

# AUTORIZZAZIONE UNICA Ex D. LGS. N. 387/2003



## PROGETTO DEFINITIVO PARCO EOLICO VAL D'AGRI

Titolo elaborato:

### STUDIO SUGLI EFFETTI DELLO SHADOW FLICKERING

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#### PROPONENTE



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1 di 42

## Sommarario

1. PREMESSA	3
2. DESCRIZIONE DEL PROGETTO	3
2.1. Caratteristiche tecniche dell'aerogeneratore	7
2.2. Viabilità e piazzole	10
2.3. Descrizione opere elettriche	12
2.3.1. Aerogeneratori	12
2.3.2. Sottostazione Elettrica di trasformazione Utente (SEU)	13
2.3.3. Linee elettriche di collegamento MT	16
2.3.4. Stazione di condivisione	19
2.3.5. Linea AT di collegamento alla RTN	21
2.3.6. Stallo arrivo produttore	22
3. CARATTERISTICHE PRINCIPALI DEL PARCO EOLICO	25
4. FENOMENO DI SHADOW FLIKERING	26
5. RIFERIMENTI NORMATIVI	29
6. IPOTESI E METODO DI CALCOLO	30
7. CONCLUSIONI	35
8. ALLEGATO 1: SHADOW – MAIN RESULT – ELABORAZIONE MEDIANTE IL SOFTWARE WINDPRO 3.4 – WORST CASE	41
9. ALLEGATO 2: SHADOW – MAIN RESULT – ELABORAZIONE MEDIANTE IL SOFTWARE WINDPRO 3.4 – EXPECTED VALUES	42

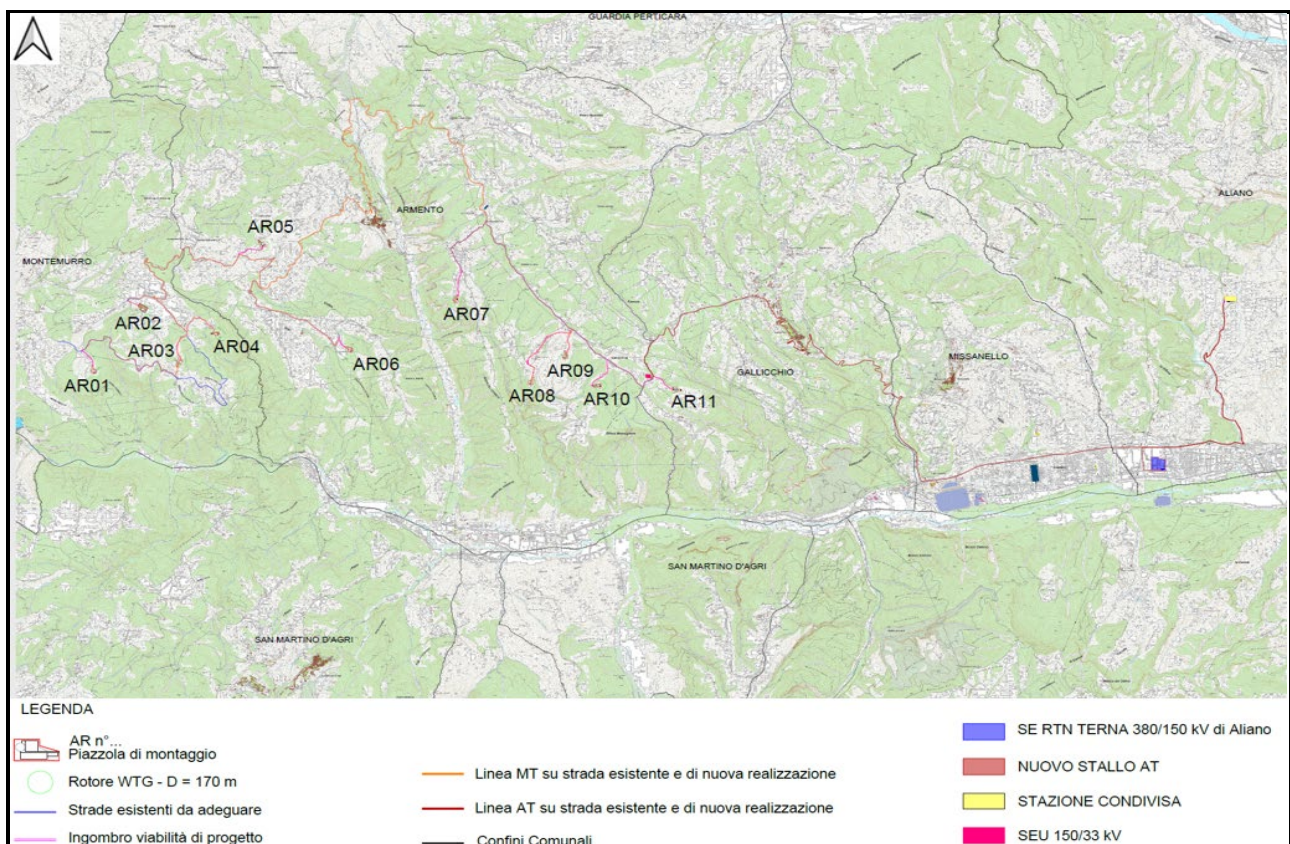
## 1. PREMESSA

Nella presente trattazione si descrive l'evoluzione giornaliera delle ombre generate dalle pale eoliche facenti parte dell'impianto eolico denominato "Val d'Agri" al fine di verificare che l'alternanza ciclica dell'ombra non arrechi danni alla salute su un possibile ricettore.

## 2. DESCRIZIONE DEL PROGETTO

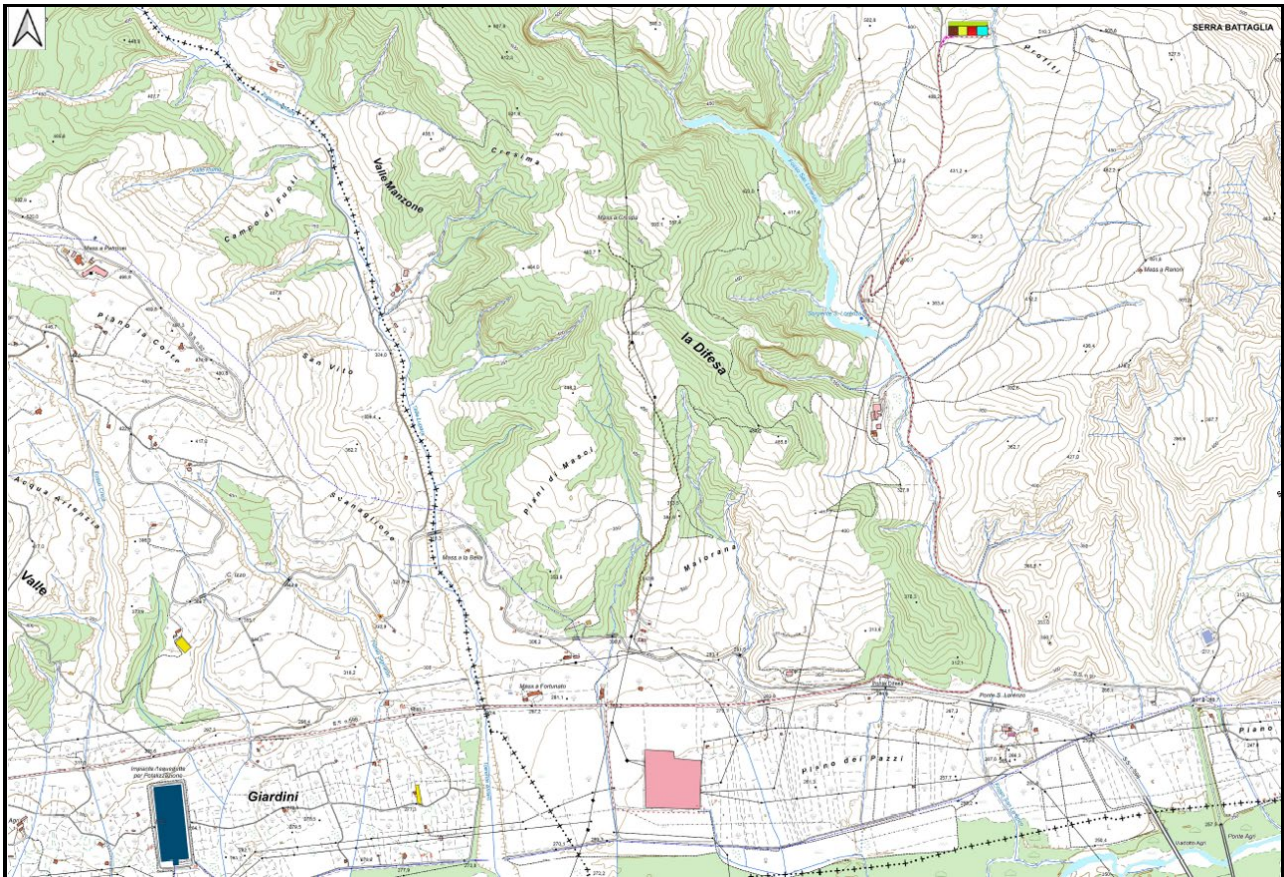
L'impianto eolico presenta una potenza nominale totale in immissione pari a 68,2 MW ed è costituito da 11 aerogeneratori di potenza nominale pari a 6,2 MWp con altezza torre pari a 115 m e rotore pari a 170 m.

L'impianto interessa prevalentemente il Comune di Montemurro (PZ), ove ricadano 4 aerogeneratori, il Comune di Armento (PZ), ove ricadono 6 aerogeneratori e la SEU 150/33 kV, il Comune di Gallicchio (PZ), ove ricade 1 aerogeneratore, e il Comune di Aliano (MT), dove ricadono la stazione condivisa con altri produttori, collegata alla SEU 150/33 kV mediante cavo a 150 kV, e la SE RTN Terna 380/150 kV, collegata alla stazione in condivisione mediante un ulteriore cavo a 150 kV e all'interno della quale verrà realizzato il nuovo stallo AT 150 kV per connettere l'impianto eolico alla Rete di Trasmissione Nazionale (RTN) (**Figura 2.1**).



**Figura 2.1:** Inquadramento territoriale dell'impianto eolico Val d'Agri con i limiti amministrativi dei comuni interessati

La soluzione di connessione (soluzione tecnica minima generale STMG - codice pratica del preventivo di connessione C.P. 202101538), prevede che l'impianto eolico venga collegato in antenna a 150 kV su un nuovo stallo della Stazione Elettrica di trasformazione della RTN (SE) a 380/150 kV denominata "Aliano" (Figura 2.2).

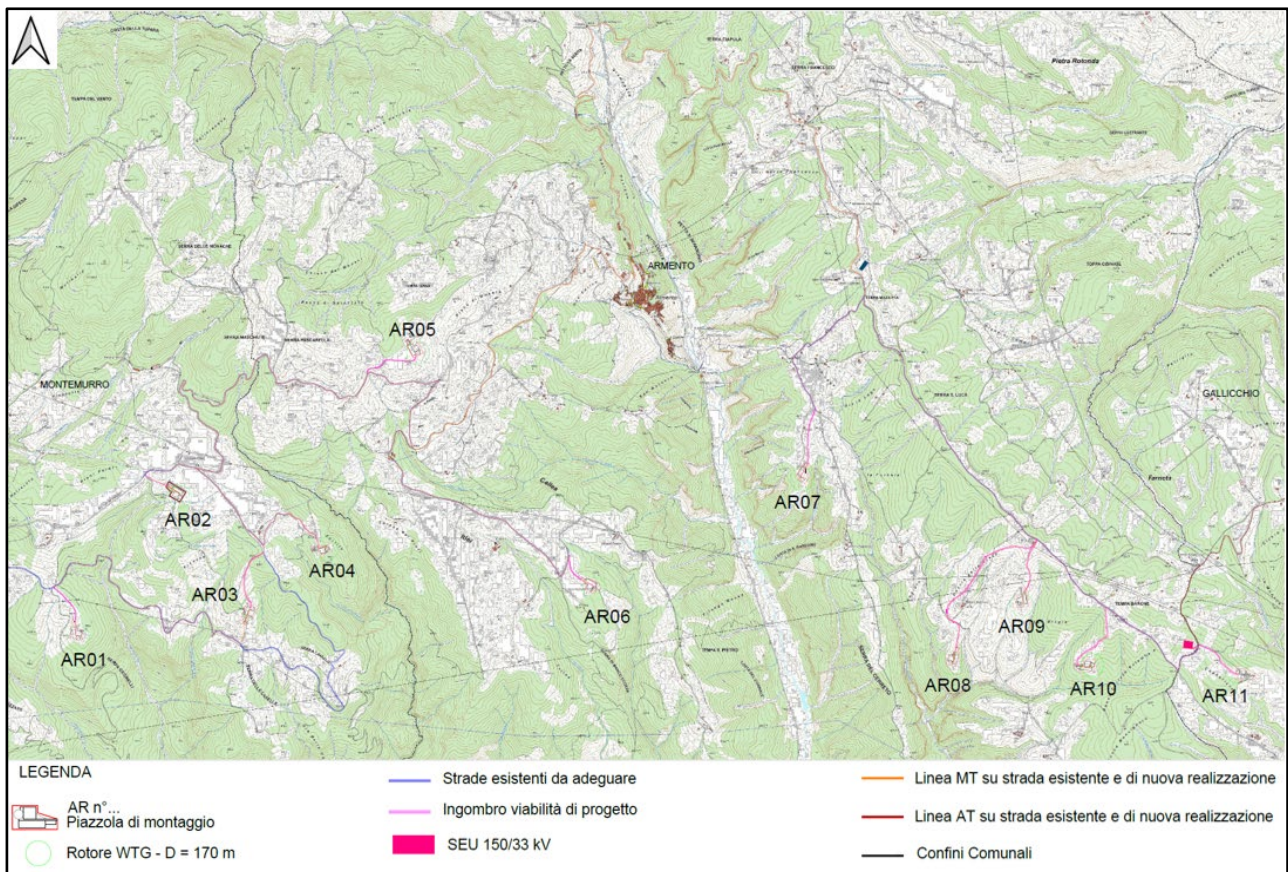


**Figura 2.2:** Soluzione di connessione alla RTN in corrispondenza della SSE RTN Terna 380/150 kV Aliano

Il Gestore ha inoltre prescritto che lo stallo che sarà occupato dall'impianto dovrà essere condiviso con altri produttori e, a tal fine, verrà realizzata una stazione elettrica condivisa con altri produttori che si collegherà alla SE RTN mediante la posa in opera, su strade esistenti o da realizzarsi per lo scopo, di una linea Alta Tensione a 150 kV interrata di lunghezza complessiva di circa 6 km.

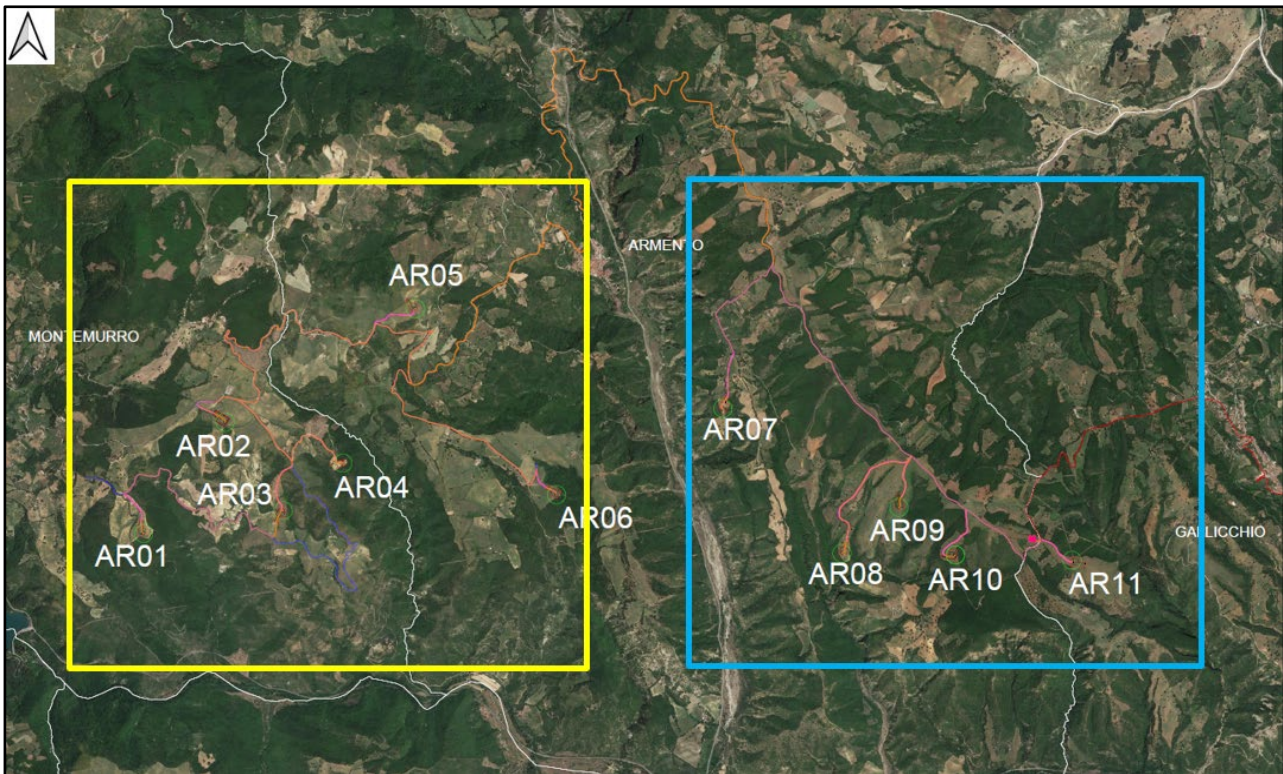
Il progetto prevede che la SEU 150/33 kV venga collegata alla stazione condivisa con altri produttori mediante la posa in opera, su strade esistenti o da realizzarsi per lo scopo, di una linea Alta Tensione a 150 kV interrata di lunghezza complessiva di circa 18,5 km.

Le turbine eoliche verranno collegate attraverso un sistema di linee elettriche interrate a 33 kV allocate prevalentemente in corrispondenza del sistema di viabilità interna che servirà per la costruzione e la gestione futura dell'impianto. Tale sistema verrà realizzato prevalentemente adeguando il sistema viario esistente e realizzando nuovi tratti di raccordo per consentire il transito dei mezzi eccezionali.



**Figura 2.3:** Layout d'impianto con viabilità di progetto e linee elettriche MT su CTR

L'impianto eolico può essere inteso come suddiviso in due zone distanti 1,7 km (**Figura 2.4**), la Zona 1 (rettangolo giallo), costituita dagli aerogeneratori AR01, AR02, AR03, AR04, AR05 e AR06 e che si colloca ad Ovest del centro abitato di Armento, e la Zona 2 (rettangolo azzurro), costituita dagli aerogeneratori AR07, AR08, AR09, AR10 e AR11 e che si colloca ad Est rispetto al centro abitato di Armento.



**Figura 2.4:** Suddivisione in zone dell'Parco Eolico Val d'Agri

L'area di progetto (**Figura 2.5**) si raggiunge partendo dal Porto di Taranto ed è servita dalla Strada Provinciale Saurina, dalla Strada Statale SS92 (Laurenzana) e da un sistema di viabilità esistente, opportunamente adeguato e migliorato per il transito dei mezzi eccezionali da utilizzare per consegnare in sito i componenti degli aerogeneratori e da cui si dirameranno nuovi tratti di viabilità necessari per la costruzione e la manutenzione dell'impianto eolico.

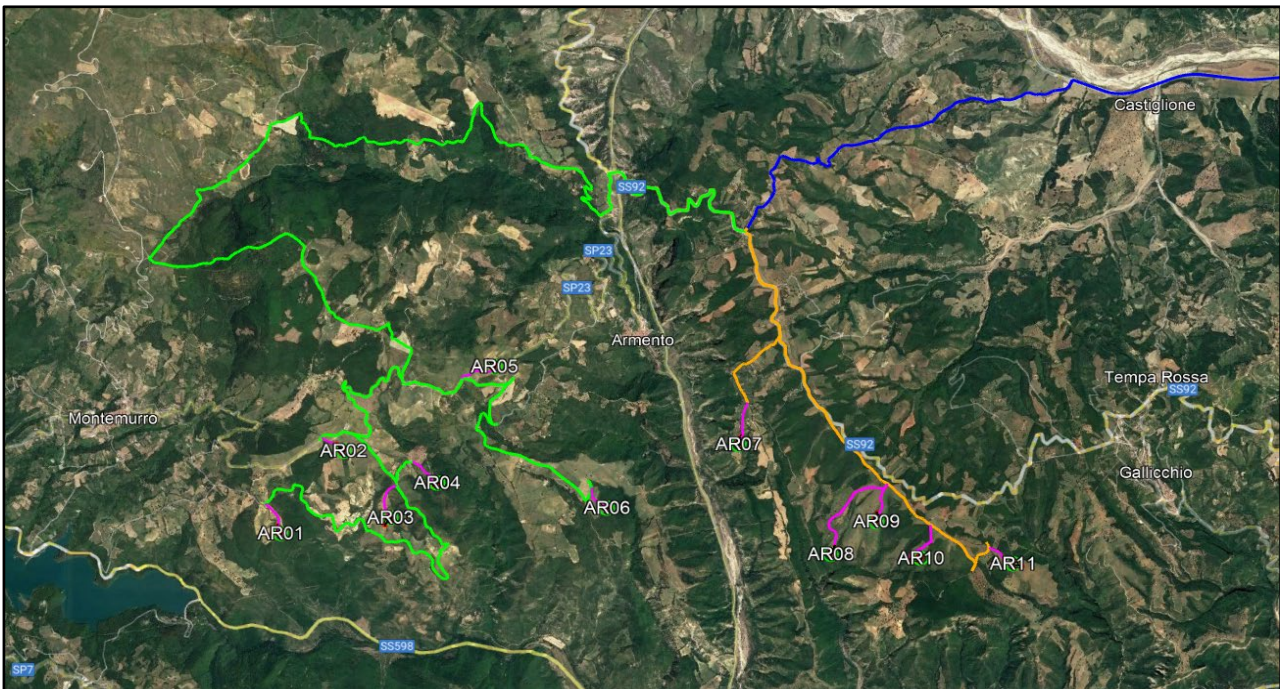


Figura 2.5: Layout di impianto con viabilità di accesso su immagine satellitare

### 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.

Per il presente progetto una delle possibili macchine che potrebbe essere installata è il modello Siemens Gamesa SG 170, di potenza nominale pari a 6,2 MWp, altezza torre all'hub pari a 115 m e diametro del rotore pari a 170 m (Figura 2.1.1 e Figura 2.1.2).

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 di diametro pari a 170 m, posto sopravvento al sostegno, con mozzo rigido in acciaio. Altre caratteristiche principali sono riassunte nella Tabella 2.1.1.

Le caratteristiche dell'aerogeneratore descritto sono quelle ritenute idonee in base a quanto disponibile oggi sul mercato, in futuro potrà essere possibile cambiare il modello dell'aerogeneratore senza modificare in maniera sostanziale l'impatto ambientale e i limiti di sicurezza previsti.

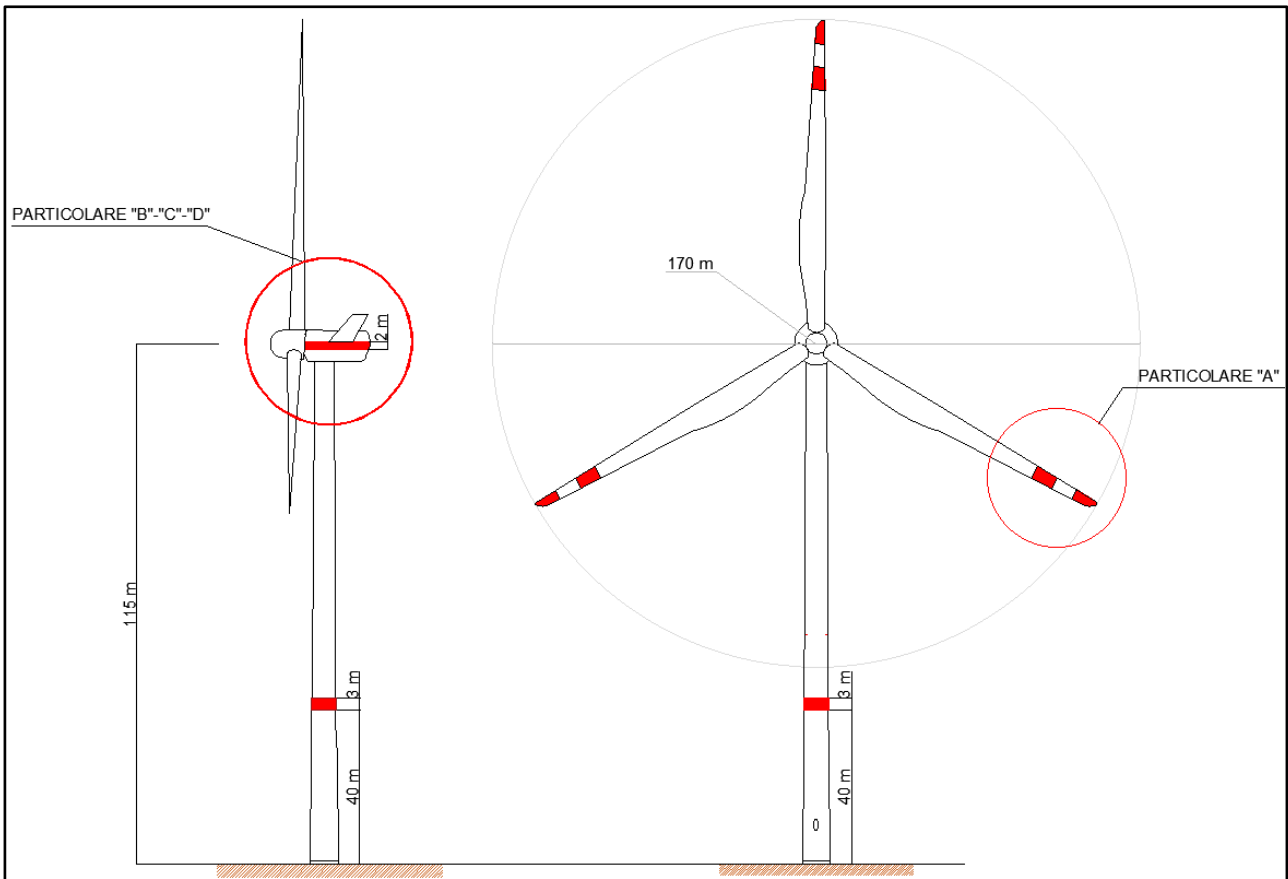


Figura 2.1.1: Profilo aerogeneratore SG170 – 6,2 MWp – HH= 115 m – D=170 m



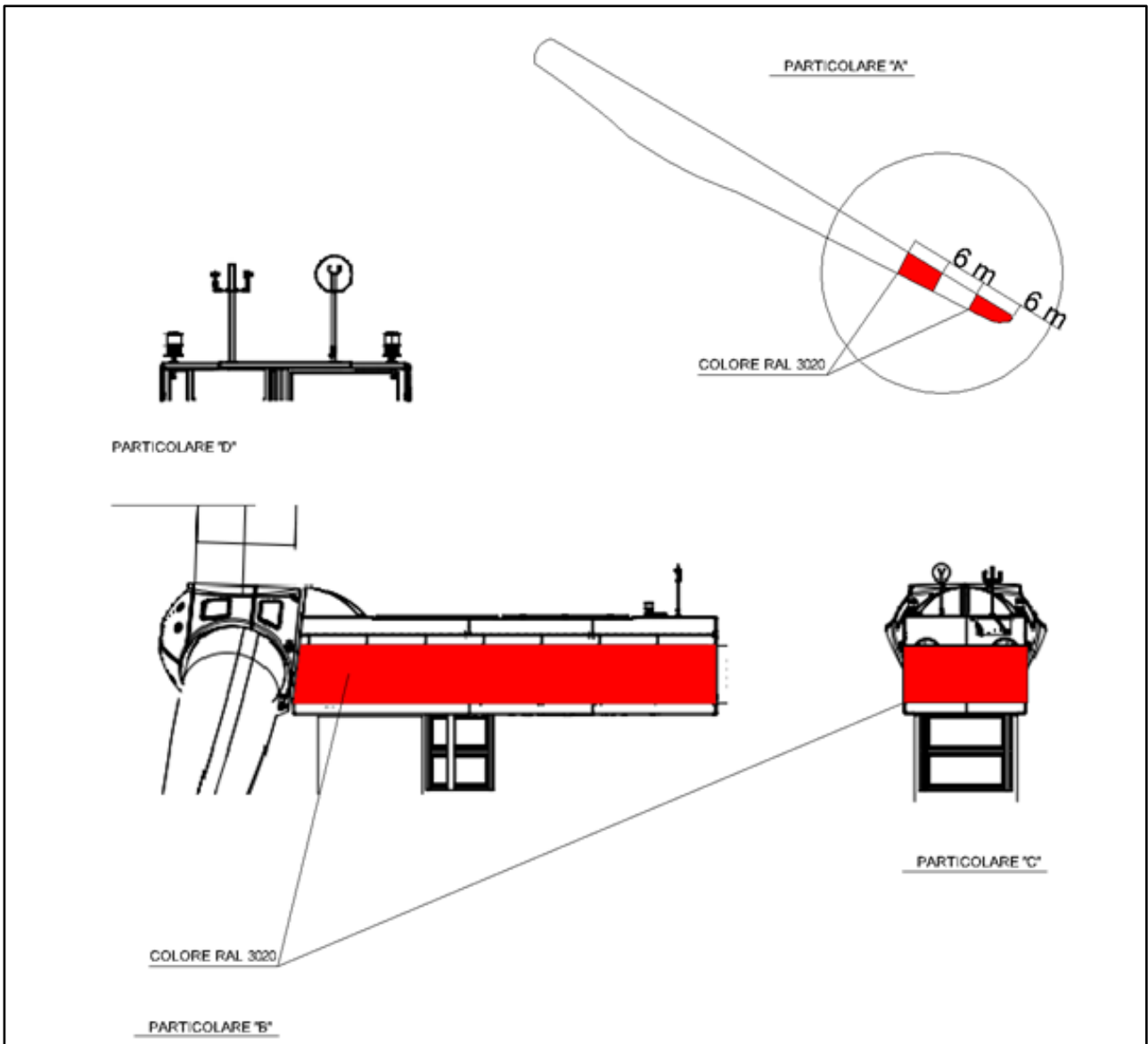


Figura 2.1.2: Particolari aerogeneratore SG170 – 6.2 MW di cui alla Figura 2.1.1

<b>Rotor</b>		<b>Grid Terminals (LV)</b>	
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 <sup>2</sup>	<b>Yaw System</b>	
Power regulation.....	Pitch & torque regulation with variable speed	Type.....	Active
Rotor tilt.....	6 degrees	Yaw bearing.....	Externally geared
<b>Blade</b>		Yaw drive.....	Electric gear motors
Type.....	Self-supporting	Yaw brake.....	Active friction brake
Single piece blade length	83,3 m	<b>Controller</b>	
Segmented blade length:		Type.....	Siemens Integrated Control System (SICS)
Inboard module.....	68,33 m	SCADA system.....	Consolidated SCADA (CSSS)
Outboard module.....	15,04 m	<b>Tower</b>	
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) Semi-gloss, < 30 / ISO2813	Corrosion protection.....	
Surface gloss.....	Light grey, RAL 7035 or	Surface gloss.....	Painted
Surface color.....	White, RAL 9018	Color.....	Semi-gloss, <30 / ISO-2813 Light grey, RAL 7035 or White, RAL 9018
<b>Aerodynamic Brake</b>		<b>Operational Data</b>	
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)
<b>Load-Supporting Parts</b>		Cut-out wind speed.....	25 m/s
Hub.....	Nodular cast iron	Restart wind speed.....	22 m/s
Main shaft.....	Nodular cast iron	<b>Weight</b>	
Nacelle bed frame.....	Nodular cast iron	Modular approach.....	Different modules depending on restriction
<b>Mechanical Brake</b>			
Type.....	Hydraulic disc brake		
Position.....	Gearbox rear end		
<b>Nacelle Cover</b>			
Type.....	Totally enclosed		
Surface gloss.....	Semi-gloss, <30 / ISO2813		
Color.....	Light Grey, RAL 7035 or White, RAL 9018		
<b>Generator</b>			
Type.....	Asynchronous, DFIG		

Tabella 2.1.1: Specifiche tecniche aerogeneratore

## 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 applicabile, 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** riportiamo una sezione stradale tipo di riferimento per i tratti di viabilità da adeguare e quelli di nuova realizzazione.

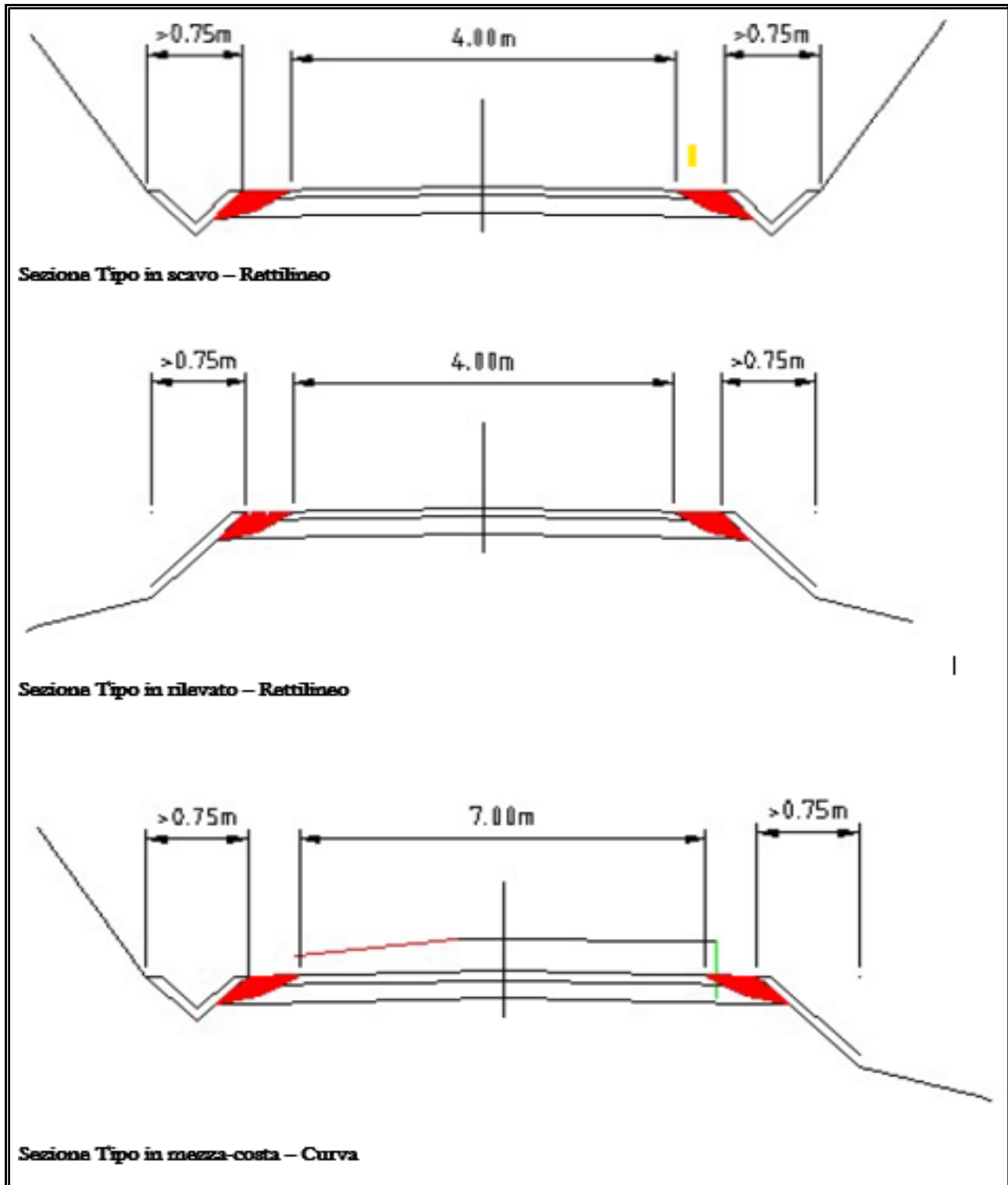
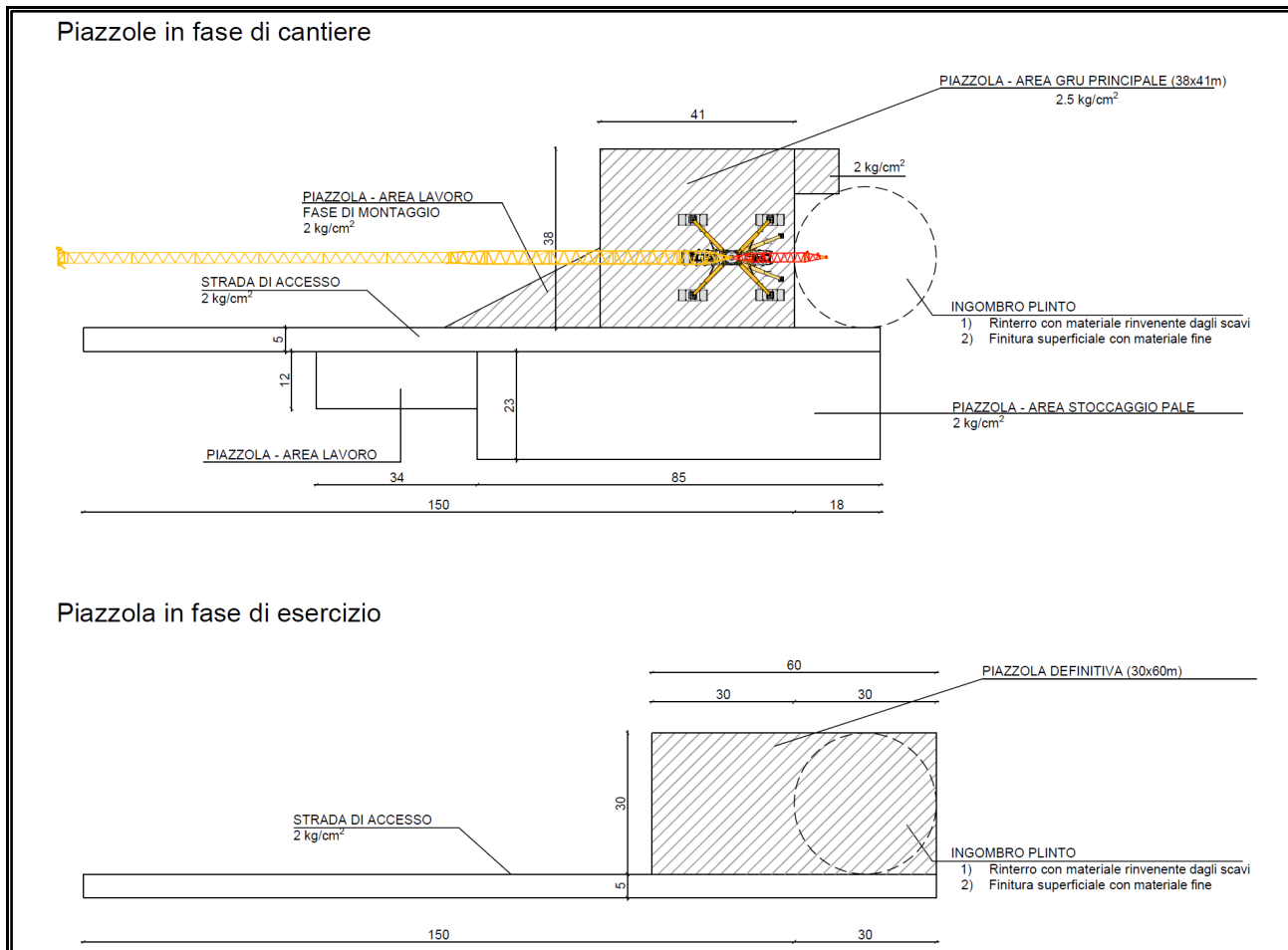


Figura 2.2.1: Sezioni tipo viabilità parco eolico

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, per la 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

### 2.3. Descrizione opere elettriche

#### 2.3.1. Aerogeneratori

L'impianto eolico è composto da aerogeneratori dotati di generatori asincroni trifase, opportunamente disposti e collegati in relazione alla disposizione dell'impianto, e strutturalmente ed elettricamente indipendenti dagli altri anche dal punto di vista delle funzioni di controllo e protezione.

Gli aerogeneratori sono collegati fra loro e a loro volta si connettono alla sottostazione tramite un cavidotto interrato. Nella stessa sottostazione sarà ubicato il sistema di monitoraggio, comando, misura e supervisione (SCADA) dell'impianto eolico che consente di valutare in remoto il funzionamento complessivo e le prestazioni dell'impianto ai fini della sua gestione.

All'interno della torre saranno installati:

- l'arrivo cavo BT (690 V) dal generatore eolico al trasformatore;
- il trasformatore MT-BT (0,69/33);
- il sistema di rifasamento del trasformatore;
- la cella MT (33 kV) di arrivo linea e di protezione del trasformatore;
- il quadro di BT (690 V) di alimentazione dei servizi ausiliari;
- quadro di controllo locale.

### 2.3.2. Sottostazione Elettrica di trasformazione Utente (SEU)

Il progetto prevede un collegamento tra la Stazione Elettrica di trasformazione Utente 150/33 kV, nel Comune di Armento, nelle vicinanze dell'aerogeneratore AR11, e la stazione condivisa con altri produttori, nel Comune di Aliano, attraverso un cavo AT a 150 kV interrato.

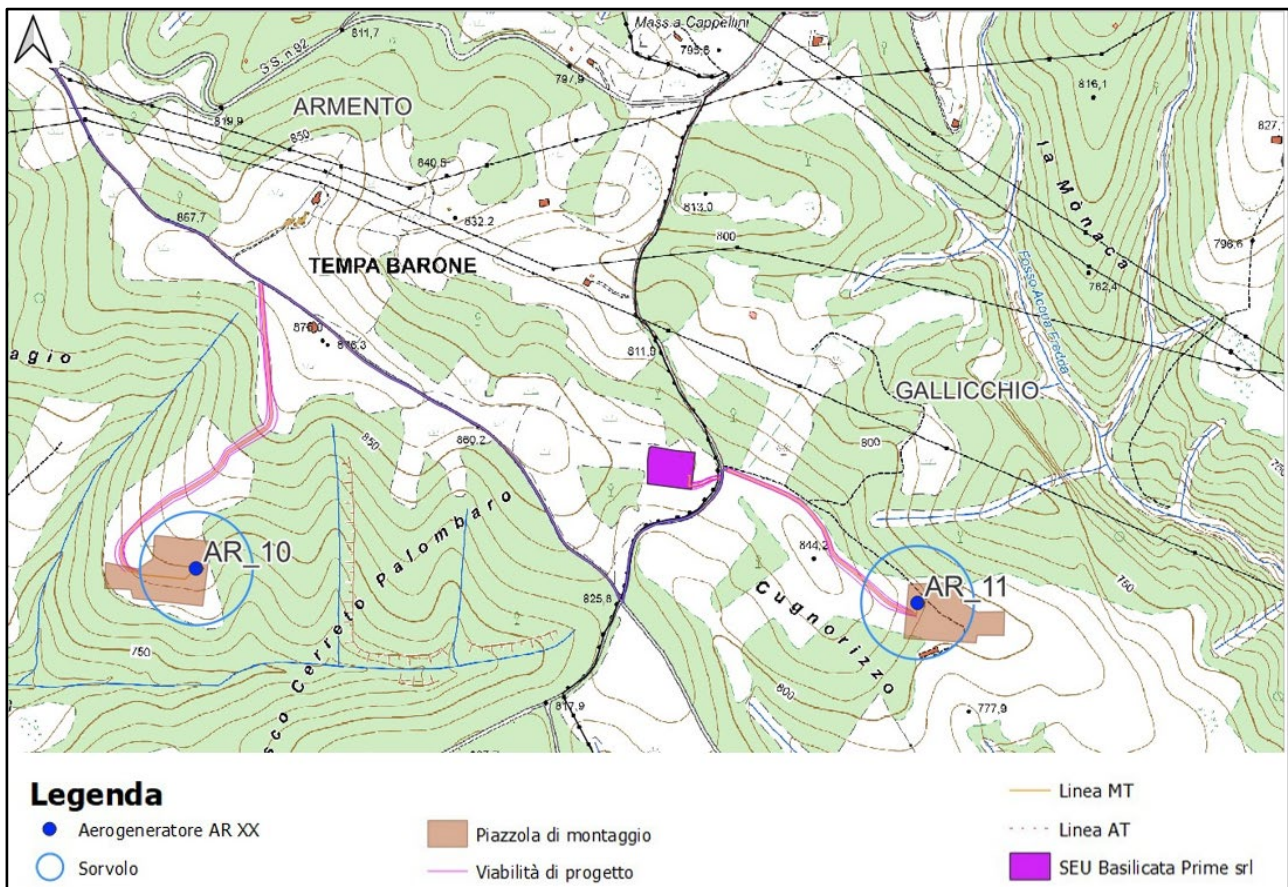
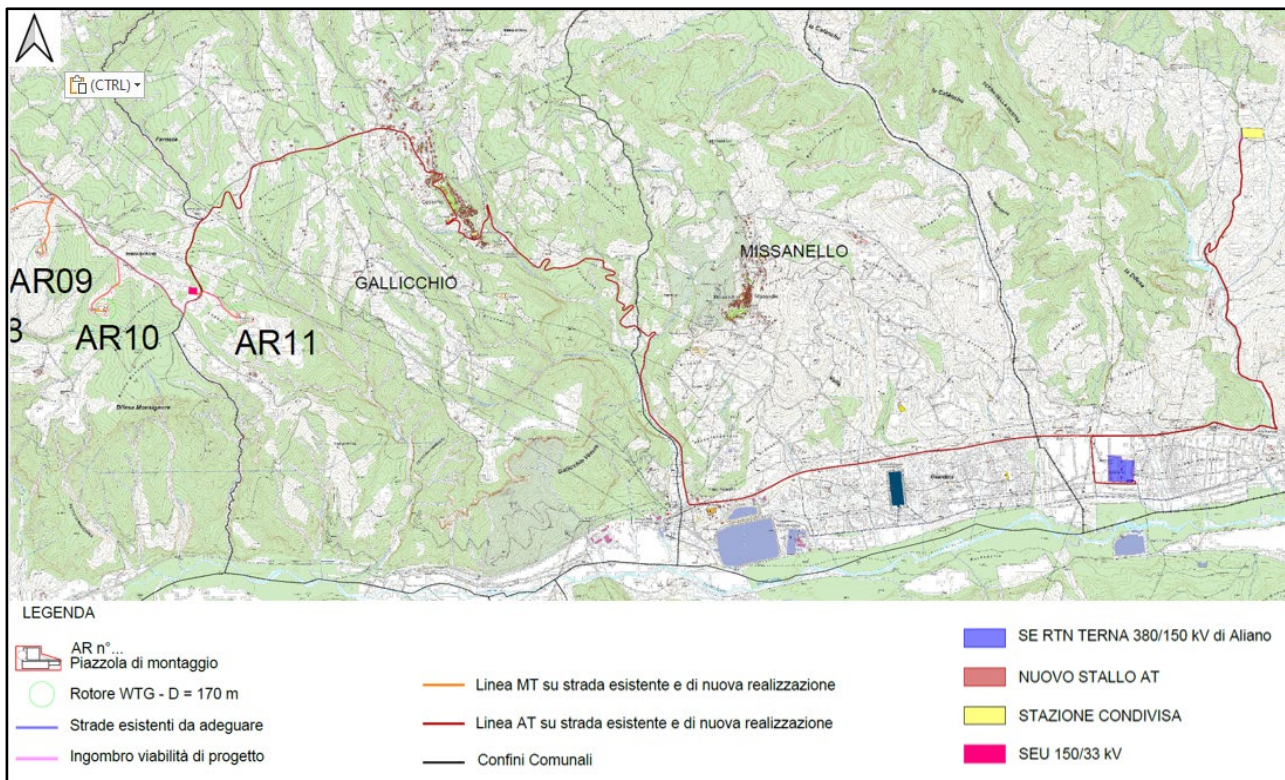


Figura 2.3.2.1: Localizzazione della SEU 150/33 kV



**Figura 2.3.2.2:** Localizzazione della SEU 150/33 kV, della stazione condivisa e della SE RTN 380/150 kV di Aliano

Di seguito uno stralcio della planimetria elettromeccanica della Stazione Elettrica di trasformazione Utente 150/33 kV (**Figura 2.3.2.3**).

Presso la SEU verrà realizzato un nuovo impianto AT di utente così composto:

- 1 trasformatore da 150/33 kV di potenza 90 MVA ONAN/ONAF;
- interruttori tripolari;
- 1 sistema di distribuzione in sbarre;
- trasformatore di tensione;
- trasformatore di corrente;
- scaricatori;
- sezionatori tripolari;
- planimetria apparecchiature elettromeccaniche.

Le caratteristiche delle apparecchiature elencate sono riportate in dettaglio nell'elaborato di progetto "VAOE083 Sottostazione elettrica utente - schema unifilare".

La sezione MT e BT è costituita da:

- sistema di alimentazione di emergenza e ausiliari;
- trasformatori servizi ausiliari 33/0,4 kV 200 kVA MT/BT;

- quadri MT a 33 kV;
- sistema di protezione AT, MT, BT;
- sistema di monitoraggio e controllo;
- quadri misuratori fiscali.

In particolare, i quadri MT a 33 kV comprendono:

- scomparti di sezionamento linee di campo;
- scomparto trasformatore ausiliario;
- scomparto di misura;
- scomparto Shunt Reactor;
- scomparto Bank Capacitor.

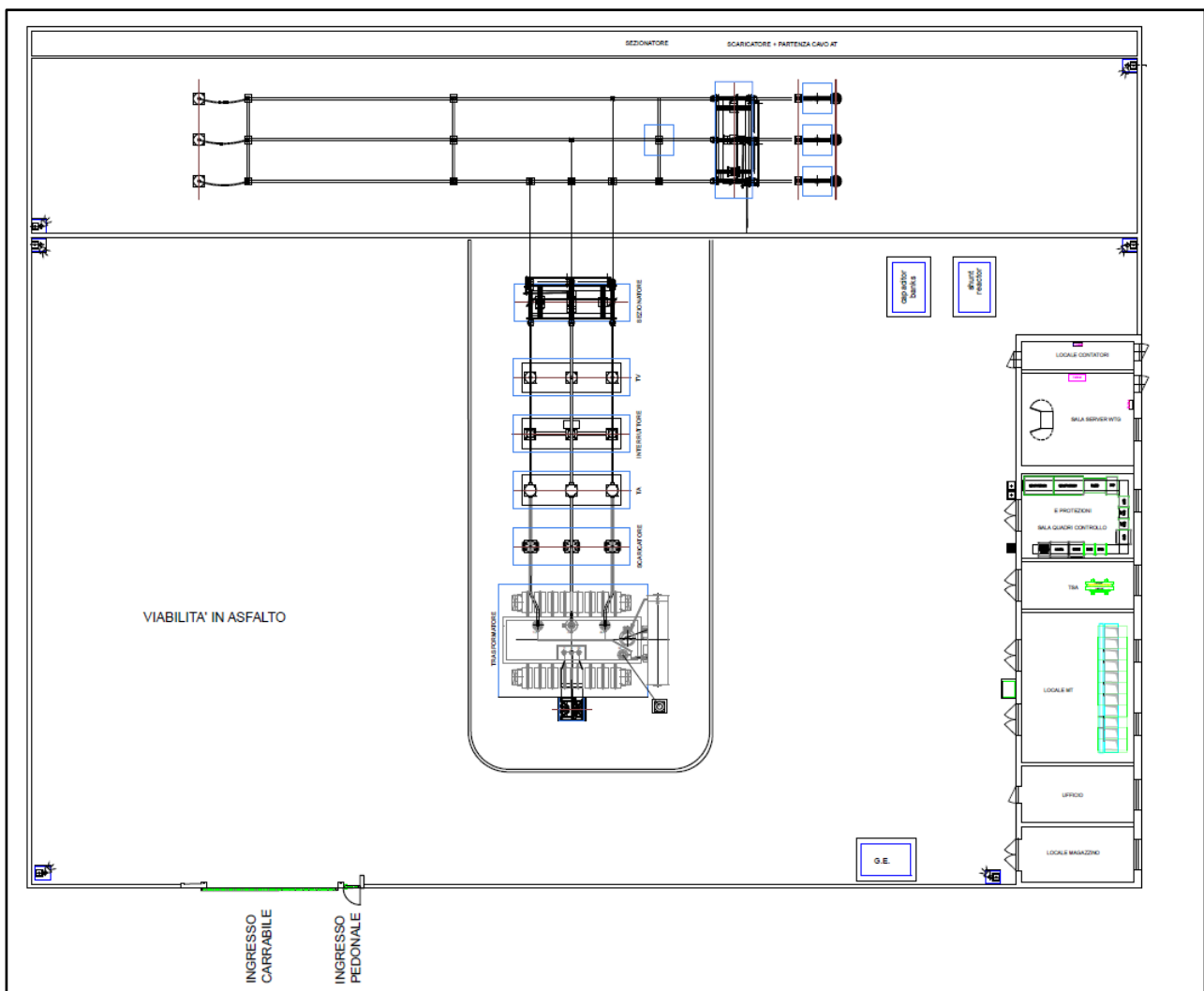
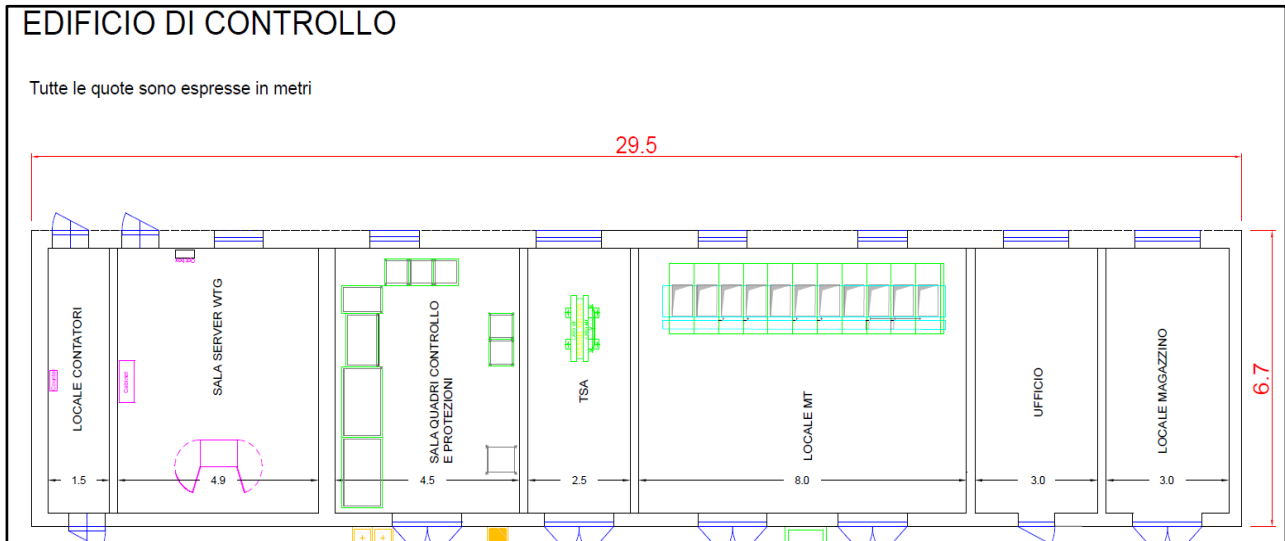


Figura 2.3.2.3: Planimetria elettromeccanica della Stazione Elettrica Utente 150/33 kV

Presso la Sottostazione Elettrica Utente è prevista la realizzazione di un edificio, di dimensioni in pianta di 29,5 x 6,7 m<sup>2</sup>, all'interno del quale siano ubicati i quadri MT, i trasformatori MT/BT, i quadri ausiliari e di protezione oltre al locale misure e servizi.

L'intera area è delimitata da una recinzione perimetrale, realizzata con moduli in calcestruzzo prefabbricati di altezza pari a 2,5 m, ed è dotata di ingresso pedonale e carrabile.



**Figura 2.3.2.4:** Pianta edificio di controllo SEU 150/33 kV

### 2.3.3. Linee elettriche di collegamento MT

L'impianto "Parco Eolico Val d'Agri" è caratterizzato da una potenza complessiva di 68,2 MWp, ottenuta da 11 aerogeneratori di potenza di 6,2 MWp ciascuno.

Gli aerogeneratori sono collegati elettricamente tra loro mediante cavi in Media Tensione a 33 kV in modo da formare 5 sottocampi (Circuiti A, B, C, D e E) di 2 o 3 WTG (Wind Turbine Generator); ognuno di tali circuiti è associato ad un colore diverso per maggiore chiarezza, come esplicitato dalla seguente tabella:

Sottocampo o Circuito	Aerogeneratori	Potenza totale [MWp]
CIRCUITO A	AR01 – AR03	12,4
CIRCUITO B	AR04 – AR02	12,4
CIRCUITO C	AR06 – AR05	12,4
CIRCUITO D	AR07 – AR08	12,4
CIRCUITO E	AR09 – AR10 – AR11	18,6

**Tabella 2.3.3.1:** Distribuzione linee a 33 kV

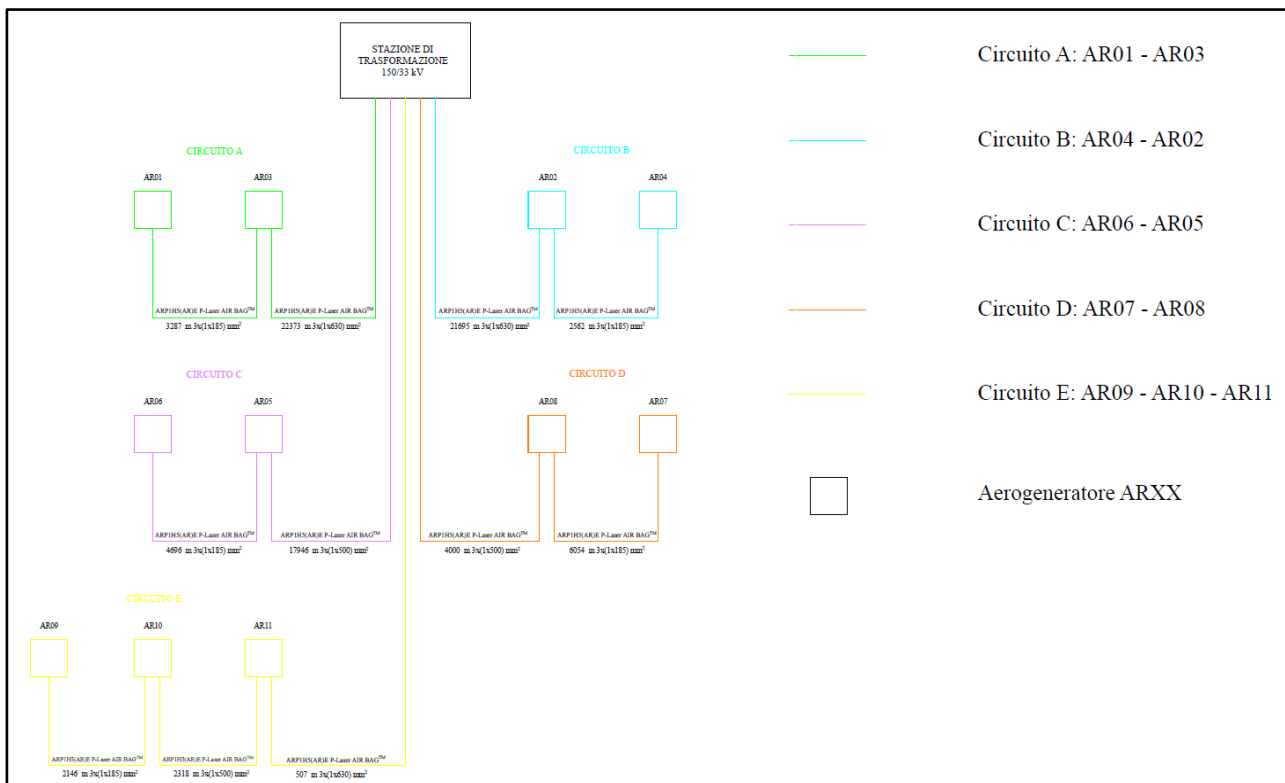


Gli aerogeneratori sono stati collegati elettricamente secondo un criterio che tiene in considerazione i valori di cadute di tensione e perdite di potenza e l'ottimizzazione delle lunghezze dei cavi utilizzati.

Lo schema a blocchi di riferimento, nel quale è indicato il cavo di ogni tratto di linea adoperato e nel quale gli aerogeneratori di ogni linea sono collegati tra loro secondo lo schema in entra – esci e in fine linea, è riportato nella **Figura 2.3.3.1**.

L'aerogeneratore capofila (fine linea) è collegato al resto del circuito, i restanti sono collegati tra loro in Entra – Esci e ognuno dei 5 circuiti è collegato alla Stazione Elettrica Utente 150/33 kV.

I cavi utilizzati sia per i collegamenti interni ai singoli circuiti che per il collegamento di ogni circuito alla suddetta stazione sono del tipo standard in alluminio con schermatura elettrica e protezione meccanica integrata.



**Figura 2.3.3.1:** Schema a blocchi del Parco Eolico Val d'Agri

Il cavo impiegato per il collegamento di tutte le tratte in Media Tensione è il tipo ARP1H5(AR)E P-Laser AIR BAG™ (o similari), a norma IEC 60502-2 e HD 620, del primario costruttore Prysmian.

Come anticipato, per ogni tratto di collegamento si prevede una posa direttamente interrata di cavo, essendo il cavo in questione idoneo alla stessa e meccanicamente protetto.

I cavi sono collocati in trincee ad una profondità di posa di 1 m dal piano del suolo su un sottofondo di sabbia di spessore di 0,1 m e la distanza di separazione delle terne adiacenti in parallelo sul piano orizzontale è pari a 0,20 m.

La figura seguente, nella quale le misure sono espresse in mm, mostra la modalità di posa; maggiori dettagli sono apprezzabili nell'elaborato "VAOE073 Distribuzione MT - sezioni tipiche delle trincee cavidotto".

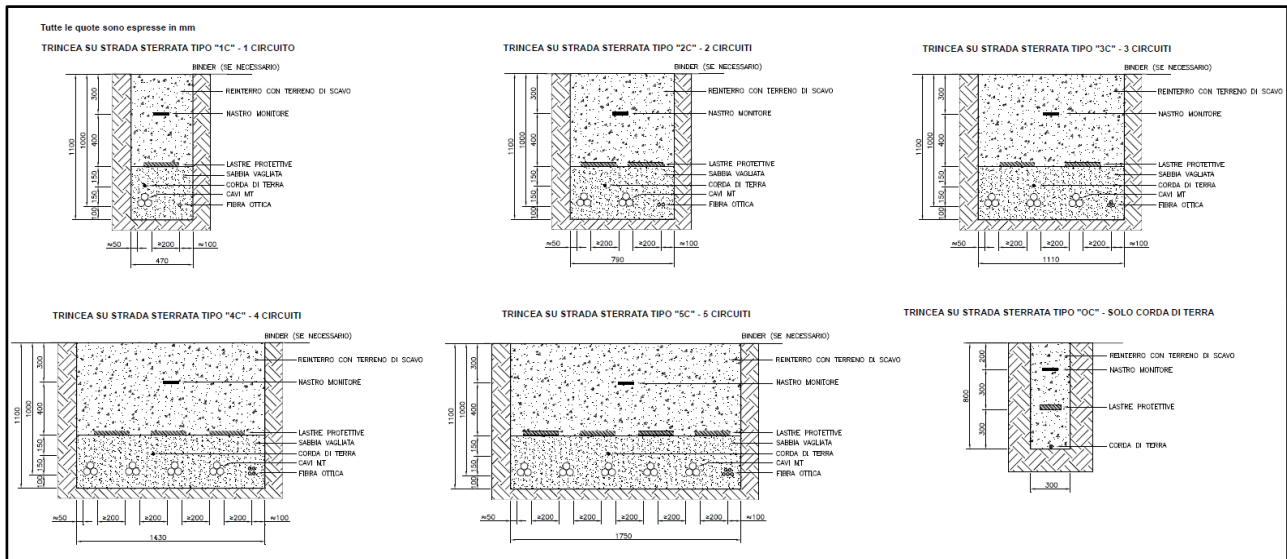


Figura 2.3.3.2: Sezioni tipiche delle trincee cavidotto per le terne di cavi in parallelo su strada sterrata

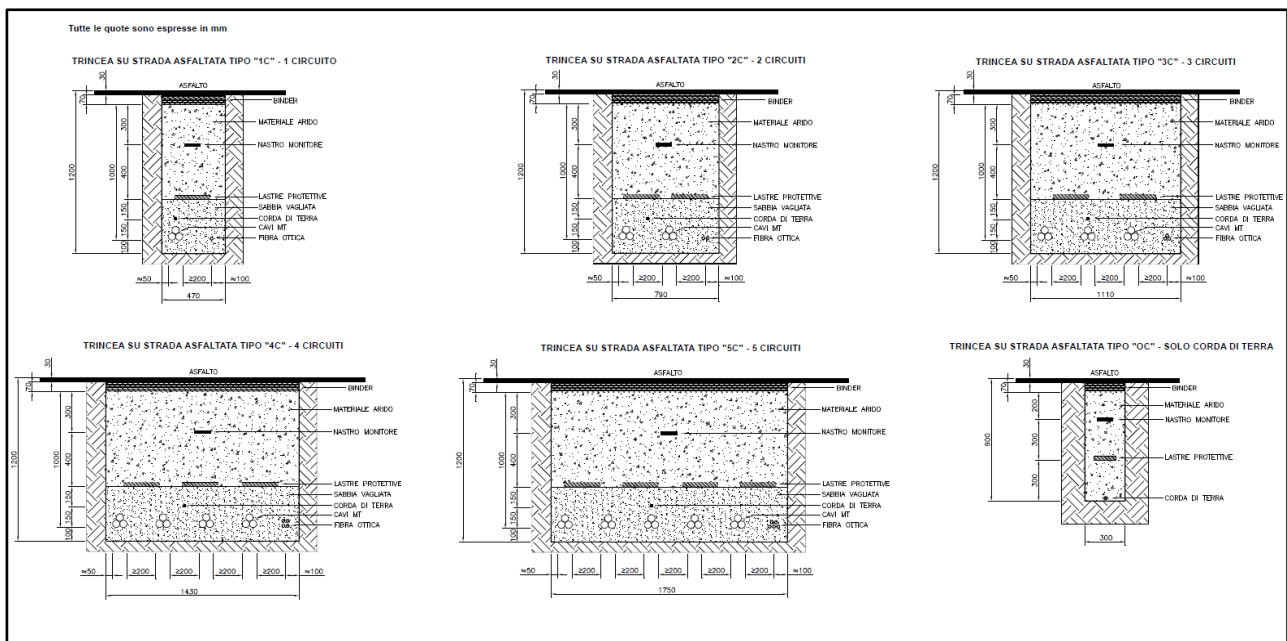


Figura 2.3.3.3: Sezioni tipiche delle trincee cavidotto per le terne di cavi in parallelo su strada asfaltata

Come si evince dalle figure precedenti, oltre alle terne di cavi presenti in trincea, è previsto un collegamento in **fibra ottica**, da adoperare per controllare e monitorare gli aerogeneratori.

