 16:38	07:17 16:31
18	05:40 06:46-07:14/28 20:28	06:10 19:54	06:40 19:04	07:12 18:14	06:48 15:07-15:43/36 16:38	07:17 16:31
19	05:41 06:46-07:15/29 20:27	06:11 19:52	06:41 07:34-07:42/8 19:02	07:13 18:13	06:49 15:08-15:42/34 16:37	07:18 16:31
20	05:42 06:45-07:15/30 20:26	06:12 19:51	06:42 07:31-07:44/13 19:00	07:14 18:11	06:50 15:08-15:41/33 16:36	07:19 16:32
21	05:43 06:44-07:16/32 20:25	06:13 19:49	06:43 07:29-07:46/17 18:59	07:15 18:10	06:51 15:10-15:41/31 16:35	07:19 16:32
22	05:44 06:44-07:17/33 20:25	06:14 19:48	06:44 07:28-07:46/18 18:57	07:16 18:08	06:53 15:11-15:41/30 16:35	07:20 16:33
23	05:44 06:44-07:17/33 20:24	06:15 19:46	06:45 07:27-07:47/20 18:55	07:17 18:07	06:54 15:12-15:40/28 16:34	07:20 16:33
24	05:45 06:44-07:18/34 20:23	06:16 19:45	06:46 07:26-07:47/21 18:53	07:18 18:06	06:55 15:13-15:38/25 16:34	07:21 16:34
25	05:46 06:44-07:19/35 20:22	06:17 19:43	06:47 07:25-07:47/22 18:52	06:20 15:23-15:36/13 17:04	06:56 15:14-15:37/23 16:33	07:21 16:34
26	05:47 06:43-07:18/35 20:21	06:18 19:42	06:48 07:25-07:47/22 18:50	06:21 15:20-15:38/18 17:03	06:57 15:17-15:36/19 16:33	07:21 16:35
27	05:48 06:43-07:19/36 20:20	06:19 19:40	06:49 07:25-07:46/21 18:48	06:22 15:16-15:40/24 17:01	06:58 15:19-15:34/15 16:32	07:22 16:36
28	05:49 06:43-07:19/36 20:19	06:20 19:39	06:50 07:25-07:46/21 18:47	06:23 15:13-15:41/28 17:00	06:59 15:21-15:32/11 16:32	07:22 16:36
29	05:50 06:43-07:19/36 20:18	06:21 19:37	06:51 07:25-07:45/20 18:45	06:24 15:12-15:43/31 16:59	07:00 15:26-15:27/1 16:31	07:22 16:37
30	05:51 06:43-07:20/37 20:17	06:22 19:35	06:53 07:26-07:43/17 18:43	06:25 15:10-15:44/34 16:57	07:02 16:31	07:23 16:38
31	05:52 06:43-07:20/37 20:16	06:23 19:34		06:27 15:08-15:44/36 16:56		07:23 16:39
Potential sun hours	459	428	375	345	298	288
Sum of minutes with flicker	761	471	220	210	988	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

Project:

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

Gaetano DOronzio / info@gecodor.it
Calculated:

02/04/2024 18:25/4.0.531

SHADOW - Calendar per WTG

Calculation: Real Case WTG: ML 04 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (4)
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 07:02-07:41/39 19:22	05:57 19:54	05:29 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 17:35-18:11/36 18:42 07:14-07:34/20	06:28 16:55	07:03 16:31
2	07:23 16:41	07:09 17:15	06:32 17:08-17:20/12 17:49	06:41 07:00-07:38/38 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 17:34-18:09/35 18:40 07:15-07:33/18	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:06-17:22/16 17:50	06:40 06:58-07:35/37 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 17:34-18:08/34 18:38 07:16-07:32/16	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:03-17:23/20 17:51	06:38 06:57-07:11/14 19:25 07:17-07:31/14	05:54 19:57	05:27 20:26	05:31 20:34	05:56 20:12	06:27 19:27	06:57 17:34-18:07/33 18:37 07:17-07:31/14	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:02-17:24/22 17:53	06:37 06:58-07:06/8 19:26	05:52 19:58	05:27 20:26	05:31 20:34	05:57 20:11	06:28 19:26	06:58 17:34-18:05/31 18:35 07:18-07:29/11	06:33 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:00-17:25/25 17:54	06:35 19:27	05:51 19:59	05:27 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 17:35-18:03/28 18:33 07:19-07:28/9	06:34 16:49	07:08 16:30
7	07:23 16:45	07:04 17:21	06:25 16:59-17:26/27 17:55	06:33 19:28	05:50 20:00	05:26 20:28	05:32 20:33	05:59 20:08	06:30 06:53-07:00/7 19:22	07:00 17:35-18:02/27 18:32 07:20-07:26/6	06:35 16:48	07:09 16:30
8	07:23 16:46	07:02 17:23	06:23 16:58-17:28/30 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 06:51-07:05/14 19:21 07:11-07:25/14	07:01 17:36-18:00/24 18:30 07:21-07:23/2	06:36 16:47	07:10 16:30
9	07:23 16:47	07:01 17:24	06:21 16:57-17:28/31 17:57	06:30 19:31	05:48 20:02	05:26 20:29	05:34 20:32	06:01 20:06	06:32 06:52-07:28/36 19:19	07:02 17:37-17:58/21 18:29	06:37 16:46	07:10 16:30
10	07:23 16:48	07:00 17:25	06:20 16:56-17:29/33 17:58	06:28 19:32	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:33 06:53-07:31/38 19:17	07:03 17:38-17:56/18 18:27	06:39 16:45	07:11 16:30
11	07:23 16:49	06:59 17:26	06:18 16:56-17:30/34 17:59	06:27 19:33	05:45 20:04	05:25 20:30	05:35 20:32	06:03 20:03	06:34 06:54-07:33/39 19:16	07:04 17:40-17:55/15 18:25	06:40 16:44	07:12 16:30
12	07:22 16:50	06:58 17:28	06:16 16:55-17:31/36 18:00	06:25 19:34	05:44 20:05	05:25 20:30	05:36 20:31	06:04 20:02	06:35 06:55-07:34/39 19:14	07:05 17:44-17:53/9 18:24	06:41 16:43	07:13 16:30
13	07:22 16:51	06:56 17:29	06:15 16:54-17:31/37 18:02	06:24 19:35	05:43 20:06	05:25 20:31	05:36 20:31	06:05 20:01	06:36 06:56-07:35/39 19:12	07:06 18:22 18:22	06:42 16:42	07:14 16:30
14	07:22 16:52	06:55 17:30	06:13 16:55-17:33/38 18:03	06:22 19:36	05:42 20:07	05:25 20:31	05:37 20:30	06:06 19:59	06:37 06:57-07:36/39 19:11	07:07 18:21 18:21	06:43 16:41	07:15 16:30
15	07:21 16:54	06:54 17:31	06:12 16:55-17:33/38 18:04	06:21 19:37	05:41 20:08	05:25 20:32	05:38 20:30	06:07 19:58	06:38 06:58-07:37/39 19:09	07:08 18:19 18:19	06:45 16:40	07:15 16:30
16	07:21 16:55	06:53 17:33	06:10 16:54-17:33/39 18:05	06:19 19:38	05:40 20:09	05:25 20:32	05:39 20:29	06:08 19:57	06:39 06:59-07:38/39 19:07	07:10 18:17 18:17	06:46 16:39	07:16 16:31
17	07:21 16:56	06:51 17:34	06:08 16:55-17:33/38 18:06	06:17 19:39	05:39 20:10	05:25 20:32	05:39 20:28	06:09 19:55	06:40 17:53-18:07/14 19:05 07:00-07:38/38	07:11 18:16 18:16	06:47 16:38	07:17 16:31
18	07:20 16:57	06:50 17:35	06:07 16:55-17:32/37 18:07	06:16 19:40	05:38 20:11	05:25 20:33	05:40 20:28	06:10 19:54	06:41 17:50-18:10/20 19:04 07:01-07:39/38	07:12 18:14 18:14	06:48 16:38	07:18 16:31
19	07:20 16:58	06:49 17:36	06:05 16:55-17:31/36 18:08	06:14 19:41	05:37 20:12	05:25 20:33	05:41 20:27	06:11 19:52	06:42 17:47-18:11/24 19:02 07:02-07:39/37	07:13 18:13 18:13	06:49 16:37	07:18 16:32
20	07:19 16:59	06:47 17:37	06:03 16:56-17:31/35 18:09	06:13 19:42	05:37 20:13	05:25 20:33	05:42 20:26	06:12 19:51	06:42 17:45-18:13/28 19:00 07:03-07:39/36	07:14 18:11 18:11	06:50 16:36	07:19 16:32
21	07:18 17:00	06:46 17:39	06:02 16:56-17:29/33 18:10	06:11 19:43	05:36 20:14	05:26 20:34	05:43 20:26	06:13 19:49	06:43 17:44-18:14/30 18:59 07:04-07:39/35	07:15 18:10 18:10	06:52 16:36	07:19 16:32