Per realizzare il sistema di telecontrollo dell'intero impianto, come previsto dal progetto, si adoperano un cavo ottico dielettrico a 24 fibre ottiche per posa in tubazione, corredato degli accessori necessari per la

relativa giunzione e attestazione, essendo lo stesso adatto alla condizione di posa interrata e tale da assicurare un'attenuazione accettabile di segnale.

Il cavo in fibra è posato sul tracciato del cavo mediante l'utilizzo di tritubo in PEHD e le modalità di collegamento seguono lo schema di collegamento elettrico degli aerogeneratori (elaborato di progetto "VAOE075 Schema rete di comunicazione Fibra Ottica").

Il parco eolico è dotato di un **sistema di terra**; in particolare, è previsto un sistema di terra relativo a ciascun aerogeneratore e costituito da anelli dispersori concentrici, collegati tra loro radialmente e collegati all'armatura del plinto di fondazione in vari punti, come rappresentato in dettaglio nell'elaborato di progetto "VAOE084 Schema rete di terra WTG".

In aggiunta al sistema di cui sopra, si prevede di adoperare un conduttore di terra di collegamento tra le reti di terra dei singoli aerogeneratori consistente in una corda di rame nudo di sezione non inferiore a 95 mm<sup>2</sup>, interrata all'interno della trincea in cui sono posati i cavi a 33 kV e di fibra ottica e ad una profondità di 0,850 m e 0,950 m dal piano di calpestio rispettivamente nel caso di strada sterrata o asfaltata (elaborato di progetto "VAOE073 Distribuzione MT - sezioni tipiche delle trincee cavidotto").

Al fine di evitare, in presenza di eventuali guasti, il trasferimento di potenziale agli elementi sensibili circostanti, come tubazioni metalliche, sottoservizi, in corrispondenza di attraversamenti lungo il tracciato del cavidotto, si prevede di adoperare un cavo Giallo-Verde avente diametro superiore a 95 mm<sup>2</sup> del tipo FG16(O)R.

Il cavo di cui sopra è opportunamente giuntato al conduttore di rame nudo, è inserito da 5 m prima e fino a 5 m dopo il punto di interferenza e assicura una resistenza analoga a quella della corda di rame nudo di 95 mm<sup>2</sup>.

In definitiva, si realizza una maglia di terra complessiva in grado di ottenere una resistenza di terra con un più che sufficiente margine di sicurezza (elaborato di progetto "VAOE085 Schema rete di terra impianto eolico"), in accordo con la Normativa vigente.

#### 2.3.4. Stazione di condivisione

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Il progetto prevede la realizzazione della stazione in condivisione al fine di collegare il Parco Eolico Val d'Agri e gli impianti da fonte rinnovabile di altri produttori con il medesimo stallo della Stazione Elettrica di trasformazione RTN Terna (SE) 380/150 kV nel Comune di Aliano.

La stazione è caratterizzata da 4 stalli di arrivo cavo collegati ad una sbarra comune e da uno stallo necessario alla connessione a 150 KV con la stazione RTN.

Il sistema di controllo, di misura e di protezione è previsto nell'edificio presente in stazione e, grazie all'utilizzo cavi in fibra ottica, permette il controllo automatizzato dell'intera stazione, operazione peraltro possibile dalla sala quadri anche nell'eventualità in cui la teletrasmissione sia in uno stato di non servizio durante la manutenzione.

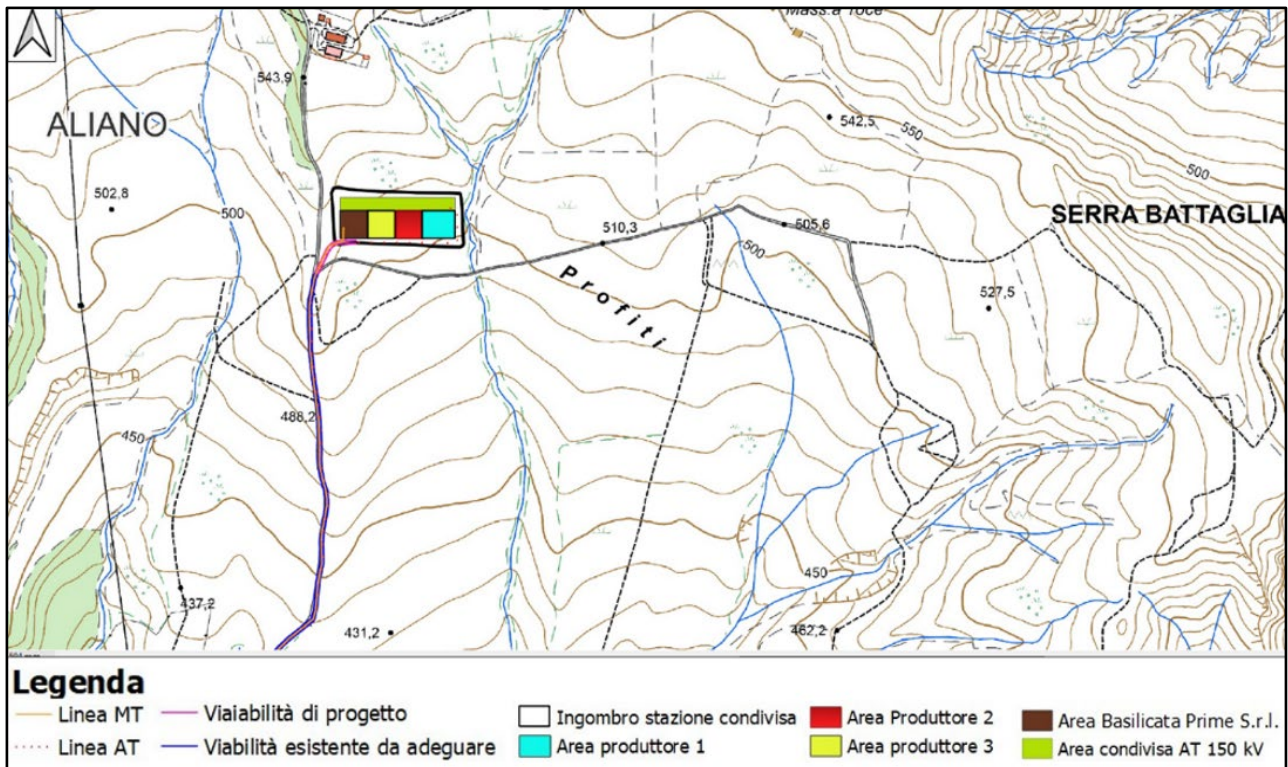
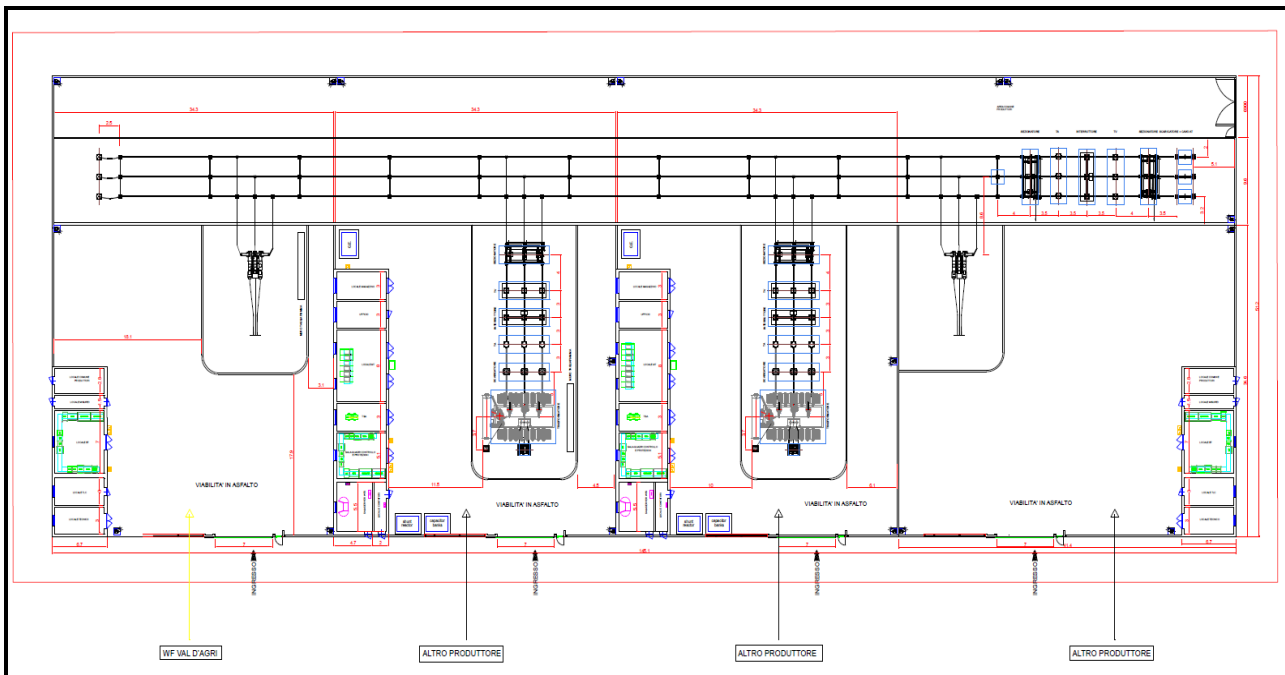


Figura 2.3.4.1: Area Sottostazione di condivisione Aliano

La stazione in condivisione occupa un'area di dimensioni in pianta di circa 146 m x 52 m, come rappresentato nella figura seguente (maggiori dettagli sono riportati nell'elaborato di progetto "VAOE090 Sottostazione elettrica condivisa – planimetria e sezioni elettromeccaniche").



**Figura 2.3.4.2:** Planimetria elettromeccanica della sottostazione elettrica condivisa

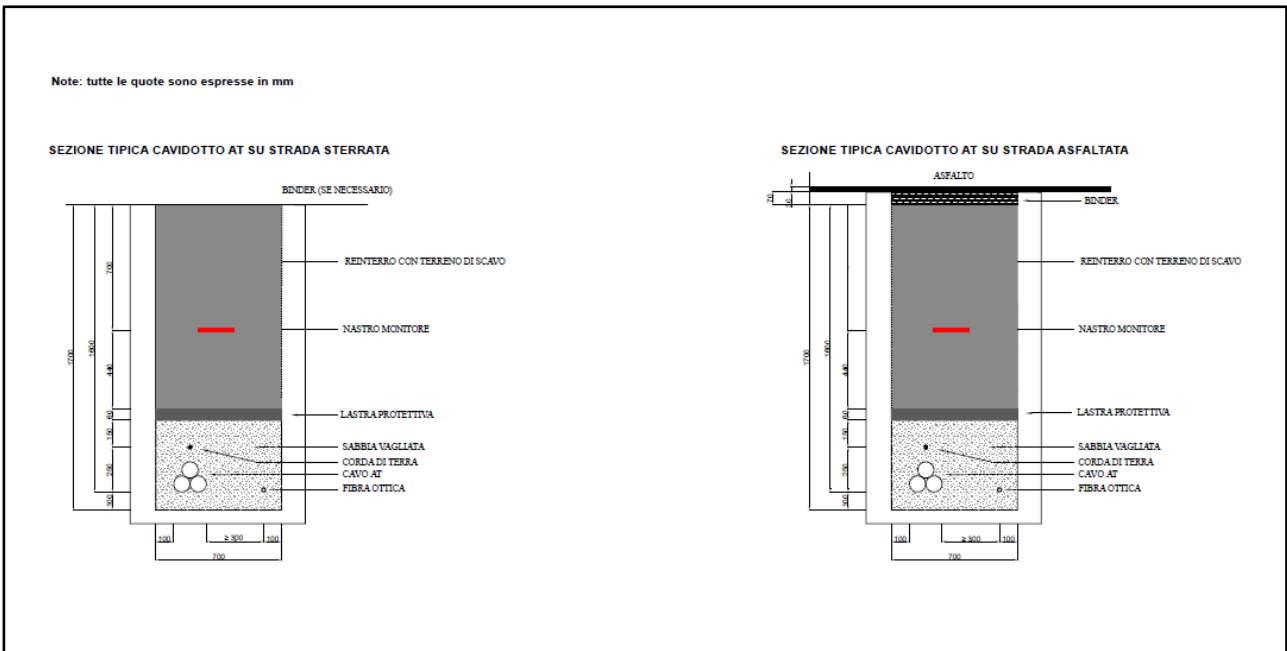
### 2.3.5. Linea AT di collegamento alla RTN

I collegamenti tra la SEU 150/33 kV e la stazione di condivisione e tra la stazione di condivisione e il nuovo stallo della Stazione Elettrica di trasformazione 380/150 kV (SE) denominata “Aliano” sono realizzati tramite due linee direttamente interrate a 150 kV, rispettivamente di lunghezze di circa 18485 m e 6000 m e composte da una terna di cavi unipolari ARE4H5E a 150 kV di sezioni 400 mm<sup>2</sup> e 1600 mm<sup>2</sup>, in accordo con lo standard IEC 60840, con conduttore in alluminio, schermo semiconduttivo del conduttore, isolamento in polietilene reticolato XLPE, U<sub>0</sub>/U<sub>n</sub> (U<sub>max</sub>) 87/150 (170 kV) kV, portate nominali di 450 A e 900 A, schermo semiconduttivo dell'isolamento, schermo metallica e guaina di protezione esterna in alluminio saldata longitudinalmente.

I cavi sono caratterizzati da una posa a trifoglio, sono posati a 1,60 m dal piano di calpestio e su un letto di sabbia di 0,1 m, sono ricoperti da uno strato di 0,4 m di sabbia, al di sopra del quale una lastra protettiva in cemento ne assicurerà la protezione meccanica.

A 0,7 m dal piano di calpestio un nastro monitor ha lo scopo di segnalare la presenza dei cavi al fine di evitarne eventuali danneggiamenti seguenti ad eventuali scavi da parte di terzi.

Le terne di cavi in AT sono distanti sul piano orizzontale almeno 0,3 m dal cavo in fibra ottica, mentre nel letto di sabbia è previsto anche un cavo unipolare di protezione, così come rappresentato nel dettaglio dell'elaborato di progetto “VAOE092\_Sezione tipica della trincea cavidotto AT”.

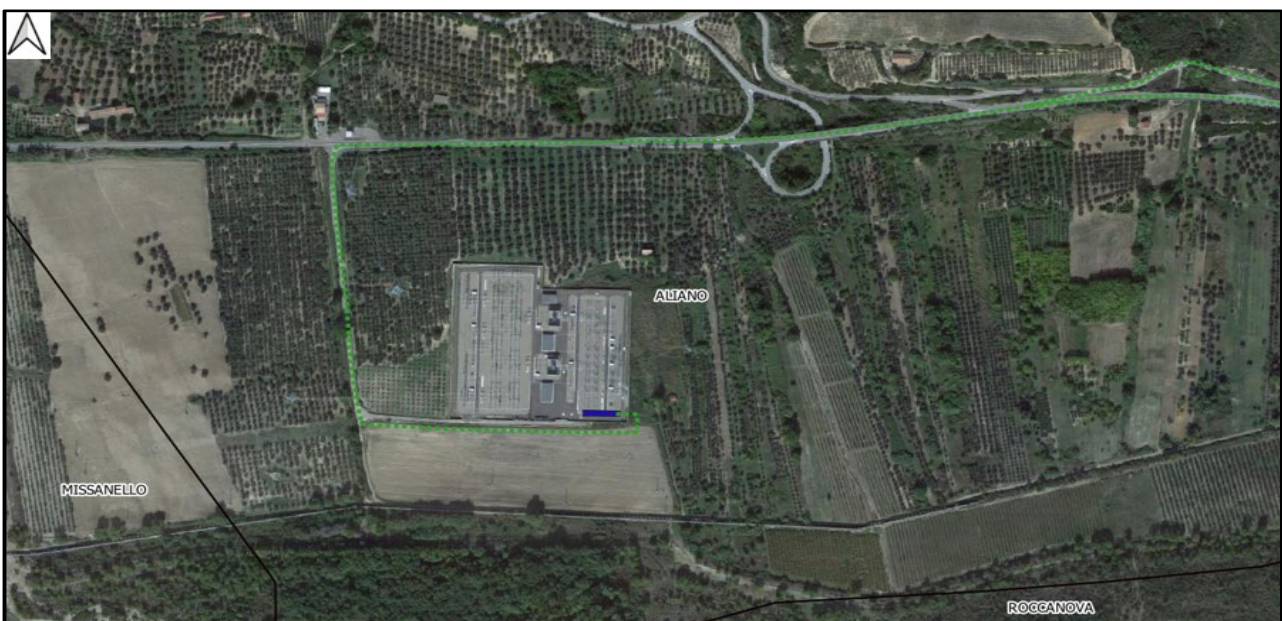


**Tabella 2.3.5.1:** Sezione tipica del caavidotto AT di connessione tra la SEU 150/33 kV e la stazione di condivisione e tra la stazione di condivisione e il nuovo stallo della Stazione Elettrica di trasformazione 380/150 kV denominata “Aliano”

La scelta dei particolari cavi AT e delle relative condizioni di posa potranno comunque subire modifiche, non sostanziali, in fase di progettazione esecutiva, a seconda delle condizioni operative riscontrate.

### 2.3.6. Stallo arrivo produttore

Come indicato nella STMG di Terna, lo stallo di arrivo produttore a 150 kV nella stazione di trasformazione 380/150 kV di Aliano costituisce l’impianto di rete per la connessione (**Figura 2.3.6.1**).



**Figura 2.3.6.1:** Individuazione su ortofoto dello stallo AT nella stazione Terna

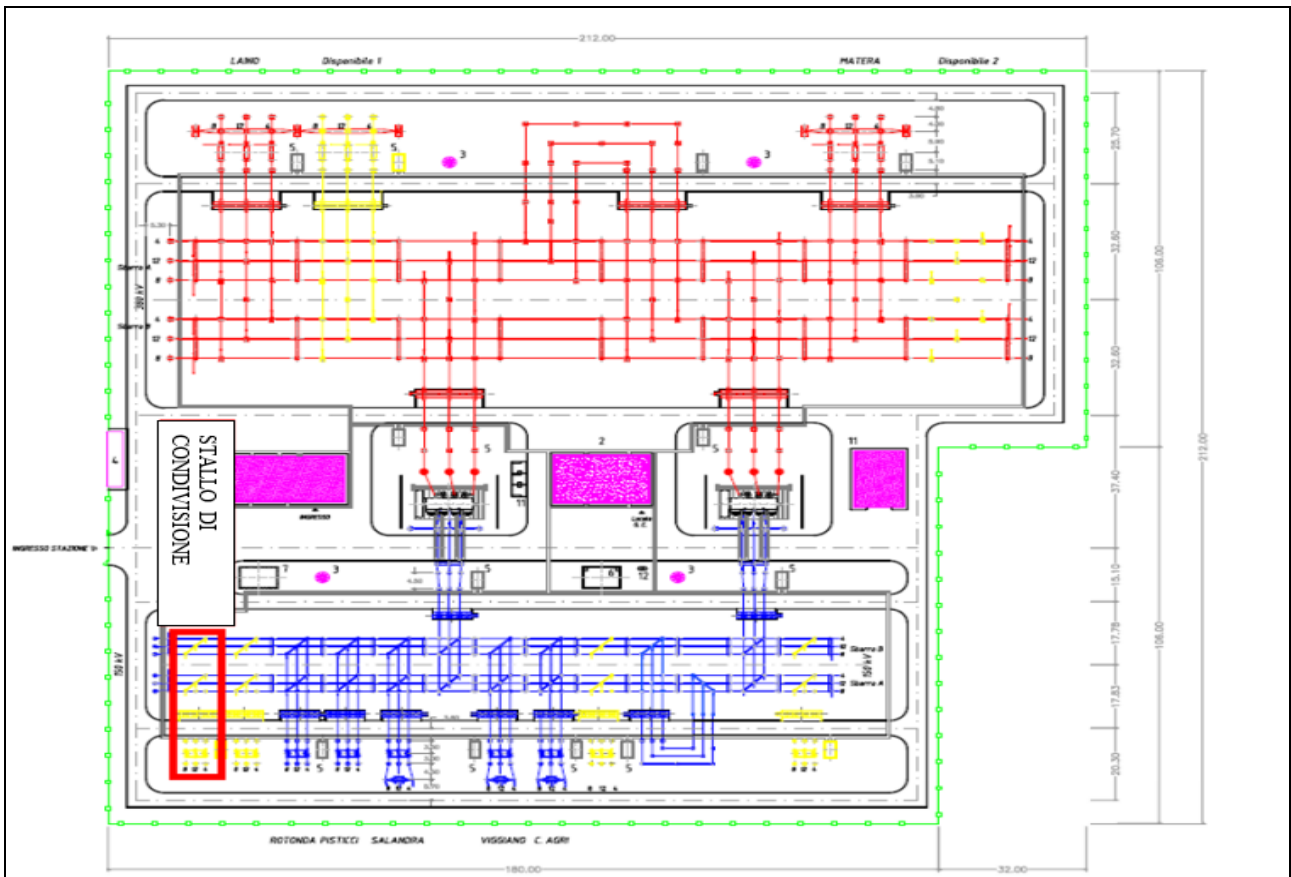


Figura 2.3.6.2: Planimetria della SE RTN a 380/150 kV con l'ubicazione dello stallo condiviso

Nella seguente figura sono rappresentati rispettivamente il dettaglio della planimetria dello stallo di cui sopra e la relativa sezione ("VAOE093\_ Sottostazione elettrica RTN (stallo AT di competenza) - planimetria e sezione elettromeccanica").

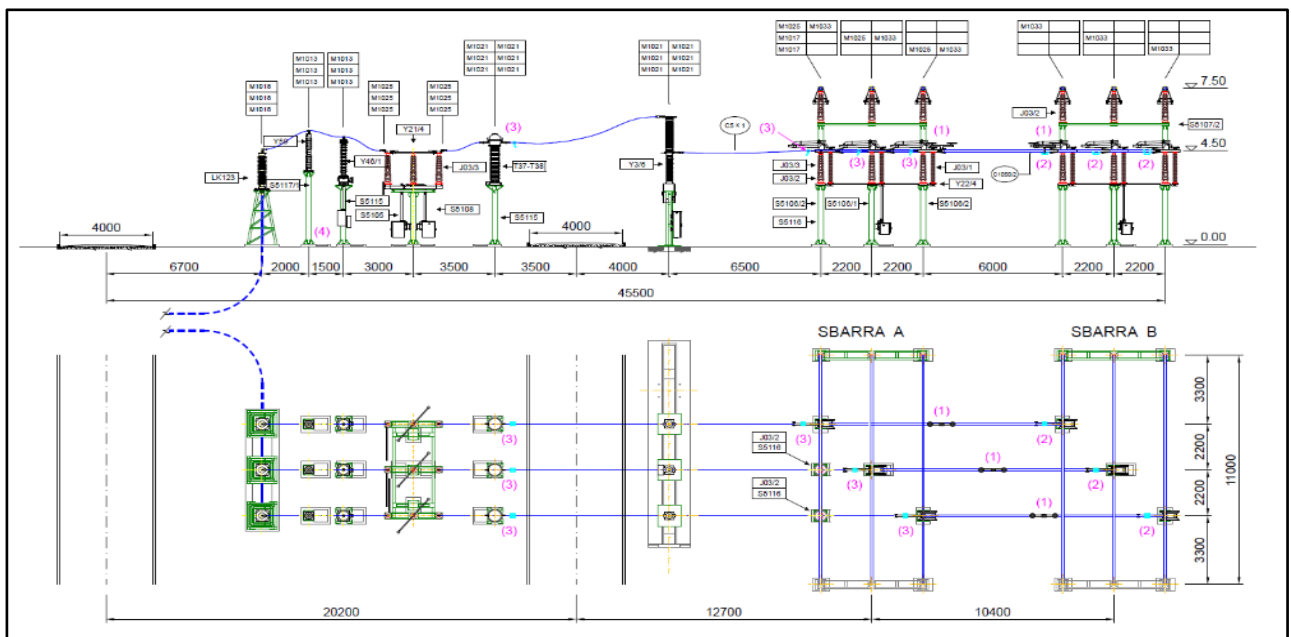


Figura 2.3.6.3: Planimetria e sezione elettromeccanica relativa alle apparecchiature dello stallo 150 kV nella stazione Terna

Le apparecchiature che costituiscono lo stallo all'interno della stazione elettrica di trasformazione 380/150 kV rispondono alle specifiche Terna e sono di seguito elencate:

- terminali cavi AT;
- sbarre 150 kV;
- trasformatori di Tensione capacitivi 150 kV;
- trasformatori di corrente 150 kV;
- sezionatore unipolare orizzontale con lame di terra 150 kV;
- sezionatori unipolari verticale 150 kV;
- interruttore tripolare 150 kV;
- scaricatori di sovratensione 150 kV.

STALLO PER CORRENTI DI CTO CTO 40 KA				STALLO PER CORRENTI DI CTO CTO 31,5 KA			
Elenco carpenteria 132-150 KV				Elenco carpenteria 132-150 KV			
codice	descrizione	quantità	Specifica Tecnica	codice	descrizione	quantità	Specifica Tecnica
SE106/1	Sostegno sezionatore verticale con armadio	2	INS CS S 01	SE106/1	Sostegno sezionatore verticale con armadio	2	INS CS S 01
SE106/2	Sostegno sezionatore verticale senza armadio	4	INS CS S 01	SE106/2	Sostegno sezionatore verticale senza armadio	4	INS CS S 01
SE105	Sostegno sezionatore orizzontale	1	INS CS S 01	SE105	Sostegno sezionatore orizzontale	1	INS CS S 01
SE109	Sostegno comando sezionatore orizzontale	1	INS CS S 01	SE109	Sostegno comando sezionatore orizzontale	1	INS CS S 01
SE107/2	Sostegno portale sbarre senza armadio	2	INS CS S 01	SE107/2	Sostegno portale sbarre senza armadio	2	INS CS S 01
SE115	Sostegno TA- TV	6	INS CS S 01	SE115	Sostegno TA- TV	6	INS CS S 01
SE116	Sostegno isolatore portante	2	INS CS S 01	SE116	Sostegno isolatore portante	2	INS CS S 01
SE117/1	Sostegno scaricatore	3	INS CS S 01	SE117/1	Sostegno scaricatore	3	INS CS S 01
Elenco apparecchiature 132-150 KV				Elenco apparecchiature 132-150 KV			
codice	descrizione	quantità	Specifica Tecnica	codice	descrizione	quantità	Specifica Tecnica
Y4/6	Interruttore 132 kV	1	ING INT 0001	Y4/4	Interruttore 132 kV	1	ING INT 0001
Y3/6	Interruttore 150 kV	1	ING INT 0001	Y3/4	Interruttore 150 kV	1	ING INT 0001
Y21/4	Sezionatore orizzontale con lame di terra	1	INS AS S 01	Y21/2	Sezionatore orizzontale con lame di terra	1	INS AS S 01
Y22/4	Sezionatore verticale	2	INS AS S 01	Y22/2	Sezionatore verticale	2	INS AS S 01
T35-T36	TA ad affidabilità incrementata 132 kV	3	INS AA S 01	T35-T36	TA ad affidabilità incrementata 132 kV	3	INS AA S 01
T37-T38	TA ad affidabilità incrementata 150 kV	3	INS AA S 01	T37-T38	TA ad affidabilità incrementata 150 kV	3	INS AA S 01
Y44/1	TVC 132 kV	3	INS AV S 01	Y44/1	TVC 132 kV	3	INS AV S 01
Y46/1	TVC 150 kV	3	INS AV S 01	Y46/1	TVC 150 kV	3	INS AV S 01
LK123	Terminale aria-cavo	3	LX LK 123	LK123	Terminale aria-cavo	3	LX LK 123
Y58	Scaricatore 132 kV	3	INS AZ S 01	Y58	Scaricatore 132 kV	3	INS AZ S 01
Y59	Scaricatore 150 kV	3	INS AZ S 01	Y59	Scaricatore 150 kV	3	INS AZ S 01
Elenco Isolatori 132-150 KV (1)				Elenco Isolatori 132-150 KV (1)			
codice	descrizione	quantità	Specifica Tecnica	codice	descrizione	quantità	Specifica Tecnica
J03/1	Isolatore di manovra	6	INS CI S 01	J03/1	Isolatore di manovra	6	INS CI S 01
J03/2	Isolatore portante	8	INS CI S 01	J03/2	Isolatore portante	8	INS CI S 01
J03/3	Isolatore portante	15	INS CI S 01	J03/3	Isolatore portante	15	INS CI S 01
Elenco morsetteria 132-150 KV				Elenco morsetteria 132-150 KV			
codice	descrizione	quantità	Specifica Tecnica	codice	descrizione	quantità	Specifica Tecnica
M1013	Morsetto a "T" corda passante AI Ø 36 - codolo	6	ING MORIS 01	M1013	Morsetto a "T" corda passante AI Ø 36 - codolo	6	ING MORIS 01
M1017	Morsetto portante per corda AI Ø 36	2	ING MORIS 01	M1017	Morsetto portante per corda AI Ø 36	2	ING MORIS 01
M1018	Morsetto a 90° per corda AI Ø 36 - codolo	3	ING MORIS 01	M1018	Morsetto a 90° per corda AI Ø 36 - codolo	3	ING MORIS 01
M1021	Morsetto dritto per corda AI Ø 36 - piastra a 2 fori	12	ING MORIS 01	M1021	Morsetto dritto per corda AI Ø 36 - piastra a 2 fori	12	ING MORIS 01
M1025	Morsetto dritto per corda AI Ø 36 - piastra a 4 fori	9	ING MORIS 01	M1025	Morsetto dritto per corda AI Ø 36 - piastra a 4 fori	9	ING MORIS 01
M1033	Morsetto elastico dritto per tubo AI Ø 100 - piastra a 4 fori	6	ING MORIS 01	M1033	Morsetto elastico dritto per tubo AI Ø 100 - piastra a 4 fori	6	ING MORIS 01
-	Antivibranti per conduttori tubolari 1050/2 (2)	3		-	Antivibranti per conduttori tubolari 1050/2 (2)	3	
-	Punti fissi per conduttore tubolare da Ø 100	3		-	Punti fissi per conduttore tubolare da Ø 100	3	
-	Punti fissi per conduttore a corda AI Ø 36	6		-	Punti fissi per conduttore a corda AI Ø 36	6	
Elenco conduttori 132-150 KV				Elenco conduttori 132-150 KV			
codice	descrizione	quantità	Specifica Tecnica	codice	descrizione	quantità	Specifica Tecnica
C1050/2	Conduttore tubolare Ø 100-96	2x10,4 m	INS CC S 01	C1050/2	Conduttore tubolare Ø 100-96	2x10,4 m	INS CC S 01
CS x 1	Conduttore corda AI Ø 36	85 m	LCS	CS x 1	Conduttore corda AI Ø 36	85 m	LCS

(1) Nelle quantità degli isolatori, sono conteggiati anche gli isolatori delle apparecchiature  
 (2) Per gli antivibranti sulle sbarre fare riferimento alla ING CM G 01

Figura 2.3.6.4: Legenda della planimetria e sezione elettromeccanica relativa alle apparecchiature dello stallo 150 kV nella stazione Terna



### 3. CARATTERISTICHE PRINCIPALI DEL PARCO EOLICO

L'impianto eolico sarà costituito essenzialmente da 11 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.

Si riportano di seguito le coordinate delle posizioni scelte per l'installazione degli aerogeneratori:

ID	Comune	Foglio	Particella	Latitudine [°]	Longitudine [°]	D rotore [m]	H tot [m]	H hub [m]
AR01	Montemurro	56	81	40.284384	16.015401	170	200	115
AR02	Montemurro	47	2	40.293744	16.024487	170	200	115
AR03	Montemurro	48	38	40.286214	16.030729	170	200	115
AR04	Montemurro	47	73	40.290155	16.037346	170	200	115
AR05	Armento	30	95	40.303170	16.045512	170	200	115
AR06	Armento	57	10	40.287263	16.060763	170	200	115
AR07	Armento	49	90	40.294414	16.079120	170	200	115
AR08	Armento	61	90	40.282025	16.092013	170	200	115
AR09	Armento	63	2	40.285832	16.098284	170	200	115
AR10	Armento	63	137	40.281757	16.104428	170	200	115
AR11	Gallicchio	27	113	40.281172	16.117212	170	200	115

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**Tabella 2.1:** Localizzazione planimetrica degli aerogeneratori di progetto

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 "VAEG011 Piano Particellare di esproprio descrittivo".

#### **4. FENOMENO DI SHADOW FLICKERING**

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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.

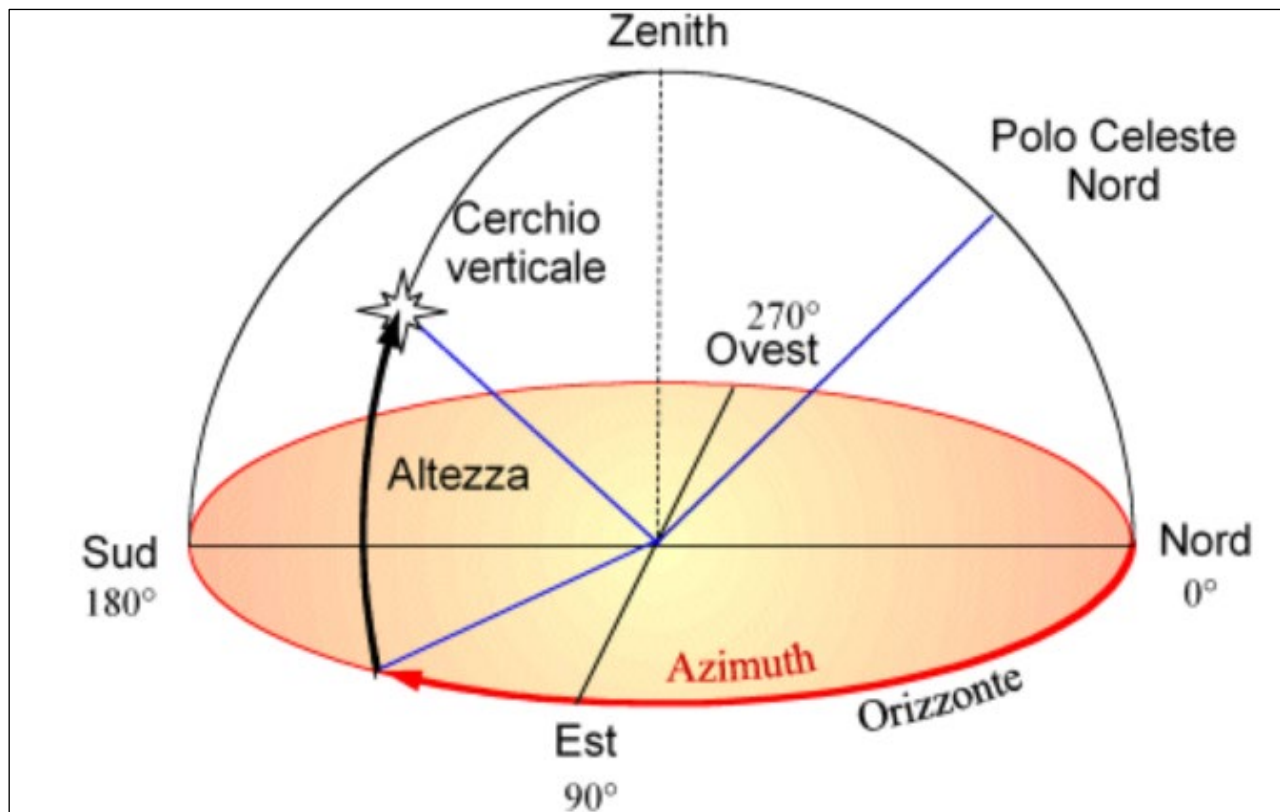
In linea di massima, si può ritenere che l'area soggetta al fenomeno in questione non si estenda oltre i  $500 \div 1000$  m dall'aerogeneratore e le zone a maggiore impatto ricadono entro i 300 m di distanza dalle turbine.

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 ricettore 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 11 aerogeneratori di nuova realizzazione e relativi al progetto del Parco Eolico Val d'Agri (non sono stati presi in considerazione aerogeneratori esistenti in quanto molto distanti dall'area attenzionata e quindi ininfluenti ai fini della simulazione).

Gli aerogeneratori di progetto hanno un'altezza al mozzo di 115 m, diametro del rotore di 170 m, potenza nominale di 6,2 MWp e 8,8 giri al minuto (RPM).

La verifica è stata effettuata in corrispondenza di 46 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						
R2	40.297680°	16.019876°	Montemurro	AR02	581	46	118	A/3
R4	40.291262°	16.031401°	Montemurro	AR04	512	47	137	A/4
R9	40.302251°	16.052277°	Armento	AR05	582	30	299	A/4
R10	40.300458°	16.051199°	Armento	AR05	565	30	288	A/4
R16	40.293828°	16.101822°	Armento	AR09	934	62	204	A/4

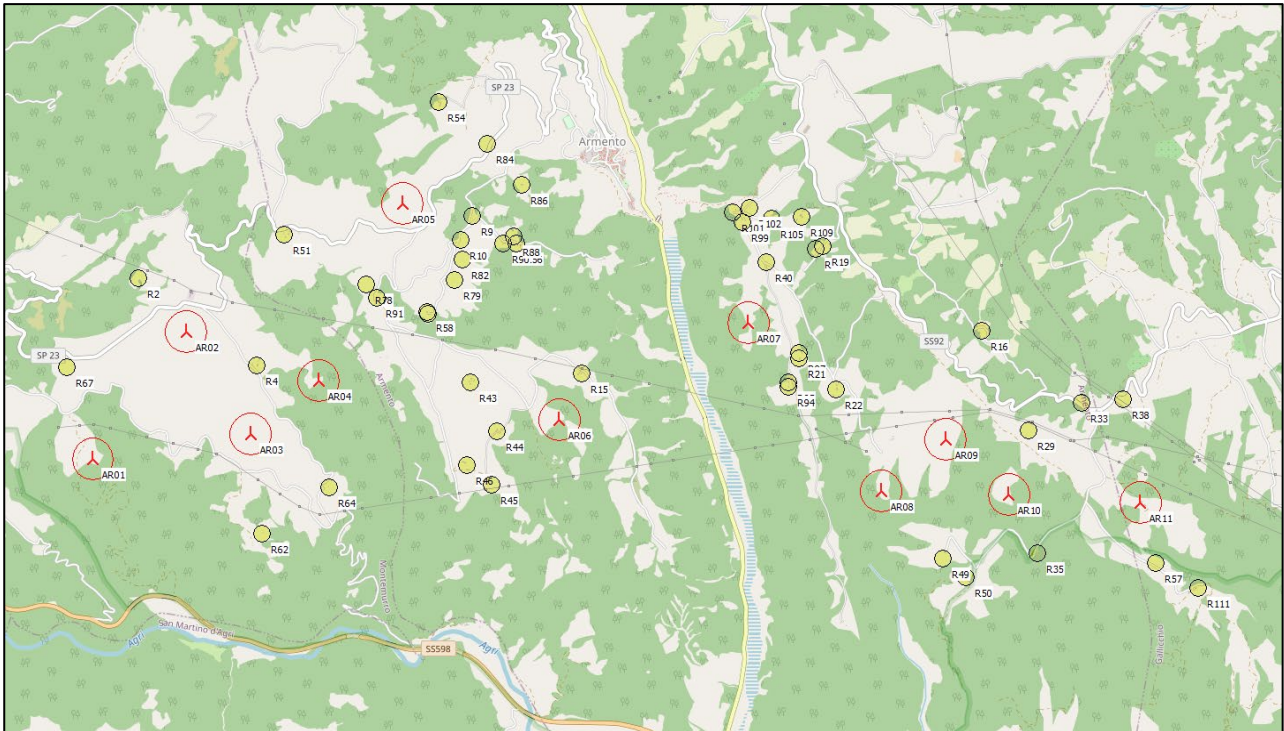
Ricettore	Coordinate UTM WGS 84, 33°		Comune	WTG più vicina	Distanza WTG più vicina	Foglio	Particella	Stato accatastamento
	Latitudine	Longitudine						
R19	40.300000°	16.086364°	Armento	AR07	868	45	231	A/1
R20	40.299819°	16.085735°	Armento	AR07	817	45	225	A/3
R21	40.291749°	16.084063°	Armento	AR07	511	59	133	A/4
R22	40.289504°	16.087707°	Armento	AR08	893	60	112	Non Accatastato
R29	40.286435°	16.106377°	Armento	AR10	539	63	205	A/4
R33	40.288526°	16.111559°	Armento	AR11	944	62	207	A/4
R35	40.277459°	16.107216°	Armento	AR10	530	64	81	A/4
R38	40.288770°	16.115580°	Gallicchio	AR11	852	26	143	A/2
R40	40.298833°	16.080868°	Armento	AR07	509	46	268	A/3
R43	40.290007°	16.052139°	Armento	AR06	776	53	109	A/2
R44	40.286425°	16.054683°	Armento	AR06	524	53	97	A/3
R45	40.282468°	16.054181°	Armento	AR06	771	53	89	A/4
R46	40.283920°	16.051809°	Armento	AR06	843	53	112	A/3
R49	40.277056°	16.098021°	Armento	AR08	744	65	242	A/2
R50	40.275683°	16.100333°	Armento	AR10	752	65	230	A/3
R51	40.300867°	16.034000°	Armento	AR05	1006	29	116	A/2
R54	40.310591°	16.049073°	Armento	AR05	866	27	268	A/3
R56	40.296196°	16.043012°	Armento	AR05	793	52	265	A/3
R57	40.276711°	16.118745°	Gallicchio	AR11	504	27	118	A/2
R58	40.295206°	16.047935°	Armento	AR05	904	52	285	A/4
R59	40.295039°	16.048014°	Armento	AR05	927	52	284	A/4
R62	40.278865°	16.031887°	Montemurro	AR03	807	57	125	A/4

Ricettore	Coordinate UTM WGS 84, 33°		Comune	WTG più vicina	Distanza WTG più vicina	Foglio	Particella	Stato accatastament o
	Latitudine	Longitudine						
R64	40.282275°	16.038397°	Montemurro	AR03	778	59	41	A/4
R67	40.291083°	16.012875°	Montemurro	AR01	764	56	238	A/2
R78	40.297193°	16.042016°	Armento	AR05	714	52	297	A/3
R79	40.297522°	16.050608°	Armento	AR05	757	30	317	A/3
R82	40.299043°	16.051353°	Armento	AR05	673	30	320	A/4
R84	40.307555°	16.053732°	Armento	AR05	843	31	229	A/3
R86	40.304524°	16.057148°	Armento	AR05	993	36	326	A/2
R88	40.300763°	16.056348°	Armento	AR05	954	37	347	A/2
R90	40.300192°	16.055309°	Armento	AR05	890	37	357; 359; 362	A/3
R91	40.300196°	16.056592°	Armento	AR05	990	37	342	A/2
R94	40.289672°	16.083056°	Armento	AR07	619	59	137; 110	A03; A04
R95	40.290004°	16.083009°	Armento	AR07	585	59	121	A/2
R97	40.292162°	16.084335°	Armento	AR07	505	59	133	A/4
R99	40.301815°	16.078578°	Armento	AR07	816	48	218	A/4
R101	40.302525°	16.077600°	Armento	AR07	905	48	220	A/4
R102	40.302850°	16.079250°	Armento	AR07	931	47	214	A/4
R105	40.302052°	16.081394°	Armento	AR07	864	46	269	A/4
R109	40.302205°	16.084309°	Armento	AR07	961	46	302	A/2
R111	40.274846°	16.122859°	Gallicchio	AR11	846	27	109	A/4

**Tabella 6.1:** Ricettori oggetto di verifica

La distribuzione dei suddetti ricettori rispetto agli aerogeneratori è riportata nelle figure seguenti:

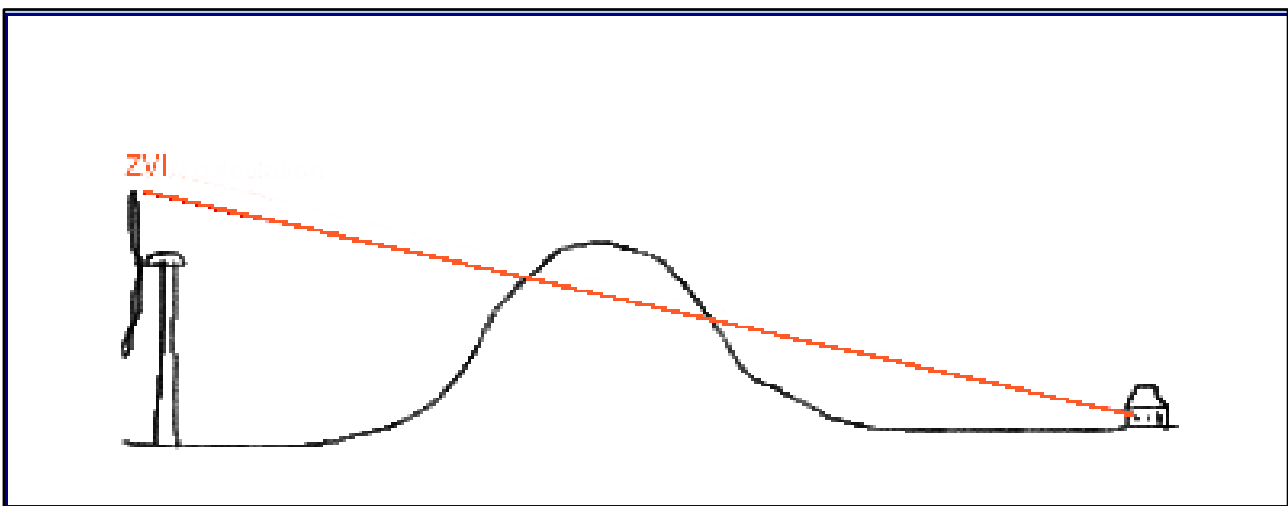




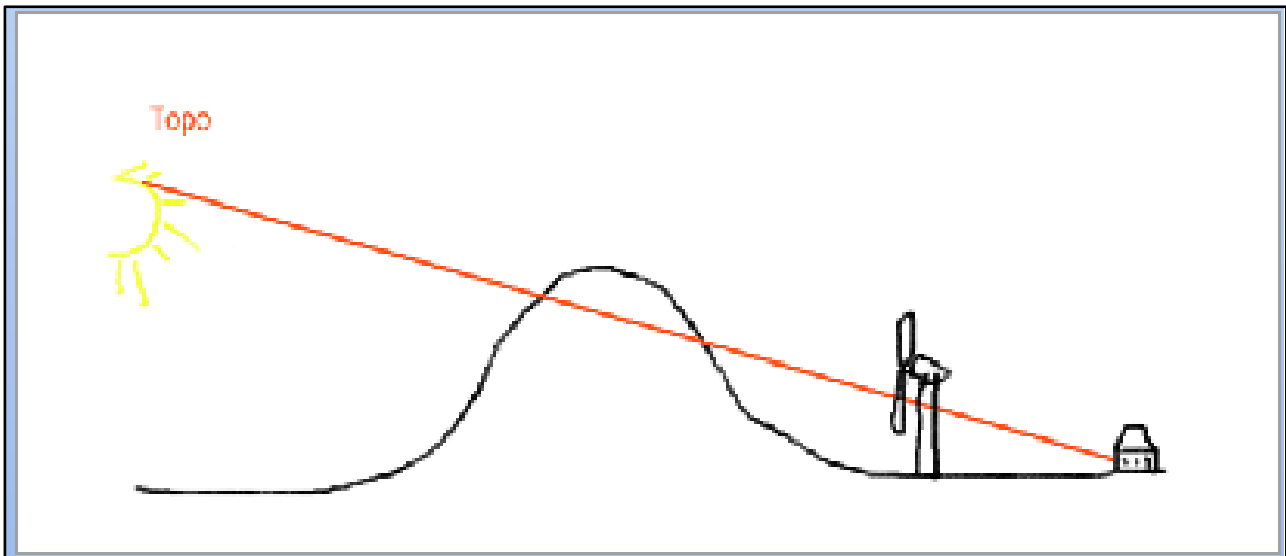
**Figura 6.1:** Localizzazione dei ricettori rispetto agli aerogeneratori di progetto

Il software impiegato per effettuare la verifica di sicurezza all'effetto shadow flickering è il WindPRO versione 3.4.

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  $3^\circ$ ;
- 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 7,40 h come da fonte ISPRA con riferimento al Comune di Aliano 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	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

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

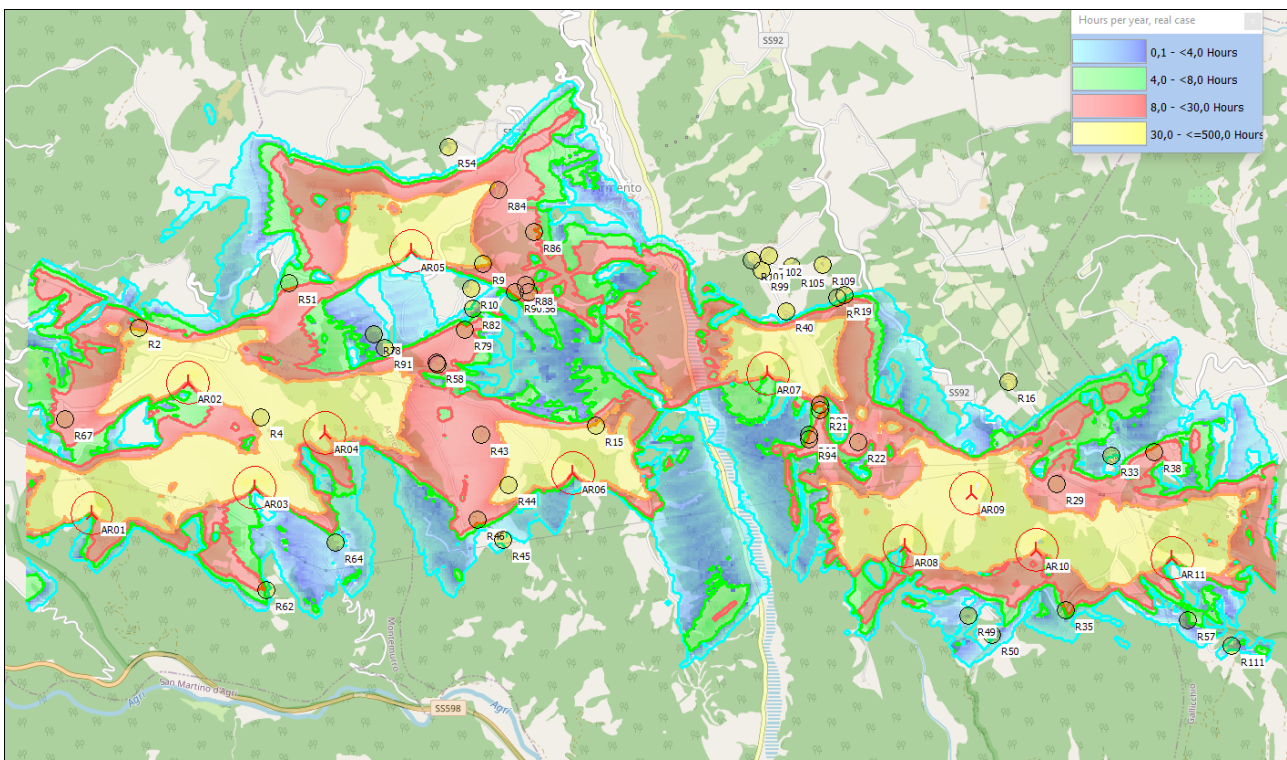
N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Somma
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.075

**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)
R2	80:54	27:02
R4	154:11	49:14
R9	108:38	32:14

Ricettore	ORE/ANNO – WORST CASE	ORE/ANNO – REAL CASE (EXPECTED VALUES)
R10	0:00	0:00
R16	0:00	0:00
R19	0:00	0:00
R20	0:00	0:00
R21	18:36	7:02
R22	44:26	16:34
R29	51:30	19:51
R33	0:36	0:14
R35	42:15	12:53
R38	19:52	8:58
R40	0:00	0:00
R43	45:35	16:55
R44	147:31	47:23
R45	0:53	0:16
R46	42:08	12:53
R49	8:38	2:45
R50	11:40	3:33
R51	21:23	6:56
R54	0:00	0:00
R56	55:23	18:15
R57	14:23	3:50
R58	43:53	19:30
R59	35:32	15:31
R62	4:15	1:08
R64	6:52	2:17
R67	36:15	11:43
R78	7:32	3:01
R79	28:50	13:11
R82	4:16	1:56
R84	47:21	20:22
R86	23:50	8:44
R88	68:26	21:50
R90	34:43	12:32
R91	7:56	3:05
R94	27:04	10:14
R95	18:50	7:06
R97	31:22	10:37
R99	0:00	0:00

Ricettore	ORE/ANNO – WORST CASE	ORE/ANNO – REAL CASE (EXPECTED VALUES)
R101	0:00	0:00
R102	0:00	0:00
R105	0:00	0:00
R109	0:00	0:00
R111	12:00	3:10

**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 è inferiore al valore di 30 ore/anno, parametro considerato di qualità a livello internazionale, eccetto che per i ricettori R4, R9 e R44.

Tuttavia, le seguenti figure mostrano come tra i ricettori R4, R9 e R44 e gli aerogeneratori AR04, AR05 e AR06 si interpone la vegetazione esistente che tende ad attenuare il fenomeno delle ombreggiature intermittenti.



**Figura 7.2:** Localizzazione del ricettore R4 rispetto all' aerogeneratore AR04



**Figura 7.3:** Localizzazione del ricettore R9 rispetto all' aerogeneratore AR05



**Figura 7.4:** Localizzazione dei ricettori R44 rispetto all' aerogeneratore AR06

Come le immagini precedentemente riportate evidenziano, gli immobili R4, R9 e R44 risultano essere schermati dagli alberi presenti nelle immediate vicinanze nelle direzioni verso gli aerogeneratori.

Tale situazione non è presa in considerazione nel calcolo sopra riportato e, pertanto, è possibile ritenere che l'effetto dello shadow flickering sugli immobili di cui sopra sia molto più attenuato di quello stimato.

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 come mostrato nelle figure seguenti.



**Figura 7.5:** Vista del ricettore R4



**Figura 7.6:** Vista del ricettore R9



**Figura 7.8:** Vista del ricettore R44

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 3.4 – WORST CASE

---

## SHADOW - Main Result

**Calculation:** Worst 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

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 Val d'Agri\_EMDGrid\_0.v  
Obstacles used in calculation  
Receptor grid resolution: 1,0 m  
Topographic shadow included in calculation

All coordinates are in  
Geo [deg]-WGS84

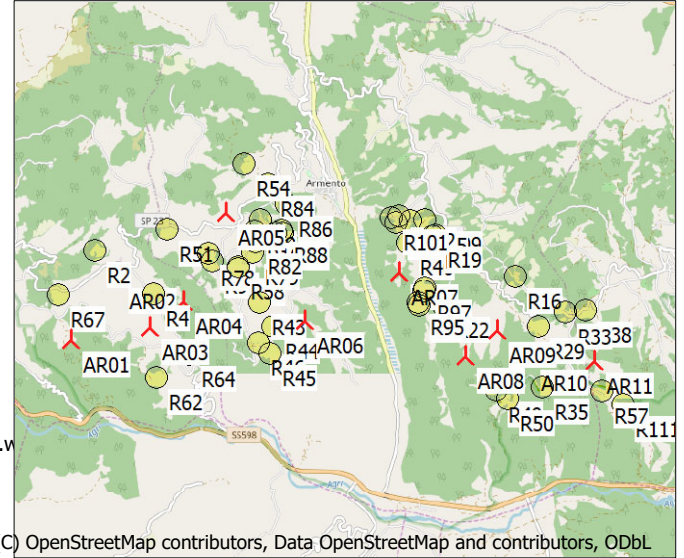
### WTGs

	Longitude	Latitude	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
AR01	16,015401° E	40,284384° N	775,5	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR02	16,024487° E	40,293744° N	861,1	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR03	16,030729° E	40,286214° N	783,3	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR04	16,037346° E	40,290155° N	841,3	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR05	16,045512° E	40,303170° N	956,5	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR06	16,060763° E	40,287263° N	734,1	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR07	16,079120° E	40,294414° N	733,8	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR08	16,092013° E	40,282025° N	700,8	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR09	16,098284° E	40,285832° N	781,5	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR10	16,104428° E	40,281757° N	797,9	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR11	16,117212° E	40,281172° N	821,1	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8

### Shadow receptor-Input

No.	Longitude	Latitude	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
R10	16,051199° E	40,300458° N	839,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R101	16,077600° E	40,302525° N	740,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R102	16,079250° E	40,302850° N	755,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R105	16,081394° E	40,302052° N	752,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R109	16,084309° E	40,302205° N	805,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R111	16,122859° E	40,274846° N	738,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R16	16,101822° E	40,293828° N	787,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R19	16,086364° E	40,300000° N	795,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R2	16,019876° E	40,297680° N	862,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R20	16,085735° E	40,299819° N	784,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R21	16,084063° E	40,291749° N	721,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R22	16,087707° E	40,289504° N	732,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R29	16,106377° E	40,286435° N	867,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R33	16,111559° E	40,288526° N	794,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R35	16,107216° E	40,277459° N	811,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R38	16,115580° E	40,288770° N	788,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R4	16,031401° E	40,291262° N	869,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R40	16,080868° E	40,298833° N	745,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R43	16,052139° E	40,290007° N	765,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R44	16,054683° E	40,286425° N	745,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R45	16,054181° E	40,282468° N	737,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...



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New WTG

Scale 1:125.000  
Shadow receptor

## SHADOW - Main Result

### Calculation: Worst 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]
R46	16,051809° E	40,283920° N	764,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R49	16,098021° E	40,277056° N	724,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R50	16,100333° E	40,275683° N	725,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R51	16,034000° E	40,300867° N	974,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R54	16,049073° E	40,310591° N	874,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R56	16,056592° E	40,300196° N	801,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R57	16,118745° E	40,276711° N	763,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R58	16,047935° E	40,295206° N	809,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R59	16,048014° E	40,295039° N	807,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R62	16,031887° E	40,278865° N	718,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R64	16,038397° E	40,282275° N	770,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R67	16,012875° E	40,291083° N	860,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R78	16,042016° E	40,297193° N	868,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R79	16,050608° E	40,297522° N	824,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R82	16,051353° E	40,299043° N	821,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R84	16,053732° E	40,307555° N	869,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R86	16,057148° E	40,304524° N	809,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R88	16,056348° E	40,300763° N	803,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R9	16,052277° E	40,302251° N	842,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R90	16,055309° E	40,300192° N	798,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R91	16,043012° E	40,296196° N	848,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R94	16,083056° E	40,289672° N	730,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R95	16,083009° E	40,290004° N	731,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R97	16,084335° E	40,292162° N	723,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R99	16,078578° E	40,301815° N	744,7	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]
R10	0:00	0	0:00
R101	0:00	0	0:00
R102	0:00	0	0:00
R105	0:00	0	0:00
R109	0:00	0	0:00
R111	12:00	56	0:18
R16	0:00	0	0:00
R19	0:00	0	0:00
R2	80:54	84	1:09
R20	0:00	0	0:00
R21	18:36	49	0:29
R22	44:26	101	0:40
R29	51:30	145	0:33
R33	0:36	14	0:04
R35	42:15	89	0:44
R38	19:52	61	0:26
R4	154:11	208	1:14
R40	0:00	0	0:00
R43	45:35	109	0:47
R44	147:31	158	1:26
R45	0:53	16	0:05
R46	42:08	84	0:41
R49	8:38	40	0:18
R50	11:40	62	0:15
R51	21:23	65	0:28
R54	0:00	0	0:00
R56	55:23	144	0:40
R57	14:23	63	0:19
R58	43:53	128	0:38
R59	35:32	106	0:38
R62	4:15	47	0:08

To be continued on next page...

## SHADOW - Main Result

### Calculation: Worst case

...continued from previous page

#### Shadow, worst case

No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]
R64	6:52	48	0:15
R67	36:15	96	0:40
R78	7:32	32	0:21
R79	28:50	68	0:31
R82	4:16	34	0:09
R84	47:21	80	0:47
R86	23:50	49	0:38
R88	68:26	137	0:42
R9	108:38	114	1:04
R90	34:43	95	0:32
R91	7:56	31	0:23
R94	27:04	94	0:29
R95	18:50	64	0:29
R97	31:22	97	0:30
R99	0:00	0	0:00

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

No.	Name	Worst case [h/year]
AR01	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (6)	9:51
AR02	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)	193:48
AR03	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)	11:38
AR04	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)	169:17
AR05	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (10)	238:57
AR06	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (11)	226:00
AR07	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (12)	11:03
AR08	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (13)	0:49
AR09	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)	86:05
AR10	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)	64:27
AR11	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (16)	79:53

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:** Worst case Shadow receptor: R10 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (62)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	07:00 16:31
3	07:19 16:42	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:05 16:30
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:06 16:30
9	07:19 16:48	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:25	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	05:36 20:28	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27	05:37 20:27	06:04 19:58	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:20	06:40 16:41	07:11 16:31
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:27	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:39	07:13 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:29	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:45 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:11	06:47 16:36	07:15 16:32
21	07:15 17:01	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:41	05:35 20:11	05:27 20:30	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	06:49 16:35	07:16 16:33
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:44	06:44 18:53	07:15 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:12	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:17 16:34
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:44	05:33 20:14	05:27 20:30	05:47 20:18	06:16 19:41	06:46 18:50	07:17 18:04	06:52 16:33	07:17 16:35
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04 19:46	05:32 20:15	05:28 20:30	05:47 20:18	06:17 19:39	06:47 18:48	07:18 18:02	06:54 16:33	07:17 16:36
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	06:19 18:01	06:55 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	07:20 18:00	06:56 16:32	07:18 16:37
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	06:21 18:00	06:57 16:32	07:18 16:38
30	07:08 17:11		06:45 19:18	05:58 19:50	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:23 18:00	06:58 16:31	07:19 16:38
31	07:07 17:13		06:43 19:19		05:30 20:19		05:52 20:13	06:22 19:31		06:24 18:56		07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R101 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (101)

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

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R102 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (102)

### 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	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:28 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:26	06:54 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:08	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:02 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:26 19:23	06:56 18:34	06:29 16:50	07:03 16:30
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Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R105 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (103)

### 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	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
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Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R109 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (104)

### 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	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
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28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 16:59	06:56 16:32	07:18 16:37
29	07:09 17:10		06:47 19:17	06:00 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11		06:45 19:18	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:22 16:57	06:58 16:31	07:19 16:38
31	07:07 17:12		06:43 19:19		05:29 20:19		05:52 20:13	06:22 19:31		06:24 16:56		07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R111 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (105)  
**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	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 20:19	19:34 (AR10) 05:29	19:39 (AR10) 05:53	06:22 20:11	06:51 19:29	06:24 18:40	06:58 16:54
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51	05:28 20:20	19:34 (AR10) 05:30	19:39 (AR10) 05:54	06:23 20:10	06:52 19:28	06:26 18:38	06:59 16:53
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52	05:28 20:20	19:34 (AR10) 05:30	19:39 (AR10) 05:55	06:24 20:09	06:53 19:26	06:27 18:37	07:00 16:52
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:53	05:28 20:21	19:34 (AR10) 05:31	19:39 (AR10) 05:56	06:25 20:08	06:54 19:25	06:28 18:35	07:01 16:51
5	07:19 16:43	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:54	05:27 20:22	19:34 (AR10) 05:32	19:40 (AR10) 05:57	06:26 20:07	06:55 19:23	06:29 18:33	07:02 16:50
6	07:19 16:44	07:01 17:20	06:24 17:52	06:33 19:25	05:51 19:55	05:27 20:22	19:34 (AR10) 05:32	19:40 (AR10) 05:57	06:27 20:06	06:56 19:21	06:30 18:32	07:03 16:49
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:56	05:27 20:23	19:34 (AR10) 05:33	19:40 (AR10) 05:58	06:28 20:05	06:57 19:20	06:31 18:30	07:04 16:48
8	07:19 16:46	06:59 17:22	06:20 17:54	06:30 19:27	05:48 19:57	05:26 20:24	19:34 (AR10) 05:33	19:41 (AR10) 05:59	06:29 20:04	06:58 19:18	06:33 18:29	07:05 16:46
9	07:19 16:47	06:58 17:23	06:19 17:55	06:29 19:28	05:47 19:58	05:26 20:24	19:34 (AR10) 05:34	19:41 (AR10) 06:00	06:30 20:02	06:59 19:16	06:34 18:27	07:06 16:45
10	07:19 16:48	06:57 17:23	06:17 17:55	06:27 19:29	05:46 19:59	05:26 20:25	19:35 (AR10) 05:35	19:42 (AR10) 06:01	06:31 20:01	07:00 19:15	06:35 18:25	07:07 16:44
11	07:18 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:00	05:26 20:25	19:35 (AR10) 05:35	19:42 (AR10) 06:02	06:32 20:00	07:02 19:13	06:36 18:24	07:08 16:43
12	07:18 16:50	06:54 17:27	06:14 17:59	06:24 19:31	05:44 20:01	05:26 20:26	19:35 (AR10) 05:36	19:42 (AR10) 06:03	06:33 19:59	07:03 19:12	06:37 18:22	07:09 16:43
13	07:18 16:51	06:53 17:28	06:13 18:00	06:22 19:32	05:43 20:02	05:26 20:26	19:34 (AR10) 05:37	19:43 (AR10) 06:04	06:34 19:57	07:04 19:10	06:38 18:21	07:09 16:42
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	05:26 20:27	19:34 (AR10) 05:37	19:44 (AR10) 06:05	06:35 19:56	07:05 19:08	06:40 18:19	07:10 16:41
15	07:17 16:54	06:51 17:30	06:09 18:02	06:19 19:34	05:41 20:04	05:26 20:27	19:35 (AR10) 05:38	19:44 (AR10) 06:06	06:36 19:55	07:06 19:07	06:41 18:18	07:11 16:40
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17	07:16 16:56	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06	05:26 20:28	19:36 (AR10) 05:40	19:46 (AR10) 06:08	06:38 19:52	07:08 19:03	06:43 18:15	07:12 16:38
18	07:16 16:57	06:47 17:34	06:04 18:05	06:15 19:37	05:38 20:07	05:26 20:28	19:36 (AR10) 05:41	19:48 (AR10) 06:09	06:39 19:50	07:09 19:02	06:44 18:13	07:13 16:38
19	07:16 16:58	06:45 17:35	06:03 18:06	06:13 19:38	05:37 20:08	05:26 20:29	19:36 (AR10) 05:41	19:48 (AR10) 06:10	06:40 19:49	07:10 19:00	06:45 18:12	07:14 16:37
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	19:36 (AR10) 05:42	19:49 (AR10) 06:11	06:41 19:48	07:11 18:58	06:46 18:10	07:14 16:36
21	07:14 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	19:36 (AR10) 05:43	19:49 (AR10) 06:12	06:42 19:46	07:12 18:57	06:48 18:09	07:15 16:35
22	07:14 17:01	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	19:36 (AR10) 05:44	19:49 (AR10) 06:13	06:43 19:45	07:13 18:55	06:49 18:07	07:15 16:35
23	07:13 17:02	06:40 17:39	05:56 18:09	06:08 19:41	05:34 20:11	05:27 20:29	19:37 (AR10) 05:45	19:51 (AR10) 06:14	06:44 19:45	07:14 18:55	06:50 18:07	07:16 16:35
24	07:13 17:04	06:38 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	19:37 (AR10) 05:46	19:54 (AR10) 06:15	06:45 19:43	07:15 18:53	06:51 18:06	07:16 16:34
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26	07:11 17:06	06:36 17:43	05:51 18:13	06:03 19:45	05:32 20:14	05:27 20:30	19:38 (AR10) 05:47	19:55 (AR10) 06:17	06:46 19:39	07:17 18:48	06:53 17:02	07:18 16:33
27	07:10 17:07	06:34 17:44	05:50 18:14	06:02 19:46	05:32 20:15	05:28 20:30	19:38 (AR10) 05:48	19:56 (AR10) 06:18	06:47 19:37	07:18 18:47	06:54 17:01	07:19 16:32
28	07:10 17:09	06:33 17:46	05:48 18:15	06:01 19:47	05:31 20:16	05:28 20:30	19:38 (AR10) 05:49	19:57 (AR10) 06:19	06:48 19:36	07:19 18:45	06:55 16:59	07:18 16:32
29	07:09 17:10	06:46 19:16	05:59 19:48	05:30 20:17	05:30 20:17	05:29 20:30	19:38 (AR10) 05:50	19:58 (AR10) 06:20	06:49 19:34	07:20 18:43	06:56 16:58	07:18 16:31
30	07:08 17:11	06:45 19:17	05:58 19:49	05:30 20:17	05:30 20:17	05:29 20:30	19:38 (AR10) 05:51	19:59 (AR10) 06:21	06:50 19:33	07:21 18:42	06:57 16:57	07:18 16:31
31	07:07 17:12	06:43 19:19	05:57 19:49	05:29 20:18	05:29 20:18	05:28 20:30	19:38 (AR10) 05:52	19:59 (AR10) 06:22	06:51 19:31	07:22 18:42	06:58 16:56	07:18 16:30
Potential sun hours	300	298	370	398	446	450	474	457	426	375	346	300
Total, worst case					46			200				290

**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:** Worst case **Shadow receptor:** R16 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (64)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:29	06:51 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51	05:28 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:52 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52	05:28 20:21	05:30 20:30	05:55 20:09	06:24 19:26	06:53 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:53	05:28 20:21	05:31 20:29	05:56 20:08	06:25 19:25	06:54 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:26 19:23	06:55 18:33	06:29 16:50	07:03 16:30
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:27 19:21	06:56 18:32	06:30 16:49	07:04 16:30
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:58 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:04 16:30
8	07:19 16:46	06:59 17:22	06:21 17:54	06:30 19:27	05:48 19:58	05:26 20:24	05:33 20:28	05:59 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:05 16:30
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:24	05:34 20:28	06:00 20:02	06:30 19:17	07:00 18:27	06:34 16:45	07:06 16:30
10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 16:44	07:07 16:30
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:25	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:18 16:50	06:54 17:27	06:14 17:59	06:24 19:31	05:44 20:01	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30
13	07:18 16:51	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:02	05:26 20:26	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	05:26 20:27	05:37 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
15	07:17 16:54	06:51 17:31	06:09 18:02	06:19 19:34	05:41 20:04	05:26 20:27	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:49 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 20:28	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:12 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:28	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:13 19:38	05:37 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:45 16:37	07:14 16:32
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32
21	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:21	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:14 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:16 16:34
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:14	05:27 20:30	05:46 20:18	06:16 19:40	06:46 18:50	07:17 17:03	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:51 18:13	06:04 19:45	05:32 20:14	05:27 20:30	05:47 20:17	06:17 19:39	06:47 18:48	07:18 17:02	06:53 16:33	07:17 16:35
27	07:10 17:08	06:34 17:44	05:50 18:14	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:16	06:18 19:37	06:48 18:47	06:19 17:01	06:54 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:48 18:45	06:20 16:59	06:55 16:32	07:18 16:37
29	07:09 17:10		06:47 19:17	05:59 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:49 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11		06:45 19:18	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:50 18:42	06:22 16:57	06:58 16:31	07:18 16:38
31	07:07 17:12		06:43 19:19		05:29 20:19		05:52 20:13	06:22 19:31		06:23 16:56		07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R19 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (65)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:28 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:26	06:54 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:08	06:25 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:26 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:27 19:22	06:57 18:32	06:30 16:49	07:04 16:30
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:05 16:30
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9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:24	05:34 20:28	06:00 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
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13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:26	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
15	07:17 16:54	06:51 17:31	06:09 18:02	06:20 19:34	05:41 20:04	05:26 20:27	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 20:28	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:13 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:28	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:37 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32
21	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:15 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:16 16:34
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:14	05:27 20:30	05:46 20:18	06:16 19:40	06:46 18:50	07:17 17:03	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:51 18:14	06:04 19:45	05:32 20:14	05:28 20:30	05:47 20:17	06:17 19:39	06:47 18:48	07:18 17:02	06:53 16:33	07:17 16:36
27	07:11 17:08	06:34 17:44	05:50 18:15	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	06:19 17:01	06:54 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 16:59	06:56 16:32	07:18 16:37
29	07:09 17:10		06:47 19:17	06:00 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11		06:45 19:18	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:22 16:57	06:58 16:31	07:18 16:38
31	07:07 17:12		06:43 19:19		05:29 20:19		05:52 20:13	06:22 19:31		06:24 16:56		07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												

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

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

Licensed user:

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

Gaetano D'Oronzio / info@gecodor.it
Calculated:
06/12/2022 16:20/3.5.587

SHADOW - Calendar

Calculation: Worst case Shadow receptor: R2 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (59)
Assumptions for shadow calculations

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

Table with columns for months (January to December) and rows for days (1-31), showing sun rise/set times and shadow receptor status.

Potential sun hours 299
Total, worst case 1735

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

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



## SHADOW - Calendar

**Calculation:** Worst case **Shadow receptor:** R20 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (66)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19	07:06	06:31	06:42	05:57	05:29	05:30	05:53	06:23	06:52	06:25	06:59
	16:40	17:14	17:47	19:20	19:51	20:19	20:30	20:12	19:30	18:40	16:54	16:31
2	07:19	07:05	06:30	06:40	05:56	05:28	05:30	05:54	06:24	06:53	06:26	07:00
	16:41	17:15	17:48	19:21	19:52	20:20	20:30	20:11	19:28	18:38	16:53	16:31
3	07:19	07:04	06:28	06:38	05:54	05:28	05:31	05:55	06:25	06:54	06:27	07:01
	16:42	17:16	17:49	19:22	19:53	20:21	20:30	20:10	19:26	18:37	16:52	16:30
4	07:19	07:03	06:27	06:37	05:53	05:28	05:31	05:56	06:25	06:55	06:28	07:02
	16:43	17:17	17:50	19:23	19:54	20:21	20:30	20:08	19:25	18:35	16:51	16:30
5	07:19	07:02	06:25	06:35	05:52	05:27	05:32	05:57	06:26	06:56	06:29	07:03
	16:44	17:18	17:51	19:24	19:55	20:22	20:29	20:07	19:23	18:34	16:50	16:30
6	07:19	07:01	06:24	06:34	05:51	05:27	05:32	05:58	06:27	06:57	06:30	07:04
	16:44	17:20	17:52	19:25	19:56	20:23	20:29	20:06	19:22	18:32	16:49	16:30
7	07:19	07:00	06:22	06:32	05:50	05:27	05:33	05:59	06:28	06:58	06:32	07:05
	16:45	17:21	17:53	19:26	19:57	20:23	20:29	20:05	19:20	18:30	16:48	16:30
8	07:19	06:59	06:21	06:30	05:48	05:27	05:33	05:59	06:29	06:59	06:33	07:05
	16:46	17:22	17:55	19:27	19:58	20:24	20:29	20:04	19:18	18:29	16:47	16:30
9	07:19	06:58	06:19	06:29	05:47	05:26	05:34	06:00	06:30	07:00	06:34	07:06
	16:47	17:23	17:56	19:28	19:59	20:24	20:28	20:03	19:17	18:27	16:46	16:30
10	07:19	06:57	06:17	06:27	05:46	05:26	05:35	06:01	06:31	07:01	06:35	07:07
	16:48	17:25	17:57	19:29	20:00	20:25	20:28	20:01	19:15	18:26	16:45	16:30
11	07:19	06:56	06:16	06:26	05:45	05:26	05:35	06:02	06:32	07:02	06:36	07:08
	16:49	17:26	17:58	19:30	20:01	20:26	20:27	20:00	19:13	18:24	16:44	16:30
12	07:18	06:55	06:14	06:24	05:44	05:26	05:36	06:03	06:33	07:03	06:37	07:09
	16:50	17:27	17:59	19:31	20:02	20:26	20:27	19:59	19:12	18:22	16:43	16:30
13	07:18	06:53	06:13	06:23	05:43	05:26	05:37	06:04	06:34	07:04	06:39	07:10
	16:52	17:28	18:00	19:32	20:03	20:26	20:26	19:57	19:10	18:21	16:42	16:30
14	07:18	06:52	06:11	06:21	05:42	05:26	05:38	06:05	06:35	07:05	06:40	07:10
	16:53	17:29	18:01	19:33	20:04	20:27	20:26	19:56	19:08	18:19	16:41	16:30
15	07:17	06:51	06:09	06:20	05:41	05:26	05:38	06:06	06:36	07:06	06:41	07:11
	16:54	17:31	18:02	19:34	20:04	20:27	20:25	19:55	19:07	18:18	16:40	16:31
16	07:17	06:50	06:08	06:18	05:40	05:26	05:39	06:07	06:37	07:07	06:42	07:12
	16:55	17:32	18:03	19:35	20:05	20:28	20:25	19:53	19:05	18:16	16:39	16:31
17	07:17	06:48	06:06	06:17	05:39	05:26	05:40	06:08	06:38	07:08	06:43	07:13
	16:56	17:33	18:04	19:36	20:06	20:28	20:24	19:52	19:03	18:15	16:38	16:31
18	07:16	06:47	06:05	06:15	05:38	05:26	05:41	06:09	06:39	07:09	06:44	07:13
	16:57	17:34	18:05	19:37	20:07	20:28	20:24	19:51	19:02	18:13	16:38	16:32
19	07:16	06:46	06:03	06:14	05:37	05:26	05:41	06:10	06:40	07:10	06:46	07:14
	16:58	17:35	18:06	19:38	20:08	20:29	20:23	19:49	19:00	18:12	16:37	16:32
20	07:15	06:44	06:01	06:12	05:37	05:26	05:42	06:11	06:41	07:11	06:47	07:14
	16:59	17:36	18:07	19:39	20:09	20:29	20:22	19:48	18:58	18:10	16:36	16:32
21	07:15	06:43	06:00	06:11	05:36	05:26	05:43	06:12	06:42	07:12	06:48	07:15
	17:00	17:38	18:08	19:40	20:10	20:29	20:22	19:46	18:57	18:09	16:36	16:33
22	07:14	06:41	05:58	06:09	05:35	05:26	05:44	06:13	06:43	07:13	06:49	07:15
	17:02	17:39	18:09	19:41	20:11	20:29	20:21	19:45	18:55	18:08	16:35	16:33
23	07:13	06:40	05:56	06:08	05:34	05:27	05:45	06:14	06:44	07:15	06:50	07:16
	17:03	17:40	18:10	19:42	20:12	20:30	20:20	19:43	18:53	18:06	16:34	16:34
24	07:13	06:39	05:55	06:06	05:34	05:27	05:46	06:15	06:45	07:16	06:51	07:16
	17:04	17:41	18:11	19:43	20:13	20:30	20:19	19:42	18:52	18:05	16:34	16:34
25	07:12	06:37	05:53	06:05	05:33	05:27	05:46	06:16	06:46	07:17	06:52	07:17
	17:05	17:42	18:12	19:44	20:14	20:30	20:18	19:40	18:50	17:03	16:33	16:35
26	07:11	06:36	05:51	06:04	05:32	05:28	05:47	06:17	06:47	07:18	06:53	07:17
	17:06	17:43	18:14	19:45	20:14	20:30	20:17	19:39	18:48	17:02	16:33	16:36
27	07:11	06:34	05:50	06:02	05:32	05:28	05:48	06:18	06:48	07:19	06:54	07:18
	17:08	17:44	18:15	19:46	20:15	20:30	20:17	19:37	18:47	17:01	16:32	16:36
28	07:10	06:33	05:48	06:01	05:31	05:28	05:49	06:19	06:49	07:20	06:56	07:18
	17:09	17:46	18:16	19:47	20:16	20:30	20:16	19:36	18:45	16:59	16:32	16:37
29	07:09		06:47	06:00	05:30	05:29	05:50	06:20	06:50	07:21	06:57	07:18
	17:10		19:17	19:48	20:17	20:30	20:15	19:34	18:43	16:58	16:32	16:38
30	07:08		06:45	05:58	05:30	05:29	05:51	06:21	06:51	07:22	06:58	07:18
	17:11		19:18	19:49	20:18	20:30	20:14	19:33	18:42	16:57	16:31	16:38
31	07:07		06:43		05:29		05:52	06:22		06:24		07:19
	17:12		19:19		20:18		20:13	19:31		16:56		16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R22 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (68)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June		
1	07:19	07:06	07:42 (AR10)	06:31	07:31 (AR09)	06:42	05:57	05:29
	16:40	17:14	20 08:02 (AR10)	17:47	19 07:50 (AR09)	19:20	19:50	20:19
2	07:19	07:05	07:43 (AR10)	06:30	07:35 (AR09)	06:40	05:56	05:29
	16:41	17:15	18 08:01 (AR10)	17:48	12 07:47 (AR09)	19:21	19:51	20:20
3	07:19	07:04	07:36 (AR09)	06:28		06:38	05:54	05:28
	16:42	17:16	24 08:00 (AR10)	17:49		19:22	19:53	20:21
4	07:19	07:03	07:33 (AR09)	06:27		06:37	05:53	05:28
	16:43	17:17	25 07:58 (AR10)	17:50		19:23	19:54	20:21
5	07:19	07:02	07:31 (AR09)	06:25		06:35	05:52	05:27
	16:44	17:19	23 07:54 (AR09)	17:51		19:24	19:55	20:22
6	07:19	07:01	07:30 (AR09)	06:24		06:34	05:51	05:27
	16:44	17:20	25 07:55 (AR09)	17:52		19:25	19:56	20:23
7	07:19	07:00	07:28 (AR09)	06:22		06:32	05:50	05:27
	16:45	17:21	29 07:57 (AR09)	17:53		19:26	19:57	20:23
8	07:19	06:59	07:27 (AR09)	06:21		06:30	05:48	05:27
	16:46	17:22	31 07:58 (AR09)	17:54		19:27	19:58	20:24
9	07:19	06:58	07:26 (AR09)	06:19		06:29	05:47	05:26
	16:47	17:23	33 07:59 (AR09)	17:56		19:28	19:59	20:24
10	07:19	06:57	07:25 (AR09)	06:17		06:27	05:46	05:26
	16:48	17:25	35 08:00 (AR09)	17:57		19:29	20:00	20:25
11	07:19	06:56	07:25 (AR09)	06:16		06:26	05:45	05:26
	16:49	17:26	36 08:01 (AR09)	17:58		19:30	20:01	20:25
12	07:18	07:43 (AR10)	06:55	07:24 (AR09)	06:14	06:24	05:44	05:26
	16:50	8 07:51 (AR10)	17:27	08:01 (AR09)	17:59	19:31	20:02	20:26
13	07:18	07:42 (AR10)	06:53	07:24 (AR09)	06:13	06:23	05:43	05:26
	16:52	10 07:52 (AR10)	17:28	08:02 (AR09)	18:00	19:32	20:03	20:26
14	07:18	07:42 (AR10)	06:52	07:23 (AR09)	06:11	06:21	05:42	05:26
	16:53	12 07:54 (AR10)	17:29	08:02 (AR09)	18:01	19:33	20:03	20:27
15	07:17	07:41 (AR10)	06:51	07:23 (AR09)	06:09	06:20	05:41	05:26
	16:54	14 07:55 (AR10)	17:31	08:02 (AR09)	18:02	19:34	20:04	20:27
16	07:17	07:42 (AR10)	06:50	07:23 (AR09)	06:08	06:18	05:40	05:26
	16:55	15 07:57 (AR10)	17:32	08:03 (AR09)	18:03	19:35	20:05	20:28
17	07:17	07:41 (AR10)	06:48	07:22 (AR09)	06:06	06:17	05:39	05:26
	16:56	16 07:57 (AR10)	17:33	08:02 (AR09)	18:04	19:36	20:06	20:28
18	07:16	07:41 (AR10)	06:47	07:23 (AR09)	06:05	06:15	05:38	05:26
	16:57	18 07:59 (AR10)	17:34	08:02 (AR09)	18:05	19:37	20:07	20:28
19	07:16	07:41 (AR10)	06:46	07:23 (AR09)	06:03	06:14	05:38	05:26
	16:58	18 07:59 (AR10)	17:35	08:02 (AR09)	18:06	19:38	20:08	20:29
20	07:15	07:41 (AR10)	06:44	07:23 (AR09)	06:01	06:12	05:37	05:26
	16:59	20 08:01 (AR10)	17:36	08:02 (AR09)	18:07	19:39	20:09	20:29
21	07:15	07:40 (AR10)	06:43	07:23 (AR09)	06:00	06:11	05:36	05:26
	17:00	21 08:01 (AR10)	17:38	08:01 (AR09)	18:08	19:40	20:10	20:29
22	07:14	07:39 (AR10)	06:41	07:23 (AR09)	05:58	06:09	05:35	05:26
	17:02	22 08:01 (AR10)	17:39	08:00 (AR09)	18:09	19:41	20:11	20:29
23	07:13	07:39 (AR10)	06:40	07:24 (AR09)	05:56	06:08	05:34	05:27
	17:03	24 08:03 (AR10)	17:40	08:00 (AR09)	18:10	19:42	20:12	20:30
24	07:13	07:39 (AR10)	06:39	07:25 (AR09)	05:55	06:06	05:34	05:27
	17:04	24 08:03 (AR10)	17:41	07:59 (AR09)	18:11	19:43	20:13	20:30
25	07:12	07:38 (AR10)	06:37	07:25 (AR09)	05:53	06:05	05:33	05:27
	17:05	25 08:03 (AR10)	17:42	07:58 (AR09)	18:12	19:44	20:14	20:30
26	07:11	07:38 (AR10)	06:36	07:27 (AR09)	05:51	06:04	05:32	05:28
	17:06	25 08:03 (AR10)	17:43	07:57 (AR09)	18:14	19:45	20:14	20:30
27	07:11	07:39 (AR10)	06:34	07:28 (AR09)	05:50	06:02	05:32	05:28
	17:08	25 08:04 (AR10)	17:45	07:55 (AR09)	18:15	19:46	20:15	20:30
28	07:10	07:40 (AR10)	06:33	07:30 (AR09)	05:48	06:01	05:31	05:28
	17:09	24 08:04 (AR10)	17:46	07:53 (AR09)	18:16	19:47	20:16	20:30
29	07:09	07:40 (AR10)			06:47	06:00	05:30	05:29
	17:10	23 08:03 (AR10)			19:17	19:48	20:17	20:30
30	07:08	07:41 (AR10)			06:45	05:58	05:30	05:29
	17:11	22 08:03 (AR10)			19:18	19:49	20:18	20:30
31	07:07	07:41 (AR10)			06:43		05:29	
	17:12	22 08:03 (AR10)			19:19		20:18	
Potential sun hours	300	298	370	398	446	450		
Total, worst case	388	907	31					

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

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

**Calculation:** Worst caseShadow receptor: R22 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (68)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October		November		December
1	05:30	05:53	06:23	06:52		06:25		06:55 (AR09) 06:59
	20:30	20:12	19:30	18:40		16:54	34	07:29 (AR09) 16:31
2	05:30	05:54	06:24	06:53		06:26		06:56 (AR09) 07:00
	20:30	20:11	19:28	18:38		16:53	32	07:28 (AR09) 16:31
3	05:31	05:55	06:25	06:54		06:27		06:56 (AR09) 07:01
	20:30	20:09	19:26	18:37		16:52	31	07:27 (AR09) 16:30
4	05:31	05:56	06:25	06:55		06:28		06:58 (AR09) 07:02
	20:30	20:08	19:25	18:35		16:51	29	07:27 (AR09) 16:30
5	05:32	05:57	06:26	06:56		06:29		07:00 (AR09) 07:03
	20:29	20:07	19:23	18:34		16:50	25	07:25 (AR09) 16:30
6	05:32	05:58	06:27	06:57		06:30		07:01 (AR09) 07:04
	20:29	20:06	19:22	18:32		16:49	23	07:24 (AR10) 16:30
7	05:33	05:59	06:28	06:58		06:32		07:03 (AR09) 07:05
	20:29	20:05	19:20	18:30		16:48	25	07:28 (AR10) 16:30
8	05:33	05:59	06:29	06:59		06:33		07:07 (AR09) 07:05
	20:28	20:04	19:18	18:29		16:47	24	07:31 (AR10) 16:30
9	05:34	06:00	06:30	07:00		06:34		07:14 (AR10) 07:06
	20:28	20:02	19:17	18:27		16:46	18	07:32 (AR10) 16:30
10	05:35	06:01	06:31	07:01		06:35		07:13 (AR10) 07:07
	20:28	20:01	19:15	18:26		16:45	20	07:33 (AR10) 16:30
11	05:35	06:02	06:32	07:02		06:36		07:12 (AR10) 07:08
	20:27	20:00	19:13	18:24		16:44	22	07:34 (AR10) 16:30
12	05:36	06:03	06:33	07:03	08:07 (AR09)	06:37		07:12 (AR10) 07:09
	20:27	19:59	19:12	18:22	15	08:22 (AR09)	23	07:35 (AR10) 16:30
13	05:37	06:04	06:34	07:04	08:04 (AR09)	06:39		07:12 (AR10) 07:10
	20:26	19:57	19:10	18:21	20	08:24 (AR09)	23	07:35 (AR10) 16:30
14	05:38	06:05	06:35	07:05	08:01 (AR09)	06:40		07:12 (AR10) 07:10
	20:26	19:56	19:08	18:19	25	08:26 (AR09)	24	07:36 (AR10) 16:30
15	05:38	06:06	06:36	07:06	08:00 (AR09)	06:41		07:11 (AR10) 07:11
	20:25	19:55	19:07	18:18	28	08:28 (AR09)	25	07:36 (AR10) 16:31
16	05:39	06:07	06:37	07:07	07:58 (AR09)	06:42		07:12 (AR10) 07:12
	20:25	19:53	19:05	18:16	31	08:29 (AR09)	25	07:37 (AR10) 16:31
17	05:40	06:08	06:38	07:08	07:57 (AR09)	06:43		07:12 (AR10) 07:12
	20:24	19:52	19:03	18:15	33	08:30 (AR09)	25	07:37 (AR10) 16:31
18	05:41	06:09	06:39	07:09	07:55 (AR09)	06:44		07:13 (AR10) 07:13
	20:24	19:51	19:02	18:13	35	08:30 (AR09)	24	07:37 (AR10) 16:32
19	05:41	06:10	06:40	07:10	07:54 (AR09)	06:45		07:13 (AR10) 07:14
	20:23	19:49	19:00	18:12	37	08:31 (AR09)	24	07:37 (AR10) 16:32
20	05:42	06:11	06:41	07:11	07:54 (AR09)	06:47		07:14 (AR10) 07:14
	20:22	19:48	18:58	18:10	38	08:32 (AR09)	22	07:36 (AR10) 16:32
21	05:43	06:12	06:42	07:12	07:54 (AR09)	06:48		07:16 (AR10) 07:15
	20:21	19:46	18:57	18:09	38	08:32 (AR09)	21	07:37 (AR10) 16:33
22	05:44	06:13	06:43	07:13	07:53 (AR09)	06:49		07:17 (AR10) 07:15
	20:21	19:45	18:55	18:08	39	08:32 (AR09)	20	07:37 (AR10) 16:33
23	05:45	06:14	06:44	07:15	07:53 (AR09)	06:50		07:18 (AR10) 07:16
	20:20	19:43	18:53	18:06	39	08:32 (AR09)	19	07:37 (AR10) 16:34
24	05:46	06:15	06:45	07:16	07:52 (AR09)	06:51		07:18 (AR10) 07:16
	20:19	19:42	18:52	18:05	40	08:32 (AR09)	18	07:36 (AR10) 16:34
25	05:46	06:16	06:46	07:17	06:52 (AR09)	06:52		07:19 (AR10) 07:17
	20:18	19:40	18:50	17:03	40	07:32 (AR09)	17	07:36 (AR10) 16:35
26	05:47	06:17	06:47	07:18	06:53 (AR09)	06:53		07:20 (AR10) 07:17
	20:17	19:39	18:48	17:02	39	07:32 (AR09)	15	07:35 (AR10) 16:36
27	05:48	06:18	06:48	07:19	06:53 (AR09)	06:54		07:21 (AR10) 07:18
	20:17	19:37	18:47	17:01	39	07:32 (AR09)	14	07:35 (AR10) 16:36
28	05:49	06:19	06:49	07:20	06:53 (AR09)	06:56		07:22 (AR10) 07:18
	20:16	19:36	18:45	16:59	38	07:31 (AR09)	13	07:35 (AR10) 16:37
29	05:50	06:20	06:50	07:21	06:53 (AR09)	06:57		07:23 (AR10) 07:18
	20:15	19:34	18:43	16:58	38	07:31 (AR09)	11	07:34 (AR10) 16:38
30	05:51	06:21	06:51	07:22	06:53 (AR09)	06:58		07:24 (AR10) 07:18
	20:14	19:33	18:42	16:57	37	07:30 (AR09)	8	07:32 (AR10) 16:38
31	05:52	06:22	06:52	07:23	06:54 (AR09)			07:19
	20:13	19:31	18:40	16:56	36	07:30 (AR09)		16:39
Potential sun hours	457	426	375	346		300		290
Total, worst case					685		654	

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

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

**Calculation:** Worst case **Shadow receptor:** R29 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (69)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June
1	07:19	07:41 (AR11)   07:06	07:46 (AR11)   06:31		06:42	05:57
	15	07:56 (AR11)   17:14	4 07:50 (AR11)   17:47		19:20	19:50
2	07:19	07:41 (AR11)   07:05		06:30	17:24 (AR09)   06:40	05:56
	16	07:57 (AR11)   17:15		17:48	2 17:26 (AR09)   19:21	19:51
3	07:19	07:41 (AR11)   07:04		06:28	17:23 (AR09)   06:38	05:54
	16	07:57 (AR11)   17:16		17:49	5 17:28 (AR09)   19:22	19:52
4	07:19	07:41 (AR11)   07:03		06:27	17:21 (AR09)   06:37	05:53
	17	07:58 (AR11)   17:17		17:50	8 17:29 (AR09)   19:23	19:53
5	07:19	07:41 (AR11)   07:02		06:25	17:21 (AR09)   06:35	05:52
	18	07:59 (AR11)   17:18		17:51	9 17:30 (AR09)   19:24	19:54
6	07:19	07:41 (AR11)   07:01		06:24	17:19 (AR09)   06:34	05:51
	18	07:59 (AR11)   17:20		17:52	12 17:31 (AR09)   19:25	19:55
7	07:19	07:41 (AR11)   07:00		06:22	17:19 (AR09)   06:32	05:50
	19	08:00 (AR11)   17:21		17:53	14 17:33 (AR09)   19:26	19:56
8	07:19	07:41 (AR11)   06:59		06:21	17:18 (AR09)   06:30	05:48
	20	08:01 (AR11)   17:22		17:54	15 17:33 (AR09)   19:27	19:57
9	07:19	07:40 (AR11)   06:58		06:19	17:17 (AR09)   06:29	05:47
	20	08:00 (AR11)   17:23		17:56	17 17:34 (AR09)   19:28	19:58
10	07:19	07:40 (AR11)   06:57		06:17	17:17 (AR09)   06:27	05:46
	21	08:01 (AR11)   17:25		17:57	19 17:36 (AR09)   19:29	19:59
11	07:19	07:40 (AR11)   06:56		06:16	17:16 (AR09)   06:26	05:45
	22	08:02 (AR11)   17:26		17:58	21 17:37 (AR09)   19:30	20:00
12	07:18	07:39 (AR11)   06:54		06:14	17:16 (AR09)   06:24	05:44
	22	08:01 (AR11)   17:27		17:59	22 17:38 (AR09)   19:31	20:01
13	07:18	07:39 (AR11)   06:53		06:13	17:15 (AR09)   06:23	05:43
	23	08:02 (AR11)   17:28		18:00	24 17:39 (AR09)   19:32	20:02
14	07:18	07:39 (AR11)   06:52		06:11	17:15 (AR09)   06:21	05:42
	24	08:03 (AR11)   17:29		18:01	25 17:40 (AR09)   19:33	20:03
15	07:17	07:38 (AR11)   06:51		06:09	17:15 (AR09)   06:19	05:41
	24	08:02 (AR11)   17:31		18:02	26 17:41 (AR09)   19:34	20:04
16	07:17	07:38 (AR11)   06:49		06:08	17:15 (AR09)   06:18	05:40
	25	08:03 (AR11)   17:32		18:03	27 17:42 (AR09)   19:35	20:05
17	07:17	07:37 (AR11)   06:48		06:06	17:15 (AR09)   06:16	05:39
	26	08:03 (AR11)   17:33		18:04	29 17:44 (AR09)   19:36	20:06
18	07:16	07:37 (AR11)   06:47		06:04	17:15 (AR09)   06:15	05:38
	27	08:04 (AR11)   17:34		18:05	29 17:44 (AR09)   19:37	20:07
19	07:16	07:36 (AR11)   06:45		06:03	17:15 (AR09)   06:13	05:37
	27	08:03 (AR11)   17:35		18:06	30 17:45 (AR09)   19:38	20:08
20	07:15	07:36 (AR11)   06:44		06:01	17:16 (AR09)   06:12	05:37
	28	08:04 (AR11)   17:36		18:07	31 17:47 (AR09)   19:39	20:09
21	07:15	07:35 (AR11)   06:43		06:00	17:16 (AR09)   06:11	05:36
	28	08:03 (AR11)   17:38		18:08	32 17:48 (AR09)   19:40	20:10
22	07:14	07:34 (AR11)   06:41		05:58	17:16 (AR09)   06:09	05:35
	29	08:03 (AR11)   17:39		18:09	32 17:48 (AR09)   19:41	20:11
23	07:13	07:34 (AR11)   06:40		05:56	17:17 (AR09)   06:08	05:34
	29	08:03 (AR11)   17:40		18:10	33 17:50 (AR09)   19:42	20:12
24	07:13	07:33 (AR11)   06:39		05:55	17:18 (AR09)   06:06	05:34
	30	08:03 (AR11)   17:41		18:11	33 17:51 (AR09)   19:43	20:13
25	07:12	07:32 (AR11)   06:37		05:53	17:19 (AR09)   06:05	05:33
	30	08:02 (AR11)   17:42		18:12	32 17:51 (AR09)   19:44	20:13
26	07:11	07:32 (AR11)   06:36		05:51	17:20 (AR09)   06:04	05:32
	29	08:01 (AR11)   17:43		18:13	33 17:53 (AR09)   19:45	20:14
27	07:10	07:34 (AR11)   06:34		05:50	17:21 (AR09)   06:02	05:32
	27	08:01 (AR11)   17:44		18:14	33 17:54 (AR09)   19:46	20:15
28	07:10	07:35 (AR11)   06:33		05:48	17:22 (AR09)   06:01	05:31
	25	08:00 (AR11)   17:46		18:15	32 17:54 (AR09)   19:47	20:16
29	07:09	07:37 (AR11)		06:46	18:25 (AR09)   05:59	05:30
	22	07:59 (AR11)		19:17	29 18:54 (AR09)   19:48	20:17
30	07:08	07:39 (AR11)		06:45	18:27 (AR09)   05:58	05:30
	18	07:57 (AR11)		19:18	23 18:50 (AR09)   19:49	20:18
31	07:07	07:41 (AR11)		06:43	18:31 (AR09)	05:29
	14	07:55 (AR11)		19:19	14 18:45 (AR09)	20:18
Potential sun hours	300	298	370	398	446	450
Total, worst case	709	4	691			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst caseShadow receptor: R29 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (69)**Assumptions for shadow calculations**

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:30 20:30	05:53 20:12	06:23 19:29	06:51 18:40	17:55 (AR09) 16:54	06:59 16:31
2	05:30 20:30	05:54 20:10	06:23 19:28	06:52 18:38	17:54 (AR09) 16:53	07:00 16:31
3	05:30 20:30	05:55 20:09	06:24 19:26	06:53 18:37	17:54 (AR09) 16:52	07:01 16:30
4	05:31 20:29	05:56 20:08	06:25 19:25	06:54 18:35	17:54 (AR09) 16:51	07:02 16:30
5	05:32 20:29	05:57 20:07	06:26 19:23	06:55 18:33	17:54 (AR09) 16:50	07:03 16:30
6	05:32 20:29	05:57 20:06	06:27 19:21	06:56 18:32	17:54 (AR09) 16:49	07:03 16:30
7	05:33 20:29	05:58 20:05	06:28 19:20	06:57 18:30	17:55 (AR09) 16:48	07:04 16:30
8	05:33 20:28	05:59 20:04	06:29 19:18	06:59 18:29	17:55 (AR09) 16:47	07:05 16:30
9	05:34 20:28	06:00 20:02	06:30 19:17	07:00 18:27	17:55 (AR09) 16:45	07:06 16:30
10	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:25	17:57 (AR09) 16:44	07:07 16:30
11	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	17:58 (AR09) 16:44	07:08 16:30
12	05:36 20:27	06:03 19:59	06:33 19:12	18:24 (AR09) 18:36 (AR09)	07:03 18:22	07:09 16:30
13	05:37 20:26	06:04 19:57	06:34 19:10	18:19 (AR09) 18:41 (AR09)	07:04 18:21	07:10 16:30
14	05:37 20:26	06:05 19:56	06:35 19:08	18:16 (AR09) 18:44 (AR09)	07:05 18:19	07:10 16:30
15	05:38 20:25	06:06 19:55	06:36 19:07	18:13 (AR09) 18:45 (AR09)	07:06 18:18	07:11 16:31
16	05:39 20:25	06:07 19:53	06:37 19:05	18:11 (AR09) 18:43 (AR09)	07:07 18:16	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 19:03	18:09 (AR09) 18:41 (AR09)	07:08 18:15	07:12 16:31
18	05:41 20:23	06:09 19:50	06:39 19:02	18:07 (AR09) 18:40 (AR09)	07:09 18:13	07:13 16:32
19	05:41 20:23	06:10 19:49	06:40 19:00	18:06 (AR09) 18:38 (AR09)	07:10 18:12	07:14 16:32
20	05:42 20:22	06:11 19:48	06:41 18:58	18:04 (AR09) 18:37 (AR09)	07:11 18:10	07:14 16:32
21	05:43 20:21	06:12 19:46	06:42 18:57	18:03 (AR09) 18:35 (AR09)	07:12 18:09	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:55	18:01 (AR09) 18:32 (AR09)	07:13 18:08	07:15 16:33
23	05:45 20:20	06:14 19:43	06:44 18:53	18:00 (AR09) 18:31 (AR09)	07:14 18:06	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	17:59 (AR09) 18:29 (AR09)	07:16 18:05	07:16 16:34
25	05:46 20:18	06:16 19:40	06:46 18:50	17:58 (AR09) 18:27 (AR09)	06:17 17:03	07:17 16:35
26	05:47 20:17	06:17 19:39	06:47 18:48	17:57 (AR09) 18:26 (AR09)	06:18 17:02	07:17 16:35
27	05:48 20:16	06:18 19:37	06:47 18:47	17:56 (AR09) 18:24 (AR09)	06:19 17:01	07:17 16:36
28	05:49 20:16	06:19 19:36	06:48 18:45	17:56 (AR09) 18:22 (AR09)	06:20 16:59	07:18 16:37
29	05:50 20:15	06:20 19:34	06:49 18:43	17:55 (AR09) 18:21 (AR09)	06:21 16:58	07:18 16:38
30	05:51 20:14	06:21 19:33	06:50 18:42	17:55 (AR09) 18:19 (AR09)	06:22 16:57	07:18 16:38
31	05:52 20:13	06:22 19:31		06:23 16:56		07:19 16:39
Potential sun hours	457	426	375	346	300	290
Total, worst case			542	157	515	472

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R33 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (70)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 20:19	05:29 20:30	05:53 20:12	06:23 19:29	06:51 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51	05:28 20:20	05:30 20:30	05:54 20:10	06:23 19:28	06:52 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52	05:28 20:20	05:30 20:30	05:55 20:09	06:24 19:26	06:53 18:37	06:27 17:46 (AR09)	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:53	05:28 20:21	05:31 20:29	05:56 20:08	06:25 19:25	06:54 18:35	06:28 17:45 (AR09)	07:02 16:30
5	07:19 16:43	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:54	05:27 20:22	05:32 20:29	05:57 20:07	06:26 19:23	06:55 18:33	06:29 17:39 (AR09)	07:03 16:30
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:55	05:27 20:22	05:32 20:29	05:57 20:06	06:27 19:21	06:56 18:32	06:30 17:37 (AR09)	07:03 16:30
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:56	05:27 20:23	05:33 20:29	05:58 20:05	06:28 19:20	06:57 18:30	06:31 17:35 (AR09)	07:04 16:30
8	07:19 16:46	06:59 17:22	06:20 17:54	06:30 19:27	05:48 19:57	05:26 20:24	05:33 20:28	05:59 20:04	06:29 19:18	06:58 18:29	06:33 17:36 (AR09)	07:05 16:30
9	07:19 16:47	06:58 17:23	06:19 17:55	06:29 19:28	05:47 19:58	05:26 20:24	05:34 20:28	06:00 20:02	06:30 19:17	07:00 18:27	06:34 17:33 (AR09)	07:06 16:30
10	07:19 16:48	06:57 17:24	06:17 17:57	06:27 19:29	05:46 19:59	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:25	06:35 16:44	07:07 16:30
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:00	05:26 20:25	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:18 16:50	06:54 17:27	06:14 17:59	06:24 19:31	05:44 20:01	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30
13	07:18 16:51	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:02	05:26 20:26	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:38 16:42	07:09 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	05:26 20:27	05:37 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
15	07:17 16:54	06:51 17:30	06:09 18:02	06:19 19:34	05:41 20:04	05:26 20:27	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:49 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 20:28	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:12 16:31
18	07:16 16:57	06:47 17:34	06:04 18:05	06:15 19:37	05:38 20:07	05:26 20:28	05:41 20:23	06:09 19:50	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:31
19	07:16 16:58	06:45 17:35	06:03 18:06	06:13 19:38	05:37 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:45 16:37	07:14 16:32
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32
21	07:14 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:21	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:35	07:15 16:33
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:14 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:16 16:34
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:13	05:27 20:30	05:46 20:18	06:16 19:40	06:46 18:50	06:17 17:03	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:51 18:13	06:03 19:45	05:32 20:14	05:27 20:30	05:47 20:17	06:17 19:39	06:46 18:48	06:18 17:02	06:53 16:33	07:17 16:35
27	07:10 17:07	06:34 17:44	05:50 18:14	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:16	06:18 19:37	06:47 18:47	06:19 17:01	06:54 16:32	07:17 16:36
28	07:10 17:09	06:33 17:46	05:48 18:15	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:15	06:19 19:36	06:48 18:45	06:20 16:59	06:55 16:32	07:18 16:37
29	07:09 17:10		06:46 19:16	05:59 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:49 18:43	06:21 16:58	06:56 16:31	07:18 16:37
30	07:08 17:11		06:45 19:18	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:50 18:42	06:22 16:57	06:58 16:31	07:18 16:38
31	07:07 17:12		06:43 19:19	05:57 20:18	05:29 20:18	05:28 20:13	05:52 20:13	06:22 19:31	06:23 16:56	06:23 16:56	06:59 16:39	07:19 16:39
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290
Total, worst case				18							18	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst caseShadow receptor: R38 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (72)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June
1	07:19	15:33 (AR10)	07:06	06:31	06:42	05:57
	16:40	24 15:57 (AR10)	17:14	17:47	19:20	19:50
2	07:19	15:34 (AR10)	07:05	06:30	06:40	05:56
	16:41	24 15:58 (AR10)	17:15	17:48	19:21	19:51
3	07:19	15:35 (AR10)	07:04	06:28	06:38	05:54
	16:42	24 15:59 (AR10)	17:16	17:49	19:22	19:52
4	07:19	15:35 (AR10)	07:03	06:27	06:37	05:53
	16:43	25 16:00 (AR10)	17:17	17:50	19:23	19:53
5	07:19	15:36 (AR10)	07:02	06:25	06:35	05:52
	16:43	25 16:01 (AR10)	17:18	17:51	19:24	19:54
6	07:19	15:37 (AR10)	07:01	06:24	06:34	05:51
	16:44	25 16:02 (AR10)	17:20	17:52	19:25	19:55
7	07:19	15:38 (AR10)	07:00	06:22	17:11 (AR09)	06:32
	16:45	25 16:03 (AR10)	17:21	17:53	19:26	19:56
8	07:19	15:39 (AR10)	06:59	06:20	17:11 (AR09)	06:30
	16:46	25 16:04 (AR10)	17:22	17:54	19:27	19:57
9	07:19	15:39 (AR10)	06:58	06:19	17:12 (AR09)	06:29
	16:47	26 16:05 (AR10)	17:23	17:55	19:28	19:58
10	07:19	15:40 (AR10)	06:57	06:17	17:13 (AR09)	06:27
	16:48	26 16:06 (AR10)	17:24	17:57	19:29	19:59
11	07:19	15:42 (AR10)	06:56	06:16	17:14 (AR09)	06:26
	16:49	24 16:06 (AR10)	17:26	17:58	06:26	05:45
12	07:18	15:42 (AR10)	06:54	06:14	19:30	20:00
	16:50	23 16:05 (AR10)	17:27	17:59	06:24	05:44
13	07:18	15:44 (AR10)	06:53	06:13	19:31	20:01
	16:51	20 16:04 (AR10)	17:28	18:00	06:23	05:43
14	07:18	15:46 (AR10)	06:52	06:11	19:32	20:02
	16:52	18 16:04 (AR10)	17:29	18:01	06:21	05:42
15	07:17	15:47 (AR10)	06:51	06:09	19:33	20:03
	16:54	16 16:03 (AR10)	17:30	18:02	06:19	05:41
16	07:17	15:50 (AR10)	06:49	06:08	19:34	20:04
	16:55	12 16:02 (AR10)	17:32	18:03	06:18	05:40
17	07:17	15:53 (AR10)	06:48	06:06	19:35	20:05
	16:56	5 15:58 (AR10)	17:33	18:04	19:35	20:05
18	07:16		06:47	06:04	06:16	05:39
	16:57		17:34	18:05	19:36	20:06
19	07:16		06:45	06:03	06:15	05:38
	16:58		17:35	18:06	06:14	05:37
20	07:15		06:44	06:01	19:37	20:07
	16:59		17:36	18:07	06:13	05:37
21	07:14		06:43	06:00	06:12	05:37
	17:00		17:38	18:08	19:39	20:09
22	07:14		06:41	05:58	06:11	05:36
	17:02		17:39	18:09	06:10	05:35
23	07:13		06:40	05:56	19:40	20:10
	17:03		17:40	18:10	06:09	05:35
24	07:13		06:39	05:55	06:08	05:34
	17:04		17:41	18:11	19:42	20:12
25	07:12		06:37	05:53	06:07	05:33
	17:05		17:42	18:12	06:06	05:34
26	07:11		06:36	05:51	06:16	05:39
	17:06		17:43	18:13	19:36	20:08
27	07:10		06:34	05:50	06:15	05:38
	17:07		17:44	18:14	06:14	05:37
28	07:10		06:33	05:48	06:13	05:37
	17:09		17:46	18:15	06:12	05:36
29	07:09			06:46	06:11	05:36
	17:10			19:16	06:10	05:35
30	07:08			06:45	06:09	05:34
	17:11			19:18	06:08	05:34
31	07:07			06:43	06:07	05:33
	17:12			19:19	06:06	05:32
Potential sun hours	300	298	370	398	446	450
Total, worst case	367		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:** Worst caseShadow receptor: R38 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (72)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December		
1	05:29	05:53	06:22	06:51	06:25	06:59	15:24 (AR10)	
	20:30	20:11	19:29	18:40	16:54	16:31	24 15:48 (AR10)	
2	05:30	05:54	06:23	06:52	06:26	07:00	15:24 (AR10)	
	20:30	20:10	19:28	18:38	16:53	16:31	25 15:49 (AR10)	
3	05:30	05:55	06:24	06:53	06:27	07:01	15:23 (AR10)	
	20:30	20:09	19:26	18:37	16:52	16:30	26 15:49 (AR10)	
4	05:31	05:56	06:25	06:54	17:50 (AR09)	06:28	07:02	15:23 (AR10)
	20:29	20:08	19:25	18:35	1 17:51 (AR09)	16:51	16:30	25 15:48 (AR10)
5	05:32	05:57	06:26	06:55	17:48 (AR09)	06:29	07:03	15:23 (AR10)
	20:29	20:07	19:23	18:33	2 17:50 (AR09)	16:50	16:30	25 15:48 (AR10)
6	05:32	05:57	06:27	06:56	17:47 (AR09)	06:30	07:03	15:23 (AR10)
	20:29	20:06	19:21	18:32	1 17:48 (AR09)	16:49	16:30	25 15:48 (AR10)
7	05:33	05:58	06:28	06:57	06:31	07:04	15:23 (AR10)	
	20:29	20:05	19:20	18:30	16:48	16:30	25 15:48 (AR10)	
8	05:33	05:59	06:29	06:58	06:33	07:05	15:24 (AR10)	
	20:28	20:04	19:18	18:29	16:46	16:30	24 15:48 (AR10)	
9	05:34	06:00	06:30	06:59	06:34	07:06	15:24 (AR10)	
	20:28	20:02	19:17	18:27	16:45	16:30	24 15:48 (AR10)	
10	05:35	06:01	06:31	07:01	06:35	07:07	15:23 (AR10)	
	20:28	20:01	19:15	18:25	16:44	16:30	24 15:47 (AR10)	
11	05:35	06:02	06:32	07:02	06:36	07:08	15:24 (AR10)	
	20:27	20:00	19:13	18:24	16:43	16:30	23 15:47 (AR10)	
12	05:36	06:03	06:33	07:03	06:37	07:09	15:24 (AR10)	
	20:27	19:59	19:12	18:22	16:43	16:30	24 15:48 (AR10)	
13	05:37	06:04	06:34	07:04	06:38	07:09	15:25 (AR10)	
	20:26	19:57	19:10	18:21	16:42	16:30	23 15:48 (AR10)	
14	05:37	06:05	06:35	07:05	06:40	07:10	15:24 (AR10)	
	20:26	19:56	19:08	18:19	16:41	16:30	23 15:47 (AR10)	
15	05:38	06:06	06:36	07:06	06:41	07:11	15:25 (AR10)	
	20:25	19:55	19:07	18:18	16:40	16:31	23 15:48 (AR10)	
16	05:39	06:07	06:37	07:07	06:42	07:12	15:25 (AR10)	
	20:25	19:53	19:05	18:16	16:39	16:31	23 15:48 (AR10)	
17	05:40	06:08	06:38	07:08	06:43	07:12	15:26 (AR10)	
	20:24	19:52	19:03	18:15	16:38	16:31	23 15:49 (AR10)	
18	05:40	06:09	06:39	07:09	06:44	07:13	15:26 (AR10)	
	20:23	19:50	19:02	18:13	16:38	16:31	22 15:48 (AR10)	
19	05:41	06:10	06:40	07:10	06:45	07:14	15:27 (AR10)	
	20:23	19:49	19:00	18:12	16:37	16:32	22 15:49 (AR10)	
20	05:42	06:11	06:41	07:11	06:47	07:14	15:27 (AR10)	
	20:22	19:48	18:58	18:10	16:36	16:32	22 15:49 (AR10)	
21	05:43	06:12	06:42	07:12	06:48	07:15	15:28 (AR10)	
	20:21	19:46	18:57	18:09	16:35	16:33	22 15:50 (AR10)	
22	05:44	06:13	06:43	07:13	06:49	07:15	15:28 (AR10)	
	20:21	19:45	18:55	18:07	16:35	16:33	22 15:50 (AR10)	
23	05:45	06:14	06:44	07:14	06:50	07:16	15:29 (AR10)	
	20:20	19:43	18:53	18:06	16:34	16:34	22 15:51 (AR10)	
24	05:46	06:15	06:45	07:15	06:51	07:16	15:29 (AR10)	
	20:19	19:42	18:52	18:05	16:34	16:34	22 15:51 (AR10)	
25	05:46	06:16	06:46	06:17	06:52	15:31 (AR10)	07:17	15:29 (AR10)
	20:18	19:40	18:50	17:03	16:33	5 15:36 (AR10)	16:35	22 15:51 (AR10)
26	05:47	06:17	06:46	06:18	06:53	15:28 (AR10)	07:17	15:30 (AR10)
	20:17	19:39	18:48	17:02	16:33	12 15:40 (AR10)	16:35	23 15:53 (AR10)
27	05:48	06:18	06:47	06:19	06:54	15:26 (AR10)	07:17	15:30 (AR10)
	20:16	19:37	18:47	17:01	16:32	16 15:42 (AR10)	16:36	23 15:53 (AR10)
28	05:49	06:19	06:48	06:20	06:55	15:26 (AR10)	07:18	15:31 (AR10)
	20:15	19:36	18:45	16:59	16:32	18 15:44 (AR10)	16:37	22 15:53 (AR10)
29	05:50	06:20	06:49	06:21	06:56	15:25 (AR10)	07:18	15:32 (AR10)
	20:15	19:34	18:43	16:58	16:31	20 15:45 (AR10)	16:37	23 15:55 (AR10)
30	05:51	06:21	06:50	06:22	06:58	15:24 (AR10)	07:18	15:32 (AR10)
	20:14	19:33	18:42	16:57	16:31	23 15:47 (AR10)	16:38	24 15:56 (AR10)
31	05:52	06:22		06:23			07:19	15:33 (AR10)
	20:13	19:31		16:56			16:39	23 15:56 (AR10)
Potential sun hours	457	426	375	346	300	290	723	
Total, worst case				4	94			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R4 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (60)  
**Assumptions for shadow calculations**

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

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

	January	February	March	April	May	June
1	07:19 16:40	07:07 17:14	06:32 17:47	06:50 (AR04)   06:42 07:47 (AR04)   19:20	07:50 (AR04)   05:57 08:14 (AR04)   19:51	05:29 19:01 (AR02)
2	07:19 16:41	07:06 17:15	06:30 17:48	06:49 (AR04)   06:40 07:48 (AR04)   19:21	07:56 (AR04)   05:56 08:08 (AR04)   19:52	05:29 19:01 (AR02)
3	07:19 16:42	07:05 17:16	06:29 17:49	06:47 (AR04)   06:39 07:47 (AR04)   19:22	05:55 19:53	05:28 19:01 (AR02)
4	07:19 16:43	07:04 17:18	06:27 17:50	06:46 (AR04)   06:37 07:48 (AR04)   19:23	05:53 19:54	05:28 19:01 (AR02)
5	07:19 16:44	07:03 17:19	06:25 17:51	06:44 (AR04)   06:35 07:48 (AR04)   19:24	05:52 19:55	05:28 19:01 (AR02)
6	07:19 16:45	07:02 17:20	06:24 17:53	06:43 (AR04)   06:34 07:48 (AR04)   19:25	05:51 19:56	05:27 19:01 (AR02)
7	07:19 16:46	07:00 17:21	06:22 17:54	06:41 (AR04)   06:32 07:48 (AR04)   19:26	05:50 19:57	05:27 19:01 (AR02)
8	07:19 16:47	06:59 17:22	06:21 17:55	06:39 (AR04)   06:31 07:47 (AR04)   19:27	05:49 19:58	05:27 19:01 (AR02)
9	07:19 16:48	06:58 17:24	06:19 17:56	06:38 (AR04)   06:29 07:48 (AR04)   19:28	05:48 19:59	05:27 19:01 (AR02)
10	07:19 16:49	06:57 17:25	06:18 17:57	06:36 (AR04)   06:28 07:47 (AR04)   19:29	05:46 20:00	05:26 19:01 (AR02)
11	07:19 16:50	06:56 17:26	06:16 17:58	06:35 (AR04)   06:26 07:47 (AR04)   19:30	05:45 20:01	05:26 19:01 (AR02)
12	07:19 16:51	06:55 17:27	06:14 17:59	06:33 (AR04)   06:24 07:46 (AR04)   19:31	05:44 20:02	05:26 19:01 (AR02)
13	07:18 16:52	06:54 17:28	06:13 18:00	06:32 (AR04)   06:23 07:45 (AR04)   19:32	05:43 20:03	05:26 19:01 (AR02)
14	07:18 16:53	06:52 17:30	06:11 18:01	06:33 (AR04)   06:21 07:45 (AR04)   19:33	05:42 20:04	05:26 19:01 (AR02)
15	07:18 16:54	06:51 17:31	06:10 18:02	06:32 (AR04)   06:20 07:44 (AR04)   19:34	05:41 20:05	05:26 19:01 (AR02)
16	07:17 16:55	16:29 (AR01)   06:50 16:30 (AR01)   17:32	07:09 (AR04)   06:08 07:32 (AR04)   18:03	06:32 (AR04)   06:18 07:43 (AR04)   19:35	05:40 20:06	05:26 19:01 (AR02)
17	07:17 16:56	16:30 (AR01)   06:48 16:32 (AR01)   17:33	07:08 (AR04)   06:06 07:35 (AR04)   18:04	06:33 (AR04)   06:17 07:43 (AR04)   19:36	05:39 20:07	05:26 19:01 (AR02)
18	07:16 16:57	2 16:32 (AR01)   17:34 16:30 (AR01)   17:36	07:06 (AR04)   06:05 07:36 (AR04)   18:05	06:33 (AR04)   06:15 07:41 (AR04)   19:37	05:39 20:08	05:26 19:01 (AR02)
19	07:16 16:58	3 16:31 (AR01)   17:36 16:34 (AR01)   17:36	07:05 (AR04)   06:03 07:38 (AR04)   18:06	06:34 (AR04)   06:14 07:41 (AR04)   19:38	05:38 20:08	05:26 19:01 (AR02)
20	07:15 17:00	4 16:31 (AR01)   17:37 16:35 (AR01)   17:37	07:03 (AR04)   06:02 07:39 (AR04)   18:08	06:34 (AR04)   06:12 07:40 (AR04)   19:39	05:37 20:09	05:26 19:01 (AR02)
21	07:15 17:01	4 16:32 (AR01)   17:38 16:36 (AR01)   17:38	07:02 (AR04)   06:00 07:41 (AR04)   18:09	06:34 (AR04)   06:11 07:38 (AR04)   19:40	05:36 20:10	05:26 19:01 (AR02)
22	07:14 17:02	5 16:33 (AR01)   17:39 16:38 (AR01)   17:39	07:01 (AR04)   05:58 07:42 (AR04)   18:10	06:35 (AR04)   06:09 07:37 (AR04)   19:41	05:35 20:11	05:27 19:01 (AR02)
23	07:14 17:03	5 16:34 (AR01)   17:40 16:39 (AR01)   17:40	06:59 (AR04)   05:57 07:43 (AR04)   18:11	06:36 (AR04)   06:08 07:35 (AR04)   19:42	05:35 20:12	05:27 19:01 (AR02)
24	07:13 17:04	5 16:35 (AR01)   17:41 16:40 (AR01)   17:41	06:58 (AR04)   05:55 07:44 (AR04)   18:12	06:36 (AR04)   06:07 07:34 (AR04)   19:44	05:34 20:13	05:27 19:01 (AR02)
25	07:12 17:05	5 16:36 (AR01)   17:42 16:41 (AR01)   17:42	06:56 (AR04)   05:53 07:44 (AR04)   18:13	06:38 (AR04)   06:05 07:33 (AR04)   19:45	05:33 20:14	05:27 19:01 (AR02)
26	07:12 17:07	5 16:39 (AR01)   17:44 16:39 (AR01)   17:44	06:55 (AR04)   05:52 07:46 (AR04)   18:14	06:38 (AR04)   06:04 07:30 (AR04)   19:46	05:32 20:15	05:28 19:01 (AR02)
27	07:11 17:08	4 16:43 (AR01)   17:45 16:41 (AR01)   17:45	06:53 (AR04)   05:50 07:46 (AR04)   18:15	06:39 (AR04)   06:02 07:28 (AR04)   19:47	05:32 20:15	05:28 19:01 (AR02)
28	07:10 17:09	3 16:44 (AR01)   17:45 06:33 17:46	06:52 (AR04)   05:48 07:47 (AR04)   18:16	06:41 (AR04)   06:01 07:26 (AR04)   19:48	05:31 20:16	05:29 19:01 (AR02)
29	07:09 17:10		06:47 19:17	07:43 (AR04)   06:00 08:24 (AR04)   19:49	05:31 20:17	05:29 19:01 (AR02)
30	07:08 17:11		06:45 19:18	07:44 (AR04)   05:58 08:21 (AR04)   19:50	05:30 20:18	05:29 19:01 (AR02)
31	07:07 17:13		06:44 19:19	07:47 (AR04)   05:57 08:18 (AR04)   19:51	05:30 20:19	05:29 19:01 (AR02)
Potential sun hours	299	298	370	398	446	450
Total, worst case	43	567	1900	36	836	1790

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R4 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (60)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December						
1	05:30	19:05 (AR02)	05:53	19:29 (AR02)	06:23	06:52	07:12 (AR04)	06:25	06:59			
	20:30	60	20:05 (AR02)	20:12	20	19:49 (AR02)	19:30	18:40	74	08:26 (AR04)	16:55	16:31
2	05:30	19:06 (AR02)	05:54	19:32 (AR02)	06:24	06:53	07:13 (AR04)	06:26	07:00			
	20:30	59	20:05 (AR02)	20:11	16	19:48 (AR02)	19:28	18:39	73	08:26 (AR04)	16:53	16:31
3	05:31	19:06 (AR02)	05:55	19:27	06:25	06:54	07:14 (AR04)	06:27	07:01			
	20:30	59	20:05 (AR02)	20:10	19:27	06:55	07:15 (AR04)	06:28	16:31			
4	05:31	19:07 (AR02)	05:56	19:25	06:26	06:55	07:15 (AR04)	06:28	07:02			
	20:30	58	20:05 (AR02)	20:09	19:25	06:56	07:16 (AR04)	06:29	16:30			
5	05:32	19:06 (AR02)	05:57	19:23	06:27	06:56	07:16 (AR04)	06:29	07:03			
	20:30	58	20:04 (AR02)	20:07	19:23	06:57	07:17 (AR04)	06:31	16:30			
6	05:32	19:07 (AR02)	05:58	19:22	06:28	06:57	07:17 (AR04)	06:31	07:04			
	20:29	58	20:05 (AR02)	20:06	19:22	06:58	07:18 (AR04)	06:32	16:30			
7	05:33	19:07 (AR02)	05:59	19:20	06:29	06:58	07:18 (AR04)	06:32	07:05			
	20:29	57	20:04 (AR02)	20:05	19:20	06:59	07:19 (AR04)	06:33	16:30			
8	05:34	19:07 (AR02)	06:00	19:18	06:30	06:59	07:19 (AR04)	06:33	07:06			
	20:29	57	20:04 (AR02)	20:04	19:18	07:00	07:20 (AR04)	06:34	16:30			
9	05:34	19:08 (AR02)	06:01	19:17	06:30	07:00	07:20 (AR04)	06:34	07:07			
	20:28	56	20:04 (AR02)	20:03	19:17	07:01	07:21 (AR04)	06:35	16:30			
10	05:35	19:08 (AR02)	06:02	19:15	06:31	07:50 (AR04)	07:01	07:21 (AR04)	07:07			
	20:28	55	20:03 (AR02)	20:01	19:15	08:00 (AR04)	18:26	08:22 (AR04)	16:45	16:30		
11	05:36	19:09 (AR02)	06:03	19:14	06:32	07:44 (AR04)	07:02	07:22 (AR04)	06:36	07:08		
	20:28	54	20:03 (AR02)	20:00	19:14	08:06 (AR04)	18:24	08:22 (AR04)	16:44	16:30		
12	05:36	19:09 (AR02)	06:04	19:12	06:33	07:39 (AR04)	07:03	07:23 (AR04)	06:38	07:09		
	20:27	54	20:03 (AR02)	19:59	19:12	08:09 (AR04)	18:23	08:21 (AR04)	16:43	16:30		
13	05:37	19:09 (AR02)	06:05	19:10	06:34	07:36 (AR04)	07:04	07:24 (AR04)	06:39	07:10		
	20:27	53	20:02 (AR02)	19:58	19:10	08:11 (AR04)	18:21	08:20 (AR04)	16:42	16:30		
14	05:38	19:10 (AR02)	06:05	19:09	06:35	07:33 (AR04)	07:05	07:25 (AR04)	06:40	07:11		
	20:26	52	20:02 (AR02)	19:56	19:09	08:14 (AR04)	18:20	08:19 (AR04)	16:41	16:31		
15	05:38	19:11 (AR02)	06:06	19:07	06:36	07:31 (AR04)	07:06	07:26 (AR04)	06:41	16:13 (AR01)	07:11	
	20:26	50	20:01 (AR02)	19:55	19:07	08:15 (AR04)	18:18	08:18 (AR04)	16:40	3	16:16 (AR01)	16:31
16	05:39	19:10 (AR02)	06:07	19:05	06:37	07:29 (AR04)	07:07	07:27 (AR04)	06:42	16:12 (AR01)	07:12	
	20:25	50	20:00 (AR02)	19:54	19:05	08:17 (AR04)	18:17	08:17 (AR04)	16:39	4	16:16 (AR01)	16:31
17	05:40	19:11 (AR02)	06:08	19:04	06:38	07:27 (AR04)	07:08	07:28 (AR04)	06:43	16:10 (AR01)	07:13	
	20:24	49	20:00 (AR02)	19:52	19:04	08:18 (AR04)	18:15	08:16 (AR04)	16:39	5	16:15 (AR01)	16:31
18	05:41	19:12 (AR02)	06:09	19:02	06:39	07:25 (AR04)	07:09	07:30 (AR04)	06:45	16:09 (AR01)	07:13	
	20:24	48	20:00 (AR02)	19:51	19:02	08:19 (AR04)	18:14	08:15 (AR04)	16:38	5	16:14 (AR01)	16:32
19	05:42	19:13 (AR02)	06:10	19:00	06:40	07:24 (AR04)	07:10	07:31 (AR04)	06:46	16:08 (AR01)	07:14	
	20:23	46	19:59 (AR02)	19:49	19:00	08:21 (AR04)	18:12	08:14 (AR04)	16:37	5	16:13 (AR01)	16:32
20	05:42	19:14 (AR02)	06:11	18:59	06:41	07:22 (AR04)	07:11	07:32 (AR04)	06:47	16:08 (AR01)	07:15	
	20:22	45	19:59 (AR02)	19:48	18:59	08:21 (AR04)	18:11	08:12 (AR04)	16:36	5	16:13 (AR01)	16:33
21	05:43	19:13 (AR02)	06:12	18:57	06:42	07:21 (AR04)	07:13	07:33 (AR04)	06:48	16:08 (AR01)	07:15	
	20:22	44	19:57 (AR02)	19:47	18:57	08:22 (AR04)	18:09	08:11 (AR04)	16:36	4	16:12 (AR01)	16:33
22	05:44	19:14 (AR02)	06:13	18:55	06:43	07:20 (AR04)	07:14	07:34 (AR04)	06:49	16:07 (AR01)	07:16	
	20:21	43	19:57 (AR02)	19:45	18:55	08:23 (AR04)	18:08	08:09 (AR04)	16:35	4	16:11 (AR01)	16:34
23	05:45	19:15 (AR02)	06:14	18:54	06:44	07:18 (AR04)	07:15	07:35 (AR04)	06:50	16:07 (AR01)	07:16	
	20:20	41	19:56 (AR02)	19:44	18:54	08:24 (AR04)	18:06	08:07 (AR04)	16:35	3	16:10 (AR01)	16:34
24	05:46	19:16 (AR02)	06:15	18:52	06:45	07:17 (AR04)	07:16	07:37 (AR04)	06:51	16:07 (AR01)	07:17	
	20:19	40	19:56 (AR02)	19:42	18:52	08:24 (AR04)	18:05	08:06 (AR04)	16:34	2	16:09 (AR01)	16:35
25	05:47	19:18 (AR02)	06:16	18:50	06:46	07:16 (AR04)	06:17	06:38 (AR04)	06:52	16:08 (AR01)	07:17	
	20:19	37	19:55 (AR02)	19:41	18:50	08:25 (AR04)	17:04	07:04 (AR04)	16:34	2	16:10 (AR01)	16:35
26	05:48	19:19 (AR02)	06:17	18:49	06:47	07:15 (AR04)	06:18	06:39 (AR04)	06:54	16:08 (AR01)	07:17	
	20:18	35	19:54 (AR02)	19:39	18:49	08:25 (AR04)	17:02	07:01 (AR04)	16:33	1	16:09 (AR01)	16:36
27	05:48	19:19 (AR02)	06:18	18:47	06:48	07:15 (AR04)	06:19	06:40 (AR04)	06:55	07:18		
	20:17	34	19:53 (AR02)	19:38	18:47	08:25 (AR04)	17:01	06:58 (AR04)	16:33	16:36		
28	05:49	19:20 (AR02)	06:19	18:45	06:49	07:14 (AR04)	06:20	06:41 (AR04)	06:56	07:18		
	20:16	32	19:52 (AR02)	19:36	18:45	08:25 (AR04)	17:00	06:54 (AR04)	16:32	16:37		
29	05:50	19:22 (AR02)	06:20	18:44	06:50	07:13 (AR04)	06:21	06:42 (AR04)	06:57	07:18		
	20:15	29	19:51 (AR02)	19:34	18:44	08:26 (AR04)	16:58	06:48 (AR04)	16:32	16:38		
30	05:51	19:24 (AR02)	06:21	18:42	06:51	07:13 (AR04)	06:23	06:58	16:31	07:19		
	20:14	26	19:50 (AR02)	19:33	18:42	08:26 (AR04)	16:57	06:58	16:31	16:39		
31	05:52	19:26 (AR02)	06:22	18:41	06:52	06:24	06:24	06:59	16:31	07:19		
	20:13	23	19:49 (AR02)	19:31	18:41	06:24	06:24	06:59	16:31	16:39		
Potential sun hours	457		426		375		346		300		290	
Total, worst case	1462		36		1134		1404		43			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R40 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (73)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:26	06:54 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:08	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:02 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:26 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:27 19:22	06:57 18:32	06:30 16:49	07:04 16:30
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:05 16:30
8	07:19 16:46	06:59 17:22	06:21 17:55	06:30 19:27	05:48 19:58	05:27 20:24	05:33 20:29	05:59 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:05 16:30
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:24	05:34 20:28	06:00 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:18 16:50	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:26	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
15	07:17 16:54	06:51 17:31	06:09 18:02	06:20 19:34	05:41 20:05	05:26 20:27	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 20:28	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:13 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:28	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32
21	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:42 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:15 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:16 16:34
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:14	05:27 20:30	05:46 20:18	06:16 19:40	06:46 18:50	07:17 17:03	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:51 18:14	06:04 19:45	05:32 20:14	05:28 20:30	05:47 20:17	06:17 19:39	06:47 18:48	07:18 17:02	06:53 16:33	07:17 16:36
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	06:19 17:01	06:54 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 16:59	06:56 16:32	07:18 16:37
29	07:09 17:10		06:47 19:17	06:00 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11		06:45 19:18	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:22 16:57	06:58 16:31	07:19 16:38
31	07:07 17:12		06:43 19:19		05:29 20:19		05:52 20:13	06:22 19:31		06:24 16:56		07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst caseShadow receptor: R43 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (74)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June			
1	07:19 16:40	07:06 17:14	07:26 (AR06) 07:45 (AR06)	06:31 17:47	07:14 (AR06) 07:37 (AR06)	06:42 19:20	18:21 (AR04) 18:30 (AR04)	05:57 19:51	05:29 20:19
2	07:19 16:41	07:05 17:15	07:25 (AR06) 07:46 (AR06)	06:30 17:48	07:18 (AR06) 07:34 (AR06)	06:40 19:21	18:20 (AR04) 18:31 (AR04)	05:56 19:52	05:29 20:20
3	07:19 16:42	07:05 17:16	07:24 (AR06) 07:47 (AR06)	06:28 17:49		06:39 19:22	18:20 (AR04) 18:32 (AR04)	05:55 19:53	05:28 20:21
4	07:19 16:43	07:04 17:17	07:23 (AR06) 07:48 (AR06)	06:27 17:50		06:37 19:23	18:19 (AR04) 18:33 (AR04)	05:53 19:54	05:28 20:21
5	07:19 16:44	07:03 17:19	07:22 (AR06) 07:49 (AR06)	06:25 17:51		06:35 19:24	18:19 (AR04) 18:34 (AR04)	05:52 19:55	05:28 20:22
6	07:19 16:45	07:01 17:20	07:21 (AR06) 07:50 (AR06)	06:24 17:52		06:34 19:25	18:19 (AR04) 18:35 (AR04)	05:51 19:56	05:27 20:23
7	07:19 16:46	07:00 17:21	07:20 (AR06) 07:51 (AR06)	06:22 17:54		06:32 19:26	18:18 (AR04) 18:35 (AR04)	05:50 19:57	05:27 20:23
8	07:19 16:47	06:59 17:22	07:19 (AR06) 07:52 (AR06)	06:21 17:55		06:31 19:27	18:19 (AR04) 18:37 (AR04)	05:49 19:58	05:27 20:24
9	07:19 16:48	06:58 17:24	07:18 (AR06) 07:52 (AR06)	06:19 17:56		06:29 19:28	18:19 (AR04) 18:37 (AR04)	05:48 19:59	05:26 20:25
10	07:19 16:49	06:57 17:25	07:16 (AR06) 07:52 (AR06)	06:18 17:57		06:27 19:29	18:20 (AR04) 18:38 (AR04)	05:46 20:00	05:26 20:25
11	07:19 16:50	06:56 17:26	07:15 (AR06) 07:52 (AR06)	06:16 17:58		06:26 19:30	18:20 (AR04) 18:39 (AR04)	05:45 20:01	05:26 20:26
12	07:19 16:51	06:55 17:27	07:14 (AR06) 07:53 (AR06)	06:14 17:59		06:24 19:31	18:21 (AR04) 18:40 (AR04)	05:44 20:02	05:26 20:26
13	07:18 16:52	06:53 17:28	07:13 (AR06) 07:53 (AR06)	06:13 18:00		06:23 19:32	18:22 (AR04) 18:41 (AR04)	05:43 20:03	05:26 20:27
14	07:18 16:53	06:52 17:30	07:11 (AR06) 07:52 (AR06)	06:11 18:01		06:21 19:33	18:24 (AR04) 18:40 (AR04)	05:42 20:04	05:26 20:27
15	07:18 16:54	06:51 17:31	07:10 (AR06) 07:52 (AR06)	06:10 18:02		06:20 19:34	18:27 (AR04) 18:36 (AR04)	05:41 20:05	05:26 20:27
16	07:17 16:55	06:50 17:32	07:09 (AR06) 07:53 (AR06)	06:08 18:03		06:18 19:35		05:40 20:06	05:26 20:28
17	07:17 16:56	06:48 17:33	07:07 (AR06) 07:52 (AR06)	06:06 18:04		06:17 19:36		05:39 20:06	05:26 20:28
18	07:16 16:57	06:47 17:34	07:06 (AR06) 07:52 (AR06)	06:05 18:05		06:15 19:37		05:39 20:07	05:26 20:29
19	07:16 16:58	06:46 17:35	07:05 (AR06) 07:51 (AR06)	06:03 18:06		06:14 19:38		05:38 20:08	05:26 20:29
20	07:15 16:59	06:44 17:37	07:03 (AR06) 07:50 (AR06)	06:01 18:07		06:12 19:39		05:37 20:09	05:26 20:29
21	07:15 17:01	06:43 17:38	07:04 (AR06) 07:50 (AR06)	06:00 18:08		06:11 19:40		05:36 20:10	05:26 20:29
22	07:14 17:02	06:42 17:39	07:05 (AR06) 07:50 (AR06)	05:58 18:10		06:09 19:41		05:35 20:11	05:27 20:30
23	07:14 17:03	06:40 17:40	07:05 (AR06) 07:48 (AR06)	05:57 18:11		06:08 19:42		05:34 20:12	05:27 20:30
24	07:13 17:04	06:39 17:41	07:07 (AR06) 07:47 (AR06)	05:55 18:12		06:06 19:43		05:34 20:13	05:27 20:30
25	07:12 17:05	06:37 17:42	07:07 (AR06) 07:45 (AR06)	05:53 18:13		06:05 19:44		05:33 20:14	05:27 20:30
26	07:11 17:07	07:32 (AR06) 07:35 (AR06)	06:36 17:44	05:52 18:14		06:04 19:45		05:32 20:15	05:28 20:30
27	07:11 17:08	07:31 (AR06) 07:37 (AR06)	06:34 17:45	05:50 18:15		06:02 19:47		05:32 20:15	05:28 20:30
28	07:10 17:09	07:30 (AR06) 07:39 (AR06)	06:33 17:46	05:48 18:16		06:01 19:48		05:31 20:16	05:28 20:30
29	07:09 17:10	07:29 (AR06) 07:41 (AR06)		06:47 19:17	18:25 (AR04) 18:28 (AR04)	06:00 19:49		05:31 20:17	05:29 20:30
30	07:08 17:11	07:28 (AR06) 07:43 (AR06)		06:45 19:18	18:23 (AR04) 18:28 (AR04)	05:58 19:50		05:30 20:18	05:29 20:30
31	07:07 17:13	07:27 (AR06) 07:44 (AR06)		06:43 19:19	18:23 (AR04) 18:30 (AR04)			05:30 20:19	
Potential sun hours	300	298	370	398	446	450			
Total, worst case	62	1012	54	230	446	450			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R43 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (74)