22	07:18 17:02	06:44 17:40	06:00 16:57-17:28/31 18:11	06:10 19:44	05:35 20:15	05:26 20:34	05:44 20:25	06:14 19:48	06:44 17:42-18:14/32 18:57 07:05-07:39/34	07:16 18:09 18:09	06:53 16:35	07:20 16:33
23	07:17 17:03	06:43 17:41	05:58 16:58-17:27/29 18:12	06:08 19:45	05:34 20:16	05:26 20:34	05:45 20:24	06:15 19:46	06:45 17:41-18:15/34 18:55 07:06-07:39/33	07:17 18:07 18:07	06:54 16:34	07:20 16:33
24	07:16 17:04	06:41 17:42	05:56 16:59-17:25/26 18:14	06:07 19:46	05:33 20:17	05:26 20:34	05:45 20:23	06:16 19:45	06:47 17:40-18:15/35 18:54 07:07-07:39/32	07:19 18:06 18:06	06:55 16:34	07:21 16:34
25	07:16 17:05	06:40 17:43	05:55 17:01-17:22/21 18:15	06:06 19:48	05:33 20:18	05:27 20:34	05:46 20:22	06:17 19:43	06:48 17:39-18:15/36 18:52 07:08-07:39/31	07:20 17:04 17:04	06:56 16:33	07:21 16:34
26	07:15 17:06	06:38 17:44	05:53 17:04-17:20/16 18:16	06:04 19:49	05:32 20:19	05:27 20:34	05:47 20:21	06:18 19:42	06:49 17:38-18:15/37 18:50 07:09-07:38/29	07:21 17:03 17:03	06:57 16:33	07:21 16:35
27	07:14 17:08	06:37 17:46	05:51 17:08-17:14/6 18:17	06:03 19:50	05:31 20:19	05:27 20:34	05:48 20:20	06:19 19:40	06:50 17:37-18:15/38 18:48 07:10-07:38/28	07:22 17:02 17:02	06:58 16:32	07:22 16:36
28	07:13 17:09	06:35 17:47	05:50 06:08-06:47/39 18:18	06:01 19:51	05:31 20:20	05:28 20:34	05:49 20:19	06:20 19:39	06:51 17:36-18:15/39 18:47 07:11-07:37/26	07:23 17:00 17:00	06:59 16:32	07:22 16:36
29	07:13 17:10	06:34 17:48	06:48 07:07-07:46/39 19:19	06:00 19:52	05:30 20:21	05:28 20:34	05:50 20:18	06:21 19:37	06:52 17:36-18:14/38 18:45 07:12-07:36/24	07:24 16:59 16:59	07:01 16:31	07:22 16:37
30	07:12 17:11	06:33 18:00	06:46 07:05-07:44/39 19:20	05:59 19:53	05:30 20:22	05:29 20:34	05:51 20:17	06:22 19:35	06:53 17:35-18:12/37 18:43 07:13-07:35/22	07:25 16:58 16:58	07:02 16:31	07:23 16:38
31	07:11 17:13	06:32 19:21	06:45 07:03-07:42/39 19:21	06:00 19:54	05:29 20:23	05:27 20:16	05:52 20:16	06:23 19:34	06:27 16:56 16:56	07:26 16:34 16:34	07:03 16:34	07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Sum of minutes with flicker	0	0	1467	150	0	0	0	0	1228	407	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: Real Case WTG: ML 05 - Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 135,0 m (TOT: 220,0 m) (5)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	07:25-07:34/9 19:54	05:57 20:23
2	07:23 16:40	07:09 17:15	06:32 17:49	06:41 19:23	07:19-07:39/20 19:55	05:58 20:24
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	07:16-07:41/25 19:56	05:58 20:25
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	07:14-07:44/30 19:57	05:27 20:25
5	07:23 16:43	07:06 17:19	06:28 17:53	06:36 19:26	07:11-07:45/34 19:58	05:27 20:26
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	07:09-07:46/37 19:59	05:27 20:27
7	07:23 16:45	07:04 17:21	06:24 17:55	06:33 19:28	07:08-07:48/40 20:00	05:26 20:27
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	07:06-07:48/42 20:01	05:26 20:28
9	07:23 16:47	07:01 17:24	06:21 17:57	06:30 19:30	07:05-07:49/44 20:02	05:26 20:29
10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:32	07:04-07:49/45 20:03	05:26 20:29
11	07:23 16:49	06:59 17:26	06:18 17:59	06:27 19:33	07:02-07:49/47 20:04	05:25 20:30
12	07:22 16:50	06:58 17:28	06:16 18:00	06:25 19:34	07:02-07:50/48 20:05	05:25 20:30
13	07:22 16:51	06:56 17:29	06:15 18:02	06:24 19:35	07:01-07:50/49 20:06	05:25 20:31
14	07:22 16:52	06:55 17:30	06:13 18:03	06:22 19:36	07:01-07:50/49 20:07	05:25 20:31
15	07:21 16:53	06:54 17:31	06:11 18:04	06:20 19:37	07:00-07:50/50 20:08	05:25 20:32
16	07:21 16:55	06:53 17:32	06:10 18:05	06:19 19:38	07:00-07:50/50 20:09	05:25 20:32
17	07:21 16:56	06:51 17:34	06:08 18:06	06:17 19:39	06:59-07:50/51 20:10	05:25 20:32
18	07:20 16:57	06:50 17:35	06:06 18:07	06:16 19:40	06:59-07:50/51 20:11	05:25 20:33
19	07:20 16:58	06:48 17:36	06:05 18:08	06:14 19:41	06:59-07:49/50 20:12	05:25 20:33
20	07:19 16:59	06:47 17:37	06:03 18:09	06:13 19:42	06:59-07:49/50 20:13	05:25 20:33
21	07:18 17:00	06:46 17:39	06:01 18:10	06:11 19:43	06:58-07:48/50 20:14	05:26 20:34
22	07:18 17:02	06:44 17:40	06:00 18:11	06:10 19:44	06:59-07:48/49 20:15	05:26 20:34
23	07:17 17:03	06:43 17:41	05:58 18:12	06:08 19:45	06:58-07:46/48 20:16	05:26 20:34