### Assumptions for shadow calculations

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

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

	July	August	September	October	November	December		
1	05:30 20:30	05:53 20:12	06:23 19:30	18:19 (AR04) 18:38 (AR04)	06:52 18:40	06:25 16:55	06:46 (AR06) 07:21 (AR06)	06:59 16:31
2	05:30 20:30	05:54 20:11	06:24 19:28	18:18 (AR04) 18:36 (AR04)	06:53 18:39	06:26 16:53	06:47 (AR06) 07:21 (AR06)	07:00 16:31
3	05:31 20:30	05:55 20:10	06:25 19:26	18:17 (AR04) 18:35 (AR04)	06:54 18:37	06:27 16:52	06:49 (AR06) 07:21 (AR06)	07:01 16:31
4	05:31 20:30	05:56 20:09	06:26 19:25	18:16 (AR04) 18:34 (AR04)	06:55 18:35	06:28 16:51	06:50 (AR06) 07:21 (AR06)	07:02 16:30
5	05:32 20:29	05:57 20:07	06:27 19:23	18:15 (AR04) 18:32 (AR04)	06:56 18:34	06:29 16:50	06:51 (AR06) 07:20 (AR06)	07:03 16:30
6	05:32 20:29	05:58 20:06	06:28 19:22	18:15 (AR04) 18:31 (AR04)	06:57 18:32	06:31 16:49	06:52 (AR06) 07:19 (AR06)	07:04 16:30
7	05:33 20:29	05:59 20:05	06:28 19:20	18:14 (AR04) 18:29 (AR04)	06:58 18:30	06:32 16:48	06:53 (AR06) 07:18 (AR06)	07:05 16:30
8	05:34 20:29	06:00 20:04	06:29 19:18	18:14 (AR04) 18:28 (AR04)	06:59 18:29	06:33 16:47	06:55 (AR06) 07:18 (AR06)	07:06 16:30
9	05:34 20:28	06:01 20:03	06:30 19:17	18:14 (AR04) 18:26 (AR04)	07:00 18:27	06:34 16:46	06:56 (AR06) 07:17 (AR06)	07:06 16:30
10	05:35 20:28	06:02 20:01	06:31 19:15	18:14 (AR04) 18:25 (AR04)	07:01 18:26	06:35 16:45	06:57 (AR06) 07:16 (AR06)	07:07 16:30
11	05:36 20:27	06:02 20:00	06:32 19:13	18:13 (AR04) 18:23 (AR04)	07:02 18:24	06:36 16:44	06:58 (AR06) 07:15 (AR06)	07:08 16:30
12	05:36 20:27	06:03 19:59	06:33 19:12	18:14 (AR04) 18:21 (AR04)	07:03 18:23	06:38 16:43	07:00 (AR06) 07:14 (AR06)	07:09 16:30
13	05:37 20:27	06:04 19:58	06:34 19:10	18:14 (AR04) 18:20 (AR04)	07:04 18:21	06:39 16:42	07:01 (AR06) 07:13 (AR06)	07:10 16:30
14	05:38 20:26	06:05 19:56	06:35 19:08	18:15 (AR04) 18:18 (AR04)	07:05 18:20	06:40 16:41	07:02 (AR06) 07:11 (AR06)	07:11 16:31
15	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	07:06 18:18	06:41 16:40	07:03 (AR06) 07:09 (AR06)	07:11 16:31
16	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	07:07 18:16	06:42 16:39	07:05 (AR06) 07:08 (AR06)	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	07:08 18:15	06:43 16:39	07:06 (AR06) 07:09 (AR06)	07:13 16:31
18	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:14	07:09 18:14	06:44 16:38	07:07 (AR06) 07:10 (AR06)	07:13 16:32
19	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	07:10 18:12	06:46 16:37	07:11 (AR06) 07:13 (AR06)	07:14 16:32
20	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:11	07:11 18:11	06:47 16:36	07:12 (AR06) 07:14 (AR06)	07:14 16:33
21	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	07:12 18:09	06:48 16:36	07:13 (AR06) 07:15 (AR06)	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	07:14 18:08	06:49 16:35	07:14 (AR06) 07:16 (AR06)	07:16 16:33
23	05:45 20:20	06:14 19:43	06:44 18:53	07:15 18:06	07:15 18:06	06:50 16:35	07:15 (AR06) 07:17 (AR06)	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	07:16 18:05	06:51 16:34	07:16 (AR06) 07:18 (AR06)	07:17 16:35
25	05:47 20:18	06:16 19:41	06:46 18:50	07:17 17:04	07:17 17:04	06:52 16:33	07:17 (AR06) 07:19 (AR06)	07:17 16:35
26	05:48 20:18	06:17 19:39	06:47 18:48	07:18 17:02	07:18 17:02	06:53 16:33	07:18 (AR06) 07:20 (AR06)	07:17 16:36
27	05:48 20:17	06:18 19:37	06:48 18:47	07:19 17:01	07:19 17:01	06:55 16:33	07:19 (AR06) 07:21 (AR06)	07:18 16:36
28	05:49 20:16	06:19 19:36	06:49 18:45	07:20 17:00	07:20 17:00	06:56 16:32	07:20 (AR06) 07:22 (AR06)	07:18 16:37
29	05:50 20:15	06:20 19:34	06:50 18:43	07:21 16:58	07:21 16:58	06:57 16:32	07:21 (AR06) 07:23 (AR06)	07:18 16:38
30	05:51 20:14	06:21 19:33	06:51 18:41	07:22 16:57	07:22 16:57	06:58 16:31	07:22 (AR06) 07:24 (AR06)	07:19 16:38
31	05:52 20:13	06:22 19:31	06:52 18:39	07:23 16:56	07:23 16:56	06:59 16:30	07:23 (AR06) 07:25 (AR06)	07:19 16:39
Potential sun hours	457	426	375	346	300	290		
Total, worst case		63	184	793	337			

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

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

**Calculation:** Worst case **Shadow receptor:** R44 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (75)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April		May		June	
1	07:19	07:06	06:31	06:42		05:57		06:22 (AR06)	05:29
	16:40	17:14	17:47	19:20		19:51	78	19:01 (AR04)	20:19
2	07:19	07:05	06:30	06:40		05:56		06:22 (AR06)	05:29
	16:41	17:15	17:48	19:21		19:52	79	19:02 (AR04)	20:20
3	07:19	07:04	06:28	06:39		05:55		06:22 (AR06)	05:28
	16:42	17:16	17:49	19:22		19:53	81	19:03 (AR04)	20:21
4	07:19	07:04	06:27	06:37		05:53		06:22 (AR06)	05:28
	16:43	17:17	17:50	19:23	8	07:10 (AR06)	82	19:04 (AR04)	20:21
5	07:19	07:02	06:25	06:35		06:55 (AR06)	05:52	06:22 (AR06)	05:28
	16:44	17:19	17:51	19:24	23	07:18 (AR06)	83	19:04 (AR04)	20:22
6	07:19	07:01	06:24	06:34		06:52 (AR06)	05:51	06:22 (AR06)	05:27
	16:45	17:20	17:52	19:25	29	07:21 (AR06)	83	19:05 (AR04)	20:23
7	07:19	07:00	06:22	06:32		06:50 (AR06)	05:50	06:22 (AR06)	05:27
	16:46	17:21	17:54	19:26	34	07:24 (AR06)	84	19:06 (AR04)	20:23
8	07:19	06:59	06:21	06:31		06:49 (AR06)	05:49	06:22 (AR06)	05:27
	16:47	17:22	17:55	19:27	37	07:26 (AR06)	85	19:07 (AR04)	20:24
9	07:19	06:58	06:19	06:29		06:47 (AR06)	05:48	06:23 (AR06)	05:26
	16:48	17:24	17:56	19:28	41	07:28 (AR06)	84	19:08 (AR04)	20:25
10	07:19	06:57	06:18	06:27		06:46 (AR06)	05:46	06:23 (AR06)	05:26
	16:49	17:25	17:57	19:29	44	07:30 (AR06)	20:00	19:09 (AR04)	20:25
11	07:19	06:56	06:16	06:26		06:44 (AR06)	05:45	06:23 (AR06)	05:26
	16:50	17:26	17:58	19:30	47	07:31 (AR06)	20:01	19:10 (AR04)	20:26
12	07:19	06:55	06:14	06:24		06:43 (AR06)	05:44	06:23 (AR06)	05:26
	16:51	17:27	17:59	19:31	50	07:33 (AR06)	20:02	19:11 (AR04)	20:26
13	07:18	06:53	06:13	06:23		06:41 (AR06)	05:43	06:24 (AR06)	05:26
	16:52	17:28	18:00	19:32	52	07:33 (AR06)	20:03	19:12 (AR04)	20:27
14	07:18	06:52	06:11	06:21		06:40 (AR06)	05:42	06:24 (AR06)	05:26
	16:53	17:30	18:01	19:33	54	07:34 (AR06)	20:04	19:13 (AR04)	20:27
15	07:18	06:51	06:10	06:20		06:38 (AR06)	05:41	06:24 (AR06)	05:26
	16:54	17:31	18:02	19:34	57	07:35 (AR06)	20:05	19:13 (AR04)	20:27
16	07:17	06:50	06:08	06:18		06:37 (AR06)	05:40	06:25 (AR06)	05:26
	16:55	17:32	18:03	19:35	59	07:36 (AR06)	20:06	19:14 (AR04)	20:28
17	07:17	06:48	06:06	06:17		06:35 (AR06)	05:39	06:25 (AR06)	05:26
	16:56	17:33	18:04	19:36	61	07:36 (AR06)	20:06	19:15 (AR04)	20:28
18	07:16	06:47	06:05	06:15		06:34 (AR06)	05:39	06:27 (AR06)	05:26
	16:57	17:34	18:05	19:37	63	07:37 (AR06)	20:07	19:16 (AR04)	20:29
19	07:16	06:46	06:03	06:14		06:32 (AR06)	05:38	06:27 (AR06)	05:26
	16:58	17:35	18:06	19:38	65	07:37 (AR06)	20:08	19:15 (AR04)	20:29
20	07:15	06:44	06:01	06:12		06:31 (AR06)	05:37	06:27 (AR06)	05:26
	16:59	17:37	18:07	19:39	66	07:37 (AR06)	20:09	19:13 (AR04)	20:29
21	07:15	06:43	06:00	06:11		06:29 (AR06)	05:36	06:28 (AR06)	05:26
	17:01	17:38	18:08	19:40	68	07:37 (AR06)	20:10	07:28 (AR06)	20:29
22	07:14	06:42	05:58	06:09		06:28 (AR06)	05:35	06:29 (AR06)	05:27
	17:02	17:39	18:09	19:41	70	07:38 (AR06)	20:11	07:28 (AR06)	20:30
23	07:13	06:40	05:57	06:08		06:27 (AR06)	05:34	06:29 (AR06)	05:27
	17:03	17:40	18:11	19:42	71	07:38 (AR06)	20:12	07:27 (AR06)	20:30
24	07:13	06:39	05:55	06:06		06:25 (AR06)	05:34	06:30 (AR06)	05:27
	17:04	17:41	18:12	19:43	73	07:38 (AR06)	20:13	07:26 (AR06)	20:30
25	07:12	06:37	05:53	06:05		06:24 (AR06)	05:33	06:31 (AR06)	05:27
	17:05	17:42	18:13	19:44	74	07:38 (AR06)	20:14	07:26 (AR06)	20:30
26	07:11	06:36	05:52	06:04		06:23 (AR06)	05:32	06:31 (AR06)	05:28
	17:07	17:44	18:14	19:45	74	07:37 (AR06)	20:15	07:25 (AR06)	20:30
27	07:11	06:34	05:50	06:02		06:23 (AR06)	05:32	06:33 (AR06)	05:28
	17:08	17:45	18:15	19:47	75	07:38 (AR06)	20:15	07:25 (AR06)	20:30
28	07:10	06:33	05:48	06:01		06:23 (AR06)	05:31	06:33 (AR06)	05:28
	17:09	17:46	18:16	19:48	75	07:38 (AR06)	20:16	07:24 (AR06)	20:30
29	07:09		06:47	06:00		06:23 (AR06)	05:31	06:34 (AR06)	05:29
	17:10		19:17	19:49	75	07:38 (AR06)	20:17	07:24 (AR06)	20:30
30	07:08		06:45	05:58		06:22 (AR06)	05:30	06:35 (AR06)	05:29
	17:11		19:18	19:50	76	19:00 (AR04)	20:18	07:22 (AR06)	20:30
31	07:07		06:43				05:30	06:36 (AR06)	
	17:13		19:19				20:19	07:22 (AR06)	
Potential sun hours	300	298	370	398		446		450	
Total, worst case				1521		2218		905	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst caseShadow receptor: R44 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (75)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December			
1	05:30	06:50 (AR06)	05:53	06:34 (AR06)	06:23	06:43 (AR06)	06:52	06:25	06:59
	20:30	30 07:20 (AR06)	20:12	85 19:21 (AR04)	19:30	47 07:30 (AR06)	18:40	16:55	16:31
2	05:30	06:49 (AR06)	05:54	06:34 (AR06)	06:24	06:44 (AR06)	06:53	06:26	07:00
	20:30	31 07:20 (AR06)	20:11	84 19:20 (AR04)	19:28	44 07:28 (AR06)	18:39	16:53	16:31
3	05:31	06:49 (AR06)	05:55	06:33 (AR06)	06:25	06:45 (AR06)	06:54	06:27	07:01
	20:30	33 07:22 (AR06)	20:10	86 19:20 (AR04)	19:26	41 07:26 (AR06)	18:37	16:52	16:31
4	05:31	06:48 (AR06)	05:56	06:32 (AR06)	06:26	06:46 (AR06)	06:55	06:28	07:02
	20:30	34 07:22 (AR06)	20:08	85 19:18 (AR04)	19:25	38 07:24 (AR06)	18:35	16:51	16:30
5	05:32	06:48 (AR06)	05:57	06:32 (AR06)	06:27	06:47 (AR06)	06:56	06:29	07:03
	20:29	35 07:23 (AR06)	20:07	84 19:17 (AR04)	19:23	34 07:21 (AR06)	18:34	16:50	16:30
6	05:32	06:48 (AR06)	05:58	06:32 (AR06)	06:28	06:48 (AR06)	06:57	06:31	07:04
	20:29	37 07:25 (AR06)	20:06	84 19:16 (AR04)	19:22	30 07:18 (AR06)	18:32	16:49	16:30
7	05:33	06:47 (AR06)	05:59	06:31 (AR06)	06:28	06:50 (AR06)	06:58	06:32	07:05
	20:29	38 07:25 (AR06)	20:05	84 19:15 (AR04)	19:20	23 07:13 (AR06)	18:30	16:48	16:30
8	05:34	06:47 (AR06)	06:00	06:31 (AR06)	06:29	06:56 (AR06)	06:59	06:33	07:06
	20:29	39 07:26 (AR06)	20:04	83 19:14 (AR04)	19:18	10 07:06 (AR06)	18:29	16:47	16:30
9	05:34	06:45 (AR06)	06:01	06:31 (AR06)	06:30		07:00	06:34	07:06
	20:28	42 07:27 (AR06)	20:03	82 19:13 (AR04)	19:17		18:27	16:46	16:30
10	05:35	06:45 (AR06)	06:02	06:31 (AR06)	06:31		07:01	06:35	07:07
	20:28	43 07:28 (AR06)	20:01	81 19:12 (AR04)	19:15		18:26	16:45	16:30
11	05:36	06:45 (AR06)	06:02	06:31 (AR06)	06:32		07:02	06:36	07:08
	20:27	44 07:29 (AR06)	20:00	79 19:11 (AR04)	19:13		18:24	16:44	16:30
12	05:36	06:44 (AR06)	06:03	06:31 (AR06)	06:33		07:03	06:38	07:09
	20:27	45 07:29 (AR06)	19:59	78 19:10 (AR04)	19:12		18:23	16:43	16:30
13	05:37	06:43 (AR06)	06:04	06:31 (AR06)	06:34		07:04	06:39	07:10
	20:27	47 07:30 (AR06)	19:57	75 07:46 (AR06)	19:10		18:21	16:42	16:30
14	05:38	06:43 (AR06)	06:05	06:31 (AR06)	06:35		07:05	06:40	07:10
	20:26	49 07:32 (AR06)	19:56	75 07:46 (AR06)	19:08		18:19	16:41	16:31
15	05:38	06:43 (AR06)	06:06	06:31 (AR06)	06:36		07:06	06:41	07:11
	20:26	50 07:33 (AR06)	19:55	74 07:45 (AR06)	19:07		18:18	16:40	16:31
16	05:39	06:41 (AR06)	06:07	06:31 (AR06)	06:37		07:07	06:42	07:12
	20:25	52 07:33 (AR06)	19:53	74 07:45 (AR06)	19:05		18:16	16:39	16:31
17	05:40	06:41 (AR06)	06:08	06:30 (AR06)	06:38		07:08	06:43	07:13
	20:24	53 07:34 (AR06)	19:52	74 07:44 (AR06)	19:03		18:15	16:39	16:31
18	05:41	06:41 (AR06)	06:09	06:30 (AR06)	06:39		07:09	06:44	07:13
	20:24	54 07:35 (AR06)	19:51	74 07:44 (AR06)	19:02		18:14	16:38	16:32
19	05:42	06:40 (AR06)	06:10	06:31 (AR06)	06:40		07:10	06:46	07:14
	20:23	56 07:36 (AR06)	19:49	72 07:43 (AR06)	19:00		18:12	16:37	16:32
20	05:42	06:39 (AR06)	06:11	06:32 (AR06)	06:41		07:11	06:47	07:14
	20:22	57 07:36 (AR06)	19:48	71 07:43 (AR06)	18:58		18:11	16:36	16:33
21	05:43	06:39 (AR06)	06:12	06:33 (AR06)	06:42		07:12	06:48	07:15
	20:22	58 07:37 (AR06)	19:46	69 07:42 (AR06)	18:57		18:09	16:36	16:33
22	05:44	06:38 (AR06)	06:13	06:34 (AR06)	06:43		07:14	06:49	07:16
	20:21	60 07:38 (AR06)	19:45	68 07:42 (AR06)	18:55		18:08	16:35	16:33
23	05:45	06:38 (AR06)	06:14	06:35 (AR06)	06:44		07:15	06:50	07:16
	20:20	66 19:21 (AR04)	19:43	66 07:41 (AR06)	18:53		18:06	16:35	16:34
24	05:46	06:38 (AR06)	06:15	06:36 (AR06)	06:45		07:16	06:51	07:17
	20:19	71 19:24 (AR04)	19:42	64 07:40 (AR06)	18:52		18:05	16:34	16:35
25	05:47	06:37 (AR06)	06:16	06:37 (AR06)	06:46		06:17	06:52	07:17
	20:18	77 19:26 (AR04)	19:40	63 07:40 (AR06)	18:50		17:04	16:33	16:35
26	05:48	06:36 (AR06)	06:17	06:38 (AR06)	06:47		06:18	06:53	07:17
	20:18	79 19:25 (AR04)	19:39	61 07:39 (AR06)	18:48		17:02	16:33	16:36
27	05:48	06:36 (AR06)	06:18	06:39 (AR06)	06:48		06:19	06:55	07:18
	20:17	81 19:25 (AR04)	19:37	59 07:38 (AR06)	18:47		17:01	16:33	16:36
28	05:49	06:35 (AR06)	06:19	06:40 (AR06)	06:49		06:20	06:56	07:18
	20:16	82 19:24 (AR04)	19:36	57 07:37 (AR06)	18:45		17:00	16:32	16:37
29	05:50	06:35 (AR06)	06:20	06:41 (AR06)	06:50		06:21	06:57	07:18
	20:15	83 19:24 (AR04)	19:34	54 07:35 (AR06)	18:43		16:58	16:32	16:38
30	05:51	06:35 (AR06)	06:21	06:41 (AR06)	06:51		06:22	06:58	07:19
	20:14	84 19:23 (AR04)	19:33	52 07:33 (AR06)	18:42		16:57	16:31	16:38
31	05:52	06:34 (AR06)	06:22	06:42 (AR06)			06:24		07:19
	20:13	84 19:22 (AR04)	19:31	49 07:31 (AR06)			16:56		16:39
Potential sun hours	457	426	375	346	300	290			
Total, worst case	1694	2246	267						

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Worst caseShadow receptor: R45 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (76)

Assumptions for shadow calculations

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

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

Table with 12 columns for months (January to December) and 31 rows of daily data. Each row contains start and end times for shadow calculations. Includes summary rows for 'Potential sun hours' and 'Total, worst case'.

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

Matrix with 4 columns: Day in month, Sun rise (hh:mm), Sun set (hh:mm), Minutes with flicker, First time (hh:mm) with flicker, Last time (hh:mm) with flicker, (WTG causing flicker first time), (WTG causing flicker last time)





SHADOW - Calendar

Calculation: Worst caseShadow receptor: R49 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (78)
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

Table with 12 columns for months (January to December) and rows for each day of the month, listing sun rise and set times in hh:mm format. Includes summary rows for 'Potential sun hours' and 'Total, worst case'.

Potential sun hours

Total, worst case

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

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







## SHADOW - Calendar

**Calculation:** Worst case Shadow receptor: R54 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (81)

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

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R56 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (96)

### 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	07:19 16:40	15:59 (AR04) 17:14	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19
2	07:19 16:41	15:59 (AR04) 17:15	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20
3	07:19 16:42	16:00 (AR04) 17:16	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	05:28 20:21
4	07:19 16:43	16:00 (AR04) 17:17	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21
5	07:19 16:44	16:01 (AR04) 17:19	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22
6	07:19 16:45	16:01 (AR04) 17:20	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23
7	07:19 16:46	16:02 (AR04) 17:21	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23
8	07:19 16:47	16:02 (AR04) 17:22	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24
9	07:19 16:47	16:03 (AR04) 17:23	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:25
10	07:19 16:48	16:03 (AR04) 17:25	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	05:26 20:25
11	07:19 16:50	16:03 (AR04) 17:26	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26
12	07:19 16:51	16:04 (AR04) 17:27	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26
13	07:18 16:52	16:04 (AR04) 17:28	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27
14	07:18 16:53	16:05 (AR04) 17:29	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27
15	07:18 16:54	16:05 (AR04) 17:31	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:27
16	07:17 16:55	16:06 (AR04) 17:32	06:50 17:32	06:09 18:03	06:18 19:35	05:40 20:06	05:26 20:28
17	07:17 16:56	16:07 (AR04) 17:33	06:48 17:33	06:07 18:04	06:17 19:36	05:39 20:07	05:26 20:28
18	07:16 16:57	16:08 (AR04) 17:34	06:47 17:34	06:06 18:05	06:16 19:37	05:38 20:07	05:26 20:29
19	07:16 16:58	16:09 (AR04) 17:35	06:46 17:35	06:05 18:06	06:14 19:38	05:38 20:08	18:48 (AR05) 20:29
20	07:15 16:59	16:10 (AR04) 17:37	06:44 17:37	06:04 18:07	06:12 19:39	05:37 20:09	18:45 (AR05) 20:29
21	07:15 17:01	16:12 (AR04) 17:38	06:43 17:38	06:03 18:08	06:11 19:40	05:36 20:10	18:43 (AR05) 20:29
22	07:14 17:02	16:13 (AR04) 17:39	06:42 17:39	06:02 18:09	06:10 19:41	05:35 20:11	18:43 (AR05) 20:30
23	07:14 17:03	16:14 (AR04) 17:40	06:40 17:40	06:01 18:11	06:09 19:42	05:34 20:12	19:05 (AR05) 20:30
24	07:13 17:04	16:15 (AR04) 17:41	06:39 17:41	06:00 18:12	06:08 19:43	05:34 20:13	18:40 (AR05) 20:30
25	07:12 17:05	16:16 (AR04) 17:42	06:37 17:42	05:59 18:13	06:07 19:44	05:33 20:14	18:40 (AR05) 20:30
26	07:11 17:06	16:17 (AR04) 17:43	06:36 17:43	05:58 18:14	06:06 19:45	05:32 20:15	18:39 (AR05) 20:30
27	07:11 17:08	16:18 (AR04) 17:45	06:34 17:45	05:57 18:15	06:05 19:47	05:32 20:15	18:39 (AR05) 20:30
28	07:10 17:09	16:19 (AR04) 17:46	06:33 17:46	05:56 18:16	06:04 19:48	05:32 20:16	18:39 (AR05) 20:30
29	07:09 17:10	16:20 (AR04)		05:55 18:17	06:03 19:49	05:32 20:17	18:38 (AR05) 20:30
30	07:08 17:11			05:54 18:18	06:02 19:50	05:32 20:18	18:37 (AR05) 20:30
31	07:07 17:13			05:53 18:19	06:01 19:51	05:31 20:19	18:37 (AR05) 20:30
Potential sun hours	299	298	298	370	398	446	450
Total, worst case	357	21	21	370	398	446	1174

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R56 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (96)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July		August		September		October		November		December		
1	05:30		18:41 (AR05)	05:53	06:23	06:52			06:25		06:59	15:45 (AR04)	
	20:30	40	19:21 (AR05)	20:12	19:30	18:40			16:55		16:31	21 16:06 (AR04)	
2	05:30		18:41 (AR05)	05:54	06:24	06:53			06:26		07:00	15:46 (AR04)	
	20:30	39	19:20 (AR05)	20:11	19:28	18:39			16:53		16:31	20 16:06 (AR04)	
3	05:31		18:42 (AR05)	05:55	06:25	06:54			06:27		07:01	15:46 (AR04)	
	20:30	39	19:21 (AR05)	20:10	19:26	18:37			16:52		16:31	20 16:06 (AR04)	
4	05:31		18:41 (AR05)	05:56	06:26	06:55			06:28		07:02	15:46 (AR04)	
	20:30	39	19:20 (AR05)	20:09	19:25	18:35			16:51		16:30	19 16:05 (AR04)	
5	05:32		18:42 (AR05)	05:57	06:27	06:56			06:29		07:03	15:47 (AR04)	
	20:29	39	19:21 (AR05)	20:07	19:23	18:34			16:50		16:30	18 16:05 (AR04)	
6	05:32		18:43 (AR05)	05:58	06:28	06:57			06:31		07:04	15:47 (AR04)	
	20:29	38	19:21 (AR05)	20:06	19:22	18:32			16:49		16:30	18 16:05 (AR04)	
7	05:33		18:43 (AR05)	05:59	06:28	06:58			06:32		07:05	15:48 (AR04)	
	20:29	38	19:21 (AR05)	20:05	19:20	18:30			16:48		16:30	17 16:05 (AR04)	
8	05:34		18:43 (AR05)	06:00	06:29	06:59			06:33		07:06	15:48 (AR04)	
	20:29	38	19:21 (AR05)	20:04	19:18	18:29			16:47		16:30	17 16:05 (AR04)	
9	05:34		18:43 (AR05)	06:01	06:30	07:00			06:34		07:06	15:49 (AR04)	
	20:28	37	19:20 (AR05)	20:03	19:17	18:27			16:46		16:30	16 16:05 (AR04)	
10	05:35		18:44 (AR05)	06:01	06:31	07:01			06:35		07:07	15:50 (AR04)	
	20:28	37	19:21 (AR05)	20:01	19:15	18:26			16:45		16:30	15 16:05 (AR04)	
11	05:35		18:45 (AR05)	06:02	06:32	07:02			06:36		07:08	15:49 (AR04)	
	20:28	36	19:21 (AR05)	20:00	19:13	18:24			16:44		16:30	15 16:04 (AR04)	
12	05:36		18:44 (AR05)	06:03	06:33	07:03			06:38		07:09	15:50 (AR04)	
	20:27	36	19:20 (AR05)	19:59	19:12	18:23			16:43		16:30	15 16:05 (AR04)	
13	05:37		18:45 (AR05)	06:04	06:34	07:04			06:39		07:10	15:51 (AR04)	
	20:27	35	19:20 (AR05)	19:58	19:10	18:21			16:42		16:30	14 16:05 (AR04)	
14	05:38		18:46 (AR05)	06:05	06:35	07:05			06:40		07:11	15:52 (AR04)	
	20:26	34	19:20 (AR05)	19:56	19:08	18:19			16:41		16:31	14 16:06 (AR04)	
15	05:38		18:47 (AR05)	06:06	06:36	07:06			06:41		07:11	15:52 (AR04)	
	20:26	33	19:20 (AR05)	19:55	19:07	18:18			16:40		16:31	13 16:05 (AR04)	
16	05:39		18:47 (AR05)	06:07	06:37	07:07			06:42		07:12	15:52 (AR04)	
	20:25	32	19:19 (AR05)	19:53	19:05	18:16			16:39		16:31	14 16:06 (AR04)	
17	05:40		18:48 (AR05)	06:08	06:38	07:08			06:43		07:13	15:53 (AR04)	
	20:24	30	19:18 (AR05)	19:52	19:03	18:15			16:39		16:31	13 16:06 (AR04)	
18	05:41		18:49 (AR05)	06:09	06:39	07:09			06:44		07:13	15:53 (AR04)	
	20:24	29	19:18 (AR05)	19:51	19:02	18:13			16:38		16:32	13 16:06 (AR04)	
19	05:42		18:50 (AR05)	06:10	06:40	07:10			06:46		07:14	15:54 (AR04)	
	20:23	27	19:17 (AR05)	19:49	19:00	18:12			16:37		16:32	13 16:07 (AR04)	
20	05:42		18:50 (AR05)	06:11	06:41	07:11			06:47		07:15	15:55 (AR04)	
	20:22	26	19:16 (AR05)	19:48	18:58	18:11			16:36		16:32	12 16:07 (AR04)	
21	05:43		18:51 (AR05)	06:12	06:42	07:12			06:48		07:15	15:55 (AR04)	
	20:22	24	19:15 (AR05)	19:46	18:57	18:09			16:36	7	15:50 (AR04)	07:15	15:55 (AR04)
22	05:44		18:53 (AR05)	06:13	06:43	07:14			06:49		15:48 (AR04)	16:33	12 16:07 (AR04)
	20:21	21	19:14 (AR05)	19:45	18:55	18:08	3	07:34 (AR07)	16:35	11	15:59 (AR04)	16:33	12 16:08 (AR04)
23	05:45		18:55 (AR05)	06:14	06:44	07:15			06:50		15:47 (AR04)	07:16	15:56 (AR04)
	20:20	18	19:13 (AR05)	19:43	18:53	18:06	4	07:39 (AR07)	16:34	13	16:00 (AR04)	16:34	12 16:08 (AR04)
24	05:46		18:57 (AR05)	06:15	06:45	07:16			06:51		15:46 (AR04)	07:17	15:56 (AR04)
	20:19	14	19:11 (AR05)	19:42	18:52	18:05	4	07:40 (AR07)	16:34	15	16:01 (AR04)	16:34	13 16:09 (AR04)
25	05:47		19:01 (AR05)	06:16	06:46	06:17			06:38 (AR07)	06:52	15:45 (AR04)	07:17	15:57 (AR04)
	20:18	6	19:07 (AR05)	19:41	18:50	17:04	4	06:42 (AR07)	16:33	17	16:02 (AR04)	16:35	13 16:10 (AR04)
26	05:47			06:17	06:47	06:18			06:39 (AR07)	06:53	15:46 (AR04)	07:17	15:57 (AR04)
	20:18			19:39	18:48	17:02	3	06:42 (AR07)	16:33	18	16:04 (AR04)	16:36	13 16:10 (AR04)
27	05:48			06:18	06:48	06:19			06:40 (AR07)	06:55	15:45 (AR04)	07:18	15:57 (AR04)
	20:17			19:37	18:47	17:01	2	06:42 (AR07)	16:32	19	16:04 (AR04)	16:36	13 16:10 (AR04)
28	05:49			06:19	06:49	06:20			06:41 (AR07)	06:56	15:45 (AR04)	07:18	15:59 (AR04)
	20:16			19:36	18:45	17:00	1	06:42 (AR07)	16:32	20	16:05 (AR04)	16:37	13 16:12 (AR04)
29	05:50			06:20	06:50	06:21			06:57		15:45 (AR04)	07:18	15:59 (AR04)
	20:15			19:34	18:43	16:58			16:32	21	16:06 (AR04)	16:38	13 16:12 (AR04)
30	05:51			06:21	06:51	06:22			06:58		15:45 (AR04)	07:19	15:59 (AR04)
	20:14			19:33	18:42	16:57			16:31	21	16:06 (AR04)	16:38	14 16:13 (AR04)
31	05:52			06:22		06:24					07:19	15:59 (AR04)	
	20:13			19:31		16:56					16:39	15 16:14 (AR04)	
Potential sun hours	457			426		375			300		290		
Total, worst case	785					346	21		162			460	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R58 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (84)

### 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	07:19	16:02 (AR03)   07:06	15:59 (AR04)   06:31	06:42	05:57	05:29
	16:40	9 16:11 (AR03)   17:14	37 16:36 (AR04)   17:47	19:20	19:51	20:19
2	07:19	16:03 (AR03)   07:06	15:59 (AR04)   06:30	06:40	05:56	05:29
	16:41	8 16:11 (AR03)   17:15	37 16:36 (AR04)   17:48	19:21	19:52	20:20
3	07:19	16:03 (AR03)   07:05	16:00 (AR04)   06:28	06:39	05:55	05:28
	16:42	9 16:12 (AR03)   17:16	36 16:36 (AR04)   17:49	19:22	19:53	20:21
4	07:19	16:04 (AR03)   07:04	16:01 (AR04)   06:27	06:37	05:53	05:28
	16:43	9 16:13 (AR03)   17:17	34 16:35 (AR04)   17:50	19:23	19:54	20:21
5	07:19	16:04 (AR04)   07:03	16:02 (AR04)   06:25	06:35	05:52	05:28
	16:44	10 16:14 (AR04)   17:19	33 16:35 (AR04)   17:51	19:24	19:55	20:22
6	07:19	16:03 (AR04)   07:01	16:03 (AR04)   06:24	06:34	05:51	05:27
	16:45	12 16:15 (AR04)   17:20	31 16:34 (AR04)   17:52	19:25	19:56	20:23
7	07:19	16:02 (AR04)   07:00	16:04 (AR04)   06:22	06:32	05:50	05:27
	16:46	15 16:17 (AR04)   17:21	29 16:33 (AR04)   17:54	19:26	19:57	20:23
8	07:19	16:01 (AR04)   06:59	16:05 (AR04)   06:21	06:31	05:49	05:27
	16:47	17 16:18 (AR04)   17:22	27 16:32 (AR04)   17:55	19:27	19:58	20:24
9	07:19	16:01 (AR04)   06:58	16:07 (AR04)   06:19	06:29	05:48	05:26
	16:48	18 16:19 (AR04)   17:24	24 16:31 (AR04)   17:56	19:28	19:59	20:25
10	07:19	16:00 (AR04)   06:57	16:08 (AR04)   06:18	06:27	05:46	05:26
	16:49	20 16:20 (AR04)   17:25	21 16:29 (AR04)   17:57	19:29	20:00	20:25
11	07:19	16:00 (AR04)   06:56	16:11 (AR04)   06:16	06:26	05:45	05:26
	16:50	21 16:21 (AR04)   17:26	16 16:27 (AR04)   17:58	19:30	20:01	20:26
12	07:19	15:59 (AR04)   06:55	16:16 (AR04)   06:14	06:24	05:44	05:26
	16:51	24 16:23 (AR04)   17:27	6 16:22 (AR04)   17:59	19:31	20:02	20:26
13	07:18	15:58 (AR04)   06:53	06:13	06:23	05:43	05:26
	16:52	25 16:23 (AR04)   17:28	18:00	19:32	20:03	20:27
14	07:18	15:58 (AR04)   06:52	06:11	06:21	05:42	05:26
	16:53	27 16:25 (AR04)   17:30	18:01	19:33	20:04	20:27
15	07:18	15:59 (AR04)   06:51	06:10	06:20	05:41	05:26
	16:54	28 16:27 (AR04)   17:31	18:02	3 17:31 (AR02)   19:34	20:05	20:27
16	07:17	15:58 (AR04)   06:50	06:08	06:18	05:40	05:26
	16:55	29 16:27 (AR04)   17:32	18:03	4 17:30 (AR02)   19:35	20:06	20:28
17	07:17	15:58 (AR04)   06:48	06:06	06:17	05:39	05:26
	16:56	31 16:29 (AR04)   17:33	18:04	6 17:29 (AR02)   19:36	20:07	20:28
18	07:16	15:57 (AR04)   06:47	06:05	06:15	05:39	05:26
	16:57	33 16:30 (AR04)   17:34	18:05	7 17:35 (AR02)   19:37	20:07	20:29
19	07:16	15:57 (AR04)   06:46	06:03	06:14	05:38	05:26
	16:58	34 16:31 (AR04)   17:35	18:06	9 17:27 (AR02)   19:38	20:08	20:29
20	07:15	15:57 (AR04)   06:44	06:01	06:12	05:37	05:26
	16:59	35 16:32 (AR04)   17:37	18:07	9 17:28 (AR02)   19:39	20:09	20:29
21	07:15	15:57 (AR04)   06:43	06:00	06:11	05:36	05:26
	17:01	36 16:33 (AR04)   17:38	18:08	10 17:37 (AR02)   19:40	20:10	20:29
22	07:14	15:57 (AR04)   06:42	05:58	06:09	05:35	05:27
	17:02	37 16:34 (AR04)   17:39	18:10	10 17:38 (AR02)   19:41	20:11	20:30
23	07:14	15:57 (AR04)   06:40	05:57	06:08	05:34	05:27
	17:03	37 16:34 (AR04)   17:40	18:11	10 17:39 (AR02)   19:42	20:12	20:30
24	07:13	15:57 (AR04)   06:39	05:55	06:06	05:34	05:27
	17:04	38 16:35 (AR04)   17:41	18:12	9 17:30 (AR02)   19:43	20:13	20:30
25	07:12	15:57 (AR04)   06:37	05:53	06:05	05:33	05:27
	17:05	38 16:35 (AR04)   17:42	18:13	6 17:33 (AR02)   19:44	20:14	20:30
26	07:11	15:58 (AR04)   06:36	05:52	06:04	05:32	05:28
	17:07	38 16:36 (AR04)   17:44	18:14	19:46	20:15	20:30
27	07:11	15:58 (AR04)   06:34	05:50	06:02	05:32	05:28
	17:08	38 16:36 (AR04)   17:45	18:15	19:47	20:15	20:30
28	07:10	15:58 (AR04)   06:33	05:48	06:01	05:31	05:28
	17:09	38 16:36 (AR04)   17:46	18:16	19:48	20:16	20:30
29	07:09	15:58 (AR04)   06:32	06:47	06:00	05:31	05:29
	17:10	38 16:36 (AR04)   17:47	19:17	19:49	20:17	20:30
30	07:08	15:58 (AR04)   06:31	06:45	05:58	05:30	05:29
	17:11	38 16:36 (AR04)   17:48	19:18	19:50	20:18	20:30
31	07:07	15:58 (AR04)   06:30	06:43	05:57	05:30	05:29
	17:13	38 16:36 (AR04)   17:49	19:19	19:51	20:19	20:30
Potential sun hours	299	298	370	398	446	450
Total, worst case	828	331	83			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R58 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (84)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December		
1	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	15:38 (AR04) 16:31	06:59 21	15:42 (AR04) 16:03 (AR04)
2	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	15:36 (AR04) 16:31	07:00 24	15:43 (AR04) 16:03 (AR04)
3	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	15:35 (AR04) 16:02 (AR04)	07:01 27	15:44 (AR04) 16:02 (AR04)
4	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	15:34 (AR04) 16:03 (AR04)	07:02 29	15:45 (AR04) 16:02 (AR04)
5	05:32 20:29	05:57 20:06	06:27 19:23	06:56 18:34	06:29 16:50	15:32 (AR04) 16:04 (AR04)	07:03 32	15:47 (AR04) 16:02 (AR04)
6	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	15:31 (AR04) 16:05 (AR04)	07:04 34	15:49 (AR04) 16:02 (AR04)
7	05:33 20:29	05:59 20:05	06:29 19:20	06:58 18:30	06:32 16:48	15:31 (AR04) 16:05 (AR04)	07:05 34	15:51 (AR04) 16:01 (AR04)
8	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	06:33 16:47	15:31 (AR04) 16:06 (AR04)	07:06 35	15:52 (AR03) 16:01 (AR03)
9	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46	15:30 (AR04) 16:07 (AR04)	07:06 37	15:52 (AR03) 16:01 (AR03)
10	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45	15:30 (AR04) 16:07 (AR04)	07:07 37	15:53 (AR03) 16:01 (AR03)
11	05:36 20:28	06:03 20:00	06:32 19:13	07:02 18:24	06:36 16:44	15:29 (AR04) 16:07 (AR04)	07:08 38	15:52 (AR03) 16:01 (AR03)
12	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	06:38 16:43	15:30 (AR04) 16:08 (AR04)	07:09 38	15:53 (AR03) 16:01 (AR03)
13	05:37 20:27	06:04 19:58	06:34 19:10	07:04 18:21	06:39 16:42	15:30 (AR04) 16:08 (AR04)	07:10 38	15:54 (AR03) 16:01 (AR03)
14	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:20	06:40 16:41	15:30 (AR04) 16:08 (AR04)	07:11 38	15:54 (AR03) 16:02 (AR03)
15	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	15:30 (AR04) 16:08 (AR04)	07:11 38	15:54 (AR03) 16:01 (AR03)
16	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:16	06:42 16:39	15:31 (AR04) 16:09 (AR04)	07:12 38	15:55 (AR03) 16:02 (AR03)
17	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:39	15:31 (AR04) 16:09 (AR04)	07:13 38	15:55 (AR03) 16:02 (AR03)
18	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:14	06:45 16:38	15:31 (AR04) 16:08 (AR04)	07:13 37	15:55 (AR03) 16:02 (AR03)
19	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	15:31 (AR04) 16:08 (AR04)	07:14 37	15:56 (AR03) 16:03 (AR03)
20	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:11	06:47 16:36	15:32 (AR04) 16:09 (AR04)	07:15 37	15:57 (AR03) 16:04 (AR03)
21	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:10	06:48 16:36	15:33 (AR04) 16:09 (AR04)	07:15 36	15:57 (AR03) 16:03 (AR03)
22	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	06:49 16:35	15:33 (AR04) 16:08 (AR04)	07:16 35	15:58 (AR03) 16:04 (AR03)
23	05:45 20:20	06:14 19:44	06:44 18:53	07:15 18:06	06:50 16:35	15:34 (AR04) 16:08 (AR04)	07:16 34	15:58 (AR03) 16:04 (AR03)
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	15:34 (AR04) 16:07 (AR04)	07:17 33	15:58 (AR03) 16:05 (AR03)
25	05:47 20:18	06:16 19:41	06:46 18:50	07:17 18:04	06:52 16:33	15:35 (AR04) 16:06 (AR04)	07:17 31	15:59 (AR03) 16:06 (AR03)
26	05:48 20:18	06:17 19:39	06:47 18:48	07:18 18:02	06:54 16:33	15:37 (AR04) 16:07 (AR04)	07:17 30	15:59 (AR03) 16:06 (AR03)
27	05:48 20:17	06:18 19:37	06:48 18:47	07:19 18:01	06:55 16:33	15:38 (AR04) 16:06 (AR04)	07:18 28	16:00 (AR03) 16:06 (AR03)
28	05:49 20:16	06:19 19:36	06:49 18:45	07:20 18:00	06:56 16:32	15:38 (AR04) 16:05 (AR04)	07:18 27	16:01 (AR03) 16:08 (AR03)
29	05:50 20:15	06:20 19:34	06:50 18:43	07:21 18:00	06:57 16:32	15:39 (AR04) 16:04 (AR04)	07:18 25	16:01 (AR03) 16:08 (AR03)
30	05:51 20:14	06:21 19:33	06:51 18:42	07:23 18:00	06:58 16:31	15:40 (AR04) 16:04 (AR04)	07:19 24	16:01 (AR03) 16:09 (AR03)
31	05:52 20:13	06:22 19:31		07:24 16:56	06:59 15:57 (AR04)	15:40 (AR04) 16:04 (AR04)	07:19 17	16:02 (AR03) 16:10 (AR03)
Potential sun hours	457	426	375	346	300	290	290	289
Total, worst case			86	26	990			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R59 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (85)

### 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	07:19 16:40	07:06 17:14	16:01 (AR04) 17:14	06:31 17:47	06:42 19:20	05:57 20:19
2	07:19 16:41	07:06 17:15	16:01 (AR04) 16:39 (AR04)	06:30 17:48	06:40 19:21	05:56 20:20
3	07:19 16:42	07:05 17:16	16:02 (AR04) 16:39 (AR04)	06:28 17:49	06:39 19:22	05:55 20:21
4	07:19 16:43	16:05 (AR03) 07:04 16:06 (AR03)	16:02 (AR04) 17:17 16:39 (AR04)	06:27 17:50 17:50	06:37 19:23	05:53 20:21
5	07:19 16:44	16:06 (AR03) 07:03 16:07 (AR03)	16:03 (AR04) 17:19 16:39 (AR04)	06:25 17:51 17:51	06:35 19:24	05:52 20:22
6	07:19 16:45	16:06 (AR03) 07:01 16:09 (AR03)	16:04 (AR04) 17:19 16:39 (AR04)	06:24 17:52 17:52	06:34 19:25	05:51 20:23
7	07:19 16:46	16:07 (AR03) 07:00 16:10 (AR03)	16:04 (AR04) 17:21 16:38 (AR04)	06:22 17:54 17:54	06:32 19:26	05:50 20:23
8	07:19 16:47	16:08 (AR03) 06:59 16:11 (AR03)	16:05 (AR04) 17:22 16:38 (AR04)	06:21 17:55 17:55	06:31 19:27	05:49 20:24
9	07:19 16:48	16:09 (AR03) 06:58 16:13 (AR03)	16:07 (AR04) 17:24 16:37 (AR04)	06:19 17:56 17:56	06:29 19:28	05:48 20:25
10	07:19 16:49	16:13 (AR03) 06:57 16:14 (AR04)	16:07 (AR04) 17:25 16:35 (AR04)	06:18 17:57 17:57	06:27 19:29	05:46 20:25
11	07:19 16:50	16:08 (AR04) 06:56 16:14 (AR04)	16:09 (AR04) 17:26 16:34 (AR04)	06:16 17:58 17:58	06:26 19:30	05:45 20:26
12	07:19 16:51	16:08 (AR04) 06:55 16:16 (AR04)	16:11 (AR04) 17:27 16:33 (AR04)	06:14 17:59 17:59	06:24 19:31	05:44 20:26
13	07:18 16:52	16:06 (AR04) 06:53 16:17 (AR04)	16:13 (AR04) 17:28 16:31 (AR04)	06:13 18:00 18:00	06:23 19:32	05:43 20:27
14	07:18 16:53	16:05 (AR04) 06:52 16:18 (AR04)	16:15 (AR04) 17:30 16:27 (AR04)	06:11 18:01 18:01	06:21 19:33	05:42 20:27
15	07:18 16:54	16:05 (AR04) 06:51 16:20 (AR04)	16:16 (AR04) 17:31 18:02	06:10 18:02	06:20 19:34	05:41 20:27
16	07:17 16:55	16:04 (AR04) 06:50 16:21 (AR04)	16:17 (AR04) 17:32 18:03	06:08 18:03	06:18 19:35	05:40 20:28
17	07:17 16:56	16:04 (AR04) 06:48 16:23 (AR04)	16:18 (AR04) 17:33 18:04	06:06 18:04	06:17 19:36	05:39 20:28
18	07:16 16:57	16:03 (AR04) 06:47 16:24 (AR04)	16:19 (AR04) 17:34 18:05	06:05 18:05	06:15 19:37	05:39 20:29
19	07:16 16:58	16:02 (AR04) 06:46 16:24 (AR04)	16:20 (AR04) 17:35 18:06	06:03 18:06	06:14 19:38	05:38 20:29
20	07:15 16:59	16:02 (AR04) 06:44 16:26 (AR04)	16:21 (AR04) 17:36 18:07	06:01 18:07	06:12 19:39	05:37 20:29
21	07:15 17:01	16:01 (AR04) 06:43 16:27 (AR04)	16:22 (AR04) 17:37 18:08	06:00 18:08	06:11 19:40	05:36 20:29
22	07:14 17:02	16:02 (AR04) 06:42 16:29 (AR04)	16:23 (AR04) 17:38 18:09	06:00 18:09	06:11 19:41	05:36 20:30
23	07:14 17:03	16:01 (AR04) 06:40 16:30 (AR04)	16:24 (AR04) 17:39 18:10	05:57 18:11	06:08 19:42	05:34 20:30
24	07:13 17:04	16:01 (AR04) 06:39 16:31 (AR04)	16:25 (AR04) 17:40 18:12	05:55 18:12	06:06 19:43	05:34 20:30
25	07:12 17:05	16:00 (AR04) 06:37 16:33 (AR04)	16:26 (AR04) 17:42 18:13	05:53 18:13	06:05 19:44	05:33 20:30
26	07:11 17:07	16:01 (AR04) 06:36 16:35 (AR04)	16:27 (AR04) 17:43 18:14	05:52 18:14	06:04 19:46	05:32 20:30
27	07:11 17:08	16:01 (AR04) 06:34 16:36 (AR04)	16:28 (AR04) 17:44 18:15	05:50 18:15	06:02 19:47	05:32 20:30
28	07:10 17:09	16:01 (AR04) 06:33 16:38 (AR04)	16:29 (AR04) 17:45 18:16	05:48 18:16	06:01 19:48	05:31 20:30
29	07:09 17:10	16:01 (AR04) 06:32 16:39 (AR04)	16:30 (AR04) 17:46 18:17	06:47 19:17	06:00 19:49	05:31 20:30
30	07:08 17:11	16:01 (AR04) 06:31 16:39 (AR04)	16:31 (AR04) 17:47 19:18	06:45 19:18	05:58 19:50	05:30 20:30
31	07:07 17:13	16:01 (AR04) 06:30 16:39 (AR04)	16:32 (AR04) 17:48 19:19	06:43 19:19	05:30 20:19	05:29 20:19
Potential sun hours	299	298	370	398	446	450
Total, worst case	540	423	98			

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

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

**Calculation:** Worst case **Shadow receptor:** R59 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (85)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December	
1	05:30	05:53	06:23	06:52	06:25	15:37 (AR04) 06:59	15:51 (AR04)
	20:30	20:12	19:30	18:40	16:55	28 16:05 (AR04) 16:31	6 15:57 (AR04)
2	05:30	05:54	06:24	06:53	06:26	15:35 (AR04) 07:00	15:51 (AR03)
	20:30	20:11	19:28	18:39	16:53	31 16:06 (AR04) 16:31	5 15:56 (AR04)
3	05:31	05:55	06:25	06:54	06:27	15:35 (AR04) 07:01	15:52 (AR03)
	20:30	20:10	19:27	18:37	16:52	33 16:08 (AR04) 16:31	4 15:56 (AR03)
4	05:31	05:56	06:26	06:55	06:28	15:34 (AR04) 07:02	15:52 (AR03)
	20:30	20:09	19:25	18:35	16:51	34 16:08 (AR04) 16:30	3 15:55 (AR03)
5	05:32	05:57	06:27	06:56	06:29	15:33 (AR04) 07:03	15:52 (AR03)
	20:29	20:07	19:23	18:34	16:50	36 16:09 (AR04) 16:30	3 15:55 (AR03)
6	05:32	05:58	06:28	06:57	06:31	15:33 (AR04) 07:04	15:52 (AR03)
	20:29	20:06	19:22	18:32	16:49	36 16:09 (AR04) 16:30	3 15:55 (AR03)
7	05:33	05:59	06:29	06:58	06:32	15:32 (AR04) 07:05	15:53 (AR03)
	20:29	20:05	19:20	18:30	16:48	37 16:09 (AR04) 16:30	2 15:55 (AR03)
8	05:34	06:00	06:29	06:59	06:33	15:33 (AR04) 07:06	15:53 (AR03)
	20:29	20:04	19:18	18:29	16:47	37 16:10 (AR04) 16:30	1 15:54 (AR03)
9	05:34	06:01	06:30	07:00	06:34	15:32 (AR04) 07:06	
	20:28	20:03	19:17	18:27	16:46	38 16:10 (AR04) 16:30	
10	05:35	06:02	06:31	07:01	06:35	15:32 (AR04) 07:07	
	20:28	20:01	19:15	18:26	16:45	38 16:10 (AR04) 16:30	
11	05:36	06:03	06:32	07:02	06:36	15:32 (AR04) 07:08	
	20:28	20:00	19:13	18:24	16:44	38 16:10 (AR04) 16:30	
12	05:36	06:03	06:33	07:03	06:38	15:33 (AR04) 07:09	
	20:27	19:59	19:12	18:23	16:43	38 16:11 (AR04) 16:30	
13	05:37	06:04	06:34	07:04	06:39	15:33 (AR04) 07:10	
	20:27	19:58	19:10	18:21	16:42	38 16:11 (AR04) 16:30	
14	05:38	06:05	06:35	07:05	06:40	15:33 (AR04) 07:11	
	20:26	19:56	19:08	18:20	16:41	36 16:09 (AR04) 16:31	
15	05:38	06:06	06:36	07:06	06:41	15:33 (AR04) 07:11	
	20:26	19:55	19:07	18:18	16:40	35 16:08 (AR04) 16:31	
16	05:39	06:07	06:37	07:07	06:42	15:34 (AR04) 07:12	
	20:25	19:54	19:05	18:16	16:39	34 16:08 (AR04) 16:31	
17	05:40	06:08	06:38	18:22 (AR02) 07:08	06:43	15:34 (AR04) 07:13	
	20:24	19:52	19:03	6 18:28 (AR02) 18:15	16:39	33 16:07 (AR04) 16:31	
18	05:41	06:09	06:39	18:19 (AR02) 07:09	06:45	15:35 (AR04) 07:13	
	20:24	19:51	19:02	11 18:30 (AR02) 18:14	16:38	30 16:05 (AR04) 16:32	
19	05:42	06:10	06:40	18:17 (AR02) 07:10	06:46	15:35 (AR04) 07:14	
	20:23	19:49	19:00	13 18:30 (AR02) 18:12	16:37	29 16:04 (AR04) 16:32	
20	05:42	06:11	06:41	18:15 (AR02) 07:11	06:47	15:37 (AR04) 07:15	
	20:22	19:48	18:58	13 18:28 (AR02) 18:11	16:36	27 16:04 (AR04) 16:33	
21	05:43	06:12	06:42	18:14 (AR02) 07:12	06:48	15:37 (AR04) 07:15	
	20:22	19:46	18:57	13 18:27 (AR02) 18:09	16:36	26 16:03 (AR04) 16:33	
22	05:44	06:13	06:43	18:14 (AR02) 07:14	06:49	15:38 (AR04) 07:16	
	20:21	19:45	18:55	11 18:25 (AR02) 18:08	16:35	24 16:02 (AR04) 16:33	
23	05:45	06:14	06:44	18:13 (AR02) 07:15	06:50	15:39 (AR04) 07:16	
	20:20	19:44	18:53	10 18:23 (AR02) 18:06	16:35	22 16:01 (AR04) 16:34	
24	05:46	06:15	06:45	18:13 (AR02) 07:16	06:51	15:40 (AR04) 07:17	
	20:19	19:42	18:52	8 18:21 (AR02) 18:05	16:34	21 16:01 (AR04) 16:35	
25	05:47	06:16	06:46	18:13 (AR02) 06:17	06:52	15:41 (AR04) 07:17	
	20:18	19:41	18:50	7 18:20 (AR02) 17:04	16:33	19 16:00 (AR04) 16:35	
26	05:48	06:17	06:47	18:13 (AR02) 06:18	06:54	15:43 (AR04) 07:17	
	20:18	19:39	18:48	5 18:18 (AR02) 17:02	16:33	17 16:00 (AR04) 16:36	
27	05:48	06:18	06:48	18:14 (AR02) 06:19	06:55	15:44 (AR04) 07:18	
	20:17	19:37	18:47	3 18:17 (AR02) 17:01	16:33	15 15:59 (AR04) 16:36	
28	05:49	06:19	06:49	06:20	15:44 (AR04) 06:56	15:45 (AR04) 07:18	
	20:16	19:36	18:45	17:00	14 15:58 (AR04) 16:32	13 15:58 (AR04) 16:37	
29	05:50	06:20	06:50	06:21	15:41 (AR04) 06:57	15:47 (AR04) 07:18	
	20:15	19:34	18:43	16:58	19 16:00 (AR04) 16:32	11 15:58 (AR04) 16:38	
30	05:51	06:21	06:51	06:23	15:40 (AR04) 06:58	15:49 (AR04) 07:19	
	20:14	19:33	18:42	16:57	23 16:03 (AR04) 16:31	8 15:57 (AR04) 16:38	
31	05:52	06:22		06:24	15:38 (AR04)		07:19
	20:13	19:31		16:56	26 16:04 (AR04)		16:39
Potential sun hours	457	426	375	346	300	290	
Total, worst case			100	82	862		27

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Worst case Shadow receptor: R62 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (86)

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

Table with 12 columns for months (January to December) and rows for days (1 to 31). Each cell contains a time range (e.g., 07:19-17:14) or a shadow event (e.g., 19:22 (AR01) 05:30). Summary rows at the bottom show 'Potential sun hours' and 'Total, worst case' for each month.

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

Matrix with 4 columns: Day in month, Sun rise (hh:mm), Sun set (hh:mm), Minutes with flicker, First time (hh:mm) with flicker, Last time (hh:mm) with flicker, (WTG causing flicker first time), (WTG causing flicker last time).