24	07:16 17:04	06:41 17:42	05:56 18:13	06:07 19:46	06:59-07:46/47 20:17	05:26 20:34
25	07:16 17:05	06:40 17:43	05:55 18:15	06:06 19:47	07:00-07:46/46 20:18	05:27 20:34
26	07:15 17:06	06:38 17:44	05:53 18:16	06:04 19:49	06:59-07:44/45 20:18	05:27 20:34
27	07:14 17:08	06:37 17:46	05:51 18:17	06:03 19:50	07:00-07:44/44 20:19	05:27 20:34
28	07:13 17:09	06:35 17:47	05:50 18:18	06:01 19:51	07:00-07:42/42 20:20	05:28 20:34
29	07:12 17:10		06:48 19:19	06:00 19:52	07:01-07:41/40 20:21	05:28 20:34
30	07:12 17:11		06:46 19:20	05:59 19:53	07:02-07:40/38 20:22	05:28 20:34
31	07:11 17:13		06:45 19:21			05:29 20:23
Potential sun hours	297	297	369	399	448	452
Sum of minutes with flicker	0	37	42	1270	173	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: Real Case WTG: ML 05 - Siemens Gamesa SG 6.0-170 6000 170.0 IO! hub: 135,0 m (TOT: 220,0 m) (5)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	July	August	September	October	November	December
1	05:29 20:34	05:53 20:15	06:24 07:01-07:48/47 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	05:29 20:34	05:54 20:14	06:25 07:02-07:47/45 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	05:30 20:34	05:55 20:13	06:26 07:02-07:46/44 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	05:30 20:34	05:56 20:12	06:27 07:03-07:45/42 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	05:31 20:34	05:57 20:11	06:28 07:04-07:44/40 19:26	06:58 18:35	06:33 16:50	07:07 16:30
6	05:32 20:33	05:58 07:24-07:36/12 20:10	06:29 07:05-07:42/37 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	05:32 20:33	05:59 07:21-07:40/19 20:08	06:30 07:06-07:40/34 19:22	07:00 18:32	06:35 16:48	07:09 16:30
8	05:33 20:33	06:00 07:18-07:42/24 20:07	06:31 07:08-07:38/30 19:21	07:01 18:30	06:36 16:47	07:10 16:29
9	05:34 20:32	06:01 07:16-07:44/28 20:06	06:32 07:10-07:36/26 19:19	07:02 07:24-07:31/7 18:28	06:37 16:46	07:10 16:29
10	05:34 20:32	06:02 07:14-07:45/31 20:05	06:33 07:12-07:32/20 19:17	07:03 07:23-07:34/11 18:27	06:38 16:45	07:11 16:29
11	05:35 20:32	06:03 07:12-07:46/34 20:03	06:34 07:17-07:27/10 19:16	07:04 07:24-07:35/11 18:25	06:40 16:44	07:12 16:30
12	05:36 20:31	06:04 07:11-07:47/36 20:02	06:35 19:14	07:05 07:26-07:37/11 18:24	06:41 16:43	07:13 16:30
13	05:36 20:31	06:05 07:10-07:48/38 20:01	06:35 19:12	07:06 07:27-07:37/10 18:22	06:42 16:42	07:14 16:30
14	05:37 20:30	06:06 07:09-07:49/40 19:59	06:36 19:11	07:07 07:28-07:37/9 18:21	06:43 16:41	07:15 16:30
15	05:38 20:30	06:07 07:08-07:50/42 19:58	06:37 19:09	07:08 07:29-07:37/8 18:19	06:44 16:40	07:15 16:30
16	05:39 20:29	06:08 07:07-07:50/43 19:57	06:38 19:07	07:10 07:30-07:37/7 18:17	06:46 16:39	07:16 16:30
17	05:39 20:28	06:09 07:06-07:51/45 19:55	06:39 19:05	07:11 07:31-07:36/5 18:16	06:47 16:38	07:17 16:31
18	05:40 20:28	06:10 07:05-07:52/47 19:54	06:40 19:04	07:12 07:32-07:35/3 18:14	06:48 16:38	07:17 16:31
19	05:41 20:27	06:11 07:05-07:52/47 19:52	06:41 19:02	07:13 07:34-07:35/1 18:13	06:49 16:37	07:18 16:31
20	05:42 20:26	06:12 07:04-07:52/48 19:51	06:42 19:00	07:14 18:11	06:50 16:36	07:19 16:32
21	05:43 20:25	06:13 07:04-07:52/48 19:49	06:43 18:59	07:15 18:10	06:52 16:36	07:19 16:32
22	05:44 20:25	06:14 07:03-07:53/50 19:48	06:44 18:57	07:16 18:08	06:53 16:35	07:20 16:33
23	05:44 20:24	06:15 07:03-07:53/50 19:46	06:45 18:55	07:17 18:07	06:54 16:34	07:20 16:33
24	05:45 20:23	06:16 07:02-07:53/51 19:45	06:46 18:54	07:18 18:06	06:55 16:34	07:21 16:34
25	05:46 20:22	06:17 07:02-07:53/51 19:43	06:47 18:52	06:20 17:04	06:56 16:33	07:21 16:34
26	05:47 20:21	06:18 07:02-07:52/50 19:42	06:48 18:50	06:21 17:03	06:57 16:33	07:21 16:35
27	05:48 20:20	06:19 07:02-07:52/50 19:40	06:49 18:48	06:22 17:01	06:58 16:32	07:22 16:36
28	05:49 20:19	06:20 07:02-07:52/50 19:39	06:51 18:47	06:23 17:00	06:59 16:32	07:22 16:36
29	05:50 20:18	06:21 07:02-07:51/49 19:37	06:52 18:45	06:24 16:59	07:01 16:31	07:22 16:37
30	05:51 20:17	06:22 07:02-07:51/49 19:35	06:53 18:43	06:25 16:58	07:02 16:31	07:23 16:38
31	05:52 20:16	06:23 07:01-07:49/48 19:34		06:27 16:56		07:23 16:39
Potential sun hours	459	428	375	345	298	288
Sum of minutes with flicker	0	1080	375	83	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

Project:

WF Melfi_shadow flickering

Licensed user:

Ge.co.Dor srl
Via G. Garibaldi, 15
IT-74023 Grottaglie (TA)

Gaetano DOronzio / info@gecodor.it
Calculated:

02/04/2024 18:25/4.0.531

SHADOW - Calendar per WTG

Calculation: Real Case WTG: ML 06 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (6)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 08:16-08:58/42 16:40	07:10 06:34 17:14 17:48	06:43 05:57 19:22 19:54	05:28 05:29 20:23 20:34	05:53 06:24 20:15 19:32	06:54 06:28 18:42 16:55	07:03 08:04-08:41/37 16:31					
2	07:23 08:16-08:59/43 16:41	07:09 06:32 17:15 17:49	06:41 05:56 19:23 19:55	05:28 05:29 20:24 20:34	06:25 06:55 20:14 19:31	06:29 16:54 18:40 16:30	07:04 08:04-08:42/38 16:30					
3	07:23 08:17-08:59/42 16:41	07:08 06:31 17:16 17:50	06:40 05:55 19:24 19:56	05:28 05:30 20:25 20:34	06:26 06:56 20:13 19:29	16:54 16:30 18:38 16:53	07:05 08:04-08:43/39 16:30					
4	07:23 08:18-08:59/41 16:42	07:07 06:29 17:18 17:51	06:38 05:53 19:25 19:57	05:27 05:31 20:25 20:34	06:27 06:57 20:12 19:27	16:31 16:30 18:37 16:51	07:06 08:04-08:43/39 16:30					
5	07:23 08:18-08:59/41 16:43	07:06 06:28 17:19 17:53	06:36 05:52 19:26 19:58	05:27 05:31 20:26 20:34	06:28 06:58 20:11 19:26	16:33 16:30 18:35 16:50	07:07 08:04-08:44/40 16:30					
6	07:23 08:18-08:59/41 16:44	07:05 06:26 17:20 17:54	06:35 05:51 19:27 19:59	05:27 05:32 20:27 20:33	06:29 06:59 20:10 19:24	16:34 16:30 18:33 16:49	07:08 08:04-08:45/41 16:30					
7	07:23 08:19-08:59/40 16:45	07:04 06:24 17:21 17:55	06:33 05:50 19:28 20:00	05:26 05:32 20:27 20:33	06:30 06:08 20:08 19:22	16:35 16:48 18:32 16:48	07:09 08:04-08:45/41 16:30					
8	07:23 08:20-08:59/39 16:46	07:02 06:23 17:23 17:56	06:32 05:49 19:29 20:01	05:26 05:33 20:28 20:33	06:00 06:31 20:07 19:21	16:36 16:47 18:30 16:47	07:09 08:05-08:46/41 16:30					
9	07:23 08:21-09:00/39 16:47	07:01 06:21 17:24 17:57	06:30 05:48 19:30 20:02	05:26 05:34 20:29 20:32	06:01 06:32 20:06 19:19	16:37 16:46 18:28 16:46	07:10 08:05-08:47/42 16:29					
10	07:23 08:22-09:00/38 16:48	07:00 06:20 17:25 17:58	06:28 05:46 19:32 20:03	05:26 05:34 20:29 20:32	06:02 06:33 20:05 19:17	16:38 16:45 18:27 16:45	07:11 08:06-08:48/42 16:30					
11	07:23 08:22-08:59/37 16:49	06:59 06:18 17:26 17:59	06:27 05:45 19:33 20:04	05:25 05:35 20:30 20:32	06:03 06:34 20:03 19:16	16:40 16:44 18:25 16:44	07:12 08:06-08:48/42 16:30					
12	07:22 08:23-08:59/36 16:50	06:58 06:16 17:28 18:00	06:25 05:44 19:34 20:05	05:25 05:36 20:31 20:31	06:04 06:35 20:02 19:14	16:41 16:43 18:24 16:43	07:13 08:07-08:49/42 16:30					
13	07:22 08:24-09:00/36 16:51	06:56 06:15 17:29 18:02	06:24 05:43 19:35 20:06	05:25 05:36 20:31 20:31	06:05 06:36 20:01 19:12	16:42 16:42 18:22 16:42	07:14 08:06-08:49/43 16:30					
14	07:22 08:25-08:59/34 16:52	06:55 06:13 17:30 18:03	06:22 05:42 19:36 20:07	05:25 05:37 20:31 20:30	06:06 06:37 19:59 19:11	16:43 16:41 18:21 16:41	07:15 08:07-08:50/43 16:30					
15	07:21 08:26-08:59/33 16:53	06:54 06:11 17:31 18:04	06:20 05:41 19:37 20:08	05:25 05:38 20:32 20:29	06:07 06:37 19:58 19:09	16:44 16:40 18:19 16:40	07:15 08:07-08:50/43 16:30					
16	07:21 08:27-08:58/31 16:55	06:53 06:10 17:33 18:05	06:19 05:40 19:38 20:09	05:25 05:39 20:32 20:29	06:08 06:38 19:57 19:07	16:46 16:39 18:17 16:39	07:16 08:08-08:51/43 16:30					
17	07:21 08:29-08:58/29 16:56	06:51 06:08 17:34 18:06	06:17 05:39 19:39 20:10	05:25 05:39 20:32 20:28	06:09 06:39 19:55 19:05	16:39 16:38 18:16 16:38	07:17 08:08-08:51/43 16:31					
18	07:20 08:30-08:56/26 16:57	06:50 06:06 17:35 18:07	06:16 05:38 19:40 20:11	05:25 05:40 20:33 20:28	06:10 06:40 19:54 19:04	16:48 16:38 18:14 16:38	07:17 08:09-08:52/43 16:31					
19	07:20 08:32-08:56/24 16:58	06:48 06:05 17:36 18:08	06:14 05:37 19:41 20:12	05:25 05:41 20:33 20:27	06:11 06:41 19:52 19:02	16:49 16:37 18:13 16:37	07:18 08:08-08:52/44 16:31					
20	07:19 08:33-08:54/21 16:59	06:47 06:03 17:37 18:09	06:13 05:37 19:42 20:13	05:25 05:42 20:33 20:26	06:12 06:42 19:51 19:00	16:42 16:36 18:11 16:36	07:19 08:09-08:53/44 16:32					
21	07:18 08:35-08:52/17 17:00	06:46 06:01 17:39 18:10	06:11 05:36 19:43 20:14	05:26 05:43 20:34 20:25	06:13 06:43 19:49 18:59	16:43 16:36 18:10 16:36	07:19 08:10-08:54/44 16:32					
22	07:18 08:39-08:51/12 17:02	06:44 06:00 17:40 18:11	06:10 05:35 19:44 20:15	05:26 05:44 20:34 20:25	06:14 06:44 19:48 18:57	16:44 16:35 18:08 16:35	07:20 08:10-08:54/44 16:33					
23	07:17 17:03	06:43 17:41 18:12 19:45	06:08 20:16 19:45 20:16	05:26 20:34 20:24 19:46	06:15 18:55 19:46 18:55	16:45 16:34 18:07 16:34	07:20 08:10-08:54/44 16:33					
24	07:16 17:04	06:41 17:42 18:13 19:46	06:07 20:17 19:46 20:17	05:26 20:34 20:23 19:45	06:16 18:54 19:45 18:54	16:46 16:34 18:06 16:34	07:21 08:11-08:55/44 16:34					
25	07:16 17:05	06:40 17:43 18:15 19:47	06:06 20:18 19:47 20:18	05:27 20:34 20:22 19:43	06:17 18:52 19:43 18:52	16:47 16:33 17:04 16:33	07:21 08:12-08:55/43 16:34					
26	07:15 17:06	06:38 17:44 18:16 19:49	06:04 20:18 19:49 20:18	05:27 20:34 20:21 19:42	06:18 18:50 19:42 18:50	16:48 16:33 17:03 16:33	07:21 08:12-08:55/43 16:35					
27	07:14 17:08	06:37 17:46 18:17 19:50	06:03 20:19 19:50 20:19	05:27 20:34 20:20 19:40	06:19 18:48 19:40 18:48	16:49 16:32 17:02 16:32	07:22 08:13-08:56/43 16:36					
28	07:13 17:09	06:35 17:47 18:18 19:51	06:01 20:20 19:51 20:20	05:28 20:34 20:19 19:39	06:20 18:47 19:39 18:47	16:51 17:00 16:32 16:32	07:22 08:13-08:56/43 16:36					
29	07:12 17:10	06:48 19:19 19:52 20:21	06:00 20:21 20:34 20:18	05:28 20:34 20:18 19:37	06:21 18:45 19:37 18:45	16:52 16:59 16:31 16:31	07:22 08:14-08:57/43 16:37					
30	07:12 17:11	06:46 19:20 19:53 20:22	05:59 20:22 20:34 20:17	05:29 20:34 20:17 19:35	06:22 18:43 19:35 18:43	16:58 16:31 16:31 16:31	07:23 08:14-08:57/43 16:38					
31	07:11 17:13	06:45 19:21 19:21 20:23	05:29 20:23 20:23 20:23	05:29 20:23 20:16 19:34	06:23 19:34 19:34 16:56	16:32 16:56 16:56 16:39	07:23 08:15-08:58/43 16:39					
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Sum of minutes with flicker	742	0	0	0	0	0	0	0	0	0	298	1307