Project:

WF Val d'Agri

Licensed user:

Ge.co.Dor srl

Via G. Garibaldi, 15  
IT-74023 Grottaglie (TA)

Gaetano D'Oronzio / info@gecodor.it

Calculated:

06/12/2022 16:20/3.5.587

# SHADOW - Calendar

**Calculation:** Worst caseShadow receptor: R64 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (87)

## 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	07:19 16:40	07:06 17:14	06:32 17:47	06:42 19:20	05:57 19:51	06:16 (AR06) 05:29	05:30 20:30	05:53 20:12	06:23 19:30	18:53 (AR01) 19:07 (AR01)	06:52 18:40	06:25 16:55
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	06:15 (AR06) 05:29	05:30 20:30	05:54 20:11	06:24 19:28	18:53 (AR01) 19:06 (AR01)	06:53 18:39	06:26 16:53
3	07:19 16:42	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	06:14 (AR06) 05:28	05:31 20:30	05:55 20:10	06:25 19:27	18:52 (AR01) 19:04 (AR01)	06:54 18:37	06:27 16:52
4	07:19 16:43	07:04 17:18	06:27 17:50	06:37 19:23	05:53 19:54	06:13 (AR06) 05:28	05:31 20:30	05:56 20:09	06:26 19:25	18:52 (AR01) 19:03 (AR01)	06:55 18:35	06:28 16:51
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	06:14 (AR06) 05:28	05:32 20:29	05:57 20:07	06:27 19:23	18:52 (AR01) 19:01 (AR01)	06:56 18:34	06:29 16:50
6	07:19 16:45	07:01 17:20	06:24 17:53	06:34 19:25	05:51 19:56	06:14 (AR06) 05:28	05:32 20:29	05:58 20:06	06:28 19:22	18:52 (AR01) 19:00 (AR01)	06:57 18:32	06:31 16:49
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	06:14 (AR06) 05:28	05:33 20:29	05:59 20:05	06:29 19:20	18:53 (AR01) 18:58 (AR01)	06:58 18:31	06:32 16:48
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	06:14 (AR06) 05:28	05:34 20:29	06:00 20:04	06:30 19:18	18:54 (AR01) 18:57 (AR01)	06:59 18:29	06:33 16:47
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 19:28	05:48 19:59	06:14 (AR06) 05:28	05:34 20:28	06:01 20:03	06:30 19:17	18:57 (AR01) 19:06 (AR01)	07:00 18:27	06:34 16:46
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	06:14 (AR06) 05:28	05:35 20:28	06:02 20:01	06:31 19:15	18:57 (AR01) 19:06 (AR01)	07:01 18:26	06:35 16:45
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	06:14 (AR06) 05:28	05:36 20:28	06:03 20:00	06:32 19:14	18:57 (AR01) 19:06 (AR01)	07:02 18:24	06:36 16:44
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	06:14 (AR06) 05:28	05:36 20:27	06:04 19:59	06:33 19:12	18:57 (AR01) 19:06 (AR01)	07:03 18:23	06:38 16:43
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	06:14 (AR06) 05:28	05:37 20:27	06:04 19:58	06:34 19:10	18:57 (AR01) 19:06 (AR01)	07:04 18:21	06:39 16:42
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	06:14 (AR06) 05:28	05:38 20:26	06:05 19:56	06:35 19:09	18:57 (AR01) 19:06 (AR01)	07:05 18:20	06:40 16:41
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	06:14 (AR06) 05:28	05:38 20:25	06:06 19:55	06:36 19:07	18:57 (AR01) 19:06 (AR01)	07:06 18:18	06:41 16:40
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	06:14 (AR06) 05:28	05:39 20:28	06:07 19:54	06:37 19:05	18:57 (AR01) 19:06 (AR01)	07:07 18:17	06:42 16:39
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	06:14 (AR06) 05:28	05:40 20:24	06:08 19:52	06:38 19:04	18:57 (AR01) 19:06 (AR01)	07:08 18:15	06:43 16:39
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:39 20:07	06:14 (AR06) 05:28	05:41 20:24	06:09 19:51	06:39 19:02	18:57 (AR01) 19:06 (AR01)	07:09 18:14	06:45 16:38
19	07:16 16:58	06:46 17:36	06:03 18:06	06:14 19:38	05:38 20:08	06:14 (AR06) 05:28	05:42 20:23	06:10 19:49	06:40 19:00	18:57 (AR01) 19:06 (AR01)	07:10 18:12	06:46 16:37
20	07:15 17:00	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	06:14 (AR06) 05:28	05:42 20:22	06:11 19:48	06:41 18:59	18:57 (AR01) 19:06 (AR01)	07:11 18:11	06:47 16:36
21	07:15 17:01	06:43 17:38	06:00 18:09	06:11 19:40	05:36 20:10	06:14 (AR06) 05:28	05:43 20:22	06:12 19:46	06:42 18:57	18:57 (AR01) 19:06 (AR01)	07:12 18:09	06:48 16:36
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:41	05:35 20:11	06:14 (AR06) 05:28	05:44 20:21	06:13 19:45	06:43 18:55	18:57 (AR01) 19:06 (AR01)	07:14 18:08	06:49 16:35
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:35 20:12	06:14 (AR06) 05:28	05:45 20:20	06:14 19:44	06:44 18:54	18:57 (AR01) 19:06 (AR01)	07:15 18:06	06:50 16:34
24	07:13 17:04	06:39 17:41	05:55 18:12	06:07 19:43	05:34 20:13	06:25 (AR06) 06:27 (AR06)	05:46 20:19	06:15 19:42	06:45 18:52	18:57 (AR01) 19:06 (AR01)	07:16 18:05	06:51 16:34
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:45	05:33 20:14	06:24 (AR06) 06:28 (AR06)	05:47 20:18	06:16 19:41	06:46 18:50	18:57 (AR01) 19:06 (AR01)	07:17 18:04	06:52 16:33
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04 19:46	05:32 20:15	06:23 (AR06) 06:28 (AR06)	05:48 20:18	06:17 19:39	06:47 18:49	18:57 (AR01) 19:06 (AR01)	07:18 18:02	06:54 16:32
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	06:21 (AR06) 06:27 (AR06)	05:48 20:17	06:18 19:38	06:48 18:47	18:57 (AR01) 19:06 (AR01)	07:19 18:01	06:55 16:33
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	06:20 (AR06) 06:27 (AR06)	05:49 20:16	06:19 19:36	06:49 18:45	19:01 (AR01) 19:08 (AR01)	07:20 18:00	06:56 16:32
29	07:09 17:10	06:47 17:53	06:00 18:17	06:00 19:49	05:31 20:17	06:19 (AR06) 06:27 (AR06)	05:50 20:15	06:20 19:34	06:50 18:44	18:58 (AR01) 19:11 (AR01)	07:21 18:56	06:57 16:31
30	07:08 17:11	06:45 17:51	05:58 18:18	06:00 19:50	05:30 20:18	06:17 (AR06) 06:26 (AR06)	05:51 20:14	06:21 19:33	06:51 18:42	18:56 (AR01) 19:11 (AR01)	07:22 18:54	06:58 16:30
31	07:07 17:13	06:44 17:51	06:44 19:19	06:44 19:50	05:30 20:19	06:26 (AR06)	05:52 20:13	06:22 19:31	18:54 (AR01) 19:09 (AR01)	18:54 (AR01) 19:09 (AR01)	06:24 16:56	07:19 16:39
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290
Total, worst case				166	39			132	75			

### 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:** Worst case Shadow receptor: R67 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (88)

### 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	07:19	07:07	06:32	06:42	05:57	06:16 (AR02) 05:29
	16:40	17:14	17:47	19:20	19:51	30 06:46 (AR02) 20:19
2	07:19	07:06	06:30	06:40	05:56	06:15 (AR02) 05:29
	16:41	17:15	17:48	19:21	19:52	32 06:47 (AR02) 20:20
3	07:19	07:05	06:29	06:39	05:55	06:14 (AR02) 05:28
	16:42	17:16	17:49	19:22	19:53	33 06:47 (AR02) 20:21
4	07:20	07:04	06:27	06:37	05:53	06:13 (AR02) 05:28
	16:43	17:18	17:50	19:23	19:54	35 06:48 (AR02) 20:22
5	07:20	07:03	06:26	06:36	05:52	06:12 (AR02) 05:28
	16:44	17:19	17:52	19:24	19:55	36 06:48 (AR02) 20:22
6	07:20	07:02	06:24	06:34	05:51	06:10 (AR02) 05:27
	16:45	17:20	17:53	19:25	19:56	37 06:47 (AR02) 20:23
7	07:19	07:01	06:22	06:32	05:50	06:09 (AR02) 05:27
	16:46	17:21	17:54	19:26	19:57	38 06:47 (AR02) 20:24
8	07:19	06:59	06:21	06:31	05:49	06:08 (AR02) 05:27
	16:47	17:22	17:55	19:27	19:58	39 06:47 (AR02) 20:24
9	07:19	06:58	06:19	06:29	05:48	06:08 (AR02) 05:27
	16:48	17:24	17:56	19:28	19:59	39 06:47 (AR02) 20:25
10	07:19	06:57	07:17 (AR03) 06:18	06:28	05:47	06:08 (AR02) 05:26
	16:49	17:25	1 07:18 (AR03) 17:57	19:29	20:00	39 06:47 (AR02) 20:25
11	07:19	06:56	3 07:15 (AR03) 06:16	06:26	05:45	06:08 (AR02) 05:26
	16:50	17:26	07:18 (AR03) 17:58	19:30	20:01	38 06:46 (AR02) 20:26
12	07:19	06:55	07:14 (AR03) 06:15	06:24	05:44	06:08 (AR02) 05:26
	16:51	17:27	4 07:18 (AR03) 17:59	19:31	20:02	38 06:46 (AR02) 20:26
13	07:18	06:54	07:13 (AR03) 06:13	06:23	05:43	06:09 (AR02) 05:26
	16:52	17:28	5 07:18 (AR03) 18:00	19:32	20:03	37 06:46 (AR02) 20:27
14	07:18	06:52	07:12 (AR03) 06:11	06:21	05:42	06:09 (AR02) 05:26
	16:53	17:30	6 07:18 (AR03) 18:01	19:33	20:04	36 06:45 (AR02) 20:27
15	07:18	06:51	07:10 (AR03) 06:10	06:20	05:41	06:09 (AR02) 05:26
	16:54	17:31	7 07:17 (AR03) 18:02	19:34	20:05	36 06:45 (AR02) 20:28
16	07:17	06:50	07:09 (AR03) 06:08	06:18	05:40	06:10 (AR02) 05:26
	16:55	17:32	7 07:16 (AR03) 18:03	19:35	20:06	34 06:44 (AR02) 20:28
17	07:17	06:49	07:08 (AR03) 06:06	06:17	05:40	06:11 (AR02) 05:26
	16:56	17:33	7 07:15 (AR03) 18:04	19:36	20:07	33 06:44 (AR02) 20:28
18	07:16	06:47	07:06 (AR03) 06:05	06:15	05:39	06:12 (AR02) 05:26
	16:57	17:34	7 07:13 (AR03) 18:05	19:37	20:08	31 06:43 (AR02) 20:29
19	07:16	06:46	07:05 (AR03) 06:03	06:14	05:38	06:12 (AR02) 05:26
	16:58	17:36	6 07:11 (AR03) 18:07	19:38	20:09	31 06:43 (AR02) 20:29
20	07:15	06:45	07:04 (AR03) 06:02	06:12	05:37	06:13 (AR02) 05:26
	17:00	17:37	3 07:07 (AR03) 18:08	19:39	20:09	29 06:42 (AR02) 20:29
21	07:15	06:43	06:00	06:11	05:36	06:14 (AR02) 05:27
	17:01	17:38	18:09	19:41	20:10	27 06:41 (AR02) 20:30
22	07:14	06:42	05:58	06:09	05:35	06:15 (AR02) 05:27
	17:02	17:39	18:10	19:42	7 06:35 (AR02) 20:11	25 06:40 (AR02) 20:30
23	07:14	06:40	05:57	06:08	06:27 (AR02) 05:35	06:16 (AR02) 05:27
	17:03	17:40	18:11	19:43	12 06:39 (AR02) 20:12	23 06:39 (AR02) 20:30
24	07:13	06:39	05:55	06:07	06:25 (AR02) 05:34	06:17 (AR02) 05:27
	17:04	17:41	18:12	19:44	15 06:40 (AR02) 20:13	21 06:38 (AR02) 20:30
25	07:12	06:38	05:53	06:05	06:24 (AR02) 05:33	06:19 (AR02) 05:28
	17:05	17:43	18:13	19:45	18 06:42 (AR02) 20:14	18 06:37 (AR02) 20:30
26	07:12	06:36	05:52	06:04	06:23 (AR02) 05:33	06:20 (AR02) 05:28
	17:07	17:44	18:14	19:46	21 06:44 (AR02) 20:15	15 06:35 (AR02) 20:30
27	07:11	06:35	05:50	06:03	06:21 (AR02) 05:32	06:22 (AR02) 05:28
	17:08	17:45	18:15	19:47	23 06:44 (AR02) 20:16	12 06:34 (AR02) 20:30
28	07:10	06:33	05:48	06:01	06:20 (AR02) 05:31	06:25 (AR02) 05:29
	17:09	17:46	18:16	19:48	25 06:45 (AR02) 20:16	5 06:30 (AR02) 20:30
29	07:09		06:47	06:00	06:19 (AR02) 05:31	05:29
	17:10		19:17	19:49	27 06:46 (AR02) 20:17	20:30
30	07:08		06:45	05:59	06:18 (AR02) 05:30	05:29
	17:12		19:18	19:50	29 06:47 (AR02) 20:18	20:30
31	07:07		06:44		05:30	
	17:13		19:19		20:19	
Potential sun hours	299	298	370	398	446	450
Total, worst case		56		177	847	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R67 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (88)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:30 20:30	05:53 20:12	06:19 (AR02) 06:57 (AR02)	06:23 19:30	06:52 18:40	06:25 16:55
2	05:30 20:30	05:54 20:11	06:19 (AR02) 06:57 (AR02)	06:24 19:28	06:53 18:39	06:26 16:54
3	05:31 20:30	05:55 20:10	06:19 (AR02) 06:57 (AR02)	06:25 19:27	06:54 18:37	06:27 16:52
4	05:31 20:30	05:56 20:09	06:18 (AR02) 06:58 (AR02)	06:26 19:25	06:55 18:35	06:28 16:51
5	05:32 20:30	05:57 20:08	06:19 (AR02) 06:58 (AR02)	06:27 19:23	06:56 18:34	06:30 16:50
6	05:33 20:29	05:58 20:06	06:19 (AR02) 06:57 (AR02)	06:28 19:22	06:57 18:32	06:31 16:49
7	05:33 20:29	05:59 20:05	06:20 (AR02) 06:57 (AR02)	06:29 19:20	06:58 18:31	06:32 16:48
8	05:34 20:29	06:00 20:04	06:21 (AR02) 06:57 (AR02)	06:30 19:19	06:59 18:29	06:33 16:47
9	05:34 20:28	06:01 20:03	06:22 (AR02) 06:56 (AR02)	06:31 19:17	07:00 18:27	06:34 16:46
10	05:35 20:28	06:02 20:02	06:23 (AR02) 06:56 (AR02)	06:32 19:15	07:01 18:26	06:35 16:45
11	05:36 20:28	06:03 20:00	06:24 (AR02) 06:56 (AR02)	06:32 19:14	07:02 18:24	06:37 16:44
12	05:36 20:27	06:04 19:59	06:25 (AR02) 06:55 (AR02)	06:33 19:12	07:03 18:23	06:38 16:43
13	05:37 20:27	06:05 19:58	06:26 (AR02) 06:54 (AR02)	06:34 19:10	07:04 18:21	06:39 16:42
14	05:38 20:26	06:06 19:56	06:27 (AR02) 06:54 (AR02)	06:35 19:09	07:05 18:20	06:40 16:41
15	05:39 20:26	06:07 19:55	06:28 (AR02) 06:53 (AR02)	06:36 19:07	07:06 18:18	06:41 16:40
16	05:39 20:25	06:07 19:54	06:29 (AR02) 06:52 (AR02)	06:37 19:05	07:07 18:17	06:42 16:39
17	05:40 20:25	06:33 (AR02) 06:30 (AR02)	06:07 06:08	06:37 06:38	07:07 07:08	06:42 06:43
18	05:41 20:24	14 06:44 (AR02) 06:29 (AR02)	19:52 06:09	20 06:50 (AR02) 06:31 (AR02)	19:04 06:39	18:15 07:09
19	05:42 20:23	17 06:46 (AR02) 06:28 (AR02)	19:51 06:10	18 06:49 (AR02) 06:31 (AR02)	19:02 06:40	18:14 07:10
20	05:43 20:23	19 06:47 (AR02) 06:27 (AR02)	19:49 06:11	15 06:46 (AR02) 06:32 (AR02)	19:00 06:41	18:12 07:12
21	05:43 20:22	22 06:49 (AR02) 06:25 (AR02)	19:48 06:12	11 06:43 (AR02) 06:33 (AR02)	18:59 06:42	18:11 07:13
22	05:44 20:21	24 06:49 (AR02) 06:24 (AR02)	19:47 06:13	6 06:39 (AR02)	18:57 06:43	18:09 07:14
23	05:45 20:20	26 06:50 (AR02) 06:23 (AR02)	19:45 06:14		06:43 06:44	07:14 07:15
24	05:46 20:19	29 06:52 (AR02) 06:23 (AR02)	19:44 06:15		06:44 06:45	07:15 07:16
25	05:47 20:19	30 06:53 (AR02) 06:22 (AR02)	19:42 06:16		06:45 06:46	07:16 07:17
26	05:48 20:18	31 06:53 (AR02) 06:22 (AR02)	19:41 06:17		06:46 06:47	07:17 07:18
27	05:49 20:17	32 06:54 (AR02) 06:21 (AR02)	19:39 06:18		06:47 06:48	07:18 07:19
28	05:49 20:16	34 06:55 (AR02) 06:20 (AR02)	19:38 06:19		06:48 06:49	07:19 07:20
29	05:50 20:15	35 06:55 (AR02) 06:20 (AR02)	19:36 06:20		06:49 06:50	07:20 07:21
30	05:51 20:14	35 06:55 (AR02) 06:19 (AR02)	19:35 06:21		06:50 06:51	07:21 07:22
31	05:52 20:13	37 06:56 (AR02) 06:19 (AR02)	19:33 06:22		06:51 06:52	07:22 07:23
Potential sun hours	457	426	375	346	300	290
Total, worst case	431	607		56	1	

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

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

**Calculation:** Worst case **Shadow receptor:** R78 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (89)

### 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	07:19 16:40	07:06 17:14	06:32 17:47	17:06 (AR02) 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31	
2	07:19 16:41	07:06 17:15	06:30 17:48	17:07 (AR02) 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	07:00 16:31	
3	07:19 16:42	07:05 17:16	06:28 17:49	17:07 (AR02) 19:22	05:55 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	07:01 16:31	
4	07:19 16:43	07:04 17:17	06:27 17:50	17:08 (AR02) 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30	
5	07:19 16:44	07:03 17:19	06:25 17:51	17:09 (AR02) 19:24	05:52 19:55	05:28 20:22	05:32 20:30	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30	
6	07:19 16:45	07:02 17:20	06:24 17:52	17:11 (AR02) 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:50	07:04 16:30	
7	07:19 16:46	07:00 17:21	06:22 17:54	17:14 (AR02) 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:29 19:20	06:58 18:30	17:48 (AR02) 17:59 (AR02)	06:32 16:48	07:05 16:30
8	07:19 16:47	06:59 17:22	06:21 17:55	17:21 (AR02) 19:27	05:49 19:58	05:27 20:24	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	17:45 (AR02) 18:01 (AR02)	06:33 16:47	07:06 16:30
9	07:19 16:48	06:58 17:24	06:19 17:56	19:28	19:59	20:25	20:28	20:03	19:17	18:27	18:03 (AR02)	16:46	16:30
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27	05:46	05:26	05:35	06:02	06:31	07:01	17:44 (AR02)	06:35	07:07
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26	05:45	05:26	05:36	06:03	06:32	07:02	18:03 (AR02)	16:45	16:30
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24	05:41	05:26	05:36	06:03	06:33	07:03	17:41 (AR02)	06:38	07:09
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23	05:43	05:26	05:37	06:04	06:34	07:04	18:02 (AR02)	16:44	16:30
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21	05:42	05:26	05:38	06:05	06:35	07:05	17:39 (AR02)	06:40	07:11
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20	05:41	05:26	05:38	06:06	06:36	07:06	17:58 (AR02)	16:41	16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18	05:40	05:26	05:39	06:07	06:37	07:07	17:38 (AR02)	06:42	07:12
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17	05:39	05:26	05:40	06:08	06:38	07:08	17:55 (AR02)	16:40	16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15	05:39	05:26	05:41	06:09	06:39	07:09	17:41 (AR02)	06:43	07:13
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14	05:38	05:26	05:42	06:10	06:40	07:10	17:53 (AR02)	16:39	16:31
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12	05:37	05:26	05:43	06:11	06:41	07:11	17:39 (AR02)	06:45	07:14
21	07:15 17:01	06:43 17:38	06:00 18:09	06:11	05:36	05:26	05:43	06:12	06:42	07:12	17:40 (AR02)	16:37	16:32
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09	05:35	05:27	05:44	06:13	06:43	07:14	17:48 (AR02)	16:36	16:33
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08	05:34	05:27	05:45	06:14	06:44	07:15	17:46 (AR02)	16:36	16:33
24	07:13 17:04	06:39 17:41	05:55 18:12	06:07	05:34	05:27	05:46	06:15	06:45	07:16	17:43 (AR02)	16:35	16:32
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05	05:33	05:27	05:47	06:16	06:46	07:17	17:45 (AR02)	16:35	16:33
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04	05:32	05:28	05:48	06:17	06:47	07:18	18:50	17:04	16:33
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02	05:32	05:28	05:48	06:18	06:48	07:19	18:48	17:02	16:33
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01	05:31	05:28	05:49	06:19	06:49	07:20	18:45	17:00	16:32
29	07:09 17:10	06:32 17:47	05:47 18:17	06:00	05:31	05:29	05:50	06:20	06:50	07:21	18:44	17:00	16:32
30	07:08 17:11	06:31 17:48	05:46 18:18	05:58	05:30	05:29	05:51	06:21	06:51	07:22	18:43	17:00	16:32
31	07:07 17:13	06:30 17:49	05:45 18:19	05:57	05:29	05:28	05:52	06:22	06:52	07:23	18:42	17:00	16:32
Potential sun hours	299	298	370	398	446	450	457	426	375	346	227	300	290
Total, worst case		105	120										

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

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

Licensed user:

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

Gaetano D'Oronzio / info@gecodor.it
Calculated:
06/12/2022 16:20/3.5.587

SHADOW - Calendar

Calculation: Worst case Shadow receptor: R82 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (91)

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

Table with columns for months (January to December) and rows for days (1 to 31), showing sun rise and set times (AR04) and shadow receptor times.

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

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





**SHADOW - Calendar****Calculation:** Worst caseShadow receptor: R86 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (93)**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	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	17:36 (AR05) 19:51	05:57 20:19	05:29 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	17:36 (AR05) 19:52	05:56 20:20	05:29 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	07:00 16:31
3	07:19 16:42	07:05 17:16	06:28 17:49	06:39 19:22	17:37 (AR05) 19:53	05:55 20:21	05:28 20:30	05:55 20:10	06:25 19:26	7 17:53 (AR05)	06:54 18:37	07:01 16:52
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	17:38 (AR05) 19:54	05:53 20:21	05:28 20:30	05:56 20:09	06:26 19:25	16 17:57 (AR05)	06:55 18:35	07:02 16:51
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	17:39 (AR05) 19:55	05:52 20:22	05:27 20:29	05:57 20:07	06:27 19:23	21 17:59 (AR05)	06:56 18:34	07:03 16:50
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	17:40 (AR05) 19:56	05:51 20:23	05:27 20:29	05:58 20:06	06:28 19:22	25 18:01 (AR05)	06:57 18:32	07:04 16:49
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	17:41 (AR05) 19:57	05:50 20:23	05:27 20:29	05:59 20:05	06:28 19:20	28 18:02 (AR05)	06:58 18:30	07:05 16:48
8	07:19 16:46	06:59 17:22	06:21 17:55	06:31 19:27	17:44 (AR05) 19:58	05:49 20:24	05:27 20:29	06:00 20:04	06:29 19:18	30 18:03 (AR05)	06:59 18:29	07:06 16:47
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	17:48 (AR05) 19:59	05:47 20:25	05:26 20:28	06:01 20:03	06:30 19:17	32 18:03 (AR05)	07:00 18:27	07:06 16:46
10	07:19 16:48	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	05:46 20:25	05:26 20:28	06:01 20:01	06:31 19:15	34 18:03 (AR05)	07:01 18:26	07:07 16:45
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:45 20:26	05:26 20:28	06:02 20:00	06:32 19:13	35 18:03 (AR05)	07:02 18:24	07:08 16:44
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:44 20:26	05:26 20:27	06:03 19:59	06:33 19:12	36 18:03 (AR05)	07:03 18:23	07:09 16:43
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:43 20:27	05:26 20:27	06:04 19:58	06:34 19:10	36 18:03 (AR05)	07:04 18:21	07:10 16:42
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:42 20:27	05:26 20:26	06:05 19:56	06:35 19:08	37 18:03 (AR05)	07:05 18:19	07:11 16:41
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:41 20:27	05:26 20:26	06:06 19:55	06:36 19:07	37 18:03 (AR05)	07:06 18:18	07:11 16:40
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:40 20:28	05:26 20:25	06:07 19:53	06:37 19:05	38 18:03 (AR05)	07:07 18:16	07:12 16:39
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	05:39 20:28	05:26 20:24	06:08 19:52	06:38 19:03	38 18:03 (AR05)	07:08 18:15	07:13 16:38
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:38 20:29	05:26 20:24	06:09 19:51	06:39 19:02	37 18:02 (AR05)	07:09 18:13	07:13 16:37
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:38 20:29	05:26 20:23	06:10 19:49	06:40 19:00	36 18:01 (AR05)	07:10 18:12	07:14 16:37
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	05:37 20:29	05:26 20:22	06:11 19:48	06:41 18:58	35 18:00 (AR05)	07:11 18:11	07:15 16:36
21	07:15 17:01	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:36 20:29	05:26 20:22	06:12 19:46	06:42 18:57	35 18:00 (AR05)	07:12 18:09	07:15 16:36
22	07:14 17:02	06:42 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:35 20:29	05:27 20:21	06:13 19:45	06:43 18:55	33 17:59 (AR05)	07:14 18:08	07:16 16:35
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	05:34 20:30	05:27 20:20	06:14 19:43	06:44 18:53	31 17:57 (AR05)	07:15 18:06	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:12	06:06 19:43	05:34 20:13	05:34 20:30	05:27 20:19	06:15 19:42	06:45 18:52	29 17:56 (AR05)	07:16 18:05	07:17 16:34
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:44	05:33 20:14	05:33 20:30	05:27 20:18	06:16 19:41	06:46 18:50	22 17:52 (AR05)	07:17 17:04	07:17 16:33
26	07:11 17:06	06:36 17:43	05:52 18:14	06:04 19:45	05:32 20:15	05:32 20:30	05:28 20:18	06:17 19:39	06:47 18:48	17 17:49 (AR05)	07:18 17:02	07:17 16:36
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	05:32 20:30	05:28 20:17	06:18 19:37	06:48 18:47	8 17:43 (AR05)	07:19 17:01	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:31 20:30	05:28 20:16	06:19 19:36	06:49 18:45	17 17:49 (AR05)	07:20 17:00	07:18 16:37
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	17 17:49 (AR05)	07:21 16:51	07:19 16:38
30	07:08 17:11		06:45 19:18	05:58 19:50	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	17 17:49 (AR05)	07:22 16:51	07:19 16:38
31	07:07 17:13		06:43 19:19	05:57 19:50	05:29 20:19	05:29 20:30	05:52 20:13	06:22 19:31	06:52 18:42	17 17:49 (AR05)	07:23 16:56	07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	427	375	346	300	290
Total, worst case			480	228					722			

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

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

## SHADOW - Calendar

**Calculation:** Worst case Shadow receptor: R88 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (94)

### 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	07:19	15:54 (AR04)	07:06	06:31	06:42	05:57	05:29
	16:40	20	16:14 (AR04)	17:14	17:47	19:20	19:51
2	07:19	15:54 (AR04)	07:05	06:30	06:40	05:56	05:29
	16:41	21	16:15 (AR04)	17:15	17:48	19:21	19:52
3	07:19	15:55 (AR04)	07:05	06:28	06:39	05:55	05:28
	16:42	20	16:15 (AR04)	17:16	17:49	19:22	19:53
4	07:19	15:55 (AR04)	07:04	06:27	06:37	05:53	05:28
	16:43	20	16:15 (AR04)	17:17	17:50	19:23	19:54
5	07:19	15:56 (AR04)	07:03	06:25	06:35	05:52	05:27
	16:44	20	16:16 (AR04)	17:19	17:51	19:24	19:55
6	07:19	15:57 (AR04)	07:01	06:24	06:34	05:51	05:27
	16:45	19	16:16 (AR04)	17:20	17:52	19:25	19:56
7	07:19	15:57 (AR04)	07:00	06:22	06:32	05:50	05:27
	16:46	19	16:16 (AR04)	17:21	17:54	19:26	19:57
8	07:19	15:58 (AR04)	06:59	06:21	06:31	05:49	05:27
	16:47	18	16:16 (AR04)	17:22	17:55	19:27	19:58
9	07:19	15:59 (AR04)	06:58	06:19	06:29	05:47	18:42 (AR05)
	16:47	18	16:17 (AR04)	17:23	17:56	19:28	19:59
10	07:19	16:00 (AR04)	06:57	06:18	06:27	05:46	18:45 (AR05)
	16:48	16	16:16 (AR04)	17:25	17:57	19:29	19:59
11	07:19	16:01 (AR04)	06:56	06:16	06:26	05:45	18:37 (AR05)
	16:50	15	16:16 (AR04)	17:26	17:58	19:30	19:59
12	07:19	16:02 (AR04)	06:55	06:14	06:24	05:44	18:32 (AR05)
	16:51	14	16:16 (AR04)	17:27	17:59	19:31	19:59
13	07:18	16:03 (AR04)	06:53	06:13	06:23	05:43	18:53 (AR05)
	16:52	12	16:15 (AR04)	17:28	18:00	19:32	20:03
14	07:18	16:05 (AR04)	06:52	06:11	06:21	05:42	18:31 (AR05)
	16:53	9	16:14 (AR04)	17:29	18:01	19:33	20:04
15	07:18	16:08 (AR04)	06:51	06:10	06:20	05:41	18:56 (AR05)
	16:54	5	16:13 (AR04)	17:31	18:02	19:34	20:05
16	07:17		06:50	06:08	06:18	05:40	18:29 (AR05)
	16:55		17:32	18:03	19:35	20:06	20:28
17	07:17		06:48	06:06	06:17	05:39	18:26 (AR05)
	16:56		17:33	18:04	19:36	20:07	20:28
18	07:16		06:47	06:05	06:15	05:38	19:00 (AR05)
	16:57		17:34	18:05	19:37	20:07	20:28
19	07:16		06:46	06:03	06:14	05:38	18:26 (AR05)
	16:58		17:35	18:06	19:38	20:08	20:29
20	07:15		06:44	06:01	06:12	05:37	19:02 (AR05)
	16:59		17:37	18:07	19:39	20:09	20:29
21	07:15		06:43	06:00	06:11	05:36	18:25 (AR05)
	17:01		17:38	18:08	19:40	20:10	20:29
22	07:14		06:42	05:58	06:09	05:35	19:02 (AR05)
	17:02		17:39	18:09	19:41	20:11	20:30
23	07:14		06:40	05:57	06:08	05:34	18:24 (AR05)
	17:03		17:40	18:11	19:42	20:12	20:30
24	07:13		06:39	05:55	06:06	05:34	19:04 (AR05)
	17:04		17:41	18:12	19:43	20:13	20:30
25	07:12		06:37	05:53	06:05	05:33	18:24 (AR05)
	17:05		17:42	18:13	19:44	20:14	20:30
26	07:11		06:36	05:52	06:04	05:32	19:05 (AR05)
	17:06		17:43	18:14	19:45	20:15	20:30
27	07:11		06:34	05:50	06:02	05:32	18:24 (AR05)
	17:08		17:45	18:15	19:47	20:15	20:30
28	07:10		06:33	05:48	06:01	05:31	18:25 (AR05)
	17:09		17:46	18:16	19:48	20:16	20:30
29	07:09			06:47	06:00	05:31	18:24 (AR05)
	17:10			19:17	19:49	20:17	20:30
30	07:08			06:45	05:58	05:30	19:05 (AR05)
	17:11			19:18	19:50	20:18	20:30
31	07:07			06:43		05:30	18:25 (AR05)
	17:13			19:19		20:19	20:30
Potential sun hours	299		298	370	398	446	450
Total, worst case	246					758	1222

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case Shadow receptor: R88 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (94)

### Assumptions for shadow calculations

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

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

	July	August	September	October	November	December
1	05:30	18:31 (AR05)   05:53	18:43 (AR05)   06:23	06:52	06:25	06:59
	20:30	41 19:12 (AR05)   20:12	22 19:05 (AR05)   19:30	18:40	16:55	15:43 (AR04)
2	05:30	18:31 (AR05)   05:54	18:45 (AR05)   06:24	06:53	06:26	07:00
	20:30	41 19:12 (AR05)   20:11	18 19:03 (AR05)   19:28	18:39	16:53	16:31
3	05:31	18:31 (AR05)   05:55	18:48 (AR05)   06:25	06:54	06:27	07:01
	20:30	41 19:12 (AR05)   20:10	12 19:00 (AR05)   19:26	18:37	16:52	16:31
4	05:31	18:31 (AR05)   05:56	18:31 (AR05)   06:26	06:55	06:28	07:02
	20:30	41 19:12 (AR05)   20:09	19:25	18:35	16:51	16:30
5	05:32	18:32 (AR05)   05:57	06:27	06:56	06:29	07:03
	20:29	41 19:13 (AR05)   20:07	19:23	18:34	16:50	16:30
6	05:32	18:32 (AR05)   05:58	06:28	06:57	06:31	07:04
	20:29	41 19:13 (AR05)   20:06	19:22	18:32	16:49	16:30
7	05:33	18:32 (AR05)   05:59	06:28	06:58	06:32	07:05
	20:29	41 19:13 (AR05)   20:05	19:20	18:30	16:48	16:30
8	05:34	18:32 (AR05)   06:00	06:29	06:59	06:33	07:06
	20:29	42 19:14 (AR05)   20:04	19:18	18:29	16:47	16:30
9	05:34	18:32 (AR05)   06:01	06:30	07:00	06:34	07:06
	20:28	41 19:13 (AR05)   20:03	19:17	18:27	16:46	16:30
10	05:35	18:32 (AR05)   06:01	06:31	07:01	06:35	07:07
	20:28	42 19:14 (AR05)   20:01	19:15	18:26	16:45	16:30
11	05:35	18:33 (AR05)   06:02	06:32	07:02	06:36	07:08
	20:28	41 19:14 (AR05)   20:00	19:13	18:24	16:44	16:30
12	05:36	18:32 (AR05)   06:03	06:33	07:03	06:38	07:09
	20:27	42 19:14 (AR05)   19:59	19:12	18:23	16:43	16:30
13	05:37	18:32 (AR05)   06:04	06:34	07:04	06:39	07:10
	20:27	42 19:14 (AR05)   19:58	19:10	18:21	16:42	16:30
14	05:38	18:33 (AR05)   06:05	06:35	07:05	06:40	07:11
	20:26	41 19:14 (AR05)   19:56	19:08	18:19	16:41	16:31
15	05:38	18:33 (AR05)   06:06	06:36	07:06	06:41	07:11
	20:26	42 19:15 (AR05)   19:55	19:07	18:18	16:40	16:31
16	05:39	18:33 (AR05)   06:07	06:37	07:07	06:42	07:12
	20:25	41 19:14 (AR05)   19:53	19:05	18:16	16:39	16:31
17	05:40	18:33 (AR05)   06:08	06:38	07:08	06:43	07:13
	20:24	41 19:14 (AR05)   19:52	19:03	18:15	16:39	16:31
18	05:41	18:34 (AR05)   06:09	06:39	07:09	06:44	07:13
	20:24	40 19:14 (AR05)   19:51	19:02	18:13	16:38	16:32
19	05:42	18:34 (AR05)   06:10	06:40	07:10	06:46	07:14
	20:23	40 19:14 (AR05)   19:49	19:00	18:12	16:37	16:32
20	05:42	18:34 (AR05)   06:11	06:41	07:11	06:47	07:15
	20:22	39 19:13 (AR05)   19:48	18:58	18:11	16:36	16:32
21	05:43	18:34 (AR05)   06:12	06:42	07:12	06:48	07:15
	20:22	39 19:13 (AR05)   19:46	18:57	18:09	16:36	16:33
22	05:44	18:35 (AR05)   06:13	06:43	07:14	06:49	07:16
	20:21	38 19:13 (AR05)   19:45	18:55	18:08	16:35	16:33
23	05:45	18:35 (AR05)   06:14	06:44	07:15	06:50	07:16
	20:20	38 19:13 (AR05)   19:43	18:53	18:06	16:34	16:34
24	05:46	18:36 (AR05)   06:15	06:45	07:16	06:51	07:17
	20:19	37 19:13 (AR05)   19:42	18:52	18:05	16:34	16:34
25	05:47	18:37 (AR05)   06:16	06:46	06:17	06:52	07:17
	20:18	35 19:12 (AR05)   19:41	18:50	17:04	16:33	16:35
26	05:47	18:36 (AR05)   06:17	06:47	06:18	06:54	07:17
	20:18	35 19:11 (AR05)   19:39	18:48	17:02	16:33	16:36
27	05:48	18:37 (AR05)   06:18	06:48	06:19	06:55	07:18
	20:17	33 19:10 (AR05)   19:37	18:47	17:01	16:32	16:36
28	05:49	18:38 (AR05)   06:19	06:49	06:20	06:56	07:18
	20:16	31 19:09 (AR05)   19:36	18:45	17:00	16:32	16:37
29	05:50	18:39 (AR05)   06:20	06:50	06:21	06:57	07:18
	20:15	30 19:09 (AR05)   19:34	18:43	16:58	16:32	16:38
30	05:51	18:40 (AR05)   06:21	06:51	06:22	06:58	07:19
	20:14	28 19:08 (AR05)   19:33	18:42	16:57	16:31	16:38
31	05:52	18:42 (AR05)   06:22		06:24		07:19
	20:13	24 19:06 (AR05)   19:31		16:56		16:39
Potential sun hours	457	426	375	346	300	290
Total, worst case	1189	52	39	600		

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:** Worst case **Shadow receptor:** R9 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (61)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	17:48 (AR05) 20:19
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	42 18:30 (AR05) 20:19
3	07:19 16:42	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	45 18:32 (AR05) 20:20
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	47 18:33 (AR05) 20:21
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	49 18:34 (AR05) 20:21
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	51 18:34 (AR05) 20:22
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	53 18:35 (AR05) 20:23
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	54 18:36 (AR05) 20:23
9	07:19 16:48	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	56 18:37 (AR05) 20:24
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	58 18:38 (AR05) 20:25
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	58 18:38 (AR05) 20:25
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	59 18:39 (AR05) 20:26
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	60 18:39 (AR05) 20:26
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	61 18:40 (AR05) 20:27
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	62 18:40 (AR05) 20:27
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	62 18:40 (AR05) 20:28
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	62 18:40 (AR05) 20:28
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	64 18:42 (AR05) 20:29
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	64 18:42 (AR05) 20:29
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	64 18:42 (AR05) 20:29
21	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	64 18:42 (AR05) 20:29
22	07:14 17:01	06:42 17:39	05:58 18:10	06:09 19:41	05:35 20:11	64 18:42 (AR05) 20:30
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	64 18:42 (AR05) 20:30
24	07:13 17:04	06:39 17:41	05:55 18:12	06:06 19:43	05:34 20:13	64 18:42 (AR05) 20:30
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:44	05:33 20:14	64 18:42 (AR05) 20:30
26	07:11 17:06	06:36 17:43	05:52 18:14	06:04 19:46	05:32 20:15	64 18:43 (AR05) 20:30
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	64 18:43 (AR05) 20:30
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	64 18:43 (AR05) 20:30
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 20:17	64 18:43 (AR05) 20:30
30	07:08 17:11		06:45 19:18	05:58 19:50	05:30 20:18	63 18:42 (AR05) 20:30
31	07:07 17:13		06:43 19:19		05:30 20:19	63 18:43 (AR05) 20:30
Potential sun hours	299	298	370	398	446	450
Total, worst case				141	1835	1833

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R9 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (61)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December		
1	05:30	17:48 (AR05)	05:53	17:50 (AR05)	06:23	06:52	06:25	06:59
	20:30	61 18:49 (AR05)	20:12	60 18:50 (AR05)	19:30	18:40	16:55	16:31
2	05:30	17:47 (AR05)	05:54	17:50 (AR05)	06:24	06:53	06:26	07:00
	20:30	61 18:48 (AR05)	20:11	59 18:49 (AR05)	19:28	18:39	16:53	16:31
3	05:31	17:48 (AR05)	05:55	17:51 (AR05)	06:25	06:54	06:27	07:01
	20:30	61 18:49 (AR05)	20:10	58 18:49 (AR05)	19:27	18:37	16:52	16:31
4	05:31	17:47 (AR05)	05:56	17:50 (AR05)	06:26	06:55	06:28	07:02
	20:30	62 18:49 (AR05)	20:09	57 18:47 (AR05)	19:25	18:35	16:51	16:30
5	05:32	17:48 (AR05)	05:57	17:51 (AR05)	06:27	06:56	06:29	07:03
	20:29	62 18:50 (AR05)	20:07	55 18:46 (AR05)	19:23	18:34	16:50	16:30
6	05:32	17:48 (AR05)	05:58	17:52 (AR05)	06:28	06:57	06:31	07:04
	20:29	62 18:50 (AR05)	20:06	54 18:46 (AR05)	19:22	18:32	16:49	16:30
7	05:33	17:48 (AR05)	05:59	17:52 (AR05)	06:28	06:58	06:32	07:05
	20:29	62 18:50 (AR05)	20:05	53 18:45 (AR05)	19:20	18:30	16:48	16:30
8	05:34	17:48 (AR05)	06:00	17:53 (AR05)	06:29	06:59	06:33	07:06
	20:29	63 18:51 (AR05)	20:04	51 18:44 (AR05)	19:18	18:29	16:47	16:30
9	05:34	17:48 (AR05)	06:01	17:54 (AR05)	06:30	07:00	06:34	07:06
	20:28	62 18:50 (AR05)	20:03	49 18:43 (AR05)	19:17	18:27	16:46	16:30
10	05:35	17:48 (AR05)	06:02	17:55 (AR05)	06:31	07:01	06:35	07:07
	20:28	63 18:51 (AR05)	20:01	46 18:41 (AR05)	19:15	18:26	16:45	16:30
11	05:35	17:48 (AR05)	06:02	17:56 (AR05)	06:32	07:02	06:36	07:08
	20:28	63 18:51 (AR05)	20:00	44 18:40 (AR05)	19:13	18:24	16:44	16:30
12	05:36	17:48 (AR05)	06:03	17:58 (AR05)	06:33	07:03	06:38	07:09
	20:27	63 18:51 (AR05)	19:59	40 18:38 (AR05)	19:12	18:23	16:43	16:30
13	05:37	17:48 (AR05)	06:04	17:59 (AR05)	06:34	07:04	06:39	07:10
	20:27	63 18:51 (AR05)	19:58	37 18:36 (AR05)	19:10	18:21	16:42	16:30
14	05:38	17:48 (AR05)	06:05	18:01 (AR05)	06:35	07:05	06:40	07:11
	20:26	64 18:52 (AR05)	19:56	33 18:34 (AR05)	19:08	18:19	16:41	16:31
15	05:38	17:48 (AR05)	06:06	18:03 (AR05)	06:36	07:06	06:41	07:11
	20:26	64 18:52 (AR05)	19:55	29 18:32 (AR05)	19:07	18:18	16:40	16:31
16	05:39	17:48 (AR05)	06:07	18:06 (AR05)	06:37	07:07	06:42	07:12
	20:25	64 18:52 (AR05)	19:54	23 18:29 (AR05)	19:05	18:16	16:39	16:31
17	05:40	17:48 (AR05)	06:08	18:10 (AR05)	06:38	07:08	06:43	07:13
	20:24	64 18:52 (AR05)	19:52	13 18:23 (AR05)	19:03	18:15	16:39	16:31
18	05:41	17:48 (AR05)	06:09		06:39	07:09	06:45	07:13
	20:24	64 18:52 (AR05)	19:51		19:02	18:13	16:38	16:32
19	05:42	17:48 (AR05)	06:10		06:40	07:10	06:46	07:14
	20:23	64 18:52 (AR05)	19:49		19:00	18:12	16:37	16:32
20	05:42	17:48 (AR05)	06:11		06:41	07:11	06:47	07:15
	20:22	64 18:52 (AR05)	19:48		18:58	18:11	16:36	16:32
21	05:43	17:48 (AR05)	06:12		06:42	07:12	06:48	07:15
	20:22	64 18:52 (AR05)	19:46		18:57	18:09	16:36	16:33
22	05:44	17:48 (AR05)	06:13		06:43	07:14	06:49	07:16
	20:21	64 18:52 (AR05)	19:45		18:55	18:08	16:35	16:33
23	05:45	17:48 (AR05)	06:14		06:44	07:15	06:50	07:16
	20:20	64 18:52 (AR05)	19:44		18:53	18:06	16:34	16:34
24	05:46	17:48 (AR05)	06:15		06:45	07:16	06:51	07:17
	20:19	64 18:52 (AR05)	19:42		18:52	18:05	16:34	16:34
25	05:47	17:49 (AR05)	06:16		06:46	06:17	06:52	07:17
	20:18	63 18:52 (AR05)	19:41		18:50	17:04	16:33	16:35
26	05:47	17:48 (AR05)	06:17		06:47	06:18	06:54	07:17
	20:18	63 18:51 (AR05)	19:39		18:48	17:02	16:33	16:36
27	05:48	17:48 (AR05)	06:18		06:48	06:19	06:55	07:18
	20:17	63 18:51 (AR05)	19:37		18:47	17:01	16:32	16:36
28	05:49	17:48 (AR05)	06:19		06:49	06:20	06:56	07:18
	20:16	63 18:51 (AR05)	19:36		18:45	17:00	16:32	16:37
29	05:50	17:49 (AR05)	06:20		06:50	06:21	06:57	07:18
	20:15	62 18:51 (AR05)	19:34		18:43	16:58	16:32	16:38
30	05:51	17:49 (AR05)	06:21		06:51	06:23	06:58	07:19
	20:14	61 18:50 (AR05)	19:33		18:42	16:57	16:31	16:38
31	05:52	17:49 (AR05)	06:22			06:24		07:19
	20:13	61 18:50 (AR05)	19:31			16:56		16:39
Potential sun hours	457		427		375	346	300	290
Total, worst case	1948		761					

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R90 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (95)

### 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	07:19 16:40	15:52 (AR04) 16:13 (AR04)	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	8
2	07:19 16:41	15:52 (AR04) 16:14 (AR04)	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	13
3	07:19 16:42	15:53 (AR04) 16:15 (AR04)	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	05:28 20:21	16
4	07:19 16:43	15:53 (AR04) 16:15 (AR04)	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	19
5	07:19 16:44	15:54 (AR04) 16:15 (AR04)	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	20
6	07:19 16:45	15:54 (AR04) 16:16 (AR04)	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	23
7	07:19 16:46	15:55 (AR04) 16:16 (AR04)	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23	24
8	07:19 16:47	15:56 (AR04) 16:17 (AR04)	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24	25
9	07:19 16:47	15:57 (AR04) 16:17 (AR04)	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:25	27
10	07:19 16:49	15:57 (AR04) 16:16 (AR04)	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	05:26 20:25	28
11	07:19 16:50	15:58 (AR04) 16:16 (AR04)	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	28
12	07:19 16:51	15:59 (AR04) 16:17 (AR04)	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	29
13	07:18 16:52	16:00 (AR04) 16:16 (AR04)	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27	30
14	07:18 16:53	16:01 (AR04) 16:16 (AR04)	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	30
15	07:18 16:54	16:03 (AR04) 16:16 (AR04)	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:27	31
16	07:17 16:55	16:04 (AR04) 16:14 (AR04)	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28	31
17	07:17 16:56	16:07 (AR04) 16:13 (AR04)	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	05:26 20:28	31
18	07:16 16:57		06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:29	31
19	07:16 16:58		06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29	32
20	07:15 16:59		06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	32
21	07:15 17:01		06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	32
22	07:14 17:02		06:42 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:27 20:30	32
23	07:14 17:03		06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	05:27 20:30	32
24	07:13 17:04		06:39 17:41	05:55 18:12	06:06 19:43	05:34 20:13	05:27 20:30	31
25	07:12 17:05		06:37 17:42	05:53 18:13	06:05 19:44	05:33 20:14	05:27 20:30	31
26	07:11 17:06		06:36 17:43	05:52 18:14	06:04 19:45	05:32 20:15	05:28 20:30	31
27	07:11 17:08		06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	05:28 20:30	31
28	07:10 17:09		06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:28 20:30	30
29	07:09 17:10			06:47 19:17	06:00 19:49	05:31 20:17	05:29 20:30	30
30	07:08 17:11			06:45 19:18	05:58 19:50	05:30 20:18	05:29 20:30	29
31	07:07 17:13			06:43 19:19		05:30 20:19		
Potential sun hours	299		298	370	398	446	450	
Total, worst case	307							817

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R90 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (95)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December	
1	05:30	18:46 (AR05)	05:53	06:23	06:52	06:25	06:59
	20:30	19:15 (AR05)	20:12	19:30	18:40	16:55	16:31
2	05:30	18:46 (AR05)	05:54	06:24	06:53	06:26	07:00
	20:30	19:14 (AR05)	20:11	19:28	18:39	16:53	16:31
3	05:31	18:47 (AR05)	05:55	06:25	06:54	06:27	07:01
	20:30	19:14 (AR05)	20:10	19:26	18:37	16:52	16:31
4	05:31	18:48 (AR05)	05:56	06:26	06:55	06:28	07:02
	20:30	19:13 (AR05)	20:09	19:25	18:35	16:51	16:30
5	05:32	18:49 (AR05)	05:57	06:27	06:56	06:29	07:03
	20:29	19:13 (AR05)	20:07	19:23	18:34	16:50	16:30
6	05:32	18:50 (AR05)	05:58	06:28	06:57	06:31	07:04
	20:29	19:13 (AR05)	20:06	19:22	18:32	16:49	16:30
7	05:33	18:50 (AR05)	05:59	06:28	06:58	06:32	07:05
	20:29	19:12 (AR05)	20:05	19:20	18:30	16:48	16:30
8	05:34	18:52 (AR05)	06:00	06:29	06:59	06:33	07:06
	20:29	19:12 (AR05)	20:04	19:18	18:29	16:47	16:30
9	05:34	18:53 (AR05)	06:01	06:30	07:00	06:34	07:06
	20:28	19:10 (AR05)	20:03	19:17	18:27	16:46	16:30
10	05:35	18:55 (AR05)	06:02	06:31	07:01	06:35	07:07
	20:28	19:09 (AR05)	20:01	19:15	18:26	16:45	16:30
11	05:35	18:57 (AR05)	06:02	06:32	07:02	06:36	07:08
	20:28	19:07 (AR05)	20:00	19:13	18:24	16:44	16:30
12	05:36		06:03	06:33	07:03	06:38	07:09
	20:27		19:59	19:12	18:23	16:43	16:30
13	05:37		06:04	06:34	07:04	06:39	07:10
	20:27		19:58	19:10	18:21	16:42	16:30
14	05:38		06:05	06:35	07:05	06:40	07:11
	20:26		19:56	19:08	18:19	16:41	16:31
15	05:38		06:06	06:36	07:06	06:41	07:11
	20:26		19:55	19:07	18:18	16:40	16:31
16	05:39		06:07	06:37	07:07	06:42	07:12
	20:25		19:53	19:05	18:16	16:39	16:31
17	05:40		06:08	06:38	07:08	06:43	07:13
	20:24		19:52	19:03	18:15	16:39	16:31
18	05:41		06:09	06:39	07:09	06:44	07:13
	20:24		19:51	19:02	18:13	16:38	16:32
19	05:42		06:10	06:40	07:10	06:46	07:14
	20:23		19:49	19:00	18:12	16:37	16:32
20	05:42		06:11	06:41	07:11	06:47	07:15
	20:22		19:48	18:58	18:11	16:36	16:32
21	05:43		06:12	06:42	07:12	06:48	07:15
	20:22		19:46	18:57	18:09	16:36	16:33
22	05:44		06:13	06:43	07:14	06:49	07:16
	20:21		19:45	18:55	18:08	16:35	16:33
23	05:45		06:14	06:44	07:15	06:50	07:16
	20:20		19:43	18:53	18:06	16:34	16:34
24	05:46		06:15	06:45	07:16	06:51	07:17
	20:19		19:42	18:52	18:05	16:34	16:34
25	05:47		06:16	06:46	07:17	06:52	07:17
	20:18		19:41	18:50	17:04	16:33	15:45 (AR04)
26	05:47		06:17	06:47	07:18	06:54	15:49 (AR04)
	20:18		19:39	18:48	17:02	16:33	15:43 (AR04)
27	05:48		06:18	06:48	07:19	06:55	15:53 (AR04)
	20:17		19:37	18:47	17:01	16:32	15:42 (AR04)
28	05:49		06:19	06:49	07:20	06:56	15:54 (AR04)
	20:16		19:36	18:45	17:00	16:32	15:41 (AR04)
29	05:50		06:20	06:50	07:21	06:57	15:56 (AR04)
	20:15		19:34	18:43	16:58	16:32	15:41 (AR04)
30	05:51		06:21	06:51	07:22	06:58	15:57 (AR04)
	20:14		19:33	18:42	16:57	16:31	15:40 (AR04)
31	05:52		06:22		06:24		15:58 (AR04)
	20:13		19:31		16:56		16:38
Potential sun hours	457	426	375	346	300		290
Total, worst case	239				75		645

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R91 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (82)

### 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	07:19 16:40	07:06 17:14	06:32 17:47		06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30		
2	07:19 16:41	07:06 17:15	06:30 17:48	4	17:23 (AR02) 17:27 (AR02)	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	22	18:16 (AR02) 18:16 (AR02)
3	07:19 16:42	07:05 17:16	06:28 17:49	8	17:20 (AR02) 17:28 (AR02)	06:39 19:22	05:55 19:53	05:28 20:21	05:31 20:30	05:55 20:10	23	18:16 (AR02) 18:15 (AR02)
4	07:19 16:43	07:04 17:17	06:27 17:50	11	17:19 (AR02) 17:30 (AR02)	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:09	21	17:53 (AR02) 18:15 (AR02)
5	07:19 16:44	07:03 17:19	06:25 17:51	12	17:18 (AR02) 17:30 (AR02)	06:35 19:24	05:52 19:55	05:28 20:22	05:32 20:30	05:57 20:07	20	17:53 (AR02) 18:13 (AR02)
6	07:19 16:45	07:02 17:20	06:24 17:52	15	17:17 (AR02) 17:32 (AR02)	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	19	18:12 (AR02) 18:10 (AR02)
7	07:19 16:46	07:00 17:21	06:22 17:54	17	17:16 (AR02) 17:33 (AR02)	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	18	17:52 (AR02) 18:08 (AR02)
8	07:19 16:47	06:59 17:22	06:21 17:55	18	17:15 (AR02) 17:33 (AR02)	06:31 19:27	05:49 19:58	05:27 20:24	05:34 20:29	06:00 20:04	15	17:53 (AR02) 18:07 (AR02)
9	07:19 16:48	06:58 17:24	06:19 17:56	20	17:15 (AR02) 17:35 (AR02)	06:29 19:28	05:48 19:59	05:26 20:25	05:34 20:28	06:01 20:03	14	18:05 (AR02) 18:07 (AR02)
10	07:19 16:49	06:57 17:25	06:18 17:57	21	17:15 (AR02) 17:36 (AR02)	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:02 20:01	12	18:05 (AR02) 18:03 (AR02)
11	07:19 16:50	06:56 17:26	06:16 17:58	22	17:16 (AR02) 17:38 (AR02)	06:26 19:30	05:45 20:01	05:26 20:26	05:36 20:28	06:03 20:00	9	17:56 (AR02) 18:02 (AR02)
12	07:19 16:51	06:55 17:27	06:14 17:59	23	17:15 (AR02) 17:38 (AR02)	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	6	18:02 (AR02) 17:58 (AR02)
13	07:18 16:52	06:53 17:28	06:13 18:00	21	17:16 (AR02) 17:37 (AR02)	06:23 19:32	05:43 20:03	05:26 20:27	05:37 20:27	06:04 19:58	2	18:00 (AR02) 18:12 (AR02)
14	07:18 16:53	06:52 17:30	06:11 18:01	19	17:17 (AR02) 17:36 (AR02)	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	7	18:11 (AR02) 18:14 (AR02)
15	07:18 16:54	06:51 17:31	06:10 18:02	15	17:18 (AR02) 17:33 (AR02)	06:20 19:34	05:41 20:05	05:26 20:28	05:38 20:26	06:06 19:55	7	18:11 (AR02) 18:16 (AR02)
16	07:17 16:55	06:50 17:32	06:08 18:03	10	17:20 (AR02) 17:30 (AR02)	06:18 19:35	05:40 20:06	05:26 20:28	05:39 20:25	06:07 19:54	7	18:14 (AR02) 18:15 (AR02)
17	07:17 16:56	06:48 17:33	06:06 18:04		06:17 19:36	05:39 20:07	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:04	7	18:14 (AR02) 18:15 (AR02)
18	07:16 16:57	06:47 17:34	06:05 18:05		06:15 19:37	05:39 20:07	05:26 20:29	05:41 20:24	06:09 19:51	06:39 19:02	7	18:15 (AR02) 18:14 (AR02)
19	07:16 16:58	06:46 17:35	06:03 18:06		06:14 19:38	05:38 20:08	05:26 20:29	05:42 20:23	06:10 19:49	06:40 19:00	7	18:14 (AR02) 18:12 (AR02)
20	07:15 16:59	06:44 17:37	06:01 18:07		06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	7	18:11 (AR02) 18:11 (AR02)
21	07:15 17:01	06:43 17:38	06:00 18:08		06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	7	18:12 (AR02) 18:09 (AR02)
22	07:14 17:02	06:42 17:39	05:58 18:10		06:09 19:41	05:35 20:11	05:27 20:30	05:44 20:21	06:13 19:45	06:43 18:55	7	18:14 (AR02) 18:08 (AR02)
23	07:14 17:03	06:40 17:40	05:57 18:11		06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:44	06:44 18:53	7	18:15 (AR02) 18:06 (AR02)
24	07:13 17:04	06:39 17:41	05:55 18:12		06:07 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	7	18:16 (AR02) 18:05 (AR02)
25	07:12 17:05	06:37 17:42	05:53 18:13		06:05 19:45	05:33 20:14	05:27 20:30	05:47 20:18	06:16 19:41	06:46 18:50	7	18:17 (AR02) 18:04 (AR02)
26	07:11 17:07	06:36 17:44	05:52 18:14		06:04 19:46	05:32 20:15	05:28 20:30	05:48 20:18	06:17 19:39	06:47 18:48	7	18:18 (AR02) 18:02 (AR02)
27	07:11 17:08	06:34 17:45	05:50 18:15		06:02 19:47	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:38	06:48 18:47	7	18:18 (AR02) 18:00 (AR02)
28	07:10 17:09	06:33 17:46	05:48 18:16		06:01 19:48	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	14	18:14 (AR02) 17:58 (AR02)
29	07:09 17:10		06:47 19:17		06:00 19:49	05:31 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:44	18	18:16 (AR02) 17:56 (AR02)
30	07:08 17:11		06:45 19:18		05:58 19:50	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	20	18:16 (AR02) 18:16 (AR02)
31	07:07 17:13		06:43 19:19		05:57 20:19	05:29 20:19	05:28 20:30	05:52 20:13	06:22 19:31	06:52 16:56		
Potential sun hours	299	298	370	236	398	446	450	457	426	375	59	346
Total, worst case											181	300

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R94 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (97)

### 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	07:19 16:40	07:06 17:14	07:26 (AR10) 07:42 (AR10)	06:31 17:47	07:04 (AR09) 07:30 (AR09)	06:42 19:20	05:57 19:50	05:29 20:19
2	07:19 16:41	07:05 17:15	07:25 (AR10) 07:43 (AR10)	06:30 17:48	07:05 (AR09) 07:29 (AR09)	06:40 19:21	05:56 19:52	05:29 20:20
3	07:19 16:42	07:04 17:16	07:24 (AR10) 07:43 (AR10)	06:28 17:49	07:06 (AR09) 07:27 (AR09)	06:38 19:22	05:54 19:53	05:28 20:21
4	07:19 16:43	07:03 17:17	07:24 (AR10) 07:44 (AR10)	06:27 17:50	07:07 (AR09) 07:25 (AR09)	06:37 19:23	05:53 19:54	05:28 20:21
5	07:19 16:44	07:02 17:19	07:24 (AR10) 07:44 (AR10)	06:25 17:51	07:09 (AR09) 07:23 (AR09)	06:35 19:24	05:52 19:55	05:27 20:22
6	07:19 16:45	07:01 17:20	07:24 (AR10) 07:44 (AR10)	06:24 17:52	07:13 (AR09) 17:31 (AR06)	06:34 19:25	05:51 19:56	05:27 20:23
7	07:19 16:45	07:00 17:21	07:24 (AR10) 07:44 (AR10)	06:22 17:53	17:27 (AR06) 17:33 (AR06)	06:32 19:26	05:50 19:57	05:27 20:23
8	07:19 16:46	06:59 17:22	07:25 (AR10) 07:44 (AR10)	06:21 17:55	17:26 (AR06) 17:33 (AR06)	06:30 19:27	05:49 19:58	05:27 20:24
9	07:19 16:47	06:58 17:23	07:25 (AR10) 07:42 (AR10)	06:19 17:56	17:25 (AR06) 17:35 (AR06)	06:29 19:28	05:47 19:59	05:26 20:24
10	07:19 16:48	06:57 17:25	07:26 (AR10) 07:42 (AR10)	06:17 17:57	17:24 (AR06) 17:36 (AR06)	06:27 19:29	05:46 20:00	05:26 20:25
11	07:19 16:49	06:56 17:26	07:28 (AR10) 07:41 (AR10)	06:16 17:58	17:24 (AR06) 17:37 (AR06)	06:26 19:30	05:45 20:01	05:26 20:25
12	07:18 16:50	06:55 17:27	07:30 (AR10) 07:39 (AR10)	06:14 17:59	17:24 (AR06) 17:38 (AR06)	06:24 19:31	05:44 20:02	05:26 20:26
13	07:18 16:52	06:53 17:28	07:39 (AR10)	06:13 18:00	17:24 (AR06) 17:39 (AR06)	06:23 19:32	05:43 20:03	05:26 20:26
14	07:18 16:53	06:52 17:29		06:11 18:01	17:25 (AR06) 17:41 (AR06)	06:21 19:33	05:42 20:04	05:26 20:27
15	07:17 16:54	06:51 17:31	07:16 (AR09) 07:21 (AR09)	06:09 18:02	17:26 (AR06) 17:41 (AR06)	06:20 19:34	05:41 20:04	05:26 20:27
16	07:17 16:55	06:50 17:32	07:12 (AR09) 07:25 (AR09)	06:08 18:03	17:27 (AR06) 17:39 (AR06)	06:18 19:35	05:40 20:05	05:26 20:28
17	07:17 16:56	06:48 17:33	07:09 (AR09) 07:27 (AR09)	06:06 18:04	17:31 (AR06) 17:36 (AR06)	06:17 19:36	05:39 20:06	05:26 20:28
18	07:16 16:57	06:47 17:34	07:08 (AR09) 07:29 (AR09)	06:05 18:05		06:15 19:37	05:38 20:07	05:26 20:28
19	07:16 16:58	06:46 17:35	07:07 (AR09) 07:30 (AR09)	06:03 18:06		06:14 19:38	05:38 20:08	05:26 20:29
20	07:15 16:59	06:44 17:36	07:06 (AR09) 07:30 (AR09)	06:01 18:07		06:12 19:39	05:37 20:09	05:26 20:29
21	07:15 17:00	06:43 17:38	07:05 (AR09) 07:31 (AR09)	06:00 18:08		06:11 19:40	05:36 20:10	05:26 20:29
22	07:14 17:02	06:41 17:39	07:04 (AR09) 07:31 (AR09)	05:58 18:09		06:09 19:41	05:35 20:11	05:26 20:29
23	07:13 17:03	06:40 17:40	07:04 (AR09) 07:32 (AR09)	05:56 18:10		06:08 19:42	05:34 20:12	05:27 20:30
24	07:13 17:04	06:39 17:41	07:04 (AR09) 07:32 (AR09)	05:55 18:11		06:06 19:43	05:34 20:13	05:27 20:30
25	07:12 17:05	06:37 17:42	07:03 (AR09) 07:32 (AR09)	05:53 18:12		06:05 19:44	05:33 20:14	05:27 20:30
26	07:11 17:06	06:36 17:43	07:03 (AR09) 07:32 (AR09)	05:51 18:13		06:04 19:45	05:32 20:14	05:28 20:30
27	07:11 17:08	06:34 17:45	07:03 (AR09) 07:31 (AR09)	05:50 18:15		06:02 19:46	05:32 20:15	05:28 20:30
28	07:10 17:09	06:33 07:35 (AR10)	07:04 (AR09) 07:31 (AR09)	05:48 18:16		06:01 19:47	05:31 20:16	05:28 20:30
29	07:09 17:10	07:29 (AR10) 07:38 (AR10)		06:47 19:17		06:00 19:48	05:30 20:17	05:29 20:30
30	07:08 17:11	07:28 (AR10) 07:40 (AR10)		06:45 19:18		05:58 19:49	05:30 20:18	05:29 20:30
31	07:07 17:12	07:27 (AR10) 07:41 (AR10)		06:43 19:19			05:29 20:18	
Potential sun hours	300	298	370	370	398	446	450	
Total, worst case	39	533	236					