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

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

SHADOW - Calendar per WTG

Calculation: Real Case WTG: ML 07 - Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (7)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60 6,60

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 181 266 141 50 54 115 1.214 1.508 510 974 1.221 6.672

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:23 16:40	07:10 17:14	06:34 17:48	06:43 19:22	05:57 19:54	05:28 20:23	05:29 20:34	05:53 20:15	06:24 19:32	06:54 18:42	06:28 16:55	07:03 16:31
2	07:23 16:40	07:09 17:15	06:32 17:49	06:41 19:23	05:56 19:55	05:28 20:24	05:29 20:34	05:54 20:14	06:25 19:31	06:55 18:40	06:29 16:54	07:04 16:30
3	07:23 16:41	07:08 17:16	06:31 17:50	06:40 19:24	05:55 19:56	05:28 20:25	05:30 20:34	05:55 20:13	06:26 19:29	06:56 18:38	06:30 16:53	07:05 16:30
4	07:23 16:42	07:07 17:18	06:29 17:51	06:38 19:25	05:53 19:57	05:27 20:25	05:30 20:34	05:56 20:12	06:27 19:27	06:57 18:37	06:31 16:51	07:06 16:30
5	07:23 16:43	07:06 17:19	06:28 17:52	06:36 19:26	05:52 19:58	05:27 20:26	05:31 20:33	05:57 20:11	06:28 19:26	06:58 18:35	06:32 16:50	07:07 16:30
6	07:23 16:44	07:05 17:20	06:26 17:54	06:35 19:27	05:51 19:59	05:26 20:27	05:32 20:33	05:58 20:10	06:29 19:24	06:59 18:33	06:34 16:49	07:08 16:30
7	07:23 16:45	07:03 17:21	06:24 17:55	06:33 19:28	05:50 20:00	05:26 20:27	05:32 20:33	05:59 20:08	06:30 19:22	07:00 18:32	06:35 16:48	07:08 16:30
8	07:23 16:46	07:02 17:23	06:23 17:56	06:32 19:29	05:49 20:01	05:26 20:28	05:33 20:33	06:00 20:07	06:31 19:21	07:01 18:30	06:36 16:47	07:09 16:29
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10	07:23 16:48	07:00 17:25	06:20 17:58	06:28 19:31	05:46 20:03	05:26 20:29	05:34 20:32	06:02 20:05	06:32 19:17	07:03 18:27	06:38 16:45	07:11 16:29
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31	07:11 17:13		06:45 19:21		05:29 20:22		05:52 20:16	06:23 19:34		06:27 16:56		07:23 16:39
Potential sun hours	297	297	369	399	448	452	459	428	375	345	298	288
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