**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:** Worst case **Shadow receptor:** R94 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (97)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:30	05:53	06:23	06:52	18:03 (AR06)	06:25
	20:30	20:12	19:30	18:40	18:17 (AR06)	06:56 (AR10)
2	05:30	05:54	06:24	06:53	18:02 (AR06)	06:26
	20:30	20:11	19:28	18:38	18:16 (AR06)	06:53 (AR10)
3	05:31	05:55	06:25	06:54	18:02 (AR06)	06:27
	20:30	20:09	19:26	18:37	18:14 (AR06)	06:52 (AR10)
4	05:31	05:56	06:26	06:55	18:02 (AR06)	06:28
	20:30	20:08	19:25	18:35	18:12 (AR06)	06:51 (AR10)
5	05:32	05:57	06:26	06:56	18:02 (AR06)	06:29
	20:29	20:07	19:23	18:34	18:11 (AR06)	06:50 (AR10)
6	05:32	05:58	06:27	06:57	18:02 (AR06)	06:30
	20:29	20:06	19:22	18:32	18:09 (AR06)	06:49 (AR10)
7	05:33	05:59	06:28	06:58	18:03 (AR06)	06:32
	20:29	20:05	19:20	18:30	18:07 (AR06)	06:48 (AR10)
8	05:33	05:59	06:29	06:59	07:45 (AR09)	06:33
	20:29	20:04	19:18	18:29	18:06 (AR06)	06:47 (AR10)
9	05:34	06:00	06:30	07:00	07:43 (AR09)	06:34
	20:28	20:02	19:17	18:27	08:00 (AR09)	06:46 (AR10)
10	05:35	06:01	06:31	07:01	07:41 (AR09)	06:35
	20:28	20:01	19:15	18:26	08:01 (AR09)	06:45 (AR10)
11	05:35	06:02	06:32	07:02	07:39 (AR09)	06:36
	20:27	20:00	19:13	18:24	08:02 (AR09)	06:44 (AR10)
12	05:36	06:03	06:33	07:03	07:38 (AR09)	06:37
	20:27	19:59	19:12	18:22	08:03 (AR09)	06:43 (AR10)
13	05:37	06:04	06:34	07:04	07:37 (AR09)	06:39
	20:26	19:57	19:10	18:21	08:03 (AR09)	06:42 (AR10)
14	05:38	06:05	06:35	07:05	07:36 (AR09)	06:40
	20:26	19:56	19:08	18:19	08:04 (AR09)	06:41 (AR10)
15	05:38	06:06	06:36	07:06	07:35 (AR09)	06:41
	20:25	19:55	19:07	18:18	08:04 (AR09)	06:40 (AR10)
16	05:39	06:07	06:37	07:07	07:35 (AR09)	06:42
	20:25	19:53	19:05	18:16	08:04 (AR09)	06:39 (AR10)
17	05:40	06:08	06:38	07:08	07:34 (AR09)	06:43
	20:24	19:52	19:03	18:15	08:03 (AR09)	06:38 (AR10)
18	05:41	06:09	06:39	07:09	07:34 (AR09)	06:44
	20:24	19:51	19:02	18:13	08:03 (AR09)	06:38 (AR10)
19	05:41	06:10	06:40	07:10	07:35 (AR09)	06:46
	20:23	19:49	19:00	18:12	08:03 (AR09)	06:37 (AR10)
20	05:42	06:11	06:41	07:11	07:36 (AR09)	06:47
	20:22	19:48	18:58	18:10	08:03 (AR09)	06:36 (AR10)
21	05:43	06:12	06:42	07:12	07:36 (AR09)	06:48
	20:22	19:46	18:57	18:09	08:02 (AR09)	06:36 (AR10)
22	05:44	06:13	06:43	07:13	07:37 (AR09)	06:49
	20:21	19:45	18:55	18:08	08:01 (AR09)	06:35 (AR10)
23	05:45	06:14	06:44	07:15	07:37 (AR09)	06:50
	20:20	19:43	18:53	18:06	07:59 (AR09)	06:34 (AR10)
24	05:46	06:15	06:45	07:16	07:38 (AR09)	06:51
	20:19	19:42	18:52	18:05	07:58 (AR09)	06:34 (AR10)
25	05:47	06:16	06:46	06:17	06:39 (AR09)	06:52
	20:18	19:40	18:50	17:03	06:56 (AR09)	06:33 (AR10)
26	05:47	06:17	06:47	06:18	06:42 (AR09)	06:53
	20:17	19:39	18:48	17:02	06:54 (AR09)	06:33 (AR10)
27	05:48	06:18	06:48	18:09 (AR06)	06:19	06:54
	20:17	19:37	18:47	18:19 (AR06)	17:01	06:32 (AR10)
28	05:49	06:19	06:49	18:07 (AR06)	06:20	06:56
	20:16	19:36	18:45	18:21 (AR06)	16:59	06:32 (AR10)
29	05:50	06:20	06:50	18:05 (AR06)	06:21	07:02 (AR10)
	20:15	19:34	18:43	18:21 (AR06)	16:58	06:32 (AR10)
30	05:51	06:21	06:51	18:04 (AR06)	06:22	06:58 (AR10)
	20:14	19:33	18:42	18:19 (AR06)	16:57	06:31 (AR10)
31	05:52	06:22			06:24	06:57 (AR10)
	20:13	19:31			16:56	07:11 (AR10)
Potential sun hours	457	426	375	346		300
Total, worst case			55	540		221

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst caseShadow receptor: R95 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (98)

### 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	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 20:19	05:30 20:30	05:53 20:12	06:23 20:30	06:52 18:40	18:02 (AR06) 18:17 (AR06)	06:25 16:31	06:59 16:31	
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:38	18:01 (AR06) 18:16 (AR06)	06:26 16:53	07:00 16:31	
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:53	05:28 20:21	05:31 20:30	05:55 20:09	06:25 19:26	06:54 18:37	18:00 (AR06) 18:14 (AR06)	06:27 16:52	07:01 16:30	
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:08	06:26 19:25	06:55 18:35	17:59 (AR06) 18:12 (AR06)	06:28 16:51	07:02 16:30	
5	07:19 16:44	07:02 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:26 19:23	06:56 18:34	17:58 (AR06) 18:11 (AR06)	06:29 16:50	07:03 16:30	
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:27 19:22	06:57 18:32	17:58 (AR06) 18:09 (AR06)	06:30 16:49	07:04 16:30	
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	17:58 (AR06) 18:07 (AR06)	06:32 16:48	07:05 16:30	
8	07:19 16:46	06:59 17:22	06:21 17:55	06:30 19:27	05:49 19:58	05:27 20:24	05:33 20:29	05:59 20:04	06:29 19:18	06:59 18:29	17:59 (AR06) 18:06 (AR06)	06:33 16:47	07:05 16:30	
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:24	05:34 20:28	06:00 20:02	06:30 19:17	07:00 18:27	18:00 (AR06) 18:05 (AR06)	06:34 16:46	07:06 16:30	
10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:26	18:01 (AR06) 18:03 (AR06)	06:35 16:45	07:07 16:30	
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:25	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	18:04 (AR06) 18:08 (AR06)	06:36 16:44	07:08 16:30	
12	07:18 16:49	06:55 17:26	06:15 17:58	06:25 19:30	05:44 20:01	05:26 20:25	05:36 20:27	06:03 20:00	06:33 19:13	07:03 18:24	18:09 (AR06) 18:04 (AR06)	06:37 16:44	07:09 16:30	
13	07:18 16:50	06:53 17:27	06:13 17:59	06:23 19:31	05:43 20:02	05:26 20:26	05:37 20:27	06:04 19:59	06:34 19:12	07:04 18:22	18:12 (AR06) 18:02 (AR06)	06:39 16:43	07:10 16:30	
14	07:18 16:51	06:52 17:28	06:11 18:00	06:21 19:32	05:42 20:03	05:26 20:26	05:38 20:26	06:05 19:57	06:35 19:10	07:05 18:21	18:04 (AR06) 18:04 (AR06)	06:40 16:42	07:10 16:30	
15	07:17 16:51	06:51 17:29	06:09 18:01	06:20 19:33	05:41 20:04	05:26 20:27	05:38 20:26	06:06 19:56	06:36 19:08	07:06 18:19	18:05 (AR06) 18:05 (AR06)	06:41 16:41	07:11 16:30	
16	07:17 16:54	06:50 17:31	06:08 18:02	06:18 19:34	05:40 20:04	05:26 20:27	05:39 20:25	06:07 19:55	06:37 19:07	07:07 18:18	18:06 (AR06) 18:05 (AR06)	06:42 16:40	07:12 16:31	
17	07:17 16:55	06:48 17:32	06:06 18:03	06:17 19:35	05:39 20:05	05:26 20:28	05:40 20:25	06:08 19:53	06:38 19:05	07:08 18:16	18:07 (AR06) 18:06 (AR06)	06:43 16:39	07:13 16:31	
18	07:16 16:57	06:47 17:34	06:05 18:04	06:15 19:36	05:38 20:06	05:26 20:28	05:41 20:24	06:09 19:52	06:39 19:03	07:09 18:15	18:08 (AR06) 18:06 (AR06)	06:44 16:38	07:14 16:31	
19	07:16 16:58	06:46 17:35	06:03 18:05	06:14 19:37	05:38 20:07	05:26 20:28	05:41 20:24	06:10 19:51	06:40 19:02	07:10 18:13	18:08 (AR06) 18:07 (AR06)	06:46 16:37	07:15 16:32	
20	07:15 16:59	06:44 17:36	06:01 18:06	06:12 19:38	05:37 20:08	05:26 20:29	05:42 20:23	06:11 19:49	06:41 19:00	07:11 18:12	18:09 (AR06) 18:07 (AR06)	06:47 16:37	07:16 16:32	
21	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	18:10 (AR06) 18:08 (AR06)	06:48 16:36	07:17 16:33	
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	18:11 (AR06) 18:08 (AR06)	06:49 16:35	07:18 16:33	
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:14 18:06	18:12 (AR06) 18:05 (AR06)	06:50 16:34	07:19 16:34	
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:15 18:05	18:16 (AR06) 18:04 (AR06)	06:51 16:34	07:20 16:34	
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:14	05:27 20:30	05:47 20:18	06:16 19:40	06:46 18:50	07:16 18:07	18:17 (AR06) 18:05 (AR06)	06:52 16:35	07:21 16:35	
26	07:11 17:06	06:36 17:43	05:51 18:14	06:04 19:45	05:32 20:14	05:28 20:30	05:47 20:17	06:17 19:39	06:47 18:48	07:17 18:08	18:18 (AR06) 18:06 (AR06)	06:53 16:36	07:22 16:36	
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	07:18 18:10	18:19 (AR06) 18:07 (AR06)	06:54 16:37	07:23 16:36	
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	07:19 18:11	18:20 (AR06) 18:08 (AR06)	06:56 16:38	07:24 16:36	
29	07:09 17:10		06:47 19:17	06:00 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	07:20 18:12	18:21 (AR06) 18:09 (AR06)	06:57 16:39	07:25 16:37	
30	07:08 17:11		06:45 19:18	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	07:21 18:13	18:22 (AR06) 18:10 (AR06)	06:58 16:40	07:26 16:38	
31	07:07 17:12		06:43 19:19		05:29 20:18		05:52 20:13	06:22 19:31		07:22 18:14	18:23 (AR06) 18:11 (AR06)	06:59 16:41	07:27 16:39	
Potential sun hours	300	298	300	370	398	446	450	457	426	375	22	346	300	290
Total, worst case		400	164								544			

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

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

## SHADOW - Calendar

**Calculation:** Worst case **Shadow receptor:** R97 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (99)

### 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	07:19	07:06	07:39 (AR09)	06:31	06:42	05:57	05:29
	16:40	17:14	29 08:08 (AR09)	17:47	19:20	19:50	20:19
2	07:19	07:05	07:39 (AR09)	06:30	06:40	05:56	05:29
	16:41	17:15	29 08:08 (AR09)	17:48	19:21	19:52	20:20
3	07:19	07:04	07:40 (AR09)	06:28	06:38	05:54	05:28
	16:42	17:16	27 08:07 (AR09)	17:49	19:22	19:53	20:21
4	07:19	07:03	07:41 (AR09)	06:27	06:37	05:53	05:28
	16:43	17:17	26 08:07 (AR09)	17:50	19:23	19:54	20:21
5	07:19	07:02	07:42 (AR09)	06:25	06:35	05:52	05:27
	16:44	17:19	24 08:06 (AR09)	17:51	19:24	19:55	20:22
6	07:19	07:01	07:43 (AR09)	06:24	06:34	05:51	05:27
	16:45	17:20	23 08:06 (AR09)	17:52	19:25	19:56	20:23
7	07:19	07:00	07:44 (AR09)	06:22	06:32	05:50	05:27
	16:45	17:21	21 08:05 (AR09)	17:53	19:26	19:57	20:23
8	07:19	06:59	07:46 (AR09)	06:21	06:30	05:48	05:27
	16:46	17:22	17 08:03 (AR09)	17:55	19:27	19:58	20:24
9	07:19	06:58	07:47 (AR09)	06:19	06:29	05:47	05:26
	16:47	17:23	13 08:00 (AR09)	17:56	19:28	19:59	20:24
10	07:19	06:57	07:51 (AR09)	06:17	06:27	05:46	05:26
	16:48	17:25	6 07:57 (AR09)	17:57	19:29	20:00	20:25
11	07:19	06:56		06:16	06:26	05:45	05:26
	16:49	17:26		17:58	19:30	20:01	20:25
12	07:18	06:55		06:14	06:24	05:44	05:26
	16:50	17:27		17:59	19:31	20:02	20:26
13	07:18	06:53		06:13	06:23	05:43	05:26
	16:52	17:28		18:00	19:32	20:03	20:26
14	07:18	07:47 (AR09)	06:52	06:11	06:21	05:42	05:26
	16:53	4 07:51 (AR09)	17:29	18:01	19:33	20:04	20:27
15	07:17	07:43 (AR09)	06:51	06:09	06:20	05:41	05:26
	16:54	11 07:54 (AR09)	17:31	18:02	19:34	20:04	20:27
16	07:17	07:42 (AR09)	06:50	06:08	06:18	05:40	05:26
	16:55	14 07:56 (AR09)	17:32	18:03	19:35	20:05	20:28
17	07:17	07:41 (AR09)	06:48	06:06	06:17	05:39	05:26
	16:56	16 07:57 (AR09)	17:33	18:04	19:36	20:06	20:28
18	07:16	07:41 (AR09)	06:47	06:05	06:15	05:38	05:26
	16:57	18 07:59 (AR09)	17:34	18:05	19:37	20:07	20:28
19	07:16	07:40 (AR09)	06:46	06:03	06:14	05:38	05:26
	16:58	20 08:00 (AR09)	17:35	18:06	19:38	20:08	20:29
20	07:15	07:40 (AR09)	06:44	06:01	06:12	05:37	05:26
	16:59	22 08:02 (AR09)	17:36	18:07	19:39	20:09	20:29
21	07:15	07:40 (AR09)	06:43	06:00	06:11	05:36	05:26
	17:00	23 08:03 (AR09)	17:38	18:08	19:40	20:10	20:29
22	07:14	07:39 (AR09)	06:41	05:58	06:09	05:35	05:26
	17:02	24 08:03 (AR09)	17:39	18:09	19:41	20:11	20:29
23	07:13	07:39 (AR09)	06:40	05:56	06:08	05:34	05:27
	17:03	26 08:05 (AR09)	17:40	18:10	19:42	20:12	20:30
24	07:13	07:38 (AR09)	06:39	05:55	06:06	05:34	05:27
	17:04	27 08:05 (AR09)	17:41	18:11	19:43	20:13	20:30
25	07:12	07:38 (AR09)	06:37	05:53	06:05	05:33	05:27
	17:05	28 08:06 (AR09)	17:42	18:12	19:44	20:14	20:30
26	07:11	07:37 (AR09)	06:36	05:51	06:04	05:32	05:28
	17:06	29 08:06 (AR09)	17:43	18:14	19:45	20:14	20:30
27	07:11	07:38 (AR09)	06:34	05:50	06:02	05:32	05:28
	17:08	29 08:07 (AR09)	17:45	18:15	19:46	20:15	20:30
28	07:10	07:38 (AR09)	06:33	05:48	06:01	05:31	05:28
	17:09	30 08:08 (AR09)	17:46	18:16	19:47	20:16	20:30
29	07:09	07:38 (AR09)		06:47	06:00	05:30	05:29
	17:10	30 08:08 (AR09)		19:17	19:48	20:17	20:30
30	07:08	07:38 (AR09)		06:45	05:58	05:30	05:29
	17:11	30 08:08 (AR09)		19:18	19:49	20:18	20:30
31	07:07	07:38 (AR09)		06:43		05:29	
	17:12	30 08:08 (AR09)		19:19		20:18	
Potential sun hours	299	298		370	398	446	450
Total, worst case	411	215					494

**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:** Worst case **Shadow receptor:** R97 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (99)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:30 20:30	19:11 (AR07) 20:12	05:53 19:30	06:23 18:40	06:52 16:54	07:20 (AR09) 16:31
2	05:30 20:30	19:11 (AR07) 20:11	05:54 19:28	06:24 18:38	06:53 16:53	07:16 (AR09) 16:31
3	05:31 20:30	19:13 (AR07) 20:09	05:55 19:26	06:25 18:37	06:54 16:52	07:14 (AR09) 16:30
4	05:31 20:30	19:13 (AR07) 20:08	05:56 19:25	06:25 18:35	06:55 16:51	07:14 (AR09) 16:30
5	05:32 20:29	19:15 (AR07) 20:07	05:57 19:23	06:26 18:34	06:56 16:50	07:12 (AR09) 16:30
6	05:32 20:29	19:15 (AR07) 20:06	05:58 19:22	06:27 18:32	06:57 16:49	07:11 (AR09) 16:30
7	05:33 20:29	19:17 (AR07) 20:05	05:59 19:20	06:28 18:30	06:58 16:48	07:10 (AR09) 16:30
8	05:33 20:29	19:18 (AR07) 20:04	05:59 19:18	06:29 18:29	06:59 16:47	07:11 (AR09) 16:30
9	05:34 20:28	19:19 (AR07) 20:02	06:00 19:17	06:30 18:27	07:00 16:46	07:10 (AR09) 16:30
10	05:35 20:28	19:21 (AR07) 20:01	06:01 19:15	06:31 18:26	07:01 16:45	07:10 (AR09) 16:30
11	05:35 20:27	19:24 (AR07) 20:00	06:02 19:13	06:32 18:24	07:02 16:44	07:09 (AR09) 16:30
12	05:36 20:27	19:27 (AR07) 19:59	06:03 19:12	06:33 18:22	07:03 16:43	07:10 (AR09) 16:30
13	05:37 20:26	19:27 (AR07) 19:57	06:04 19:10	06:34 18:21	07:04 16:42	07:10 (AR09) 16:30
14	05:38 20:26	19:27 (AR07) 19:56	06:05 19:08	06:35 18:19	07:05 16:41	07:10 (AR09) 16:30
15	05:38 20:25	19:27 (AR07) 19:55	06:06 19:07	06:36 18:18	07:06 16:40	07:10 (AR09) 16:31
16	05:39 20:25	19:27 (AR07) 19:53	06:07 19:05	06:37 18:16	07:07 16:39	07:11 (AR09) 16:31
17	05:40 20:24	19:27 (AR07) 19:52	06:08 19:03	06:38 18:15	07:08 16:38	07:12 (AR09) 16:31
18	05:41 20:24	19:27 (AR07) 19:51	06:09 19:02	06:39 18:13	07:09 16:38	07:12 (AR09) 16:32
19	05:41 20:23	19:27 (AR07) 19:49	06:10 19:00	06:40 18:12	07:10 16:37	07:13 (AR09) 16:32
20	05:42 20:22	19:27 (AR07) 19:48	06:11 18:58	06:41 18:10	07:11 16:36	07:14 (AR09) 16:32
21	05:43 20:22	19:27 (AR07) 19:46	06:12 18:57	06:42 18:09	07:12 16:36	07:16 (AR09) 16:33
22	05:44 20:21	19:27 (AR07) 19:45	06:13 18:55	06:43 18:08	07:13 16:35	07:16 (AR09) 16:33
23	05:45 20:20	19:27 (AR07) 19:43	06:14 18:53	06:44 18:06	07:15 16:34	07:17 (AR09) 16:34
24	05:46 20:19	19:27 (AR07) 19:42	06:15 18:52	06:45 18:05	07:16 16:34	07:18 (AR09) 16:34
25	05:46 20:18	19:27 (AR07) 19:40	06:16 18:50	06:46 18:05	07:17 16:33	07:19 (AR09) 16:35
26	05:47 20:17	19:27 (AR07) 19:39	06:17 18:48	06:47 18:04	07:18 16:33	07:20 (AR09) 16:36
27	05:48 20:17	19:27 (AR07) 19:37	06:18 18:47	06:48 18:03	07:19 16:32	07:23 (AR09) 16:36
28	05:49 20:16	19:27 (AR07) 19:36	06:19 18:45	06:49 18:02	07:20 16:32	07:26 (AR09) 16:37
29	05:50 20:15	19:27 (AR07) 19:34	06:20 18:43	06:50 18:01	07:21 16:32	07:31 (AR09) 16:38
30	05:51 20:14	19:27 (AR07) 19:33	06:21 18:42	06:51 18:00	07:22 16:31	07:31 (AR09) 16:38
31	05:52 20:13	19:27 (AR07) 19:31	06:22 18:40	06:52 17:59	07:23 16:31	07:31 (AR09) 16:39
Potential sun hours	457	426	375	346	300	290
Total, worst case	127				635	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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:** Worst case **Shadow receptor:** R99 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (100)

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

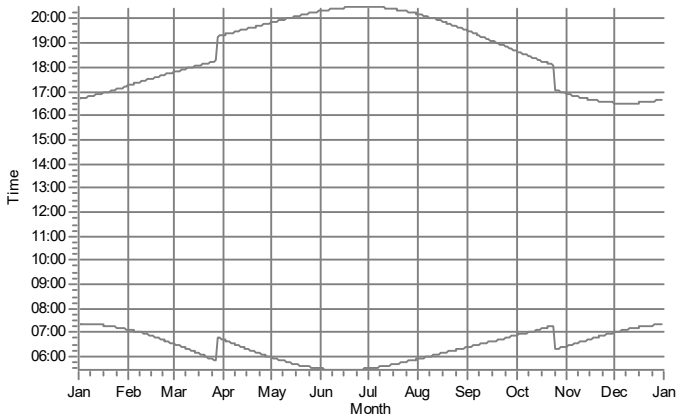
Table layout: For each day in each month the following matrix apply

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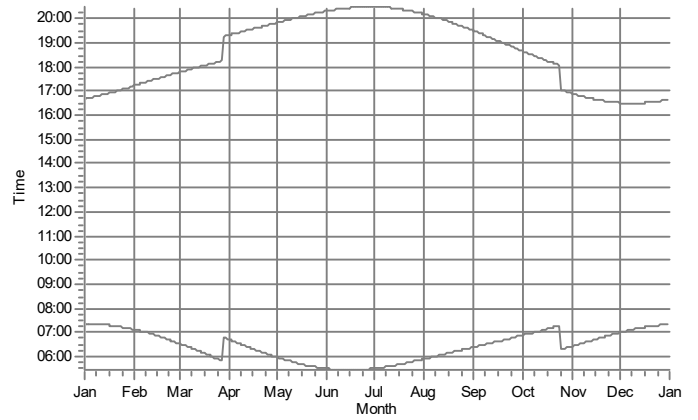
## SHADOW - Calendar, graphical

Calculation: Worst case

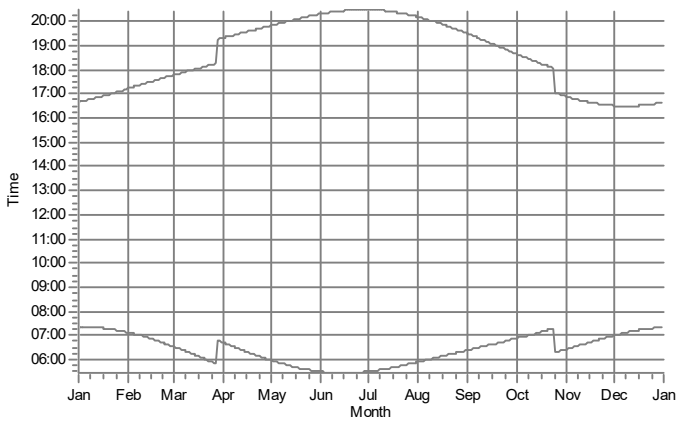
R10: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (62)



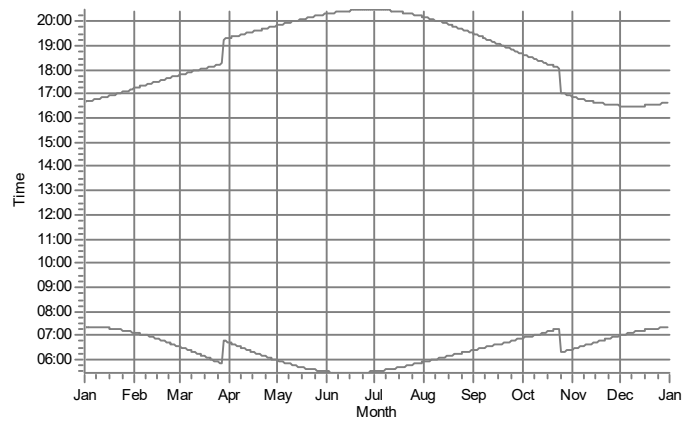
R101: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (101)



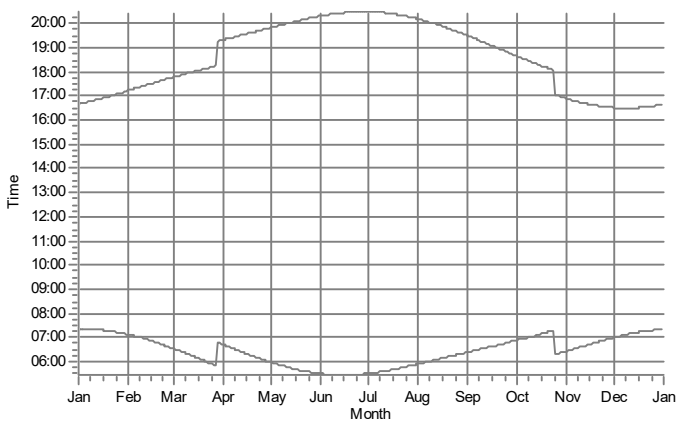
R102: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (102)



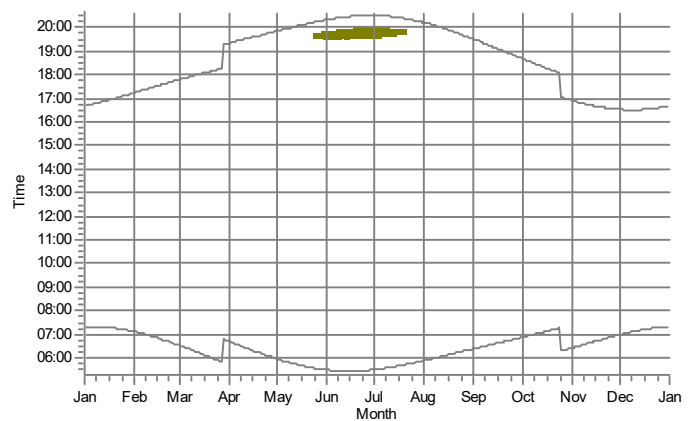
R105: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (103)



R109: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (104)



R111: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (105)



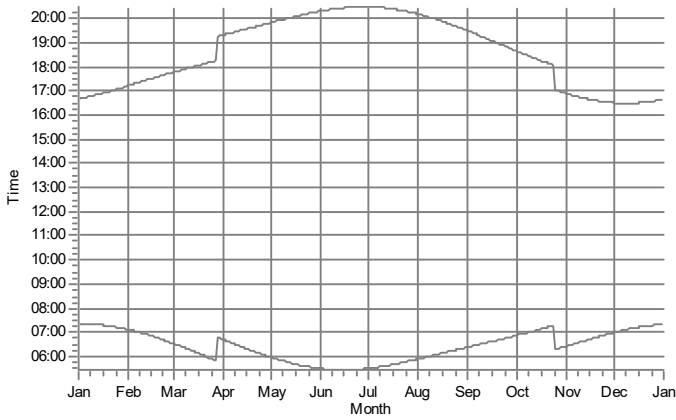
WTGs

AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)

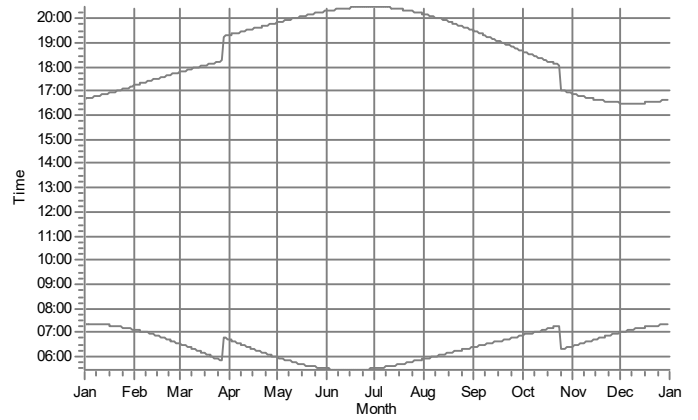
## SHADOW - Calendar, graphical

Calculation: Worst case

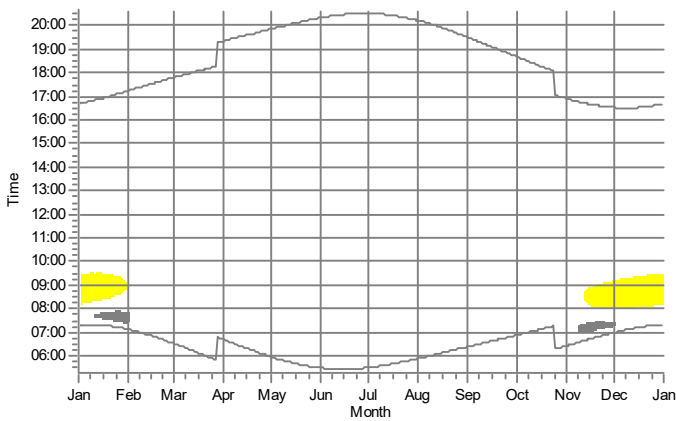
R16: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (64)



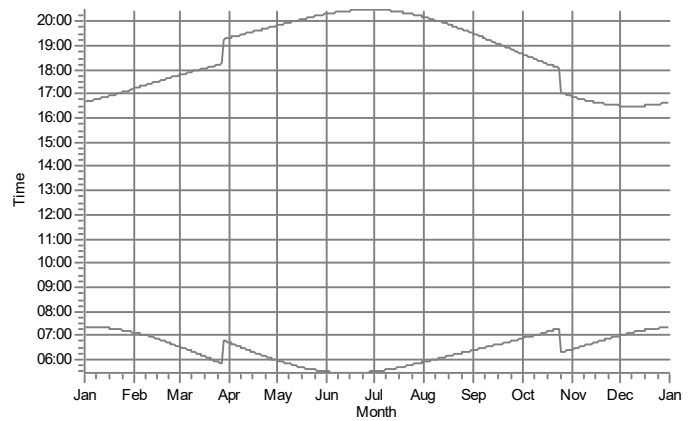
R19: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (65)



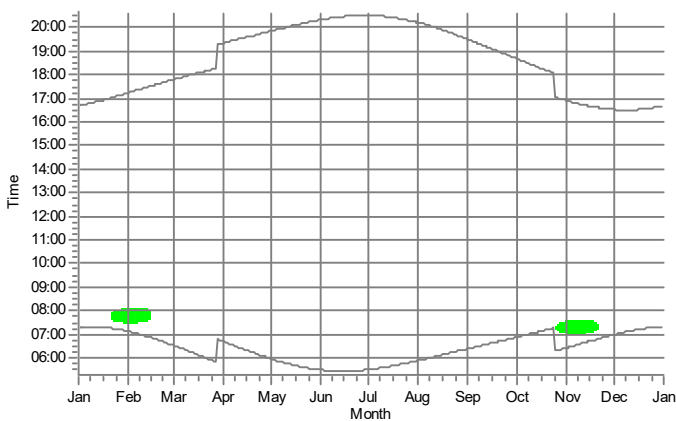
R2: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (59)



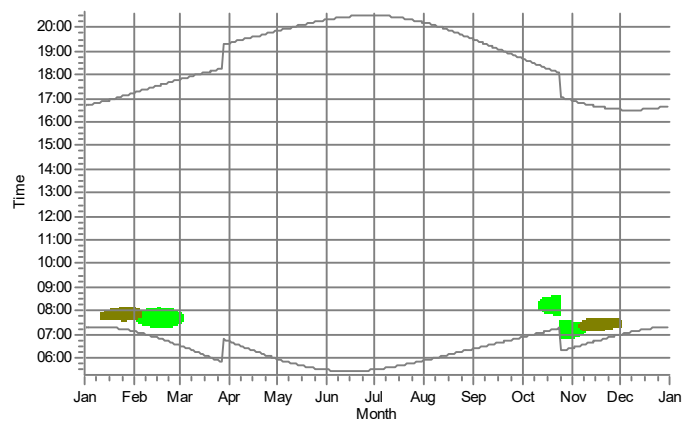
R20: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (66)



R21: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (67)



R22: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (68)



WTGs

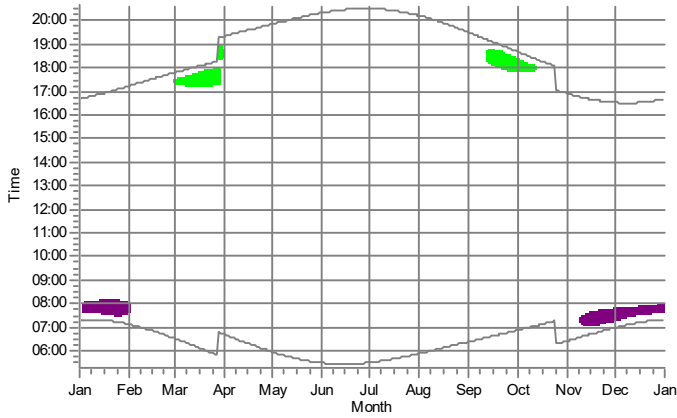
AR02: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)  
 AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)

AR09: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)  
 AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)

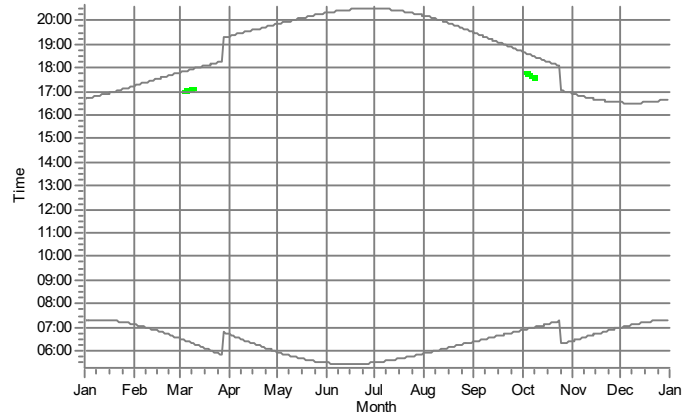
## SHADOW - Calendar, graphical

Calculation: Worst case

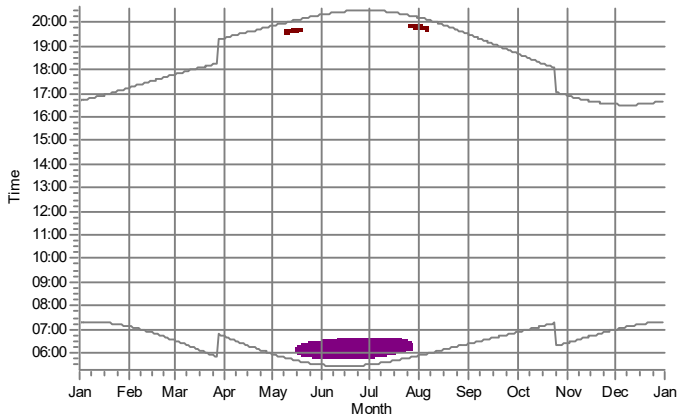
R29: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (69)



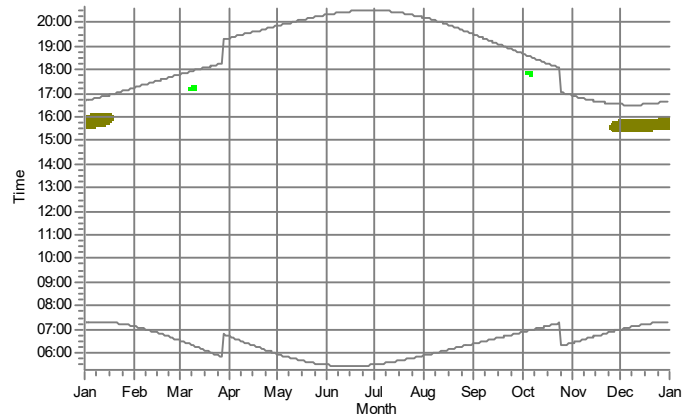
R33: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (70)



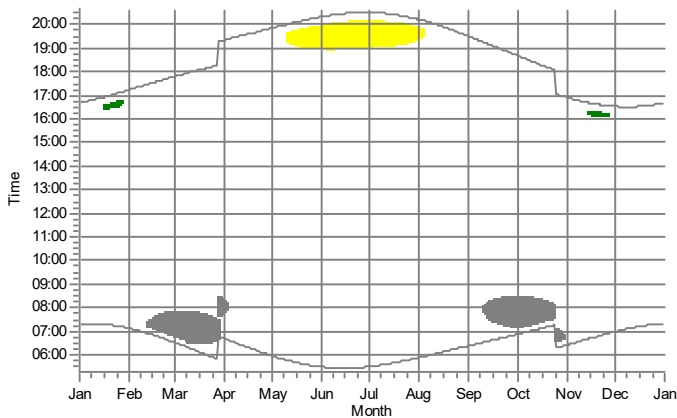
R35: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (71)



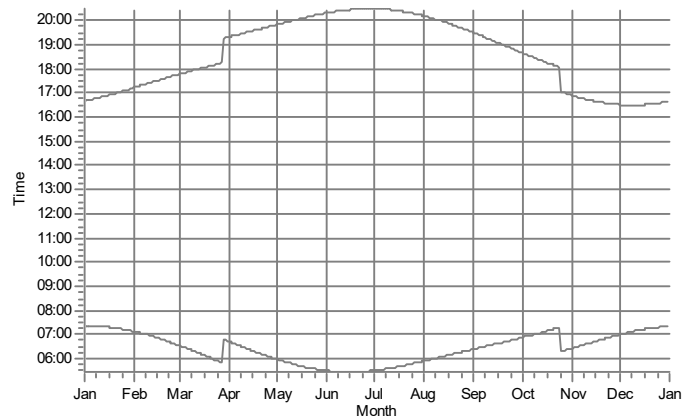
R38: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (72)



R4: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (60)



R40: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (73)



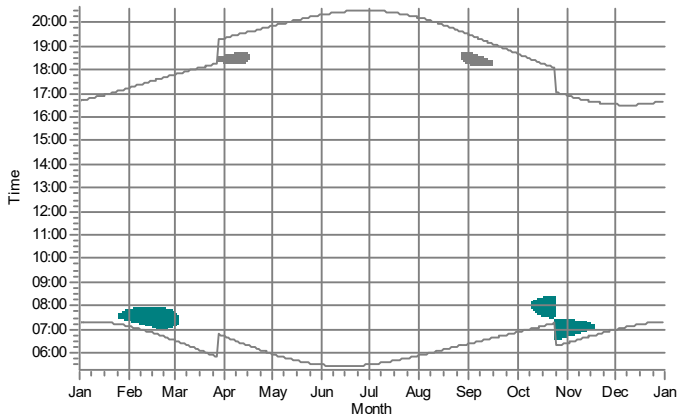
WTGs

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #008000; margin-right: 5px;"></span> AR01: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (6)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #ffff00; margin-right: 5px;"></span> AR02: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #808080; margin-right: 5px;"></span> AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800000; margin-right: 5px;"></span> AR08: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (13)</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #00ff00; margin-right: 5px;"></span> AR09: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #808000; margin-right: 5px;"></span> AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: #800080; margin-right: 5px;"></span> AR11: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (16)</li> </ul> |
|---|---|

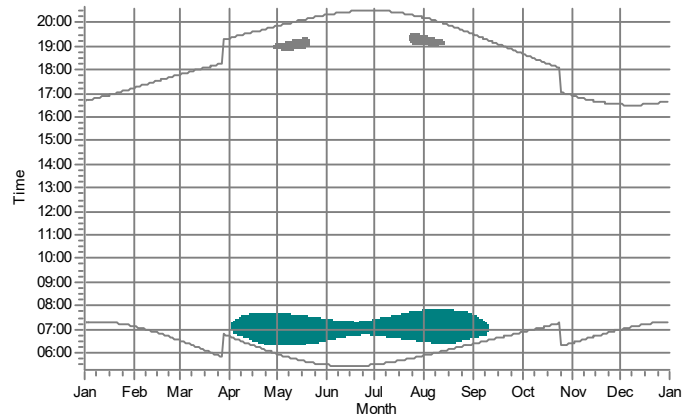
## SHADOW - Calendar, graphical

Calculation: Worst case

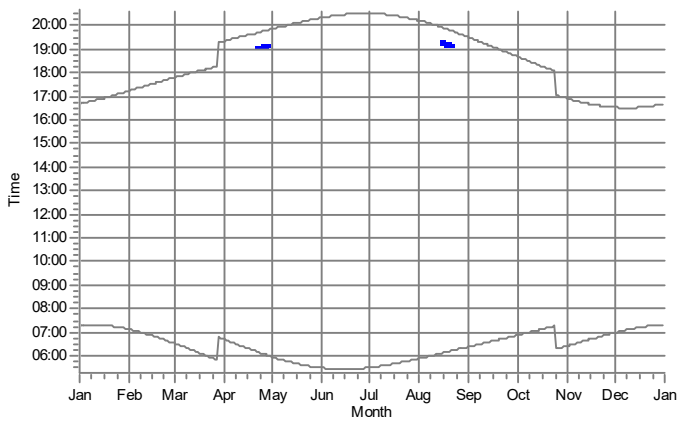
R43: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (74)



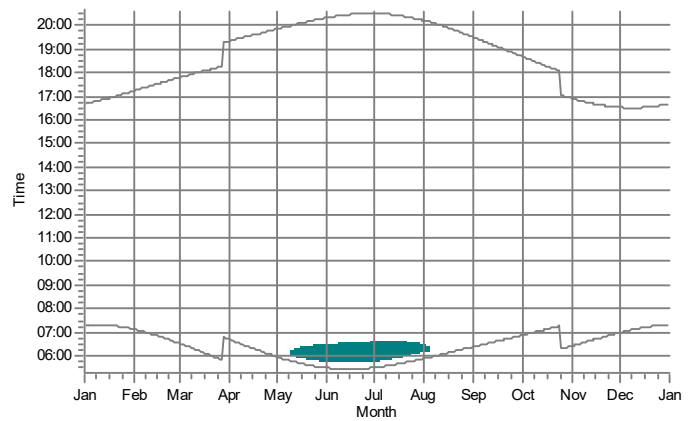
R44: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (75)



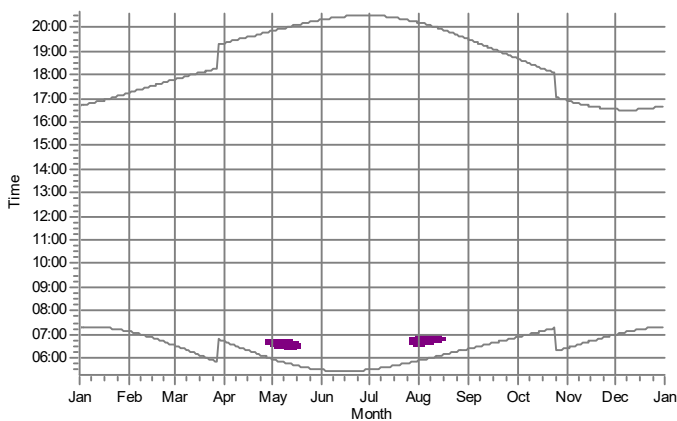
R45: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (76)



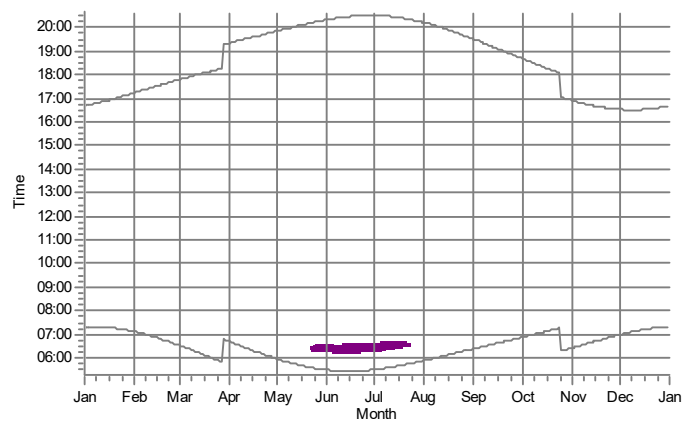
R46: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (77)



R49: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (78)



R50: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (79)



WTGs

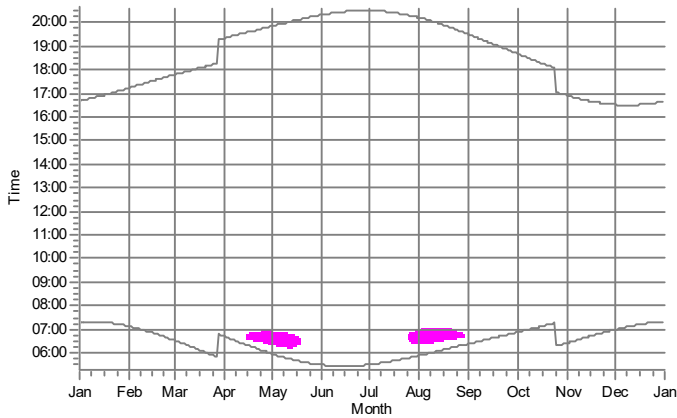
- AR03: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)
- AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)

- AR06: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (11)
- AR11: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (16)

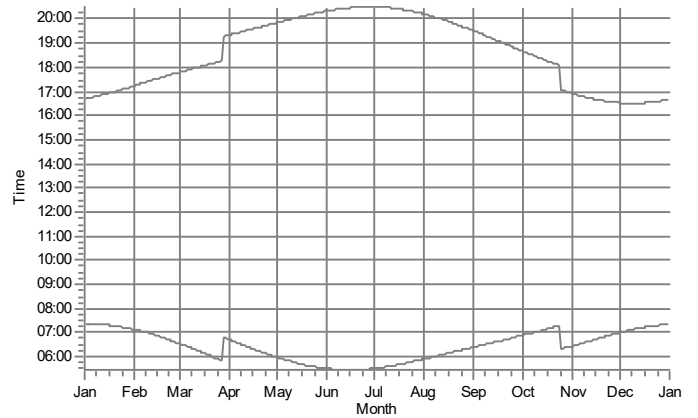
## SHADOW - Calendar, graphical

Calculation: Worst case

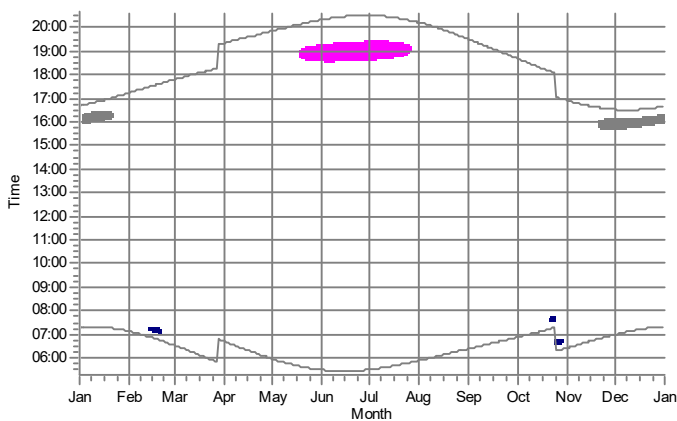
R51: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (80)



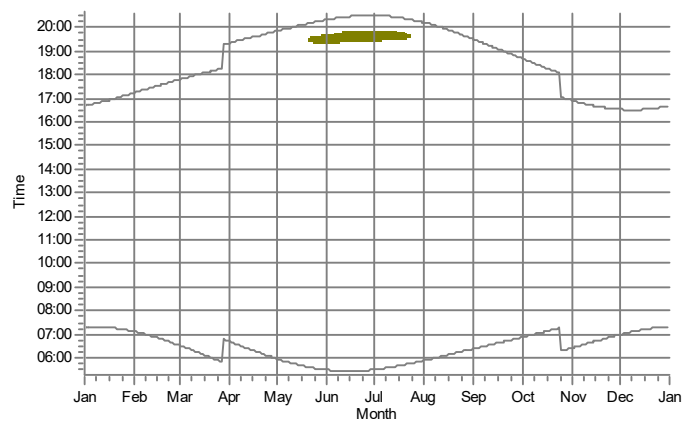
R54: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (81)



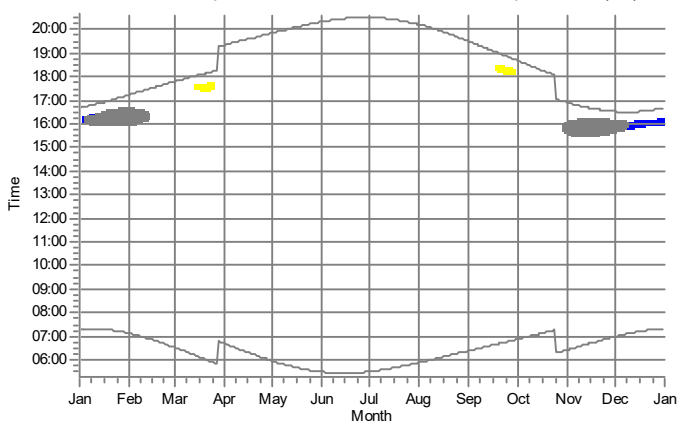
R56: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (96)



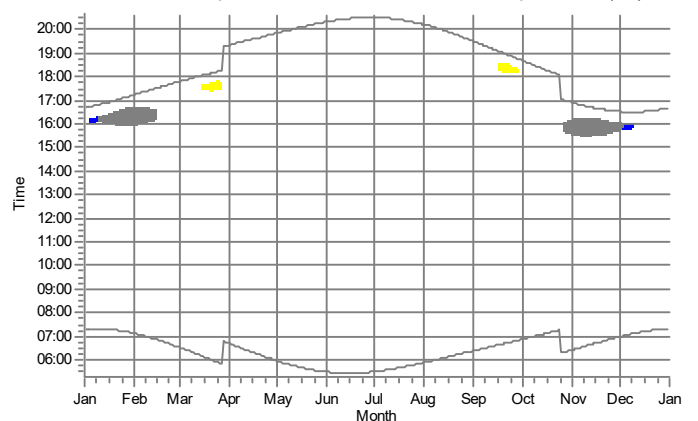
R57: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (83)



R58: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (84)



R59: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (85)



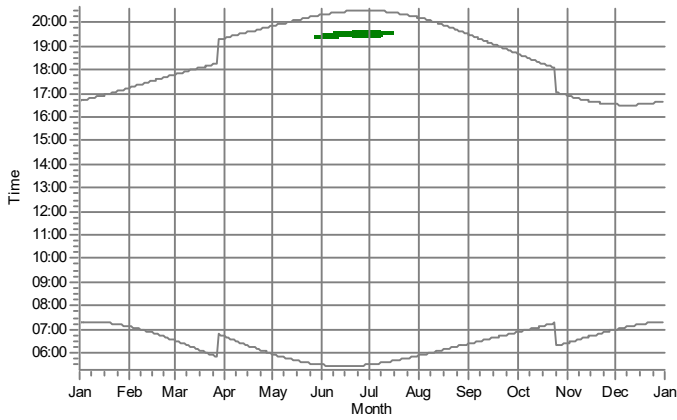
### WTGs

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; margin-right: 5px;"></span> AR02: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; margin-right: 5px;"></span> AR03: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: grey; margin-right: 5px;"></span> AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: pink; margin-right: 5px;"></span> AR05: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (10)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: darkblue; margin-right: 5px;"></span> AR07: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (12)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: olive; margin-right: 5px;"></span> AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)</li> </ul> |
|---|---|

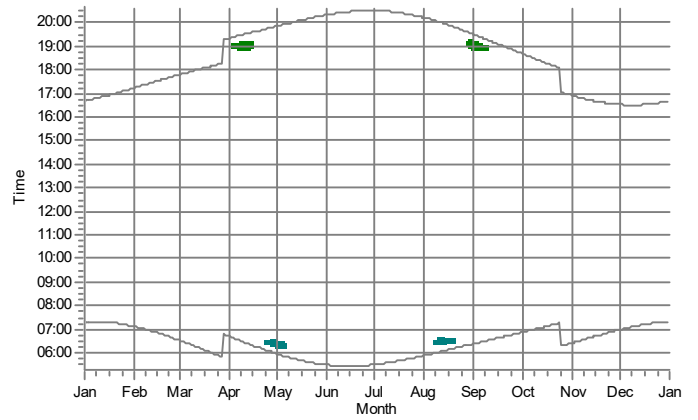
## SHADOW - Calendar, graphical

Calculation: Worst case

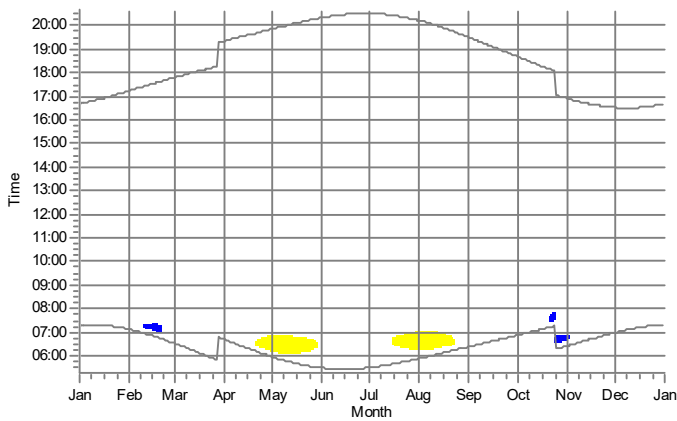
R62: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (86)



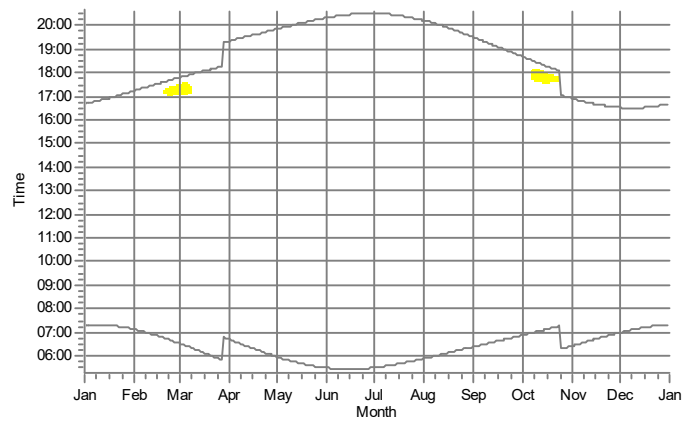
R64: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (87)



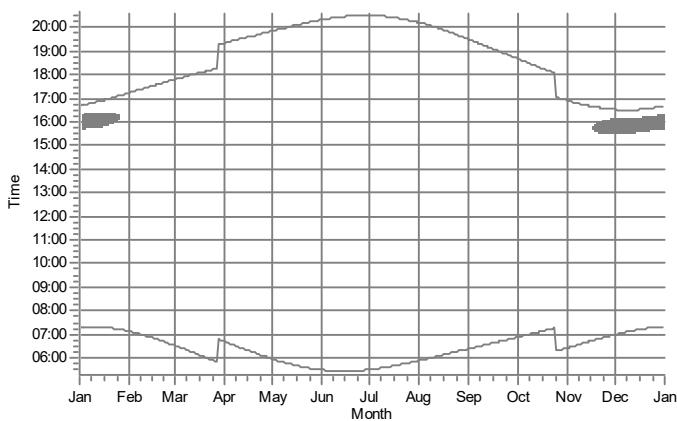
R67: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (88)



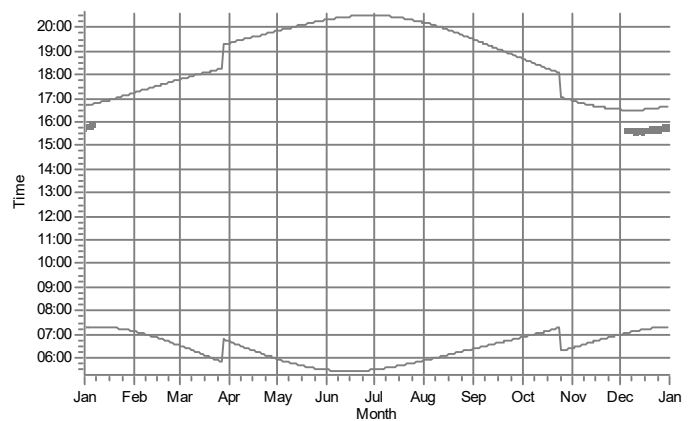
R78: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (89)



R79: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (90)



R82: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (91)



WTGs

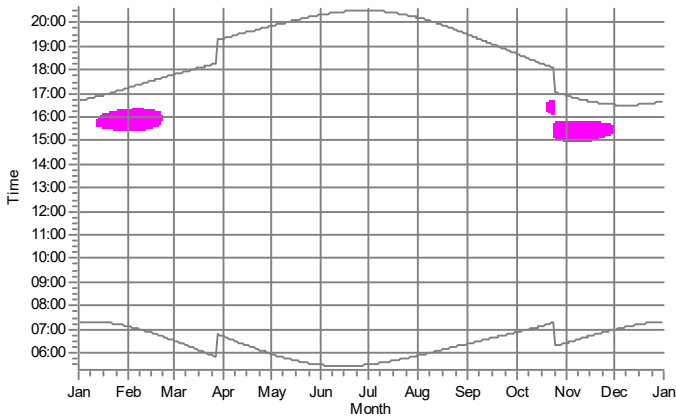
- AR01: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (6)
- AR02: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)
- AR03: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)

- AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)
- AR06: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (11)

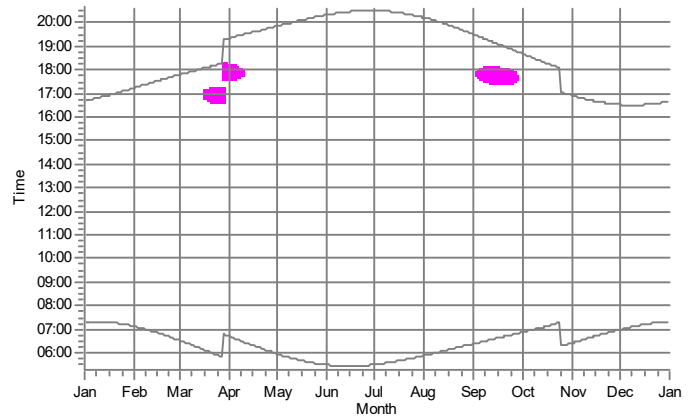
## SHADOW - Calendar, graphical

Calculation: Worst case

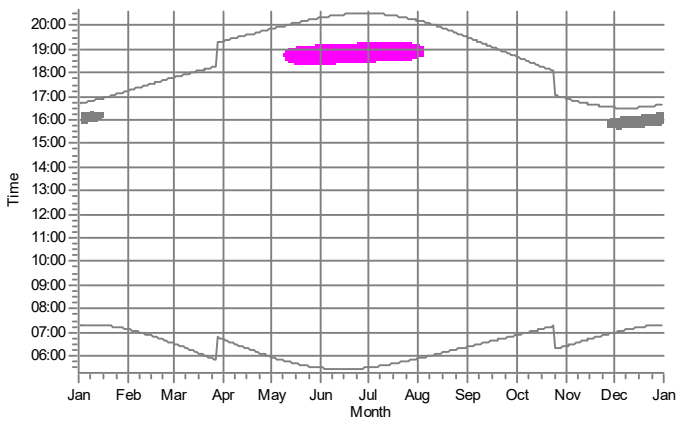
R84: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (92)



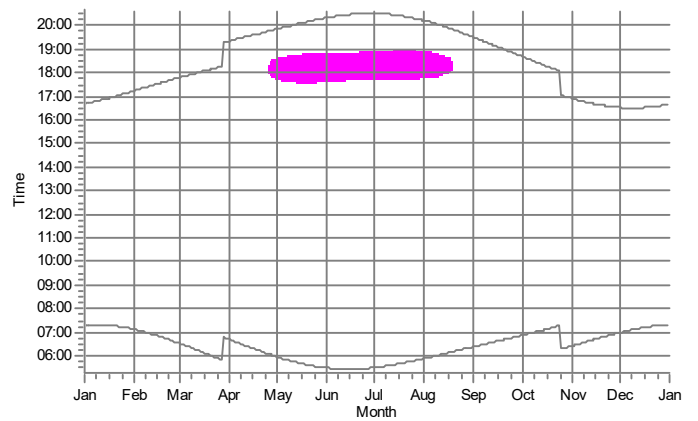
R86: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (93)



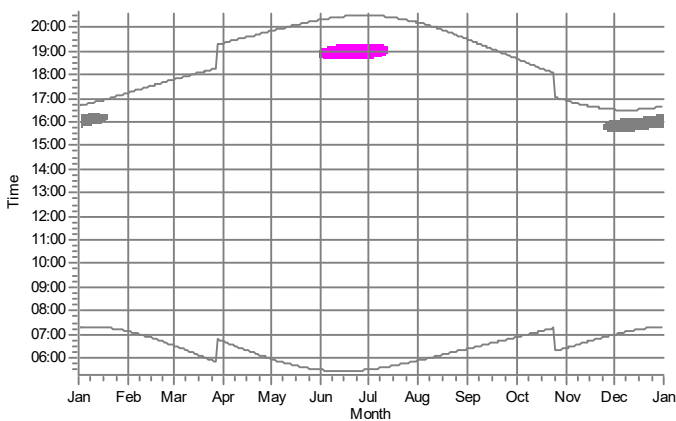
R88: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (94)



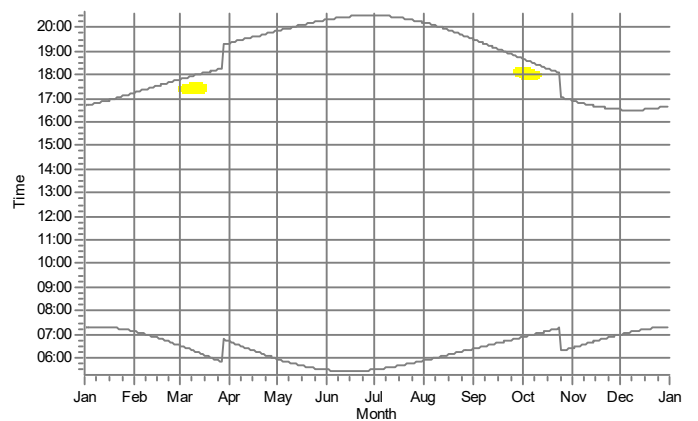
R9: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (61)



R90: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (95)



R91: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (82)



WTGs

- AR02: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)
- AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)

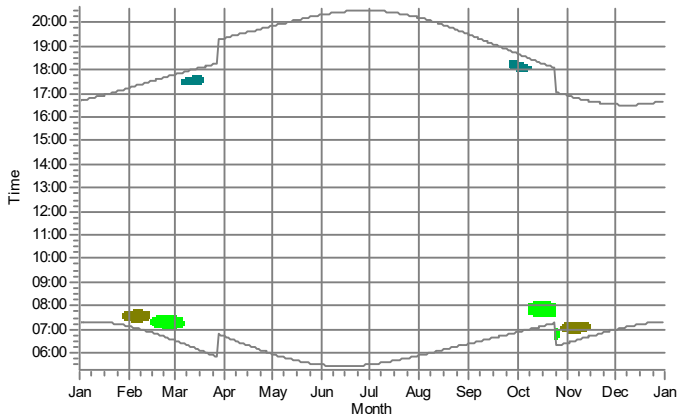
- AR05: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (10)



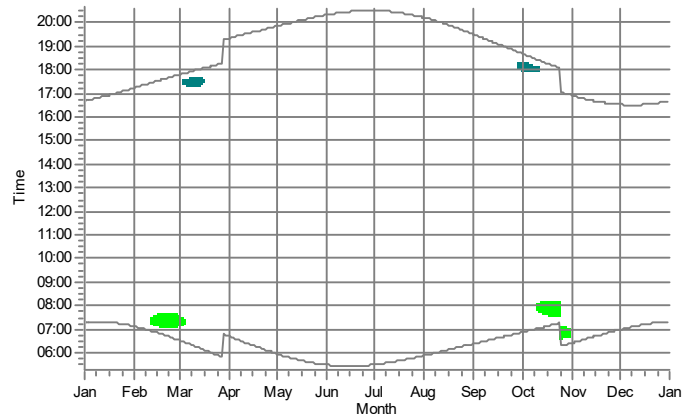
## SHADOW - Calendar, graphical

Calculation: Worst case

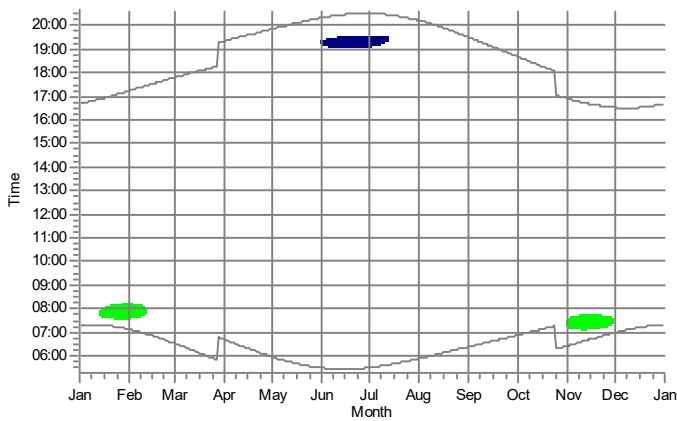
R94: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (97)



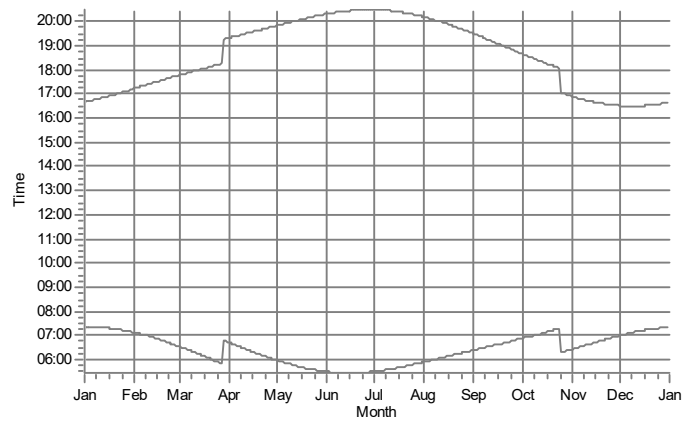
R95: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (98)



R97: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (99)



R99: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (100)



### WTGs

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: teal; margin-right: 5px;"></span> AR06: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (11)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; margin-right: 5px;"></span> AR07: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (12)</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: green; margin-right: 5px;"></span> AR09: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: brown; margin-right: 5px;"></span> AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)</li> </ul> |
|--|--|