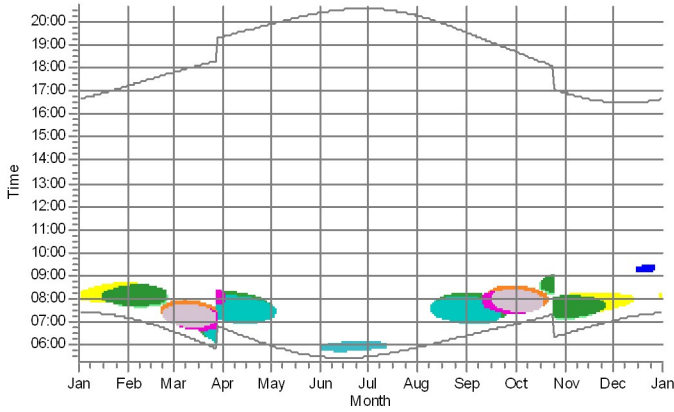
Table layout: For each day in each month the following matrix apply

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

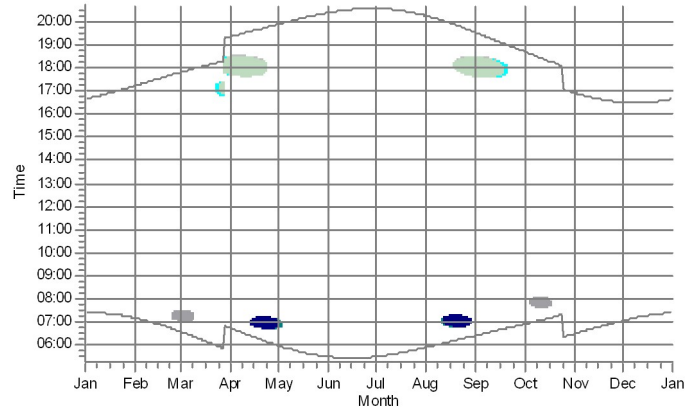
SHADOW - Calendar per WTG, graphical

Calculation: Real Case

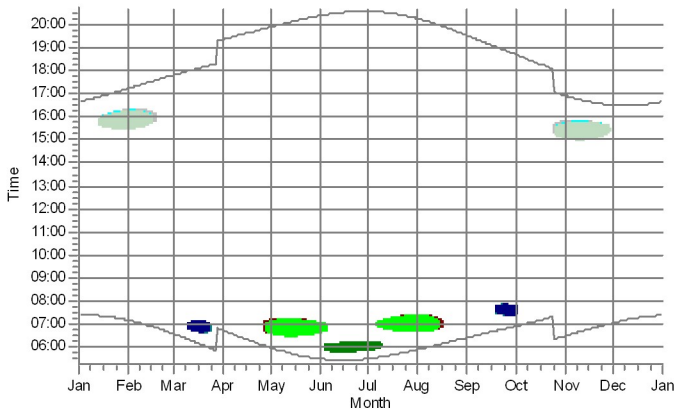
ML 01: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 2



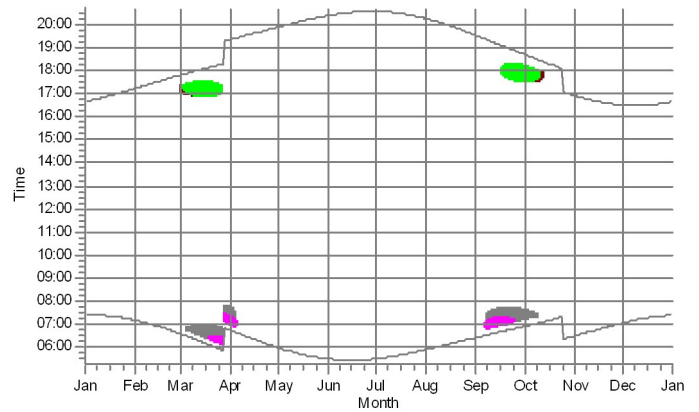
ML 02: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 2



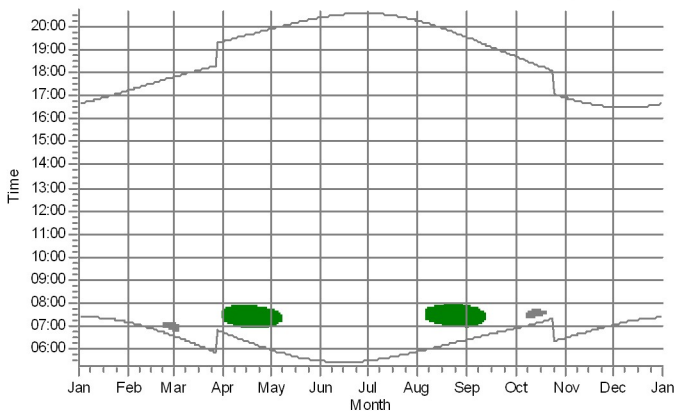
ML 03: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 2



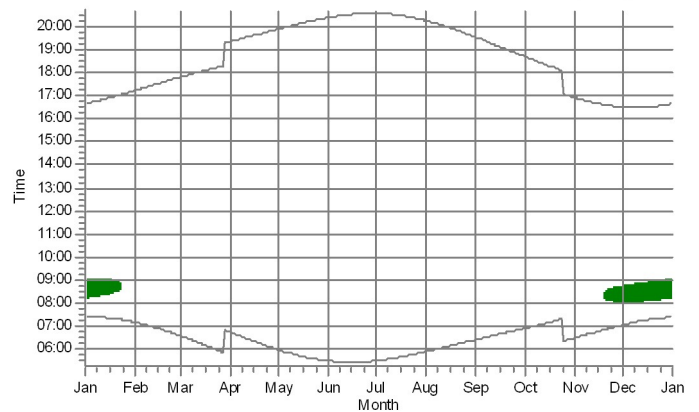
ML 04: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 2