## SHADOW - Calendar per WTG

**Calculation:** Worst case **WTG:** AR01 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (6)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June
1	07:19 16:40	07:07 17:14	06:32 17:47	06:42 19:20	05:57 19:51	05:29 19:22-19:24/2 20:19
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 19:22-19:26/4 20:20
3	07:19 16:42	07:05 17:16	06:29 17:49	06:39 19:22	05:55 19:53	05:28 19:23-19:27/4 20:21
4	07:20 16:43	07:04 17:18	06:27 17:50	06:37 18:59-19:02/3 19:23	05:53 19:54	05:28 19:22-19:27/5 20:22
5	07:20 16:44	07:03 17:19	06:26 17:51	06:36 18:58-19:03/5 19:24	05:52 19:55	05:28 19:23-19:28/5 20:22
6	07:20 16:45	07:02 17:20	06:24 17:53	06:34 18:56-19:04/8 19:25	05:51 19:56	05:27 19:23-19:29/6 20:23
7	07:19 16:46	07:01 17:21	06:22 17:54	06:32 18:55-19:04/9 19:26	05:50 19:57	05:27 19:24-19:29/5 20:23
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 18:55-19:06/11 19:27	05:49 19:58	05:27 19:23-19:29/6 20:24
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 18:54-19:06/12 19:28	05:48 19:59	05:27 19:24-19:30/6 20:25
10	07:19 16:49	06:57 17:25	06:18 17:57	06:28 18:55-19:08/13 19:29	05:47 20:00	05:26 19:24-19:31/7 20:25
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 18:54-19:08/14 19:30	05:45 20:01	05:26 19:25-19:31/6 20:26
12	07:19 16:51	06:55 17:27	06:15 17:59	06:24 18:55-19:10/15 19:31	05:44 20:02	05:26 19:25-19:32/7 20:26
13	07:18 16:52	06:54 17:28	06:13 18:00	06:23 18:55-19:10/15 19:32	05:43 20:03	05:26 19:25-19:32/7 20:27
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 18:57-19:10/13 19:33	05:42 20:04	05:26 19:26-19:33/7 20:27
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 18:59-19:06/7 19:34	05:41 20:05	05:26 19:26-19:33/7 20:28
16	07:17 16:29-16:30/1 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:41 20:06	05:26 19:26-19:34/8 20:28
17	07:17 16:30-16:32/2 16:56	06:49 17:33	06:06 18:04	06:17 19:36	05:40 20:07	05:26 19:27-19:34/7 20:28
18	07:16 16:30-16:32/2 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:39 20:08	05:26 19:27-19:34/7 20:29
19	07:16 16:31-16:34/3 16:58	06:46 17:36	06:03 18:07	06:14 19:38	05:38 20:08	05:26 19:27-19:34/7 20:29
20	07:15 16:31-16:35/4 17:00	06:45 17:37	06:02 18:08	06:12 19:39	05:37 20:09	05:26 19:27-19:34/7 20:29
21	07:15 16:32-16:36/4 17:01	06:43 17:38	06:00 18:09	06:11 19:40	05:36 20:10	05:27 19:28-19:35/7 20:29
22	07:14 16:33-16:38/5 17:02	06:42 17:39	05:58 18:10	06:09 19:42	05:35 20:11	05:27 19:28-19:35/7 20:30
23	07:14 16:34-16:39/5 17:03	06:40 17:40	05:57 18:11	06:08 19:43	05:35 20:12	05:27 19:28-19:35/7 20:30
24	07:13 16:35-16:40/5 17:04	06:39 17:41	05:55 18:12	06:07 19:44	05:34 20:13	05:27 19:28-19:35/7 20:30
25	07:12 16:36-16:41/5 17:05	06:37 17:43	05:53 18:13	06:05 19:45	05:33 20:14	05:28 19:29-19:36/7 20:30
26	07:12 16:39-16:43/4 17:07	06:36 17:44	05:52 18:14	06:04 19:46	05:33 20:15	05:28 19:28-19:36/8 20:30
27	07:11 16:41-16:44/3 17:08	06:35 17:45	05:50 18:15	06:03 19:47	05:32 20:15	05:28 19:28-19:35/7 20:30
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:29 19:29-19:36/7 20:30
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 19:22-19:23/1 20:17	05:29 19:29-19:36/7 20:30
30	07:08 17:12		06:45 19:18	05:59 19:50	05:30 19:22-19:23/1 20:18	05:29 19:29-19:36/7 20:30
31	07:07 17:13		06:44 19:19		05:30 19:22-19:24/2 20:19	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	43	0	0	125	4	191

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:** Worst case **WTG:** AR01 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (6)

### Assumptions for shadow calculations

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

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

	July	August	September	October	November	December
1	05:30 19:29-19:36/7 20:30	05:53 20:12	06:23 18:53-19:07/14 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	05:30 19:30-19:36/6 20:30	05:54 20:11	06:24 18:53-19:06/13 19:28	06:53 18:39	06:26 16:54	07:00 16:31
3	05:31 19:29-19:35/6 20:30	05:55 20:10	06:25 18:52-19:04/12 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	05:31 19:30-19:36/6 20:30	05:56 20:09	06:26 18:52-19:03/11 19:25	06:55 18:35	06:28 16:51	07:02 16:31
5	05:32 19:29-19:35/6 20:30	05:57 20:08	06:27 18:52-19:01/9 19:23	06:56 18:34	06:30 16:50	07:03 16:30
6	05:33 19:30-19:35/5 20:29	05:58 20:06	06:28 18:52-19:00/8 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	05:33 19:29-19:34/5 20:29	05:59 20:05	06:29 18:53-18:58/5 19:20	06:58 18:31	06:32 16:48	07:05 16:30
8	05:34 19:30-19:34/4 20:29	06:00 20:04	06:30 18:54-18:57/3 19:19	06:59 18:29	06:33 16:47	07:06 16:30
9	05:34 19:30-19:34/4 20:28	06:01 20:03	06:31 19:17	07:00 18:27	06:34 16:46	07:07 16:30
10	05:35 19:30-19:33/3 20:28	06:02 20:02	06:32 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	05:36 19:30-19:33/3 20:28	06:03 20:00	06:32 19:14	07:02 18:24	06:37 16:44	07:08 16:30
12	05:36 19:31-19:33/2 20:27	06:04 19:59	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	05:37 19:30-19:32/2 20:27	06:05 19:58	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:31
14	05:38 19:30-19:31/1 20:26	06:06 19:56	06:35 19:09	07:05 18:20	06:40 16:41	07:11 16:31
15	05:39 20:26	06:07 19:55	06:36 19:07	07:06 18:18	06:41 16:13-16:16/3 16:40	07:11 16:31
16	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:17	06:42 16:12-16:16/4 16:39	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 19:04	07:08 18:15	06:43 16:10-16:15/5 16:39	07:13 16:32
18	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:14	06:45 16:09-16:14/5 16:38	07:13 16:32
19	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:08-16:13/5 16:37	07:14 16:32
20	05:43 20:22	06:11 19:48	06:41 18:59	07:11 18:11	06:47 16:08-16:13/5 16:37	07:15 16:33
21	05:43 20:22	06:12 19:47	06:42 18:57	07:13 18:09	06:48 16:08-16:12/4 16:36	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	06:49 16:07-16:11/4 16:35	07:16 16:34
23	05:45 20:20	06:14 19:44	06:44 18:54	07:15 18:06	06:50 16:07-16:10/3 16:35	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:07-16:09/2 16:34	07:17 16:35
25	05:47 20:19	06:16 19:41	06:46 18:50	07:17 17:04	06:53 16:08-16:10/2 16:34	07:17 16:35
26	05:48 20:18	06:17 19:39	06:47 18:49	07:18 17:02	06:54 16:08-16:09/1 16:33	07:17 16:36
27	05:49 20:17	06:18 19:38	06:48 18:47	07:19 17:01	06:55 16:33	07:18 16:37
28	05:49 20:16	06:19 19:01-19:08/7 19:36	06:49 18:45	07:20 17:00	06:56 16:32	07:18 16:37
29	05:50 20:15	06:20 18:58-19:11/13 19:35	06:50 18:44	07:22 16:58	06:57 16:32	07:18 16:38
30	05:51 20:14	06:21 18:56-19:11/15 19:33	06:51 18:42	07:23 16:57	06:58 16:32	07:19 16:39
31	05:52 20:13	06:22 18:54-19:09/15 19:31		07:24 16:56		07:19 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	60	50	75	0	43	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:** Worst case WTG: AR02 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 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
1	07:19 08:17-09:24/67 16:40	07:07 17:14	06:32 17:06-17:25/19 17:47	06:42 19:20	05:57 06:16-06:46/30 19:51	05:29 19:01-19:55/54 20:19
2	07:19 08:17-09:24/67 16:41	07:06 17:15	06:30 17:07-17:27/20 17:48	06:40 19:21	05:56 06:15-06:47/32 19:52	05:29 19:01-19:56/55 20:20
3	07:19 08:18-09:24/66 16:42	07:05 17:16	06:29 17:07-17:28/21 17:49	06:39 19:22	05:55 06:14-06:47/33 19:53	05:28 19:01-19:57/56 20:21
4	07:19 08:19-09:24/65 16:43	07:04 17:18	06:27 17:08-17:30/22 17:50	06:37 19:23	05:53 06:13-06:48/35 19:54	05:28 19:00-19:57/57 20:22
5	07:20 08:19-09:25/66 16:44	07:03 17:19	06:26 17:09-17:30/21 17:51	06:35 19:24	05:52 06:12-06:48/36 19:55	05:28 19:01-19:57/56 20:22
6	07:20 08:20-09:25/65 16:45	07:02 17:20	06:24 17:11-17:32/21 17:53	06:34 19:25	05:51 06:10-06:47/37 19:56	05:27 19:01-19:58/57 20:23
7	07:19 08:21-09:25/64 16:46	07:01 17:21	06:22 17:14-17:33/19 17:54	06:32 19:26	05:50 06:09-06:47/38 19:57	05:27 19:00-19:58/58 20:23
8	07:19 08:22-09:25/63 16:47	06:59 17:22	06:21 17:15-17:33/18 17:55	06:31 19:27	05:49 06:08-06:47/39 19:58	05:27 19:00-19:59/59 20:24
9	07:19 08:23-09:26/63 16:48	06:58 17:24	06:19 17:15-17:35/20 17:56	06:29 19:28	05:48 06:08-06:47/39 19:59	05:27 19:01-20:00/59 20:25
10	07:19 08:23-09:25/62 16:49	06:57 17:25	06:18 17:15-17:36/21 17:57	06:28 19:29	05:47 06:08-06:47/39 20:00	05:26 19:01-20:00/59 20:25
11	07:19 08:24-09:25/61 16:50	06:56 17:26	06:16 17:16-17:38/22 17:58	06:26 19:30	05:45 06:08-06:46/38 20:01	05:26 19:01-20:01/60 20:26
12	07:19 08:25-09:25/60 16:51	06:55 17:27	06:15 17:15-17:38/23 17:59	06:24 19:31	05:44 06:08-06:46/38 20:02	05:26 19:01-20:01/60 20:26
13	07:18 08:26-09:26/60 16:52	06:54 17:28	06:13 17:16-17:37/21 18:00	06:23 19:32	05:43 06:09-06:46/37 20:03	05:26 19:01-20:02/61 20:27
14	07:18 08:26-09:25/59 16:53	06:52 17:30	06:11 17:17-17:36/19 18:01	06:21 19:33	05:42 06:09-06:45/36 20:04	05:26 19:02-20:02/60 20:27
15	07:18 08:28-09:25/57 16:54	06:51 17:31	06:10 17:18-17:34/16 18:02	06:20 19:34	05:41 06:09-06:45/36 20:05	05:26 19:02-20:03/61 20:28
16	07:17 08:28-09:24/56 16:55	06:50 17:32	06:08 17:20-17:34/14 18:03	06:18 19:35	05:40 06:10-06:44/34 20:06	05:26 19:02-20:03/61 20:28
17	07:17 08:30-09:24/54 16:56	06:48 17:33	06:06 17:29-17:35/6 18:04	06:17 19:36	05:40 06:11-06:44/33 20:07	05:26 19:02-20:03/61 20:28
18	07:16 08:30-09:23/53 16:57	06:47 17:34	06:05 17:28-17:36/8 18:05	06:15 19:37	05:39 06:12-06:43/31 20:08	05:26 19:02-20:03/61 20:29
19	07:16 08:32-09:23/51 16:58	06:46 17:36	06:03 17:27-17:37/10 18:06	06:14 19:38	05:38 06:12-06:43/31 20:08	05:26 19:02-20:04/62 20:29
20	07:15 08:33-09:22/49 17:00	06:44 17:12-17:14/2 17:37	06:02 17:28-17:38/10 18:08	06:12 19:39	05:37 06:13-06:42/29 20:09	05:26 19:02-20:04/62 20:29
21	07:15 08:34-09:21/47 17:01	06:43 17:10-17:16/6 17:38	06:00 17:27-17:39/12 18:09	06:11 19:40	05:36 06:14-06:41/27 20:10	05:27 19:03-20:05/62 20:29
22	07:14 08:36-09:20/44 17:02	06:42 17:09-17:18/9 17:39	05:58 17:28-17:41/13 18:10	06:09 06:28-06:35/7 19:41	05:35 06:15-06:40/25 20:11	05:27 19:03-20:05/62 20:30
23	07:14 08:37-09:19/42 17:03	06:40 17:08-17:18/10 17:40	05:57 17:29-17:42/13 18:11	06:08 06:27-06:39/12 19:43	05:35 06:16-06:39/23 20:12	05:27 19:03-20:05/62 20:30
24	07:13 08:38-09:17/39 17:04	06:39 17:08-17:20/12 17:41	05:55 17:29-17:42/13 18:12	06:07 06:25-06:40/15 19:44	05:34 06:17-06:38/21 20:13	05:27 19:03-20:04/61 20:30
25	07:12 08:41-09:17/36 17:05	06:37 17:06-17:21/15 17:42	05:53 17:31-17:44/13 18:13	06:05 06:24-06:42/18 19:45	05:33 06:19-06:37/18 20:14	05:27 19:04-20:05/61 20:30
26	07:12 08:43-09:15/32 17:07	06:36 17:07-17:22/15 17:44	05:52 17:33-17:40/7 18:14	06:04 06:23-06:44/21 19:46	05:32 06:20-06:35/15 20:15	05:28 19:04-20:05/61 20:30
27	07:11 08:45-09:12/27 17:08	06:35 17:06-17:23/17 17:45	05:50 18:15	06:02 06:21-06:44/23 19:47	05:32 06:22-06:34/12 20:15	05:28 19:04-20:05/61 20:30
28	07:10 08:48-09:09/21 17:09	06:33 17:06-17:25/19 17:46	05:48 18:16	06:01 06:20-06:45/25 19:48	05:31 06:25-06:30/5 20:16	05:29 19:05-20:05/60 20:30
29	07:09 08:53-09:04/11 17:10		06:47 19:17	06:00 06:19-06:46/27 19:49	05:31 19:02-19:53/51 20:17	05:29 19:05-20:05/60 20:30
30	07:08 17:11		06:45 19:18	05:58 06:18-06:47/29 19:50	05:30 19:01-19:53/52 20:18	05:29 19:05-20:06/61 20:30
31	07:07 17:13		06:44 19:19		05:30 19:01-19:54/53 20:19	
	Potential sun hours 299	298	370	398	446	450
	Sum of minutes with flicker 1507	105	422	177	1683	1790

**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:** Worst case WTG: AR02 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 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

	July	August	September	October	November	December
1	05:30 19:05-20:05/60	05:53 06:19-06:57/38	06:23	06:52 17:54-18:16/22	06:25	06:59 08:06-09:07/61
	20:30	20:12 19:29-19:49/20	19:30	18:40	16:55	16:31
2	05:30 19:06-20:05/59	05:54 06:19-06:57/38	06:24	06:53 17:53-18:16/23	06:26	07:00 08:06-09:08/62
	20:30	20:11 19:32-19:48/16	19:28	18:39	16:54	16:31
3	05:31 19:06-20:05/59	05:55 06:18-06:57/39	06:25	06:54 17:54-18:15/21	06:27	07:01 08:06-09:09/63
	20:30	20:10	19:27	18:37	16:52	16:31
4	05:31 19:07-20:05/58	05:56 06:18-06:58/40	06:26	06:55 17:53-18:13/20	06:28	07:02 08:06-09:09/63
	20:30	20:09	19:25	18:35	16:51	16:31
5	05:32 19:06-20:04/58	05:57 06:19-06:58/39	06:27	06:56 17:53-18:12/19	06:30	07:03 08:06-09:10/64
	20:30	20:07	19:23	18:34	16:50	16:30
6	05:32 19:07-20:05/58	05:58 06:19-06:57/38	06:28	06:57 17:52-18:10/18	06:31	07:04 08:06-09:11/65
	20:29	20:06	19:22	18:32	16:49	16:30
7	05:33 19:07-20:04/57	05:59 06:20-06:57/37	06:29	06:58 17:48-18:08/20	06:32	07:05 08:06-09:12/66
	20:29	20:05	19:20	18:31	16:48	16:30
8	05:34 19:07-20:04/57	06:00 06:21-06:57/36	06:30	06:59 17:45-18:07/22	06:33	07:06 08:07-09:12/65
	20:29	20:04	19:19	18:29	16:47	16:30
9	05:34 19:08-20:04/56	06:01 06:22-06:56/34	06:31	07:00 17:44-18:05/21	06:34	07:07 08:07-09:13/66
	20:28	20:03	19:17	18:27	16:46	16:30
10	05:35 19:08-20:03/55	06:02 06:23-06:56/33	06:31	07:01 17:42-18:03/21	06:35	07:07 08:08-09:14/66
	20:28	20:01	19:15	18:26	16:45	16:30
11	05:36 19:09-20:03/54	06:03 06:24-06:56/32	06:32	07:02 17:41-18:02/21	06:36	07:08 08:08-09:15/67
	20:28	20:00	19:14	18:24	16:44	16:30
12	05:36 19:09-20:03/54	06:04 06:25-06:55/30	06:33	07:03 17:40-18:00/20	06:38	07:09 08:07-09:15/68
	20:27	19:59	19:12	18:23	16:43	16:30
13	05:37 19:09-20:02/53	06:05 06:26-06:54/28	06:34	07:04 17:39-17:58/19	06:39 08:24-08:37/13	07:10 08:08-09:15/67
	20:27	19:58	19:10	18:21	16:42	16:31
14	05:38 19:10-20:02/52	06:05 06:27-06:54/27	06:35	07:05 17:39-17:57/18	06:40 08:20-08:41/21	07:11 08:09-09:16/67
	20:26	19:56	19:09	18:20	16:41	16:31
15	05:39 19:11-20:01/50	06:06 06:28-06:53/25	06:36	07:06 17:38-17:55/17	06:41 08:18-08:45/27	07:11 08:09-09:17/68
	20:26	19:55	19:07	18:18	16:40	16:31
16	05:39 06:33-06:42/9	06:07 06:29-06:52/23	06:37	07:07 17:38-17:53/15	06:42 08:16-08:48/32	07:12 08:09-09:17/68
	20:25	19:54	19:05	18:17	16:39	16:31
17	05:40 06:30-06:44/14	06:08 06:30-06:50/20	06:38 18:22-18:28/6	07:08 17:38-17:52/14	06:43 08:14-08:50/36	07:13 08:10-09:18/68
	20:24	19:11-20:00/49	19:04	18:15	16:39	16:31
18	05:41 06:29-06:46/17	06:09 06:31-06:49/18	06:39 18:19-18:30/11	07:09 17:39-17:51/12	06:45 08:12-08:51/39	07:13 08:11-09:19/68
	20:24	19:12-20:00/48	19:02	18:14	16:38	16:32
19	05:42 06:28-06:47/19	06:10 06:31-06:46/15	06:40 18:17-18:30/13	07:10 17:40-17:49/9	06:46 08:11-08:53/42	07:14 08:10-09:19/69
	20:23	19:13-19:59/46	19:00	18:12	16:37	16:32
20	05:42 06:27-06:49/22	06:11 06:32-06:43/11	06:41 18:15-18:28/13	07:11 17:40-17:48/8	06:47 08:11-08:55/44	07:15 08:11-09:20/69
	20:22	19:14-19:59/45	19:48	18:11	16:36	16:33
21	05:43 06:25-06:49/24	06:12 06:33-06:39/6	06:42 18:14-18:27/13	07:13 17:41-17:46/5	06:48 08:10-08:57/47	07:15 08:11-09:20/69
	20:22	19:13-19:57/44	19:47	18:09	16:36	16:33
22	05:44 06:24-06:50/26	06:13	06:43 18:13-18:25/12	07:14 17:43-17:45/2	06:49 08:09-08:58/49	07:16 08:12-09:21/69
	20:21	19:14-19:57/43	19:45	18:08	16:35	16:34
23	05:45 06:23-06:52/29	06:14	06:44 18:12-18:23/11	07:15	06:50 08:08-08:59/51	07:16 08:12-09:21/69
	20:20	19:15-19:56/41	19:44	18:06	16:35	16:34
24	05:46 06:23-06:53/30	06:15	06:45 18:12-18:21/9	07:16	06:51 08:07-09:00/53	07:17 08:12-09:21/69
	20:19	19:16-19:56/40	19:42	18:05	16:34	16:35
25	05:47 06:22-06:53/31	06:16	06:46 18:11-18:20/9	06:17	06:53 08:08-09:02/54	07:17 08:13-09:22/69
	20:19	19:18-19:55/37	19:41	17:04	16:34	16:35
26	05:48 06:22-06:54/32	06:17	06:47 18:11-18:18/7	06:18	06:54 08:07-09:03/56	07:17 08:14-09:22/68
	20:18	19:19-19:54/35	19:39	17:02	16:33	16:36
27	05:49 06:21-06:55/34	06:18	06:48 18:04-18:11/7	06:19	06:55 08:07-09:04/57	07:18 08:14-09:22/68
	20:17	19:19-19:53/34	19:38	18:47 18:12-18:17/5	17:01	16:33
28	05:49 06:20-06:55/35	06:19	06:49 18:00-18:16/16	06:20	06:56 08:07-09:05/58	07:18 08:15-09:23/68
	20:16	19:20-19:52/32	19:36	18:45	17:00	16:32
29	05:50 06:20-06:55/35	06:20	06:50 17:58-18:16/18	06:21	06:57 08:06-09:06/60	07:18 08:15-09:23/68
	20:15	19:22-19:51/29	19:35	18:44	16:58	16:38
30	05:51 06:19-06:56/37	06:21	06:51 17:56-18:16/20	06:23	06:58 08:06-09:06/60	07:19 08:16-09:23/67
	20:14	19:24-19:50/26	19:33	18:42	16:57	16:39
31	05:52 06:19-06:56/37	06:22		06:24		07:19 08:16-09:24/68
	20:13	19:26-19:49/23	19:31	16:56		16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	1893	643	170	367	799	2072

**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:** Worst case **WTG:** AR03 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June
1	07:19 16:02-16:11/9   16:40	07:06   17:14	06:32   17:47	06:42   19:20	05:57   19:51	05:29   20:19
2	07:19 16:03-16:11/8   16:41	07:06   17:15	06:30   17:48	06:40   19:21	05:56   19:52	05:29   20:20
3	07:19 16:03-16:12/9   16:42	07:05   17:16	06:29   17:49	06:39   19:22	05:55   19:53	05:28   20:21
4	07:19 16:04-16:13/9   16:43	07:04   17:18	06:27   17:50	06:37   19:23	05:53   19:54	05:28   20:21
5	07:19 16:04-16:14/10   16:44	07:03   17:19	06:25   17:51	06:35   19:24	05:52   19:55	05:28   20:22
6	07:19 16:05-16:15/10   16:45	07:02   17:20	06:24   17:53	06:34   19:25	05:51   19:56	05:27   20:23
7	07:19 16:06-16:17/11   16:46	07:00   17:21	06:22   17:54	06:32   19:26	05:50   19:57	05:27   20:23
8	07:19 16:07-16:18/11   16:47	06:59   17:22	06:21   17:55	06:31   19:27	05:49   19:58	05:27   20:24
9	07:19 16:08-16:19/11   16:48	06:58   17:24	06:19   17:56	06:29   19:28	05:48   19:59	05:27   20:25
10	07:19 16:08-16:20/12   16:49	06:57 07:17-07:18/1   17:25	06:18   17:57	06:28   19:29	05:47   20:00	05:26   20:25
11	07:19 16:09-16:21/12   16:50	06:56 07:15-07:18/3   17:26	06:16   17:58	06:26   19:30	05:45   20:01	05:26   20:26
12	07:19 16:10-16:23/13   16:51	06:55 07:14-07:18/4   17:27	06:14   17:59	06:24   19:31	05:44   20:02	05:26   20:26
13	07:18 16:11-16:23/12   16:52	06:54 07:13-07:18/5   17:28	06:13   18:00	06:23   19:32	05:43   20:03	05:26   20:27
14	07:18 16:12-16:25/13   16:53	06:52 07:12-07:18/6   17:30	06:11   18:01	06:21   19:33	05:42   20:04	05:26   20:27
15	07:18 16:13-16:27/14   16:54	06:51 07:10-07:17/7   17:31	06:10   18:02	06:20   19:34	05:41   20:05	05:26   20:28
16	07:17 16:14-16:26/12   16:55	06:50 07:09-07:16/7   17:32	06:08   18:03	06:18   19:35	05:40   20:06	05:26   20:28
17	07:17 16:16-16:24/8   16:56	06:48 07:08-07:15/7   17:33	06:06   18:04	06:17   19:36	05:40   20:07	05:26   20:28
18	07:16 16:17-16:24/7   16:57	06:47 07:06-07:13/7   17:34	06:05   18:05	06:15   19:37	05:39   20:08	05:26   20:29
19	07:16 16:19-16:24/5   16:58	06:46 07:05-07:11/6   17:36	06:03   18:06	06:14   19:38	05:38   20:08	05:26   20:29
20	07:15   17:00	06:44 07:04-07:07/3   17:37	06:02   18:08	06:12   19:39	05:37   20:09	05:26   20:29
21	07:15   17:01	06:43   17:38	06:00   18:09	06:11 19:01-19:03/2   19:40	05:36   20:10	05:27   20:29
22	07:14   17:02	06:42   17:39	05:58   18:10	06:09 19:01-19:04/3   19:41	05:35   20:11	05:27   20:30
23	07:14   17:03	06:40   17:40	05:57   18:11	06:08 19:02-19:05/3   19:42	05:35   20:12	05:27   20:30
24	07:13   17:04	06:39   17:41	05:55   18:12	06:07 19:01-19:05/4   19:44	05:34   20:13	05:27   20:30
25	07:12   17:05	06:37   17:42	05:53   18:13	06:05 19:02-19:06/4   19:45	05:33   20:14	05:27   20:30
26	07:12   17:07	06:36   17:44	05:52   18:14	06:04 19:03-19:08/5   19:46	05:32   20:15	05:28   20:30
27	07:11   17:08	06:35   17:45	05:50   18:15	06:02 19:04-19:08/4   19:47	05:32   20:15	05:28   20:30
28	07:10   17:09	06:33   17:46	05:48   18:16	06:01 19:07-19:09/2   19:48	05:31   20:16	05:29   20:30
29	07:09   17:10		06:47   19:17	06:00   19:49	05:31   20:17	05:29   20:30
30	07:08   17:11		06:45   19:18	05:58   19:50	05:30   20:18	05:29   20:30
31	07:07   17:13		06:44   19:19		05:30   20:19	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	196	56	0	27	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:** Worst case **WTG:** AR03 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)

### Assumptions for shadow calculations

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

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

	July	August	September	October	November	December
1	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:46-06:47/1 16:31
2	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:54	07:00 16:31
3	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:31
5	05:32 20:30	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	05:33 20:29	05:59 20:05	06:29 19:20	06:58 18:31	06:32 16:48	07:05 16:30
8	05:34 20:29	06:00 20:04	06:30 19:18	06:59 18:29	06:33 16:47	07:06 16:30
9	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:07 16:30
10	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	05:36 20:28	06:03 20:00	06:32 19:14	07:02 18:24	06:36 16:44	07:08 16:30
12	05:36 20:27	06:04 19:59	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	05:37 20:27	06:05 19:58	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:31
14	05:38 20:26	06:05 19:56	06:35 19:09	07:05 18:20	06:40 16:41	07:11 16:31
15	05:39 20:26	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:17	06:42 16:39	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 19:04	07:08 18:15	06:43 16:39	07:13 16:31
18	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:14	06:45 16:38	07:13 16:32
19	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	05:42 20:22	06:11 19:48	06:41 18:59	07:11 18:11	06:47 16:36	07:15 16:33
21	05:43 20:22	06:12 19:47	06:42 18:57	07:13 18:09	06:48 16:36	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	06:49 16:35	07:16 16:34
23	05:45 20:20	06:14 19:44	06:44 18:54	07:15 18:06	06:50 16:35	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:17 16:35
25	05:47 20:19	06:16 19:41	06:46 18:50	07:17 17:04	06:52 16:34	07:17 16:35
26	05:48 20:18	06:17 19:39	06:47 18:49	07:18 17:02	06:54 16:33	07:17 16:36
27	05:49 20:17	06:18 19:38	06:48 18:47	07:19 17:01	06:55 16:33	07:18 16:36
28	05:49 20:16	06:19 19:36	06:49 18:45	07:20 17:00	06:56 16:32	07:18 16:37
29	05:50 20:15	06:20 19:34	06:50 18:44	07:21 16:58	06:57 16:32	07:18 16:38
30	05:51 20:14	06:21 19:33	06:51 18:42	07:22 16:57	06:58 16:31	07:19 16:39
31	05:52 20:13	06:22 19:31		07:23 16:56	06:58 16:31	07:19 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	0	26	0	56	85	252

**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:** Worst case WTG: AR04 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	January	February	March	April	May	June
1	07:19 15:42-16:14/32 16:40	07:06 15:59-16:39/40 17:14 07:33-07:42/9	06:32 06:50-07:47/57 17:47	06:42 18:21-18:30/9 19:20 07:50-08:14/24	05:57 18:58-19:01/3 19:51	05:29 20:19
2	07:19 15:43-16:15/32 16:41	07:06 15:59-16:39/40 17:15	06:30 06:49-07:48/59 17:48	06:40 18:20-18:31/11 19:21 07:56-08:08/12	05:56 18:58-19:02/4 19:52	05:29 20:20
3	07:19 15:44-16:16/32 16:42	07:05 16:00-16:39/39 17:16	06:29 06:47-07:47/60 17:49	06:39 18:20-18:32/12 19:22	05:55 18:57-19:03/6 19:53	05:28 20:21
4	07:19 15:45-16:17/32 16:43	07:04 16:01-16:39/38 17:17	06:27 06:46-07:48/62 17:50	06:37 18:19-18:33/14 19:23	05:53 18:57-19:04/7 19:54	05:28 20:21
5	07:19 15:46-16:18/32 16:44	07:03 16:02-16:39/37 17:19	06:25 06:44-07:48/64 17:51	06:35 18:19-18:34/15 19:24	05:52 18:55-19:04/9 19:55	05:28 20:22
6	07:19 15:48-16:19/31 16:45	07:02 16:03-16:39/36 17:20	06:24 06:43-07:48/65 17:53	06:34 18:19-18:35/16 19:25	05:51 18:55-19:05/10 19:56	05:27 20:23
7	07:19 15:49-16:20/31 16:46	07:00 16:04-16:38/34 17:21	06:22 06:41-07:48/67 17:54	06:32 18:18-18:35/17 19:26	05:50 18:55-19:06/11 19:57	05:27 20:23
8	07:19 15:50-16:21/31 16:47	06:59 16:05-16:38/33 17:22	06:21 06:39-07:47/68 17:55	06:31 18:19-18:37/18 19:27	05:49 18:55-19:07/12 19:58	05:27 20:24
9	07:19 15:51-16:23/32 16:48	06:58 16:07-16:37/30 17:24	06:19 06:38-07:48/70 17:56	06:29 18:19-18:37/18 19:28	05:48 18:55-19:08/13 19:59	05:27 20:25
10	07:19 15:50-16:23/33 16:49	06:57 16:07-16:35/28 17:25	06:18 06:36-07:47/71 17:57	06:27 18:20-18:38/18 19:29	05:46 18:55-19:09/14 20:00	05:26 20:25
11	07:19 15:51-16:24/33 16:50	06:56 16:09-16:34/25 17:26	06:16 06:35-07:47/72 17:58	06:26 18:20-18:39/19 19:30	05:45 18:56-19:10/14 20:01	05:26 20:26
12	07:19 15:52-16:25/33 16:51	06:55 16:11-16:33/22 17:27	06:14 06:33-07:46/73 17:59	06:24 18:21-18:40/19 19:31	05:44 18:56-19:11/15 20:02	05:26 20:26
13	07:18 15:52-16:24/32 16:52	06:54 16:13-16:31/18 17:28	06:13 06:32-07:45/73 18:00	06:23 18:22-18:41/19 19:32	05:43 18:56-19:12/16 20:03	05:26 20:27
14	07:18 15:53-16:25/32 16:53	06:52 16:15-16:27/12 17:30	06:11 06:33-07:45/72 18:01	06:21 18:24-18:40/16 19:33	05:42 18:57-19:13/16 20:04	05:26 20:27
15	07:18 15:54-16:27/33 16:54	06:51 07:10-07:29/19 17:31	06:10 06:32-07:44/72 18:02	06:20 18:27-18:36/9 19:34	05:41 18:57-19:13/16 20:05	05:26 20:28
16	07:17 15:55-16:27/32 16:55	06:50 07:09-07:32/23 17:32	06:08 06:32-07:43/71 18:03	06:18 18:27-18:36/9 19:35	05:40 18:58-19:14/16 20:06	05:26 20:28
17	07:17 15:56-16:29/33 16:56	06:48 07:08-07:35/27 17:33	06:06 06:33-07:43/70 18:04	06:17 18:27-18:36/9 19:36	05:39 18:59-19:15/16 20:07	05:26 20:28
18	07:16 15:57-16:30/33 16:57	06:47 07:06-07:36/30 17:34	06:05 06:33-07:41/68 18:05	06:15 18:27-18:36/9 19:37	05:39 19:01-19:16/15 20:07	05:26 20:29
19	07:16 15:57-16:31/34 16:58	06:46 07:05-07:38/33 17:35	06:03 06:34-07:41/67 18:06	06:14 18:27-18:36/9 19:38	05:38 19:02-19:15/13 20:08	05:26 20:29
20	07:15 15:57-16:32/35 17:00	06:44 07:03-07:39/36 17:37	06:02 06:34-07:40/66 18:07	06:12 18:27-18:36/9 19:39	05:37 19:04-19:13/9 20:09	05:26 20:29
21	07:15 15:57-16:33/36 17:01	06:43 07:02-07:41/39 17:38	06:00 06:34-07:38/64 18:09	06:11 18:27-18:36/9 19:40	05:36 19:04-19:13/9 20:10	05:26 20:29
22	07:14 15:57-16:34/37 17:02	06:42 07:01-07:42/41 17:39	05:58 06:35-07:37/62 18:10	06:09 18:27-18:36/9 19:41	05:35 19:04-19:13/9 20:11	05:27 20:30
23	07:14 15:57-16:34/37 17:03	06:40 06:59-07:43/44 17:40	05:57 06:36-07:35/59 18:11	06:08 18:27-18:36/9 19:42	05:35 19:04-19:13/9 20:12	05:27 20:30
24	07:13 15:57-16:35/38 17:04	06:39 06:58-07:44/46 17:41	05:55 06:36-07:34/58 18:12	06:07 18:27-18:36/9 19:43	05:34 19:04-19:13/9 20:13	05:27 20:30
25	07:12 15:57-16:35/38 17:05	06:37 06:56-07:44/48 17:42	05:53 06:38-07:33/55 18:13	06:05 18:27-18:36/9 19:45	05:33 19:04-19:13/9 20:14	05:27 20:30
26	07:11 15:58-16:36/38 17:07	06:36 06:55-07:46/51 17:44	05:52 06:38-07:30/52 18:14	06:04 18:27-18:36/9 19:46	05:32 19:04-19:13/9 20:15	05:28 20:30
27	07:11 15:58-16:36/38 17:08	06:34 06:53-07:46/53 17:45	05:50 06:39-07:28/49 18:15	06:02 18:27-18:36/9 19:47	05:32 19:04-19:13/9 20:15	05:28 20:30
28	07:10 15:58-16:38/40 17:09	06:33 06:52-07:47/55 17:46	05:48 06:41-07:26/45 18:16	06:01 18:27-18:36/9 19:48	05:31 19:04-19:13/9 20:16	05:28 20:30
29	07:09 15:58-16:39/41 17:10		06:47 18:25-18:28/3 19:17	06:00 18:25-18:28/3 19:49	05:31 19:04-19:13/9 20:17	05:29 20:30
30	07:08 15:58-16:39/41 17:11		06:45 18:23-18:28/5 19:18	05:58 18:59-19:00/1 19:50	05:30 19:04-19:13/9 20:18	05:29 20:30
31	07:07 15:58-16:39/41 17:13		06:44 18:23-18:30/7 19:19		05:30 19:04-19:13/9 20:19	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	1301	1008	1915	267	235	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:** Worst case WTG: AR04 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:30 20:30	05:53 19:06-19:21/15 20:12	06:23 18:19-18:38/19 19:30	06:52 07:12-08:26/74 18:40	06:25 15:37-16:05/28 16:55	06:59 15:33-16:06/33 16:31 07:22-07:23/1
2	05:30 20:30	05:54 19:06-19:20/14 20:11	06:24 18:18-18:36/18 19:28	06:53 07:13-08:26/73 18:39	06:26 15:35-16:06/31 16:53	07:00 15:33-16:06/33 16:31
3	05:31 20:30	05:55 19:06-19:20/14 20:10	06:25 18:17-18:35/18 19:27	06:54 07:14-08:25/71 18:37	06:27 15:35-16:08/33 16:52	07:01 15:34-16:06/32 16:31
4	05:31 20:30	05:56 19:05-19:18/13 20:09	06:26 18:16-18:34/18 19:25	06:55 07:15-08:25/70 18:35	06:28 15:34-16:08/34 16:51	07:02 15:34-16:05/31 16:30
5	05:32 20:30	05:57 19:05-19:17/12 20:07	06:27 18:15-18:32/17 19:23	06:56 07:16-08:25/69 18:34	06:29 15:32-16:09/37 16:50	07:03 15:34-16:05/31 16:30
6	05:32 20:29	05:58 19:05-19:16/11 20:06	06:28 18:15-18:31/16 19:22	06:57 07:17-08:24/67 18:32	06:31 15:31-16:09/38 16:49	07:04 15:34-16:05/31 16:30
7	05:33 20:29	05:59 19:05-19:15/10 20:05	06:29 18:14-18:29/15 19:20	06:58 07:18-08:24/66 18:31	06:32 15:31-16:09/38 16:48	07:05 15:33-16:05/32 16:30
8	05:34 20:29	06:00 19:05-19:14/9 20:04	06:30 18:14-18:28/14 19:18	06:59 07:19-08:24/65 18:29	06:33 15:31-16:10/39 16:47	07:06 15:33-16:05/32 16:30
9	05:34 20:28	06:01 19:05-19:13/8 20:03	06:30 18:14-18:26/12 19:17	07:00 07:20-08:23/63 18:27	06:34 15:30-16:10/40 16:46	07:06 15:33-16:05/32 16:30
10	05:35 20:28	06:02 19:06-19:12/6 20:01	06:31 18:14-18:25/11 19:15	07:01 07:21-08:22/61 18:26	06:35 15:30-16:10/40 16:45	07:07 15:33-16:05/32 16:30
11	05:36 20:28	06:03 19:07-19:11/4 20:00	06:32 18:13-18:23/10 19:14	07:02 07:22-08:22/60 18:24	06:36 15:29-16:10/41 16:44	07:08 15:32-16:05/33 16:30
12	05:36 20:27	06:04 19:07-19:10/3 19:59	06:33 18:14-18:21/7 19:12	07:03 07:23-08:21/58 18:23	06:38 15:30-16:11/41 16:43	07:09 15:32-16:05/33 16:30
13	05:37 20:27	06:04 19:58	06:34 18:14-18:20/6 19:10	07:04 07:24-08:20/56 18:21	06:39 15:30-16:11/41 16:42	07:10 15:33-16:05/32 16:30
14	05:38 20:26	06:05 19:56	06:35 18:15-18:18/3 19:09	07:05 07:25-08:19/54 18:20	06:40 15:30-16:09/39 16:41	07:11 15:33-16:06/33 16:31
15	05:38 20:26	06:06 19:55	06:36 07:31-08:15/44 19:07	07:06 07:26-08:18/52 18:18	06:41 15:30-16:08/38 16:40	07:11 15:32-16:05/33 16:31
16	05:39 20:25	06:07 19:54	06:37 07:29-08:17/48 19:05	07:07 07:27-08:17/50 18:17	06:42 15:31-16:09/38 16:39	07:12 15:33-16:06/33 16:31
17	05:40 20:24	06:08 19:52	06:38 07:27-08:18/51 19:04	07:08 07:28-08:16/48 18:15	06:43 15:31-16:09/38 16:39	07:13 15:34-16:06/32 16:31
18	05:41 20:24	06:09 19:51	06:39 07:25-08:19/54 19:02	07:09 07:30-08:15/45 18:14	06:45 15:31-16:08/37 16:38	07:13 15:33-16:06/33 16:32
19	05:42 20:23	06:10 19:49	06:40 07:24-08:21/57 19:00	07:10 07:31-08:14/43 18:12	06:46 15:31-16:08/37 16:37	07:14 15:34-16:07/33 16:32
20	05:42 20:22	06:11 19:48	06:41 07:22-08:21/59 18:59	07:11 07:32-08:12/40 18:11	06:47 15:32-16:09/37 16:36	07:15 15:35-16:08/33 16:33
21	05:43 20:22	06:12 19:46	06:42 07:21-08:22/61 18:57	07:13 07:33-08:11/38 18:09	06:48 15:33-16:09/36 16:36	07:15 15:35-16:07/32 16:33
22	05:44 20:21	06:13 19:45	06:43 07:20-08:23/63 18:55	07:14 07:34-08:09/35 18:08	06:49 15:33-16:08/35 16:35	07:16 15:36-16:08/32 16:33
23	05:45 19:16-19:21/5 20:20	06:14 19:44	06:44 07:18-08:24/66 18:54	07:15 07:35-08:07/32 18:06	06:50 15:34-16:08/34 16:35	07:16 15:36-16:08/32 16:34
24	05:46 19:14-19:24/10 20:19	06:15 19:42	06:45 07:17-08:24/67 18:52	07:16 07:37-08:06/29 18:05	06:51 15:34-16:07/33 16:34	07:17 15:36-16:09/33 16:35
25	05:47 19:12-19:26/14 20:18	06:16 19:41	06:46 07:16-08:25/69 18:50	06:17 06:38-07:04/26 17:04	06:52 15:33-16:06/33 16:33	07:17 15:37-16:10/33 16:35
26	05:48 19:10-19:25/15 20:18	06:17 19:39	06:47 07:15-08:25/70 18:49	06:18 06:39-07:01/22 17:02	06:54 15:34-16:07/33 16:33	07:17 15:38-16:10/32 16:36
27	05:48 19:09-19:25/16 20:17	06:18 19:38	06:48 07:15-08:25/70 18:47	06:19 06:40-06:58/18 17:01	06:55 15:34-16:06/32 16:33	07:18 15:38-16:10/32 16:36
28	05:49 19:08-19:24/16 20:16	06:19 18:29-18:38/9 19:36	06:49 07:14-08:25/71 18:45	06:20 15:44-15:58/14 17:00	06:56 15:33-16:05/32 16:32	07:18 15:39-16:12/33 16:37
29	05:50 19:08-19:24/16 20:15	06:20 18:25-18:41/16 19:34	06:50 07:13-08:26/73 18:44	06:21 15:41-16:00/19 16:58	06:57 15:33-16:06/33 16:32	07:18 15:40-16:12/32 16:38
30	05:51 19:07-19:23/16 20:14	06:21 18:22-18:41/19 19:33	06:51 07:13-08:26/73 18:42	06:23 15:40-16:03/23 16:57	06:58 15:33-16:06/33 16:31	07:19 15:40-16:13/33 16:39
31	05:52 19:07-19:22/15 20:13	06:22 18:20-18:39/19 19:31		06:24 15:38-16:04/26 16:56		07:19 15:41-16:14/33 16:39
	Potential sun hours 457	426	375	346	300	290
	Sum of minutes with flicker 123	182	1318	1486	1317	1005

### 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:** Worst case **WTG:** AR05 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (10)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June
1	07:19 16:40	07:06 15:30-16:16/46 17:14	06:32 17:47	06:42 17:36-18:11/35 19:20	05:57 17:48-18:30/42 19:51 06:25-06:50/25	05:29 17:40-19:12/92 20:19
2	07:19 16:41	07:06 15:30-16:16/46 17:15	06:30 17:48	06:40 17:36-18:10/34 19:21	05:56 17:47-18:32/45 19:52 06:25-06:50/25	05:29 17:41-19:13/92 20:20
3	07:19 16:42	07:05 15:30-16:16/46 17:16	06:28 17:49	06:39 17:37-18:09/32 19:22	05:55 17:46-18:33/47 19:53 06:24-06:50/26	05:28 17:40-19:13/93 20:21
4	07:19 16:43	07:04 15:30-16:17/47 17:17	06:27 17:50	06:37 17:38-18:08/30 19:23	05:53 17:45-18:34/49 19:54 06:23-06:50/27	05:28 17:41-19:14/93 20:21
5	07:19 16:44	07:03 15:31-16:17/46 17:19	06:25 17:51	06:35 17:39-18:07/28 19:24	05:52 17:43-18:34/51 19:55 06:21-06:48/27	05:28 17:41-19:14/93 20:22
6	07:19 16:45	07:02 15:31-16:17/46 17:20	06:24 17:52	06:34 17:40-18:05/25 19:25	05:51 17:42-18:35/53 19:56 06:21-06:48/27	05:27 17:42-19:15/93 20:23
7	07:19 16:46	07:00 15:31-16:17/46 17:21	06:22 17:54	06:32 17:41-18:02/21 19:26	05:50 17:42-18:36/54 19:57 06:20-06:47/27	05:27 17:42-19:15/93 20:23
8	07:19 16:47	06:59 15:32-16:17/45 17:22	06:21 17:55	06:31 17:44-18:00/16 19:27	05:49 17:41-18:37/56 19:58 06:19-06:47/28	05:27 17:42-19:15/93 20:24
9	07:19 16:48	06:58 15:33-16:17/44 17:24	06:19 17:56	06:29 17:48-17:55/7 19:28	05:48 17:40-18:38/58 06:18-06:46/28 19:59 18:42-18:45/3	05:26 17:43-19:16/93 20:25
10	07:19 16:49	06:57 15:32-16:16/44 17:25	06:18 17:57	06:27 19:29	05:46 17:40-18:50/70 20:00 06:18-06:45/27	05:26 17:43-19:16/93 20:25
11	07:19 16:50	06:56 15:33-16:16/43 17:26	06:16 17:58	06:26 19:30	05:45 17:40-18:53/73 20:01 06:17-06:44/27	05:26 17:43-19:16/93 20:26
12	07:19 16:51	06:55 15:34-16:15/41 17:27	06:14 17:59	06:24 19:31	05:44 17:39-18:55/76 20:02 06:16-06:43/27	05:26 17:44-19:17/93 20:26
13	07:18 15:42-15:52/10 16:52	06:53 15:35-16:15/40 17:28	06:13 18:00	06:23 19:32	05:43 17:39-18:56/77 20:03 06:17-06:42/25	05:26 17:44-19:17/93 20:27
14	07:18 15:41-15:56/15 16:53	06:52 15:36-16:13/37 17:30	06:11 18:01	06:21 19:33	05:42 17:38-18:57/79 20:04 06:18-06:41/23	05:26 17:45-19:17/92 20:27
15	07:18 15:39-15:58/19 16:54	06:51 15:37-16:13/36 17:31	06:10 18:02	06:20 19:34	05:41 17:38-18:58/80 20:05 06:20-06:39/19	05:26 17:45-19:18/93 20:28
16	07:17 15:38-16:00/22 16:55	06:50 15:39-16:12/33 17:32	06:08 18:03	06:18 06:40-06:41/1 19:35	05:40 17:38-18:59/81 20:06 06:22-06:37/15	05:26 17:45-19:18/93 20:28
17	07:17 15:37-16:02/25 16:56	06:48 15:39-16:10/31 17:33	06:06 16:50-17:05/15 18:04	06:17 06:39-06:43/4 19:36	05:39 17:38-19:00/82 20:07 06:25-06:35/10	05:26 17:45-19:18/93 20:28
18	07:16 15:36-16:03/27 16:57	06:47 15:42-16:09/27 17:34	06:05 16:47-17:08/21 18:05	06:15 06:38-06:46/8 19:37	05:39 17:38-19:01/83 20:07	05:26 17:45-19:18/93 20:29
19	07:16 15:35-16:05/30 16:58	06:46 15:44-16:07/23 17:35	06:03 16:44-17:09/25 18:06	06:14 06:37-06:46/9 19:38	05:38 17:38-19:02/84 20:08	05:26 17:45-19:18/93 20:29
20	07:15 15:34-16:06/32 16:59	06:44 15:47-16:03/16 17:37	06:01 16:43-17:11/28 18:07	06:12 06:36-06:48/12 19:39	05:37 17:38-19:02/84 20:09	05:26 17:46-19:18/92 20:29
21	07:15 15:33-16:07/34 17:01	06:43 15:53-15:58/5 17:38	06:00 16:41-17:12/31 18:08	06:11 06:35-06:48/13 19:40	05:36 17:38-19:03/85 20:10	05:26 17:46-19:18/92 20:29
22	07:14 15:33-16:09/36 17:02	06:42 17:39	05:58 16:39-17:12/33 18:10	06:09 06:35-06:49/14 19:41	05:35 17:38-19:05/87 20:11	05:27 17:47-19:19/92 20:30
23	07:14 15:33-16:10/37 17:03	06:40 17:40	05:57 16:39-17:13/34 18:11	06:08 06:34-06:50/16 19:42	05:34 17:38-19:06/88 20:12	05:27 17:46-19:19/93 20:30
24	07:13 15:32-16:10/38 17:04	06:39 17:41	05:55 16:38-17:13/35 18:12	06:06 06:32-06:50/18 19:43	05:34 17:38-19:07/89 20:13	05:27 17:46-19:19/93 20:30
25	07:12 15:31-16:11/40 17:05	06:37 17:42	05:53 16:38-17:14/36 18:13	06:05 06:32-06:51/19 19:45	05:33 17:39-19:08/89 20:14	05:27 17:47-19:20/93 20:30
26	07:11 15:32-16:13/41 17:07	06:36 17:44	05:52 16:37-17:14/37 18:14	06:04 18:02-18:17/15 19:46 06:31-06:51/20	05:32 17:39-19:09/90 20:15	05:28 17:47-19:20/93 20:30
27	07:11 15:31-16:13/42 17:08	06:34 17:45	05:50 16:36-17:13/37 18:15	06:02 17:58-18:22/24 19:47 06:29-06:51/22	05:32 17:39-19:10/91 20:15	05:28 17:47-19:20/93 20:30
28	07:10 15:31-16:14/43 17:09	06:33 17:46	05:48 16:36-17:14/38 18:16	06:01 17:55-18:25/30 19:48 06:29-06:51/22	05:31 17:39-19:10/91 20:16	05:28 17:48-19:21/93 20:30
29	07:09 15:31-16:14/43 17:10		06:47 17:36-18:13/37 19:17	06:00 17:53-18:27/34 19:49 06:28-06:51/23	05:31 17:39-19:10/91 20:17	05:29 17:47-19:20/93 20:30
30	07:08 15:30-16:15/45 17:11		06:45 17:35-18:12/37 19:18	05:58 17:50-18:28/38 19:50 06:26-06:50/24	05:30 17:40-19:11/91 20:18	05:29 17:47-19:20/93 20:30
31	07:07 15:30-16:15/45 17:13		06:43 17:36-18:12/36 19:19		05:30 17:40-19:12/92 20:19	20:30
Potential sun hours	299	298	370	398	446	450
Sum of minutes with flicker	624	788	480	594	2724	2784

**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:** Worst case WTG: AR05 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (10)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:30 17:48-19:21/93 20:30	05:53 17:50-19:05/75 20:12 06:27-06:54/27	06:23 19:30	06:52 18:40	06:25 15:02-15:46/44 16:55	06:59 16:31
2	05:30 17:47-19:20/93 20:30	05:54 17:50-19:03/73 20:11 06:28-06:55/27	06:24 19:28	06:53 18:39	06:26 15:01-15:46/45 16:53	07:00 16:31
3	05:31 17:48-19:21/93 20:30	05:55 17:51-19:00/69 20:10 06:29-06:56/27	06:25 19:27	17:46-17:53/7 18:37	06:54 16:52	15:02-15:47/45 16:31
4	05:31 17:47-19:20/93 20:30	05:56 17:50-18:47/57 20:09 06:29-06:57/28	06:26 19:25	17:41-17:57/16 19:25	06:55 18:35	06:28 15:01-15:47/46 16:51
5	05:32 17:48-19:21/93 20:30	05:57 17:51-18:46/55 20:07 06:29-06:57/28	06:27 19:23	17:38-17:59/21 18:34	06:56 18:34	06:29 15:01-15:47/46 16:50
6	05:32 17:48-19:21/93 20:29	05:58 17:52-18:46/54 20:06 06:30-06:57/27	06:28 19:22	17:36-18:01/25 18:32	06:57 18:32	06:31 15:01-15:47/46 16:49
7	05:33 17:48-19:21/93 20:29	05:59 17:52-18:45/53 20:05 06:31-06:58/27	06:29 19:20	17:34-18:02/28 19:20	06:58 18:30	06:32 15:00-15:47/47 16:48
8	05:34 17:48-19:21/93 20:29	06:00 17:53-18:44/51 20:04 06:31-06:58/27	06:29 19:18	17:33-18:03/30 18:29	06:59 18:29	06:33 15:01-15:47/46 16:47
9	05:34 17:48-19:20/92 20:28	06:01 17:54-18:43/49 20:03 06:32-06:59/27	06:30 19:17	17:31-18:03/32 18:27	07:00 18:27	06:34 15:01-15:47/46 16:46
10	05:35 17:48-19:21/93 20:28	06:02 17:55-18:41/46 20:01 06:33-06:59/26	06:31 19:15	17:29-18:03/34 18:26	07:01 18:26	06:35 15:01-15:47/46 16:45
11	05:36 17:48-19:21/93 20:28	06:02 17:56-18:40/44 20:00 06:34-06:59/25	06:32 19:13	17:28-18:03/35 18:24	07:02 18:24	06:36 15:01-15:46/45 16:44
12	05:36 17:48-19:20/92 20:27	06:03 17:58-18:38/40 19:59 06:34-06:59/25	06:33 19:12	17:27-18:03/36 18:23	07:03 18:23	06:38 15:02-15:47/45 16:43
13	05:37 17:48-19:20/92 20:27	06:04 17:59-18:36/37 19:58 06:35-06:59/24	06:34 19:10	17:27-18:03/36 18:21	07:04 18:21	06:39 15:03-15:46/43 16:42
14	05:38 17:48-19:20/92 20:26	06:05 18:01-18:34/33 19:56 06:36-06:59/23	06:35 19:09	17:26-18:03/37 18:20	07:05 18:20	06:40 15:03-15:46/43 16:41
15	05:38 17:48-19:20/92 20:26	06:06 18:03-18:32/29 19:55 06:37-06:59/22	06:36 19:07	17:26-18:03/37 18:18	07:06 18:18	06:41 15:03-15:45/42 16:40
16	05:39 17:48-19:19/91 20:25	06:07 18:06-18:29/23 19:54 06:37-06:58/21	06:37 19:05	17:25-18:03/38 18:16	07:07 18:16	06:42 15:05-15:46/41 16:39
17	05:40 17:48-19:18/90 20:24	06:08 18:10-18:23/13 19:52 06:38-06:58/20	06:38 19:04	17:25-18:02/37 18:15	07:08 18:15	06:43 15:05-15:45/40 16:39
18	05:41 17:48-19:18/90 20:24	06:09 06:38-06:56/18 19:51	06:39 19:02	17:25-18:01/36 18:14	07:09 18:14	06:45 15:06-15:44/38 16:38
19	05:42 17:48-19:17/89 20:23	06:10 06:38-06:56/18 19:49	06:40 19:00	17:25-18:01/36 18:12	07:10 18:12	06:46 15:07-15:44/37 16:37
20	05:42 17:48-19:16/88 20:22	06:11 06:39-06:55/16 19:48	06:41 18:58	17:25-18:00/35 18:11	07:11 18:11	06:47 15:08-15:44/36 16:36
21	05:43 17:48-19:15/87 20:22	06:12 06:40-06:54/14 19:46	06:42 18:57	17:26-17:59/33 18:09	07:12 18:09	16:21-16:31/10 16:36
22	05:44 17:48-19:14/86 20:21	06:13 06:40-06:53/13 19:45	06:43 18:55	17:26-17:57/31 18:08	07:14 18:08	16:16-16:35/19 16:35
23	05:45 17:48-19:13/85 20:20	06:14 06:40-06:52/12 19:44	06:44 18:53	17:27-17:56/29 18:06	07:15 18:06	16:13-16:37/24 16:35
24	05:46 17:48-19:13/85 20:19	06:15 06:41-06:50/9 19:42	06:45 18:52	17:28-17:54/26 18:05	07:16 18:05	16:11-16:39/28 16:34
25	05:47 17:49-19:12/83 20:18	06:16 06:41-06:48/7 19:41	06:46 18:50	17:30-17:52/22 17:04	06:17 17:04	15:10-15:41/31 16:33
26	05:48 17:48-19:11/83 20:18	06:17 06:42-06:46/4 19:39	06:47 18:48	17:32-17:49/17 18:48	06:18 17:02	15:08-15:42/34 16:33
27	05:48 17:48-19:10/82 20:17	06:18 06:42-06:43/1 19:38	06:48 18:47	17:35-17:43/8 18:47	06:19 17:01	15:06-15:43/37 16:32
28	05:49 17:48-19:09/81 20:16	06:19 19:36	06:49 18:45	06:49 18:45	06:20 17:00	15:05-15:43/38 16:32
29	05:50 17:49-19:09/80 20:15	06:20 19:34	06:50 18:44	06:50 18:44	06:21 16:58	15:04-15:44/40 16:32
30	05:51 17:49-19:08/79 20:14	06:21 19:33	06:51 18:42	06:51 18:42	06:23 16:57	15:04-15:45/41 16:31
31	05:52 17:49-19:06/77 20:13	06:22 19:31			06:24 16:56	15:03-15:46/43 16:30
Potential sun hours	457	427	375	346	300	290
Sum of minutes with flicker	2848	1344	722	345	1084	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:** Worst case WTG: AR06 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (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	07:19 16:40	07:06 07:26-07:45/19 17:14	06:31 07:14-07:37/23 17:47	06:42 19:20	05:57 06:16-07:37/81 19:51	05:29 05:50-06:25/35 20:19 06:36-07:21/45
2	07:19 16:41	07:05 07:25-07:46/21 17:15	06:30 07:18-07:34/16 17:48	06:40 19:21	05:56 06:15-07:37/82 19:52	05:29 05:50-06:25/35 20:20 06:38-07:21/43
3	07:19 16:42	07:04 07:24-07:47/23 17:16	06:28 17:49	06:39 19:22	05:55 06:14-07:37/83 19:53	05:28 05:49-06:25/36 20:21 06:38-07:20/42
4	07:19 16:43	07:03 07:23-07:48/25 17:17	06:27 17:25-17:29/4 17:50	06:37 07:02-07:10/8 19:23	05:53 06:13-07:37/84 19:54	05:28 05:49-06:25/36 20:21 06:39-07:19/40
5	07:19 16:44	07:02 07:22-07:49/27 17:19	06:25 17:24-17:30/6 17:51	06:35 06:55-07:18/23 19:24	05:52 06:14-06:17/3 19:55 06:22-07:36/74	05:27 05:49-06:26/37 20:22 06:40-07:19/39
6	07:19 16:45	07:01 07:21-07:50/29 17:20	06:24 17:23-17:31/8 17:52	06:34 06:52-07:21/29 19:25	05:51 06:22-07:35/73 19:56	05:27 05:49-06:26/37 20:23 06:41-07:19/38
7	07:19 16:46	07:00 07:20-07:51/31 17:21	06:22 17:23-17:33/10 17:54	06:32 06:50-07:24/34 19:26	05:50 06:22-07:35/73 19:57	05:27 05:48-06:26/38 20:23 06:41-07-17/36
8	07:19 16:47	06:59 07:19-07:52/33 17:22	06:21 17:22-17:33/11 17:55	06:31 06:49-07:26/37 19:27	05:49 06:22-07:35/73 19:58	05:27 05:48-06:26/38 20:24 06:42-07-17/35
9	07:19 16:48	06:58 07:18-07:52/34 17:23	06:19 17:22-17:35/13 17:56	06:29 06:47-07:28/41 19:28	05:47 06:23-07:34/71 19:59	05:26 05:48-06:27/39 20:24 06:43-07-17/34
10	07:19 16:49	06:57 07:16-07:52/36 17:25	06:18 17:22-17:36/14 17:57	06:27 06:46-07:30/44 19:29	05:46 06:23-07:34/71 20:00	05:26 05:48-06:27/39 20:25 06:44-07-16/32
11	07:19 16:50	06:56 07:15-07:52/37 17:26	06:16 17:22-17:37/15 17:58	06:26 06:44-07:31/47 19:30	05:45 06:05-06:07/2 20:01 06:23-07:33/70	05:26 05:48-06:27/39 20:26 06:45-07-16/31
12	07:18 16:51	06:55 07:14-07:53/39 17:27	06:14 17:23-17:38/15 17:59	06:24 06:43-07:33/50 19:31	05:44 06:04-06:10/6 20:02 06:23-07:33/70	05:26 05:48-06:28/40 20:26 06:46-07-16/30
13	07:18 16:52	06:53 07:13-07:53/40 17:28	06:13 17:23-17:39/16 18:00	06:23 06:41-07:33/52 19:32	05:43 06:03-06:12/9 20:03 06:24-07:32/68	05:26 05:48-06:28/40 20:27 06:47-07-15/28
14	07:18 16:53	06:52 07:11-07:52/41 17:29	06:11 17:25-17:41/16 18:01	06:21 06:40-07:34/54 19:33	05:42 06:02-06:13/11 20:04 06:24-07:32/68	05:26 05:48-06:28/40 20:27 06:48-07-15/27
15	07:18 16:54	06:51 07:10-07:52/42 17:31	06:10 17:26-17:41/15 18:02	06:20 06:38-07:35/57 19:34	05:41 06:01-06:15/14 20:05 06:24-07:31/67	05:26 05:48-06:28/40 20:27 06:48-07-15/27
16	07:17 16:55	06:50 07:09-07:53/44 17:32	06:08 17:27-17:39/12 18:03	06:18 06:37-07:36/59 19:35	05:40 06:00-06:16/16 20:06 06:25-07:31/66	05:26 05:48-06:28/40 20:28 06:49-07-15/26
17	07:17 16:56	06:48 07:07-07:52/45 17:33	06:06 17:31-17:36/5 18:04	06:17 06:35-07:36/61 19:36	05:39 05:59-06:17/18 20:06 06:25-07:30/65	05:26 05:48-06:29/41 20:28 06:49-07-14/25
18	07:16 16:57	06:47 07:06-07:52/46 17:34	06:05 18:05	06:15 06:34-07:37/63 19:37	05:38 05:59-06:18/19 20:07 06:27-07:30/63	05:26 05:48-06:29/41 20:28 06:50-07-14/24
19	07:16 16:58	06:46 07:05-07:51/46 17:35	06:03 18:06	06:14 06:32-07:37/65 19:38	05:38 05:58-06:19/21 20:08 06:27-07:29/62	05:26 05:48-06:29/41 20:29 06:50-07-14/24
20	07:15 16:59	06:44 07:03-07:50/47 17:37	06:01 18:07	06:12 06:31-07:37/66 19:39	05:37 05:57-06:19/22 20:09 06:27-07:28/61	05:26 05:48-06:29/41 20:29 06:50-07-14/24
21	07:15 17:01	06:43 07:04-07:50/46 17:38	06:00 18:08	06:11 06:29-07:37/68 19:40	05:36 05:56-06:20/24 20:10 06:28-07:28/60	05:26 05:49-06:30/41 20:29 06:50-07-14/24
22	07:14 17:02	06:42 07:05-07:50/45 17:39	05:58 18:09	06:09 06:28-07:38/70 19:41	05:35 05:56-06:21/25 20:11 06:29-07:28/59	05:27 05:49-06:30/41 20:30 06:51-07-15/24
23	07:13 17:03	06:40 07:05-07:48/43 17:40	05:56 18:11	06:08 06:27-07:38/71 19:42	05:34 05:55-06:21/26 20:12 06:29-07:27/58	05:27 05:49-06:30/41 20:30 06:51-07-15/24
24	07:13 17:04	06:39 07:07-07:47/40 17:41	05:55 18:12	06:06 06:25-07:38/73 19:43	05:34 05:54-06:21/27 20:13 06:30-07:26/56	05:27 05:49-06:30/41 20:30 06:51-07-15/24
25	07:12 17:05	06:37 07:07-07:45/38 17:42	05:53 18:13	06:05 06:24-07:38/74 19:44	05:33 05:54-06:23/29 20:14 06:31-07:26/55	05:27 05:50-06:31/41 20:30 06:52-07-16/24
26	07:11 07:32-07:35/3	06:36 07:09-07:44/35 17:43	05:52 18:14	06:04 06:23-07:37/74 19:45	05:32 05:53-06:23/30 20:14 06:31-07:25/54	05:28 05:50-06:30/40 20:30 06:51-07-16/25
27	07:11 07:31-07:37/6	06:34 07:10-07:42/32 17:45	05:50 18:15	06:02 06:21-07:38/77 19:46	05:32 05:53-06:24/31 20:15 06:33-07:25/52	05:28 05:50-06:30/40 20:30 06:51-07-17/26
28	07:10 07:30-07:39/9	06:33 07:12-07:40/28 17:46	05:48 18:16	06:01 06:20-07:38/78 19:48	05:31 05:52-06:23/31 20:16 06:33-07:24/51	05:28 05:51-06:31/40 20:30 06:51-07-18/27
29	07:09 07:29-07:41/12		06:47 19:17	06:00 06:19-07:38/79 19:49	05:31 05:52-06:24/32 20:17 06:34-07:24/50	05:29 05:51-06:31/40 20:30 06:50-07-18/28
30	07:08 07:28-07:43/15		06:45 19:18	05:58 06:17-07:37/80 19:50	05:30 05:51-06:24/33 20:18 06:35-07:22/47	05:29 05:52-06:32/40 20:30 06:50-07-19/29
31	07:07 07:27-07:44/17		06:43 19:19		05:30 05:51-06:25/34 20:18 06:36-07:22/46	
	Potential sun hours 300	298	370	398	446	450
	Sum of minutes with flicker 62	1012	199	1534	2476	2083