ML 05: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 2



ML 06: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 2



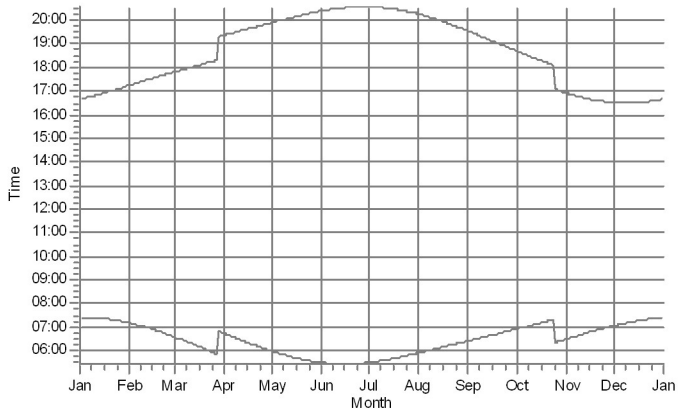
Shadow receptors

- R02: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (1)
- R103: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (26)
- R107: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (27)
- R12: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (2)
- R14: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (3)
- R21: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (4)
- R23: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (5)
- R31: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (6)
- R32: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (7)
- R61: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (10)
- R63: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (11)
- R65: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (12)
- R70: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (14)
- R77: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (17)
- R82: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (18)
- R83: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (19)
- R87: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (20)
- R87a: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (21)
- R88: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (22)
- R92: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (23)
- R95a: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (24)
- R99: Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (25)

SHADOW - Calendar per WTG, graphical

Calculation: Real Case

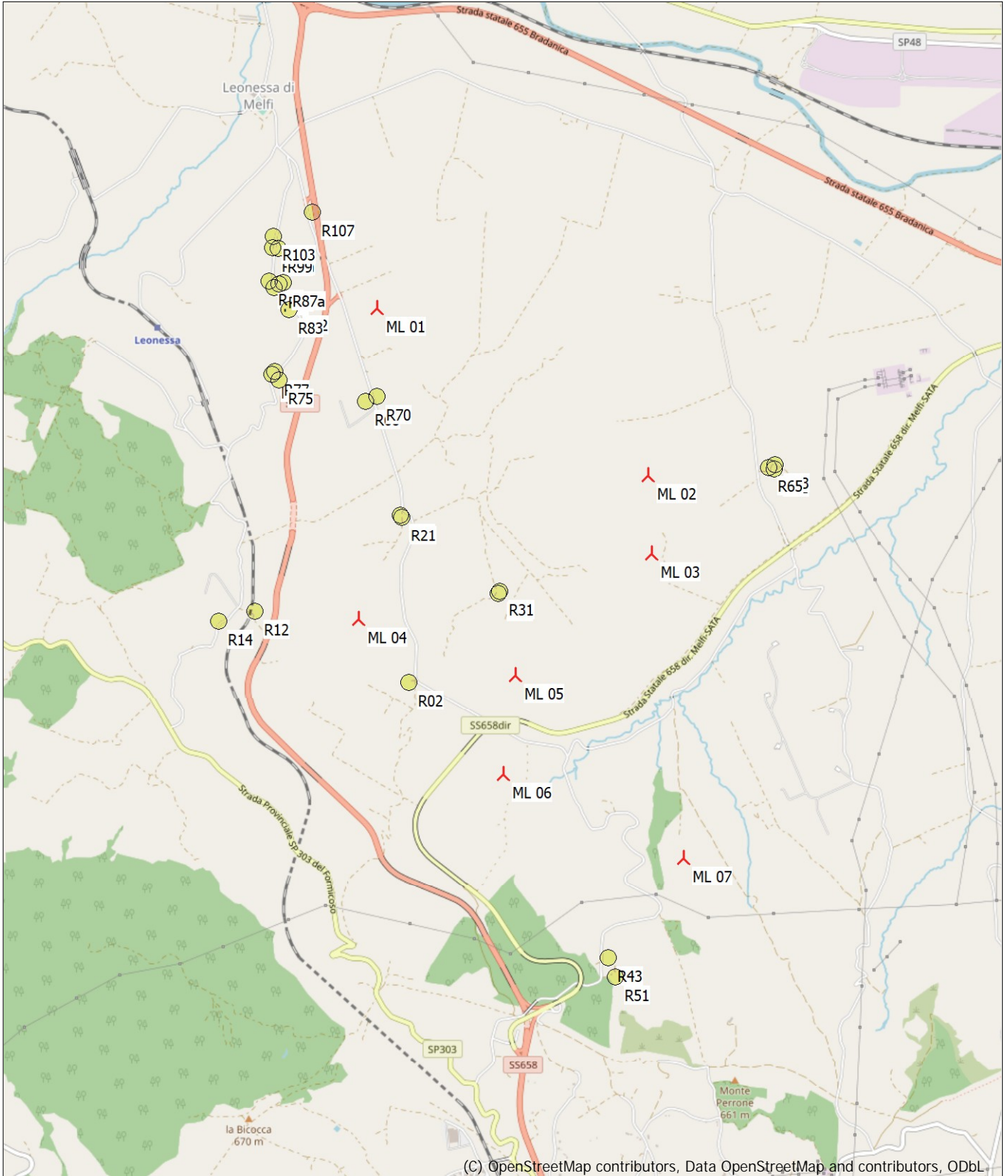
ML 07: Siemens Gamesa SG 6.0-170 6000 170.0 !O! hub: 135,0 m (TOT: 2



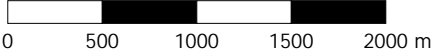
Shadow receptors

SHADOW - Map

Calculation: Real Case



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



Map: EMD OpenStreetMap , Print scale 1:40.000, Map center Geo WGS84 East: 15,624422° E North: 41,044850° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: WF Melfi_shadow flickering_EMDGrid_0.wpg (1)