**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:** Worst case WTG: AR06 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (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	05:30 05:52-06:31/39 20:30 06:50-07:20/30	05:53 06:15-06:20/5 20:12 06:34-07:44/70	06:23 06:43-07:30/47 19:30	06:52 18:02-18:17/15 18:40	06:25 06:46-07:21/35 16:55	06:59 06:46-07:21/35 16:31	
2	05:30 05:52-06:31/39 20:30 06:49-07:20/31	05:54 06:16-06:17/1 20:11 06:34-07:44/70	06:24 06:44-07:28/44 19:28	06:53 18:01-18:16/15 18:39	06:26 06:47-07:21/34 16:53	07:00 06:47-07:21/34 16:31	
3	05:31 05:53-06:32/39 20:30 06:49-07:22/33	05:55 06:33-07:45/72 20:10	06:25 06:45-07:26/41 19:26	06:54 18:00-18:14/14 18:37	06:27 06:49-07:21/32 16:52	07:01 06:49-07:21/32 16:31	
4	05:31 05:54-06:32/38 20:30 06:48-07:22/34	05:56 06:32-07:44/72 20:08	06:26 06:46-07:24/38 19:25	06:55 17:59-18:12/13 18:35	06:28 06:50-07:21/31 16:51	07:02 06:50-07:21/31 16:30	
5	05:32 05:54-06:32/38 20:29 06:48-07:23/35	05:57 06:32-07:44/72 20:07	06:27 06:47-07:21/34 19:23	06:56 17:58-18:11/13 18:34	06:29 06:51-07:20/29 16:50	07:03 06:51-07:20/29 16:30	
6	05:32 05:55-06:33/38 20:29 06:48-07:25/37	05:58 06:32-07:45/73 20:06	06:28 06:48-07:18/30 19:22	06:57 17:58-18:09/11 18:32	06:31 06:52-07:19/27 16:49	07:04 06:52-07:19/27 16:30	
7	05:33 05:55-06:32/37 20:29 06:47-07:25/38	05:59 06:31-07:45/74 20:05	06:28 06:50-07:13/23 19:20	06:58 17:58-18:07/9 18:30	06:32 06:53-07:18/25 16:48	07:05 06:53-07:18/25 16:30	
8	05:34 05:56-06:33/37 20:29 06:47-07:26/39	06:00 06:22-06:28/6 20:04 06:31-07:45/74	06:29 06:56-07:06/10 19:18	06:59 17:59-18:06/7 18:29	06:33 06:55-07:18/23 16:47	07:06 06:55-07:18/23 16:30	
9	05:34 05:56-06:32/36 20:28 06:45-07:27/42	06:01 06:22-07:45/83 20:03	06:30 06:23-07:46/83 19:17	07:00 18:00-18:05/5 18:27	06:34 06:56-07:17/21 16:46	07:06 06:56-07:17/21 16:30	
10	05:35 05:57-06:32/35 20:28 06:45-07:28/43	06:02 06:23-07:46/83 20:01	06:31 06:23-07:46/83 19:15	07:01 18:01-18:03/2 18:26	06:35 06:57-07:16/19 16:45	07:07 06:57-07:16/19 16:30	
11	05:36 05:58-06:33/35 20:27 06:45-07:29/44	06:02 06:24-07:46/82 20:00	06:32 06:24-07:46/82 19:13	07:02 07:54-08:05/11 18:24	06:36 06:58-07:15/17 16:44	07:08 06:58-07:15/17 16:30	
12	05:36 05:58-06:32/34 20:27 06:44-07:29/45	06:03 06:25-07:46/81 19:59	06:33 06:25-07:46/81 19:12	07:03 07:49-08:09/20 18:23	06:37 07:00-07:14/14 16:43	07:09 07:00-07:14/14 16:30	
13	05:37 05:59-06:32/33 20:27 06:43-07:30/47	06:04 06:26-07:46/80 19:57	06:34 06:26-07:46/80 19:10	07:04 07:46-08:12/26 18:21	06:39 07:01-07:13/12 16:42	07:10 07:01-07:13/12 16:30	
14	05:38 06:00-06:33/33 20:26 06:43-07:32/49	06:05 06:27-07:46/79 19:56	06:35 06:27-07:46/79 19:08	07:05 07:44-08:14/30 18:19	06:40 07:02-07:11/9 16:41	07:10 07:02-07:11/9 16:31	
15	05:38 06:01-06:33/32 20:25 06:43-07:33/50	06:06 06:28-07:45/77 19:55	06:36 06:28-07:45/77 19:07	07:06 07:42-08:15/33 18:18	06:41 07:03-07:09/6 16:40	07:11 07:03-07:09/6 16:31	
16	05:39 06:01-06:32/31 20:25 06:41-07:33/52	06:07 06:29-07:45/76 19:53	06:37 06:29-07:45/76 19:05	07:07 07:40-08:16/36 18:16	06:42 07:05-07:08/3 16:39	07:12 07:05-07:08/3 16:31	
17	05:40 06:02-06:32/30 20:24 06:41-07:34/53	06:08 06:30-07:44/74 19:52	06:38 06:30-07:44/74 19:03	07:08 07:38-08:17/39 18:15	06:43 06:39 16:39	07:13 06:39 16:31	
18	05:41 06:03-06:32/29 20:24 06:41-07:35/54	06:09 06:30-07:44/74 19:51	06:39 06:30-07:44/74 19:02	07:09 07:38-08:19/41 18:13	06:44 06:38 16:38	07:13 06:38 16:32	
19	05:42 06:04-06:32/28 20:23 06:40-07:36/56	06:10 06:31-07:43/72 19:49	06:40 06:31-07:43/72 19:00	07:10 07:37-08:20/43 18:12	06:46 06:37 16:37	07:14 06:37 16:32	
20	05:42 06:04-06:31/27 20:22 06:39-07:36/57	06:11 06:32-07:43/71 19:48	06:41 06:32-07:43/71 18:58	07:11 07:35-08:20/45 18:11	06:47 06:36 16:36	07:14 06:36 16:32	
21	05:43 06:05-06:31/26 20:22 06:39-07:37/58	06:12 06:33-07:42/69 19:46	06:42 06:33-07:42/69 18:57	07:12 07:35-08:21/46 18:09	06:48 06:36 16:36	07:15 06:36 16:33	
22	05:44 06:06-06:30/24 20:21 06:38-07:38/60	06:13 06:34-07:42/68 19:45	06:43 06:34-07:42/68 18:55	07:14 07:34-08:21/47 18:08	06:49 06:35 16:35	07:16 06:35 16:33	
23	05:45 06:07-06:30/23 20:20 06:38-07:39/61	06:14 06:35-07:41/66 19:43	06:44 06:35-07:41/66 18:53	07:15 07:35-08:21/46 18:06	06:50 06:34 16:34	07:16 06:34 16:34	
24	05:46 06:08-06:30/22 20:19 06:38-07:39/61	06:15 06:36-07:40/64 19:42	06:45 06:36-07:40/64 18:52	07:16 07:36-08:21/45 18:05	06:51 06:34 16:34	07:16 06:34 16:34	
25	05:47 06:09-06:29/20 20:18 06:37-07:40/63	06:16 06:37-07:40/63 19:40	06:46 06:37-07:40/63 18:50	06:17 06:38-07:22/44 17:04	06:52 06:33 16:33	07:17 06:33 16:35	
26	05:47 06:10-06:28/18 20:18 06:36-07:40/64	06:17 06:38-07:39/61 19:39	06:47 06:38-07:39/61 18:48	06:18 06:39-07:22/43 17:02	06:53 06:33 16:33	07:17 06:33 16:36	
27	05:48 06:10-06:27/17 20:17 06:36-07:41/65	06:18 06:39-07:38/59 19:37	06:48 18:09-18:19/10 18:47	06:19 06:40-07:22/42 17:01	06:55 06:32 16:32	07:18 06:32 16:36	
28	05:49 06:11-06:26/15 20:16 06:35-07:41/66	06:19 06:40-07:37/57 19:36	06:49 18:07-18:21/14 18:45	06:20 06:41-07:22/41 17:00	06:56 06:32 16:32	07:18 06:32 16:37	
29	05:50 06:12-06:25/13 20:15 06:35-07:42/67	06:20 06:41-07:35/54 19:34	06:50 18:05-18:21/16 18:43	06:21 06:42-07:22/40 16:58	06:57 06:32 16:32	07:18 06:32 16:38	
30	05:51 06:13-06:23/10 20:14 06:35-07:43/68	06:21 06:41-07:33/52 19:33	06:51 18:04-18:19/15 18:42	06:22 06:44-07:22/38 16:57	06:58 06:31 16:31	07:19 06:31 16:38	
31	05:52 06:14-06:22/8 20:13 06:34-07:43/69	06:22 06:42-07:31/49 19:31		06:24 06:45-07:22/37 16:56		07:19 06:31 16:39	
	Potential sun hours	457	426	375	346	300	290
	Sum of minutes with flicker	2455	2183	322	897	337	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:** Worst case **WTG:** AR07 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (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	July	August	September	October	November	December
1	07:19	07:06	06:31	06:42	05:57	05:29 19:17-19:18/1	05:30 19:11-19:29/18	05:53	06:23	06:52	06:25	06:59
	16:40	17:14	17:47	19:20	19:51	20:19	20:30	20:12	19:30	18:40	16:54	16:31
2	07:19	07:05	06:30	06:40	05:56	05:29 19:15-19:19/4	05:30 19:11-19:28/17	05:54	06:24	06:53	06:26	07:00
	16:41	17:15	17:48	19:21	19:52	20:20	20:30	20:11	19:28	18:38	16:53	16:31
3	07:19	07:04	06:28	06:38	05:54	05:28 19:13-19:19/6	05:31 19:13-19:28/15	05:55	06:25	06:54	06:27	07:01
	16:42	17:16	17:49	19:22	19:53	20:21	20:30	20:10	19:26	18:37	16:52	16:30
4	07:19	07:03	06:27	06:37	05:53	05:28 19:12-19:20/8	05:31 19:13-19:28/15	05:56	06:26	06:55	06:28	07:02
	16:43	17:17	17:50	19:23	19:54	20:21	20:30	20:08	19:25	18:35	16:51	16:30
5	07:19	07:02	06:25	06:35	05:52	05:27 19:11-19:21/10	05:32 19:15-19:28/13	05:57	06:26	06:56	06:29	07:03
	16:44	17:19	17:51	19:24	19:55	20:22	20:29	20:07	19:23	18:34	16:50	16:30
6	07:19	07:01	06:24	06:34	05:51	05:27 19:09-19:21/12	05:32 19:15-19:27/12	05:58	06:27	06:57	06:30	07:04
	16:45	17:20	17:52	19:25	19:56	20:23	20:29	20:06	19:22	18:32	16:49	16:30
7	07:19	07:00	06:22	06:32	05:50	05:27 19:09-19:22/13	05:33 19:17-19:27/10	05:59	06:28	06:58	06:32	07:05
	16:45	17:21	17:53	19:26	19:57	20:23	20:29	20:05	19:20	18:30	16:48	16:30
8	07:19	06:59	06:21	06:30	05:49	05:27 19:08-19:22/14	05:33 19:18-19:28/10	06:00	06:29	06:59	06:33	07:05
	16:46	17:22	17:55	19:27	19:58	20:24	20:29	20:04	19:18	18:29	16:47	16:30
9	07:19	06:58	06:19	06:29	05:47	05:26 19:08-19:23/15	05:34 19:19-19:27/8	06:00	06:30	07:00	06:34	07:06
	16:47	17:23	17:56	19:28	19:59	20:24	20:28	20:03	19:17	18:27	16:46	16:30
10	07:19	06:57	06:17	06:27	05:46	05:26 19:08-19:24/16	05:35 19:21-19:27/6	06:01	06:31	07:01	06:35	07:07
	16:48	17:25	17:57	19:29	20:00	20:25	20:28	20:01	19:15	18:26	16:45	16:30
11	07:19	06:56	06:16	06:26	05:45	05:26 19:07-19:24/17	05:35 19:24-19:27/3	06:02	06:32	07:02	06:36	07:08
	16:49	17:26	17:58	19:30	20:01	20:26	20:27	20:00	19:13	18:24	16:44	16:30
12	07:18	06:55	06:14	06:24	05:44	05:26 19:07-19:25/18	05:36	06:03	06:33	07:03	06:37	07:09
	16:50	17:27	17:59	19:31	20:02	20:26	20:27	19:59	19:12	18:22	16:43	16:30
13	07:18	06:53	06:13	06:23	05:43	05:26 19:07-19:25/18	05:37	06:04	06:34	07:04	06:39	07:10
	16:52	17:28	18:00	19:32	20:03	20:26	20:26	19:57	19:10	18:21	16:42	16:30
14	07:18	06:52 07:11-07:12/1	06:11	06:21	05:42	05:26 19:07-19:26/19	05:38	06:05	06:35	07:05	06:40	07:10
	16:53	17:29	18:01	19:33	20:04	20:27	20:26	19:56	19:08	18:19	16:41	16:30
15	07:17	06:51 07:10-07:12/2	06:09	06:20	05:41	05:26 19:07-19:26/19	05:38	06:06	06:36	07:06	06:41	07:11
	16:54	17:31	18:02	19:34	20:04	20:27	20:25	19:55	19:07	18:18	16:40	16:31
16	07:17	06:50 07:09-07:12/3	06:08	06:18	05:40	05:26 19:07-19:26/19	05:39	06:07	06:37	07:07	06:42	07:12
	16:55	17:32	18:03	19:35	20:05	20:28	20:25	19:53	19:05	18:16	16:39	16:31
17	07:17	06:48 07:07-07:11/4	06:06	06:17	05:39	05:26 19:06-19:27/21	05:40	06:08	06:38	07:08	06:43	07:13
	16:56	17:33	18:04	19:36	20:06	20:28	20:24	19:52	19:03	18:15	16:38	16:31
18	07:16	06:47 07:06-07:10/4	06:05	06:15	05:38	05:26 19:06-19:27/21	05:41	06:09	06:39	07:09	06:44	07:13
	16:57	17:34	18:05	19:37	20:07	20:28	20:24	19:51	19:02	18:13	16:38	16:32
19	07:16	06:46 07:05-07:09/4	06:03	06:14	05:38	05:26 19:06-19:27/21	05:41	06:10	06:40	07:10	06:46	07:14
	16:58	17:35	18:06	19:38	20:08	20:29	20:23	19:49	19:00	18:12	16:37	16:32
20	07:15	06:44 07:03-07:06/3	06:01	06:12	05:37	05:26 19:06-19:27/21	05:42	06:11	06:41	07:11	06:47	07:14
	16:59	17:36	18:07	19:39	20:09	20:29	20:22	19:48	18:58	18:10	16:36	16:32
21	07:15	06:43	06:00	06:11	05:36	05:26 19:06-19:27/21	05:43	06:12	06:42	07:12	06:48	07:15
	17:00	17:38	18:08	19:40	20:10	20:29	20:22	19:46	18:57	18:09	16:36	16:33
22	07:14	06:42	05:58	06:09	05:35	05:26 19:07-19:28/21	05:44	06:13	06:43	07:13 07:34-07:37/3	06:49	07:15
	17:02	17:39	18:09	19:41	20:11	20:29	20:21	19:45	18:55	18:08	16:35	16:33
23	07:13	06:40	05:56	06:08	05:34	05:27 19:07-19:28/21	05:45	06:14	06:44	07:15 07:35-07:39/4	06:50	07:16
	17:03	17:40	18:10	19:42	20:12	20:30	20:20	19:43	18:53	18:06	16:34	16:34
24	07:13	06:39	05:55	06:06	05:34	05:27 19:07-19:28/21	05:46	06:15	06:45	07:16 07:36-07:40/4	06:51	07:16
	17:04	17:41	18:11	19:43	20:13	20:30	20:19	19:42	18:52	18:05	16:34	16:34
25	07:12	06:37	05:53	06:05	05:33	05:27 19:07-19:28/21	05:47	06:16	06:46	06:17 06:38-06:42/4	06:52	07:17
	17:05	17:42	18:13	19:44	20:14	20:30	20:18	19:40	18:50	17:03	16:33	16:35
26	07:11	06:36	05:52	06:04	05:32	05:28 19:08-19:29/21	05:47	06:17	06:47	06:18 06:39-06:42/3	06:53	07:17
	17:06	17:43	18:14	19:45	20:14	20:30	20:17	19:39	18:48	17:02	16:33	16:36
27	07:11	06:34	05:50	06:02	05:32	05:28 19:09-19:28/19	05:48	06:18	06:48	06:19 06:40-06:42/2	06:54	07:18
	17:08	17:45	18:15	19:46	20:15	20:30	20:17	19:37	18:47	17:01	16:32	16:36
28	07:10	06:33	05:48	06:01	05:31	05:28 19:10-19:29/19	05:49	06:19	06:49	06:20 06:41-06:42/1	06:56	07:18
	17:09	17:46	18:16	19:47	20:16	20:30	20:16	19:36	18:45	17:00	16:32	16:37
29	07:09		06:47	06:00	05:30	05:29 19:10-19:29/19	05:50	06:20	06:50	06:21	06:57	07:18
	17:10		19:17	19:48	20:17	20:30	20:15	19:34	18:43	16:58	16:32	16:38
30	07:08		06:45	05:58	05:30	05:29 19:10-19:28/18	05:51	06:21	06:51	06:22	06:58	07:19
	17:11		19:18	19:49	20:18	20:30	20:14	19:33	18:42	16:57	16:31	16:38
31	07:07		06:43		05:29		05:52	06:22		06:24		07:19
	17:12		19:19		20:18		20:13	19:31		16:56		16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Sum of minutes with flicker	0	21	0	0	0	494	127	0	0	21	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:** Worst case **WTG:** AR08 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (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	07:19	07:06	06:31	06:42	05:57	05:29	05:30	05:53 19:46-19:49/3	06:23	06:52	06:25	06:59
	16:40	17:14	17:47	19:20	19:50	20:19	20:30	20:12	19:30	18:40	16:54	16:31
2	07:19	07:05	06:30	06:40	05:56	05:29	05:30	05:54 19:44-19:47/3	06:24	06:52	06:26	07:00
	16:41	17:15	17:48	19:21	19:51	20:20	20:30	20:11	19:28	18:38	16:53	16:31
3	07:19	07:04	06:28	06:38	05:54	05:28	05:31	05:55 19:44-19:46/2	06:25	06:53	06:27	07:01
	16:42	17:16	17:49	19:22	19:52	20:21	20:30	20:09	19:26	18:37	16:52	16:30
4	07:19	07:03	06:27	06:37	05:53	05:28	05:31	05:56 19:44-19:45/1	06:25	06:55	06:28	07:02
	16:43	17:17	17:50	19:23	19:54	20:21	20:29	20:08	19:25	18:35	16:51	16:30
5	07:19	07:02	06:25	06:35	05:52	05:27	05:32	05:57 19:43-19:44/1	06:26	06:56	06:29	07:03
	16:44	17:19	17:51	19:24	19:55	20:22	20:29	20:07	19:23	18:34	16:50	16:30
6	07:19	07:01	06:24	06:34	05:51	05:27	05:32	05:58	06:27	06:57	06:30	07:04
	16:45	17:20	17:52	19:25	19:56	20:23	20:29	20:06	19:21	18:32	16:49	16:30
7	07:19	07:00	06:22	06:32	05:50	05:27	05:33	05:59	06:28	06:58	06:32	07:04
	16:45	17:21	17:53	19:26	19:57	20:23	20:29	20:05	19:20	18:30	16:48	16:30
8	07:19	06:59	06:21	06:30	05:48	05:27	05:33	05:59	06:29	06:59	06:33	07:05
	16:46	17:22	17:54	19:27	19:58	20:24	20:28	20:04	19:18	18:29	16:47	16:30
9	07:19	06:58	06:19	06:29	05:47 19:34-19:35/1	05:26	05:34	06:00	06:30	07:00	06:34	07:06
	16:47	17:23	17:56	19:28	19:59	20:24	20:28	20:02	19:17	18:27	16:46	16:30
10	07:19	06:57	06:17	06:27	05:46 19:34-19:36/2	05:26	05:35	06:01	06:31	07:01	06:35	07:07
	16:48	17:25	17:57	19:29	20:00	20:25	20:28	20:01	19:15	18:26	16:45	16:30
11	07:19	06:56	06:16	06:26	05:45 19:35-19:37/2	05:26	05:35	06:02	06:32	07:02	06:36	07:08
	16:49	17:26	17:58	19:30	20:01	20:25	20:27	20:00	19:13	18:24	16:44	16:30
12	07:18	06:54	06:14	06:24	05:44 19:35-19:38/3	05:26	05:36	06:03	06:33	07:03	06:37	07:09
	16:50	17:27	17:59	19:31	20:02	20:26	20:27	19:59	19:12	18:22	16:43	16:30
13	07:18	06:53	06:13	06:23	05:43 19:36-19:39/3	05:26	05:37	06:04	06:34	07:04	06:39	07:10
	16:52	17:28	18:00	19:32	20:02	20:26	20:26	19:57	19:10	18:21	16:42	16:30
14	07:18	06:52	06:11	06:21	05:42 19:37-19:40/3	05:26	05:38	06:05	06:35	07:05	06:40	07:10
	16:53	17:29	18:01	19:33	20:03	20:27	20:26	19:56	19:08	18:19	16:41	16:30
15	07:17	06:51	06:09	06:20	05:41 19:38-19:41/3	05:26	05:38	06:06	06:36	07:06	06:41	07:11
	16:54	17:31	18:02	19:34	20:04	20:27	20:25	19:55	19:07	18:18	16:40	16:31
16	07:17	06:50	06:08	06:18	05:40 19:39-19:42/3	05:26	05:39	06:07	06:37	07:07	06:42	07:12
	16:55	17:32	18:03	19:35	20:05	20:28	20:25	19:53	19:05	18:16	16:39	16:31
17	07:17	06:48	06:06	06:17	05:39 19:40-19:42/2	05:26	05:40	06:08	06:38	07:08	06:43	07:12
	16:56	17:33	18:04	19:36	20:06	20:28	20:24	19:52	19:03	18:15	16:38	16:31
18	07:16	06:47	06:05	06:15	05:38 19:42-19:43/1	05:26	05:41	06:09	06:39	07:09	06:44	07:13
	16:57	17:34	18:05	19:37	20:07	20:28	20:24	19:51	19:02	18:13	16:38	16:32
19	07:16	06:46	06:03	06:14	05:38	05:26	05:41	06:10	06:40	07:10	06:45	07:14
	16:58	17:35	18:06	19:38	20:08	20:29	20:23	19:49	19:00	18:12	16:37	16:32
20	07:15	06:44	06:01	06:12	05:37	05:26	05:42	06:11	06:41	07:11	06:47	07:14
	16:59	17:36	18:07	19:39	20:09	20:29	20:22	19:48	18:58	18:10	16:36	16:32
21	07:15	06:43	06:00	06:11	05:36	05:26	05:43	06:12	06:42	07:12	06:48	07:15
	17:00	17:38	18:08	19:40	20:10	20:29	20:21	19:46	18:57	18:09	16:36	16:33
22	07:14	06:41	05:58	06:09	05:35	05:26	05:44	06:13	06:43	07:13	06:49	07:15
	17:02	17:39	18:09	19:41	20:11	20:29	20:21	19:45	18:55	18:08	16:35	16:33
23	07:13	06:40	05:56	06:08	05:34	05:27	05:45	06:14	06:44	07:14	06:50	07:16
	17:03	17:40	18:10	19:42	20:12	20:30	20:20	19:43	18:53	18:06	16:34	16:34
24	07:13	06:39	05:55	06:06	05:34	05:27	05:46	06:15	06:45	07:16	06:51	07:16
	17:04	17:41	18:11	19:43	20:13	20:30	20:19	19:42	18:52	18:05	16:34	16:34
25	07:12	06:37	05:53	06:05	05:33	05:27	05:46	06:16	06:46	06:17	06:52	07:17
	17:05	17:42	18:12	19:44	20:14	20:30	20:18	19:40	18:50	17:03	16:33	16:35
26	07:11	06:36	05:51	06:04	05:32	05:28	05:47 19:52-19:53/1	06:17	06:47	06:18	06:53	07:17
	17:06	17:43	18:13	19:45	20:14	20:30	20:17	19:39	18:48	17:02	16:33	16:36
27	07:10	06:34	05:50	06:02	05:32	05:28	05:48 19:50-19:53/3	06:18	06:48	06:19	06:54	07:18
	17:08	17:44	18:15	19:46	20:15	20:30	20:16	19:37	18:47	17:01	16:32	16:36
28	07:10	06:33	05:48	06:01	05:31	05:28	05:49 19:49-19:52/3	06:19	06:49	06:20	06:55	07:18
	17:09	17:46	18:16	19:47	20:16	20:30	20:16	19:36	18:45	16:59	16:32	16:37
29	07:09		06:47	06:00	05:30	05:29	05:50 19:48-19:51/3	06:20	06:50	06:21	06:57	07:18
	17:10		19:17	19:48	20:17	20:30	20:15	19:34	18:43	16:58	16:32	16:38
30	07:08		06:45	05:58	05:30	05:29	05:51 19:47-19:50/3	06:21	06:51	06:22	06:58	07:18
	17:11		19:18	19:49	20:18	20:30	20:14	19:33	18:42	16:57	16:31	16:38
31	07:07		06:43		05:29		05:52 19:46-19:49/3	06:22		06:23		07:19
	17:12		19:19		20:18		20:13	19:31		16:56		16:39
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290
Sum of minutes with flicker	0	0	0	0	23	0	16	10	0	0	0	0

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

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

## SHADOW - Calendar per WTG

**Calculation:** Worst case WTG: AR09 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June
1	07:19 16:40	07:06 07:33-08:08/35 17:14	06:31 07:04-07:30/26 17:47 07:31-07:50/19	06:42 19:20	05:57 19:50	05:29 20:19
2	07:19 16:41	07:05 07:33-08:08/35 17:15	06:30 07:05-07:29/24 07:35-07:47/12 17:48 17:24-17:26/2	06:40 19:21	05:56 19:51	05:28 20:20
3	07:19 16:42	07:04 07:33-08:07/34 17:16	06:28 07:06-07:27/21 17:49 17:23-17:28/5	06:38 19:22	05:54 19:52	05:28 20:21
4	07:19 16:43	07:03 07:33-08:07/34 17:17	06:27 07:07-07:25/18 17:21-17:29/8 17:50 16:58-16:59/1	06:37 19:23	05:53 19:53	05:28 20:21
5	07:19 16:44	07:02 07:31-08:06/35 17:18	06:25 07:09-07:23/14 17:21-17:30/9 17:51 16:59-17:01/2	06:35 19:24	05:52 19:54	05:27 20:22
6	07:19 16:44	07:01 07:30-08:06/36 17:20	06:24 07:13-07:18/5 17:19-17:31/12 17:52 16:59-17:02/3	06:34 19:25	05:51 19:56	05:27 20:23
7	07:19 16:45	07:00 07:28-08:05/37 17:21	06:22 17:11-17:12/1 17:19-17:33/14 17:53 17:01-17:04/3	06:32 19:26	05:50 19:57	05:27 20:23
8	07:19 16:46	06:59 07:27-08:03/36 17:22	06:21 17:11-17:12/1 17:18-17:33/15 17:54 17:02-17:05/3	06:30 19:27	05:48 19:58	05:27 20:24
9	07:19 16:47	06:58 07:26-08:01/35 17:23	06:19 17:12-17:13/1 17:17-17:34/17 17:56 17:03-17:06/3	06:29 19:28	05:47 19:59	05:26 20:24
10	07:19 16:48	06:57 07:25-08:00/35 17:25	06:17 17:14-17:15/1 17:17-17:36/19 17:57 17:06-17:09/3	06:27 19:29	05:46 20:00	05:26 20:25
11	07:19 16:49	06:56 07:25-08:01/36 17:26	06:16 17:16-17:37/21 17:58	06:26 19:30	05:45 20:01	05:26 20:25
12	07:18 16:50	06:54 07:19-08:01/42 17:27	06:14 17:16-17:38/22 17:59	06:24 19:31	05:44 20:01	05:26 20:26
13	07:18 16:51	06:53 07:15-08:02/47 17:28	06:13 17:15-17:39/24 18:00	06:23 19:32	05:43 20:02	05:26 20:26
14	07:18 07:47-07:51/4 16:53	06:52 07:13-08:02/49 17:29	06:11 17:15-17:40/25 18:01	06:21 19:33	05:42 20:03	05:26 20:27
15	07:17 07:43-07:54/11 16:54	06:51 07:11-08:02/51 17:31	06:09 17:15-17:41/26 18:02	06:20 19:34	05:41 20:04	05:26 20:27
16	07:17 07:42-07:56/14 16:55	06:49 07:11-08:03/52 17:32	06:08 17:15-17:42/27 18:03	06:18 19:35	05:40 20:05	05:26 20:28
17	07:17 07:41-07:57/16 16:56	06:48 07:09-08:02/53 17:33	06:06 17:15-17:44/29 18:04	06:16 19:36	05:39 20:06	05:26 20:28
18	07:16 07:41-07:59/18 16:57	06:47 07:08-08:02/54 17:34	06:05 17:15-17:44/29 18:05	06:15 19:37	05:38 20:07	05:26 20:28
19	07:16 07:40-08:00/20 16:58	06:46 07:07-08:02/55 17:35	06:03 17:15-17:45/30 18:06	06:14 19:38	05:37 20:08	05:26 20:29
20	07:15 07:40-08:02/22 16:59	06:44 07:06-08:02/56 17:36	06:01 17:16-17:47/31 18:07	06:12 19:39	05:37 20:09	05:26 20:29
21	07:15 07:40-08:03/23 17:00	06:43 07:05-08:01/56 17:38	06:00 17:16-17:48/32 18:08	06:11 19:40	05:36 20:10	05:26 20:29
22	07:14 07:39-08:03/24 17:02	06:41 07:04-08:00/56 17:39	05:58 17:16-17:48/32 18:09	06:09 19:41	05:35 20:11	05:26 20:29
23	07:13 07:39-08:05/26 17:03	06:40 07:04-08:00/56 17:40	05:56 17:17-17:50/33 18:10	06:08 19:42	05:34 20:12	05:27 20:30
24	07:13 07:37-08:05/28 17:04	06:39 07:04-07:59/55 17:41	05:55 17:18-17:51/33 18:11	06:06 19:43	05:34 20:13	05:27 20:30
25	07:12 07:36-08:06/30 17:05	06:37 07:03-07:58/55 17:42	05:53 17:19-17:51/32 18:12	06:05 19:44	05:33 20:13	05:27 20:30
26	07:11 07:35-08:06/31 17:06	06:36 07:03-07:57/54 17:43	05:51 17:20-17:53/33 18:13	06:04 19:45	05:32 20:14	05:28 20:30
27	07:10 07:35-08:07/32 17:08	06:34 07:03-07:55/52 17:44	05:50 17:21-17:54/33 18:14	06:02 19:46	05:32 20:15	05:28 20:30
28	07:10 07:34-08:08/34 17:09	06:33 07:04-07:53/49 17:46	05:48 17:22-17:54/32 18:16	06:01 19:47	05:31 20:16	05:28 20:30
29	07:09 07:34-08:08/34 17:10		06:47 18:25-18:54/29 19:17	06:00 19:48	05:30 20:17	05:29 20:30
30	07:08 07:33-08:08/35 17:11		06:45 18:27-18:50/23 19:18	05:58 19:49	05:30 20:18	05:29 20:30
31	07:07 07:33-08:08/35 17:12		06:43 18:31-18:45/14 19:19		05:29 20:18	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	437	1280	852	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:** Worst case **WTG:** AR09 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)

### Assumptions for shadow calculations

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

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

	July	August	September	October	November	December
1	05:30 20:30	05:53 20:12	06:23 19:29	06:51 17:55-18:17/22 18:40	06:25 06:55-07:30/35 16:54	06:59 16:31
2	05:30 20:30	05:54 20:11	06:24 19:28	06:52 17:54-18:16/22 18:38	06:26 06:56-07:31/35 16:53	07:00 16:31
3	05:31 20:30	05:55 20:09	06:24 19:26	06:53 17:46-17:47/1 18:37 17:54-18:14/20	06:27 06:56-07:32/36 16:52	07:01 16:30
4	05:31 20:29	05:56 20:08	06:25 19:25	06:54 17:50-17:51/1 17:54-18:12/18 18:35 17:42-17:45/3	06:28 06:58-07:35/37 16:51	07:02 16:30
5	05:32 20:29	05:57 20:07	06:26 19:23	06:55 17:48-17:50/2 17:54-18:11/17 18:33 17:39-17:43/4	06:29 07:00-07:36/36 16:50	07:03 16:30
6	05:32 20:29	05:58 20:06	06:27 19:21	06:57 17:47-17:48/1 17:54-18:09/15 18:32 17:37-17:41/4	06:30 07:01-07:36/35 16:49	07:04 16:30
7	05:33 20:29	05:58 20:05	06:28 19:20	06:58 17:35-17:38/3 18:30 17:55-18:07/12	06:32 07:03-07:37/34 16:48	07:04 16:30
8	05:33 20:28	05:59 20:04	06:29 19:18	06:59 07:45-07:56/11 17:55-18:06/11 18:29 17:34-17:36/2	06:33 07:04-07:38/34 16:47	07:05 16:30
9	05:34 20:28	06:00 20:02	06:30 19:17	07:00 07:43-08:00/17 17:55-18:04/9 18:27 17:33-17:34/1	06:34 07:04-07:38/34 16:46	07:06 16:30
10	05:35 20:28	06:01 20:01	06:31 19:15	07:01 07:41-08:01/20 18:26 17:57-18:03/6	06:35 07:04-07:39/35 16:45	07:07 16:30
11	05:35 20:27	06:02 20:00	06:32 19:13	07:02 07:39-08:02/23 18:24 17:58-18:02/4	06:36 07:04-07:39/35 16:44	07:08 16:30
12	05:36 20:27	06:03 19:59	06:33 18:24-18:36/12 19:12	07:03 07:38-08:03/25 08:07-08:22/15 18:22 17:59-18:00/1	06:37 07:05-07:40/35 16:43	07:09 16:30
13	05:37 20:26	06:04 19:57	06:34 18:19-18:41/22 19:10	07:04 07:37-08:24/47 18:21	06:39 07:06-07:40/34 16:42	07:10 16:30
14	05:37 20:26	06:05 19:56	06:35 18:16-18:44/28 19:08	07:05 07:36-08:26/50 18:19	06:40 07:06-07:40/34 16:41	07:10 16:30
15	05:38 20:25	06:06 19:55	06:36 18:13-18:45/32 19:07	07:06 07:35-08:28/53 18:18	06:41 07:07-07:39/32 16:40	07:11 16:31
16	05:39 20:25	06:07 19:53	06:37 18:11-18:43/32 19:05	07:07 07:35-08:29/54 18:16	06:42 07:09-07:40/31 16:39	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 18:09-18:41/32 19:03	07:08 07:34-08:30/56 18:15	06:43 07:10-07:40/30 16:38	07:12 16:31
18	05:41 20:24	06:09 19:51	06:39 18:07-18:40/33 19:02	07:09 07:34-08:30/56 18:13	06:44 07:11-07:39/28 16:38	07:13 16:32
19	05:41 20:23	06:10 19:49	06:40 18:06-18:38/32 19:00	07:10 07:35-08:31/56 18:12	06:45 07:13-07:39/26 16:37	07:14 16:32
20	05:42 20:22	06:11 19:48	06:41 18:04-18:37/33 18:58	07:11 07:36-08:32/56 18:10	06:47 07:14-07:38/24 16:36	07:14 16:32
21	05:43 20:21	06:12 19:46	06:42 18:03-18:35/32 18:57	07:12 07:36-08:32/56 18:09	06:48 07:16-07:39/23 16:36	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:01-18:32/31 18:55	07:13 07:37-08:32/55 18:08	06:49 07:16-07:38/22 16:35	07:15 16:33
23	05:45 20:20	06:14 19:43	06:44 18:00-18:31/31 18:53	07:14 07:37-08:32/55 18:06	06:50 07:17-07:37/20 16:34	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 17:59-18:29/30 18:52	07:16 07:38-08:32/54 18:05	06:51 07:18-07:37/19 16:34	07:16 16:34
25	05:46 20:18	06:16 19:40	06:46 17:58-18:27/29 18:50	06:17 06:39-07:32/53 17:03	06:52 07:19-07:36/17 16:33	07:17 16:35
26	05:47 20:17	06:17 19:39	06:47 17:57-18:26/29 18:48	06:18 06:41-07:32/51 17:02	06:53 07:20-07:34/14 16:33	07:17 16:36
27	05:48 20:16	06:18 19:37	06:48 17:56-18:24/28 18:47	06:19 06:41-07:32/51 17:01	06:54 07:23-07:34/11 16:32	07:18 16:36
28	05:49 20:16	06:19 19:36	06:49 17:56-18:22/26 18:45	06:20 06:43-07:31/48 16:59	06:55 07:26-07:31/5 16:32	07:18 16:37
29	05:50 20:15	06:20 19:34	06:49 17:55-18:21/26 18:43	06:21 06:45-07:31/46 16:58	06:57 16:32	07:18 16:38
30	05:51 20:14	06:21 19:33	06:50 17:55-18:19/24 18:42	06:22 06:49-06:52/3 16:57 06:53-07:30/37	06:58 16:31	07:18 16:38
31	05:52 20:13	06:22 19:31		06:23 06:54-07:30/36 16:56		07:19 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	0	0	542	1263	791	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:** Worst case WTG: AR10 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)

### Assumptions for shadow calculations

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

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

	January	February	March	April	May	June
1	07:19 15:33-15:57/24 16:40	07:06 07:26-08:02/36 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 19:23-19:45/22 20:19
2	07:19 15:34-15:58/24 16:41	07:05 07:25-08:01/36 17:15	06:30 17:48	06:40 19:21	05:56 19:51	05:28 19:24-19:46/22 20:20
3	07:19 15:35-15:59/24 16:42	07:04 07:24-07:43/19 17:16 07:45-08:00/15	06:28 17:49	06:38 19:22	05:54 19:52	05:28 19:23-19:46/23 20:20
4	07:19 15:35-16:00/25 16:43	07:03 07:24-07:44/20 17:17 07:47-07:58/11	06:27 17:50	06:37 19:23	05:53 19:53	05:28 19:24-19:46/22 20:21
5	07:19 15:36-16:01/25 16:44	07:02 07:24-07:44/20 17:18	06:25 17:51	06:35 19:24	05:52 19:54	05:27 19:24-19:47/23 20:22
6	07:19 15:37-16:02/25 16:44	07:01 07:24-07:44/20 17:20	06:24 17:52	06:34 19:25	05:51 19:55	05:27 19:23-19:47/24 20:22
7	07:19 15:38-16:03/25 16:45	07:00 07:24-07:44/20 17:21	06:22 17:53	06:32 19:26	05:50 19:56	05:27 19:24-19:48/24 20:23
8	07:19 15:39-16:04/25 16:46	06:59 07:25-07:44/19 17:22	06:21 17:54	06:30 19:27	05:48 19:57	05:26 19:24-19:49/25 20:24
9	07:19 15:39-16:05/26 16:47	06:58 07:25-07:42/17 17:23	06:19 17:56	06:29 19:28	05:47 19:58	05:26 19:25-19:49/24 20:24
10	07:19 15:40-16:06/26 16:48	06:57 07:26-07:42/16 17:25	06:17 17:57	06:27 19:29	05:46 19:59	05:26 19:25-19:50/25 20:25
11	07:19 15:42-16:06/24 16:49	06:56 07:28-07:41/13 17:26	06:16 17:58	06:26 19:30	05:45 20:00	05:26 19:25-19:51/26 20:25
12	07:18 15:42-16:05/23 16:50 07:43-07:51/8	06:54 07:30-07:39/9 17:27	06:14 17:59	06:24 19:31	05:44 20:01	05:26 19:26-19:51/25 20:26
13	07:18 15:44-16:04/20 16:51 07:42-07:52/10	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:02	05:26 19:25-19:51/26 20:26
14	07:18 15:46-16:04/18 16:53 07:42-07:54/12	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	05:26 19:25-19:51/26 20:27
15	07:17 15:47-16:03/16 16:54 07:41-07:55/14	06:51 17:31	06:09 18:02	06:19 19:34	05:41 20:04	05:26 19:25-19:52/27 20:27
16	07:17 15:50-16:02/12 16:55 07:42-07:57/15	06:49 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 19:26-19:53/27 20:28
17	07:17 15:53-15:58/5 16:56 07:41-07:57/16	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06	05:26 19:27-19:53/26 20:28
18	07:16 07:41-07:59/18 16:57	06:47 17:34	06:04 18:05	06:15 19:37	05:38 20:07	05:26 19:27-19:53/26 20:28
19	07:16 07:41-07:59/18 16:58	06:46 17:35	06:03 18:06	06:13 19:38	05:37 20:08	05:26 19:27-19:54/27 20:29
20	07:15 07:41-08:01/20 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 19:27-19:54/27 20:29
21	07:15 07:40-08:01/21 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 19:27-19:28/1 20:10	05:26 19:27-19:54/27 20:29
22	07:14 07:39-08:01/22 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 19:26-19:28/2 20:11	05:26 19:27-19:54/27 20:29
23	07:13 07:39-08:03/24 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 19:26-19:30/4 20:12	05:27 19:28-19:55/27 20:30
24	07:13 07:39-08:03/24 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 19:25-19:30/5 20:13	05:27 19:28-19:54/26 20:30
25	07:12 07:38-08:03/25 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 19:24-19:31/7 20:13 19:38-19:40/2	05:27 19:28-19:54/26 20:30
26	07:11 07:38-08:03/25 17:06	06:36 17:43	05:51 18:13	06:04 19:45	05:32 19:24-19:32/8 20:14 19:37-19:41/4	05:28 19:29-19:55/26 20:30
27	07:10 07:39-08:04/25 17:08	06:34 17:44	05:50 18:14	06:02 19:46	05:32 19:24-19:32/8 20:15 19:36-19:42/6	05:28 19:28-19:55/27 20:30
28	07:10 07:31-07:35/4 17:09 07:40-08:04/24	06:33 17:46	05:48 18:15	06:01 19:47	05:31 19:24-19:34/10 20:16 19:36-19:43/7	05:28 19:28-19:54/26 20:30
29	07:09 07:29-07:38/9 17:10 07:40-08:03/23		06:47 19:17	05:59 19:48	05:30 19:23-19:34/11 20:17 19:35-19:43/8	05:29 19:29-19:55/26 20:30
30	07:08 07:28-07:40/12 17:11 07:41-08:03/22		06:45 19:18	05:58 19:49	05:30 19:24-19:44/20 20:18	05:29 19:29-19:54/25 20:30
31	07:07 07:27-08:03/36 17:12		06:43 19:19		05:29 19:23-19:44/21 20:18	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	794	271	0	0	124	760

**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:** Worst case WTG: AR10 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)

### Assumptions for shadow calculations

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

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

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

The WTG is always operating

	July	August	September	October	November	December
1	05:30 19:29-19:55/26 20:30	05:53 20:12	06:23 19:29	06:51 18:40	06:25 06:56-07:12/16 16:54	06:59 15:24-15:48/24 16:31 07:28-07:29/1
2	05:30 19:29-19:54/25 20:30	05:54 20:10	06:24 19:28	06:52 18:38	06:26 06:55-07:12/17 16:53	07:00 15:24-15:49/25 16:31
3	05:31 19:30-19:55/25 20:30	05:55 20:09	06:24 19:26	06:53 18:37	06:27 06:54-07:13/19 16:52	07:01 15:23-15:49/26 16:30
4	05:31 19:29-19:54/25 20:29	05:56 20:08	06:25 19:25	06:54 18:35	06:28 06:54-07:14/20 16:51	07:02 15:23-15:48/25 16:30
5	05:32 19:30-19:54/24 20:29	05:57 20:07	06:26 19:23	06:55 18:33	06:29 06:54-07:14/20 16:50	07:03 15:23-15:48/25 16:30
6	05:32 19:30-19:54/24 20:29	05:58 20:06	06:27 19:21	06:56 18:32	06:30 06:54-07:14/20 16:49 07:21-07:24/3	07:03 15:23-15:48/25 16:30
7	05:33 19:30-19:54/24 20:29	05:58 20:05	06:28 19:20	06:57 18:30	06:31 06:54-07:13/19 16:48 07:17-07:28/11	07:04 15:23-15:48/25 16:30
8	05:33 19:31-19:54/23 20:28	05:59 20:04	06:29 19:18	06:59 18:29	06:33 06:55-07:14/19 16:47 07:16-07:31/15	07:05 15:24-15:48/24 16:30
9	05:34 19:30-19:53/23 20:28	06:00 20:02	06:30 19:17	07:00 18:27	06:34 06:56-07:13/17 16:46 07:14-07:32/18	07:06 15:24-15:48/24 16:30
10	05:35 19:31-19:53/22 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 06:57-07:33/36 16:45	07:07 15:23-15:47/24 16:30
11	05:35 19:32-19:53/21 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 06:58-07:34/36 16:44	07:08 15:24-15:47/23 16:30
12	05:36 19:31-19:52/21 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 07:00-07:11/11 16:43 07:12-07:35/23	07:09 15:24-15:48/24 16:30
13	05:37 19:32-19:52/20 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:38 07:01-07:10/9 16:42 07:12-07:35/23	07:10 15:25-15:48/23 16:30
14	05:37 19:32-19:43/11 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 07:03-07:07/4 16:41 07:12-07:36/24	07:10 15:24-15:47/23 16:30
15	05:38 19:32-19:42/10 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 07:11-07:36/25 16:40	07:11 15:25-15:48/23 16:31
16	05:39 19:33-19:42/9 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 07:12-07:37/25 16:39	07:12 15:25-15:48/23 16:31
17	05:40 19:33-19:42/9 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 07:12-07:37/25 16:38	07:12 15:26-15:49/23 16:31
18	05:41 19:34-19:41/7 20:23	06:09 19:50	06:39 19:02	07:09 18:13	06:44 07:13-07:37/24 16:38	07:13 15:26-15:48/22 16:32
19	05:41 19:34-19:40/6 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:45 07:13-07:37/24 16:37	07:14 15:27-15:49/22 16:32
20	05:42 19:35-19:39/4 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 07:14-07:36/22 16:36	07:14 15:27-15:49/22 16:32
21	05:43 19:36-19:39/3 20:21	06:12 19:46	06:42 18:57	07:12 18:09	06:48 07:16-07:37/21 16:36	07:15 15:28-15:50/22 16:33
22	05:44 19:37-19:38/1 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 07:17-07:37/20 16:35	07:15 15:28-15:50/22 16:33
23	05:45 20:20	06:14 19:43	06:44 18:53	07:14 18:06	06:50 07:18-07:37/19 16:34	07:16 15:29-15:51/22 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 07:18-07:36/18 16:34	07:16 15:29-15:51/22 16:34
25	05:46 20:18	06:16 19:40	06:46 18:50	07:17 17:03	06:52 15:31-15:36/5 16:33 07:19-07:36/17	07:17 15:29-15:51/22 16:35
26	05:47 20:17	06:17 19:39	06:47 18:48	07:18 17:02	06:53 15:28-15:40/12 16:33 07:20-07:35/15	07:17 15:30-15:53/23 16:36
27	05:48 20:16	06:18 19:37	06:48 18:47	07:19 17:01	06:54 15:26-15:42/16 16:32 07:21-07:35/14	07:17 15:30-15:53/23 16:36
28	05:49 20:15	06:19 19:36	06:48 18:45	07:20 16:59	06:55 15:26-15:44/18 16:32 07:22-07:35/13	07:18 15:31-15:53/22 16:37
29	05:50 20:15	06:20 19:34	06:49 18:43	07:21 07:02-07:04/2 16:58	06:56 15:25-15:45/20 16:32 07:23-07:34/11	07:18 15:32-15:55/23 16:38
30	05:51 20:14	06:21 19:33	06:50 18:42	07:22 06:58-07:08/10 16:57	06:58 15:24-15:47/23 16:31 07:24-07:32/8	07:18 15:32-15:56/24 16:38
31	05:52 20:13	06:22 19:31	06:51 18:41	07:23 06:57-07:11/14 16:56	06:59 15:24-15:47/23 16:30	07:19 15:33-15:56/23 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	393	0	0	26	775	724

**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:** Worst case **WTG:** AR11 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (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
1	07:19 07:41-07:56/15 16:40	07:06 07:46-07:50/4 17:14	06:31 06:42 17:47	06:42 06:40 19:20	05:57 06:35-06:44/9 19:50	05:29 05:50-06:29/39 20:19
2	07:19 07:41-07:57/16 16:41	07:05 07:04 17:15	06:30 06:38 17:48	06:40 06:37 19:21	05:56 06:34-06:44/10 19:51	05:28 05:50-06:29/39 20:20
3	07:19 07:41-07:57/16 16:42	07:04 07:03 17:16	06:28 06:27 17:49	06:38 06:37 19:22	05:54 06:32-06:45/13 19:52	05:28 05:49-06:29/40 20:20
4	07:19 07:41-07:58/17 16:43	07:03 07:01 17:17	06:27 06:25 17:50	06:37 06:35 19:23	05:53 06:30-06:44/14 19:53	05:28 05:49-06:29/40 20:21
5	07:19 07:41-07:59/18 16:43	07:02 07:01 17:18	06:25 06:24 17:51	06:35 06:34 19:24	05:52 06:28-06:44/16 19:54	05:27 05:49-06:30/41 20:22
6	07:19 07:41-07:59/18 16:44	07:01 07:00 17:20	06:24 06:22 17:52	06:34 06:32 19:25	05:51 06:28-06:44/16 19:55	05:27 05:48-06:29/41 20:22
7	07:19 07:41-08:00/19 16:45	07:00 07:01 17:21	06:22 06:21 17:53	06:32 06:30 19:26	05:50 06:27-06:44/17 19:56	05:27 05:48-06:29/41 20:23
8	07:19 07:41-08:01/20 16:46	06:59 06:58 17:22	06:20 06:19 17:54	06:30 06:29 19:27	05:48 06:27-06:44/17 19:57	05:26 05:48-06:30/42 20:24
9	07:19 07:40-08:00/20 16:47	06:58 06:57 17:23	06:19 06:18 17:55	06:29 06:28 19:28	05:47 06:26-06:44/18 19:58	05:26 05:48-06:30/42 20:24
10	07:19 07:40-08:01/21 16:48	06:57 06:56 17:24	06:17 06:16 17:57	06:27 06:26 19:29	05:46 06:26-06:43/17 19:59	05:26 05:48-06:30/42 20:25
11	07:18 07:40-08:02/22 16:49	06:56 06:54 17:26	06:16 06:14 17:58	06:26 06:24 19:30	05:45 06:25-06:43/18 20:00	05:26 05:48-06:30/42 20:25
12	07:18 07:39-08:01/22 16:50	06:54 06:53 17:27	06:14 06:13 17:59	06:24 06:23 19:31	05:44 06:24-06:42/18 20:01	05:26 05:48-06:31/43 20:26
13	07:18 07:39-08:02/23 16:51	06:53 06:52 17:28	06:13 06:11 18:00	06:23 06:21 19:32	05:43 06:24-06:41/17 20:02	05:26 05:48-06:31/43 20:26
14	07:18 07:39-08:03/24 16:53	06:52 06:51 17:29	06:11 06:10 18:01	06:21 06:19 19:33	05:42 06:24-06:40/16 20:03	05:26 05:48-06:31/43 20:27
15	07:17 07:38-08:02/24 16:54	06:51 06:49 17:30	06:09 06:08 18:02	06:19 06:18 19:34	05:41 06:25-06:39/14 20:04	05:26 05:48-06:31/43 20:27
16	07:17 07:38-08:03/25 16:55	06:49 06:48 17:32	06:08 06:06 18:03	06:18 06:16 19:35	05:40 06:27-06:37/10 20:05	05:26 05:48-06:32/44 20:28
17	07:16 07:37-08:03/26 16:56	06:48 06:47 17:33	06:06 06:04 18:04	06:16 06:15 19:36	05:39 06:30-06:34/4 20:06	05:26 05:48-06:32/44 20:28
18	07:16 07:37-08:04/27 16:57	06:47 06:45 17:34	06:04 06:03 18:05	06:15 06:13 19:37	05:38 05:58-06:12/14 20:07	05:26 05:48-06:32/44 20:28
19	07:16 07:36-08:03/27 16:58	06:45 06:44 17:35	06:03 06:01 18:06	06:13 06:12 19:38	05:37 05:58-06:15/17 20:08	05:26 05:48-06:32/44 20:29
20	07:15 07:36-08:04/28 16:59	06:44 06:43 17:36	06:01 06:00 18:07	06:12 06:11 19:39	05:37 05:57-06:17/20 20:09	05:26 05:48-06:32/44 20:29
21	07:14 07:35-08:03/28 17:00	06:43 06:41 17:38	06:00 05:58 18:08	06:11 06:09 19:40	05:36 05:56-06:18/22 20:10	05:26 05:48-06:32/44 20:29
22	07:14 07:34-08:03/29 17:02	06:41 06:39 17:39	05:58 05:56 18:09	06:09 06:08 19:41	05:35 06:22-06:24/2 20:11	05:26 05:49-06:33/44 20:29
23	07:13 07:34-08:03/29 17:03	06:40 06:39 17:40	05:56 05:55 18:10	06:08 06:06 19:42	05:34 06:22-06:25/3 20:12	05:27 05:49-06:33/44 20:29
24	07:13 07:33-08:03/30 17:04	06:39 06:37 17:41	05:55 05:53 18:11	06:06 06:05 19:43	05:34 05:54-06:26/32 20:13	05:27 05:49-06:33/44 20:30
25	07:12 07:32-08:02/30 17:05	06:37 06:36 17:42	05:53 05:51 18:12	06:05 06:03 19:44	05:33 05:54-06:27/33 20:13	05:27 05:49-06:33/44 20:30
26	07:11 07:32-08:01/29 17:06	06:36 06:34 17:43	05:51 05:50 18:13	06:03 06:02 19:45	05:32 05:53-06:27/34 20:14	05:27 05:50-06:34/44 20:30
27	07:10 07:34-08:01/27 17:07	06:34 06:33 17:44	05:50 05:48 18:14	06:02 06:01 19:46	05:32 05:52-06:27/35 20:15	05:28 05:50-06:34/44 20:30
28	07:10 07:35-08:00/25 17:09	06:33 06:32 17:46	05:48 05:47 18:15	06:01 06:00 19:47	05:31 05:52-06:28/36 20:16	05:28 05:50-06:33/43 20:30
29	07:09 07:37-07:59/22 17:10		06:46 06:45 19:16	05:59 06:37-06:41/4 19:48	05:30 05:51-06:28/37 20:17	05:29 05:51-06:34/43 20:30
30	07:08 07:39-07:57/18 17:11		06:45 06:44 19:17	05:58 06:36-06:43/7 19:49	05:30 05:51-06:28/37 20:17	05:29 05:51-06:34/43 20:30
31	07:07 07:41-07:55/14 17:12		06:43 06:42 19:19		05:29 05:50-06:28/38 20:18	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	709	4	0	13	659	1278

**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:** Worst case WTG: AR11 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (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

	July	August	September	October	November	December
1	05:29 05:52-06:35/43 20:30	05:53 06:35-06:53/18 20:11	06:22 06:51 19:29	06:51 18:40 18:40	06:25 16:54 16:54	06:59 07:22-07:44/22 16:31
2	05:30 05:52-06:34/42 20:30	05:54 06:36-06:54/18 20:10	06:23 19:28 18:38	06:52 16:53 16:53	06:26 06:27 06:27	07:00 07:23-07:44/21 16:31
3	05:30 05:53-06:35/42 20:30	05:55 06:35-06:53/18 20:09	06:24 19:26 18:37	06:53 16:52 16:52	06:27 06:28 06:28	07:01 07:24-07:44/20 16:30
4	05:31 05:53-06:35/42 20:29	05:56 06:36-06:54/18 20:08	06:25 19:25 18:35	06:54 16:51 16:51	06:28 06:29 06:29	07:02 07:25-07:45/20 16:30
5	05:32 05:54-06:36/42 20:29	05:57 06:36-06:54/18 20:07	06:26 19:23 18:33	06:55 16:50 16:50	06:29 06:30 06:30	07:02 07:26-07:45/19 16:30
6	05:32 05:54-06:35/41 20:29	05:57 06:37-06:54/17 20:06	06:27 19:21 18:32	06:56 16:49 16:49	06:30 06:31 06:31	07:03 07:27-07:45/18 16:30
7	05:33 05:55-06:36/41 20:29	05:58 06:37-06:54/17 20:05	06:28 19:20 18:30	06:57 16:48 16:48	06:31 06:32 06:32	07:04 07:28-07:46/18 16:30
8	05:33 05:56-06:36/40 20:28	05:59 06:39-06:54/15 20:04	06:29 19:18 18:29	06:58 16:46 16:46	06:33 06:34 06:34	07:05 07:29-07:46/17 16:30
9	05:34 05:56-06:36/40 20:28	06:00 06:40-06:54/14 20:02	06:30 19:16 18:27	06:59 16:45 16:45	06:34 06:35 06:35	07:06 07:30-07:46/16 16:30
10	05:35 05:57-06:36/39 20:28	06:01 06:41-06:53/12 20:01	06:31 19:15 18:25	07:01 16:44 16:44	06:35 07:16-07:21/5 07:16-07:21/5	07:07 07:30-07:46/16 16:30
11	05:35 05:58-06:37/39 20:27	06:02 06:43-06:53/10 20:00	06:32 19:13 18:24	07:02 16:43 16:43	06:36 07:12-07:26/14 07:12-07:26/14	07:08 07:31-07:46/15 16:30
12	05:36 05:58-06:36/38 20:27	06:03 06:44-06:52/8 19:59	06:33 19:12 18:22	07:03 16:43 16:43	06:37 07:09-07:28/19 07:09-07:28/19	07:09 07:32-07:47/15 16:30
13	05:37 05:59-06:37/38 20:26	06:04 06:45-06:51/6 19:57	06:34 19:10 18:21	07:04 16:42 16:42	06:38 07:08-07:31/23 07:08-07:31/23	07:09 07:33-07:47/14 16:30
14	05:37 06:00-06:37/37 20:26	06:05 06:46-06:50/4 19:56	06:35 19:08 18:19	07:05 16:41 16:41	06:40 07:07-07:32/25 07:07-07:32/25	07:10 07:34-07:48/14 16:30
15	05:38 06:00-06:36/36 20:25	06:06 06:46-06:47/1 19:55	06:36 19:07 18:18	07:06 16:40 16:40	06:41 07:06-07:33/27 07:06-07:33/27	07:11 07:34-07:48/14 16:31
16	05:39 06:01-06:36/35 20:25	06:07 19:53 19:53	06:37 19:05 18:16	07:07 16:39 16:39	06:42 07:05-07:34/29 07:05-07:34/29	07:12 07:35-07:48/13 16:31
17	05:40 06:02-06:36/34 20:24	06:08 19:52 19:52	06:38 19:03 18:15	07:08 16:38 16:38	06:43 07:06-07:36/30 07:06-07:36/30	07:12 07:36-07:49/13 16:31
18	05:41 06:03-06:36/33 20:23	06:09 19:50 19:50	06:39 19:02 18:13	07:09 16:38 16:38	06:44 07:07-07:37/30 07:07-07:37/30	07:13 07:36-07:49/13 16:31
19	05:41 06:32-06:36/4 20:23	06:10 19:49 19:49	06:40 19:00 18:12	07:10 16:37 16:37	06:45 07:08-07:37/29 07:08-07:37/29	07:14 07:37-07:50/13 16:32
20	05:42 06:31-06:35/4 20:22	06:11 19:48 19:48	06:41 18:58 18:10	07:11 16:36 16:36	06:46 07:09-07:38/29 07:09-07:38/29	07:14 07:37-07:50/13 16:32
21	05:43 06:32-06:35/3 20:21	06:12 19:46 19:46	06:42 18:57 18:09	07:12 16:35 16:35	06:48 07:10-07:38/28 07:10-07:38/28	07:15 07:38-07:51/13 16:33
22	05:44 06:33-06:34/1 20:21	06:13 19:45 19:45	06:43 18:55 18:07	07:13 16:35 16:35	06:49 07:12-07:40/28 07:12-07:40/28	07:15 07:38-07:51/13 16:33
23	05:45 06:07-06:28/21 20:20	06:14 19:43 19:43	06:44 18:53 18:06	07:14 16:34 16:34	06:50 07:13-07:40/27 07:13-07:40/27	07:16 07:39-07:52/13 16:34
24	05:46 06:08-06:26/18 20:19	06:15 19:42 19:42	06:45 18:52 18:05	07:15 16:34 16:34	06:51 07:14-07:41/27 07:14-07:41/27	07:16 07:39-07:52/13 16:34
25	05:46 06:08-06:24/16 20:18	06:16 19:40 19:40	06:45 18:50 17:03	07:16 16:33 16:33	06:52 07:15-07:41/26 07:15-07:41/26	07:17 07:39-07:52/13 16:35
26	05:47 06:10-06:21/11 20:17	06:17 19:39 19:39	06:46 18:48 17:02	07:17 16:33 16:33	06:53 07:16-07:41/25 07:16-07:41/25	07:17 07:40-07:53/13 16:35
27	05:48 06:39-06:46/7 20:16	06:18 19:37 19:37	06:47 18:47 17:01	07:18 16:32 16:32	06:54 07:17-07:42/25 07:17-07:42/25	07:17 07:40-07:53/13 16:36
28	05:49 06:37-06:48/11 20:15	06:19 19:36 19:36	06:48 18:45 16:59	07:19 16:32 16:32	06:55 07:19-07:43/24 07:19-07:43/24	07:18 07:40-07:54/14 16:37
29	05:50 06:35-06:50/15 20:14	06:20 19:34 19:34	06:49 18:43 16:58	07:20 16:31 16:31	06:56 07:20-07:43/23 07:20-07:43/23	07:18 07:41-07:55/14 16:37
30	05:51 06:34-06:51/17 20:14	06:21 19:33 19:33	06:50 18:42 16:57	07:21 16:31 16:31	06:57 07:21-07:43/22 07:21-07:43/22	07:18 07:41-07:55/14 16:38
31	05:52 06:35-06:52/17 20:13	06:22 19:31 19:31	06:51 16:56 16:56	07:22 16:31 16:31	06:58 06:59 06:59	07:19 07:41-07:56/15 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	949	194	0	0	515	472

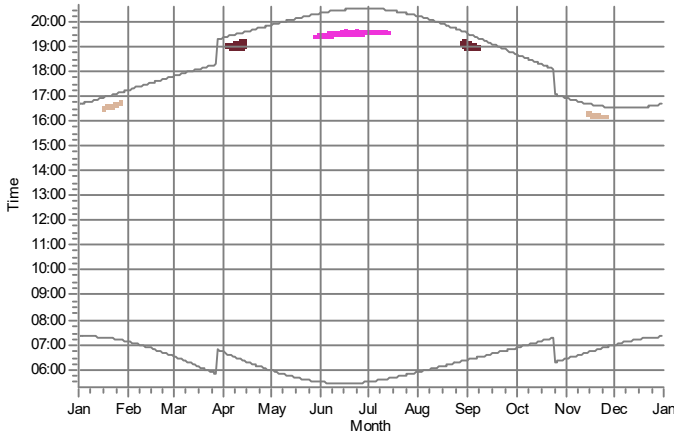
**Table layout: For each day in each month the following matrix apply**

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

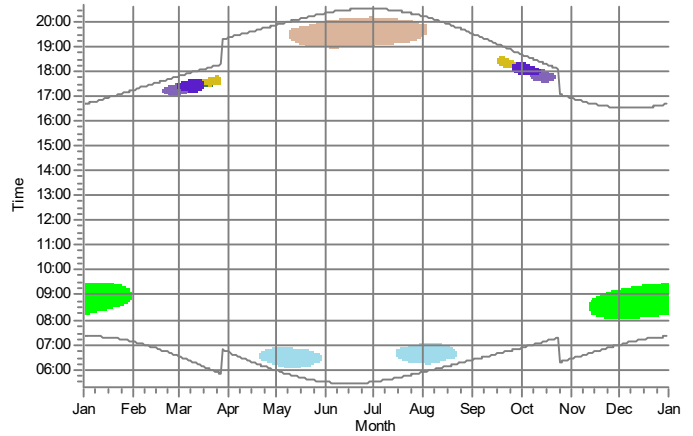
## SHADOW - Calendar per WTG, graphical

Calculation: Worst case

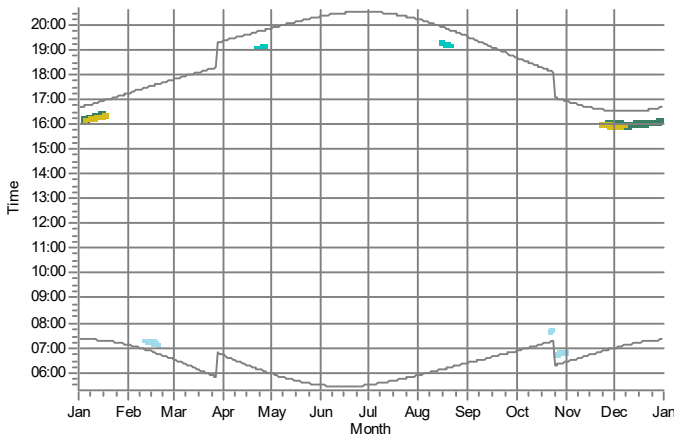
AR01: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 210,0 m)



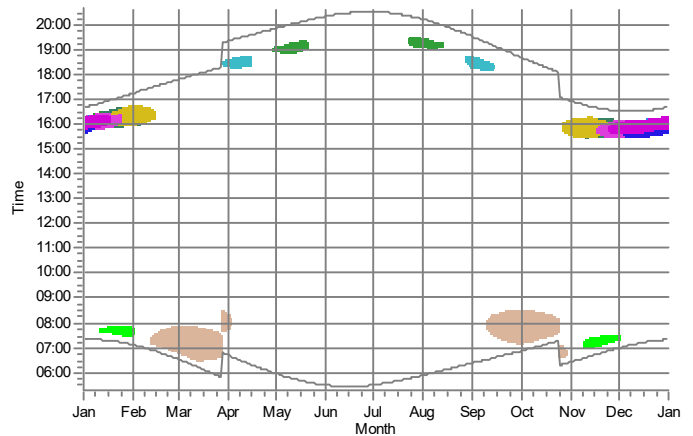
AR02: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m)



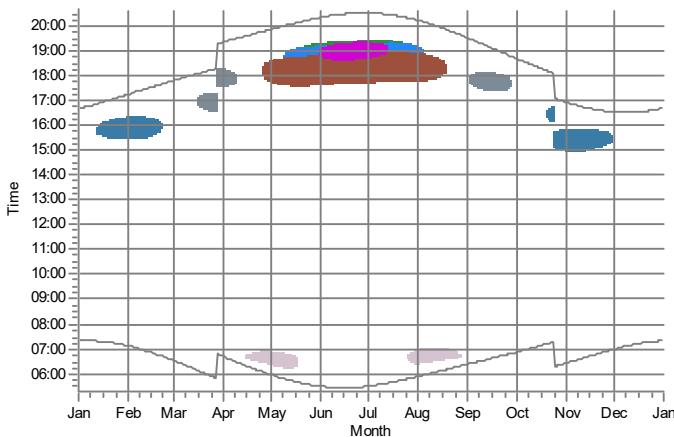
AR03: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 210,0 m)



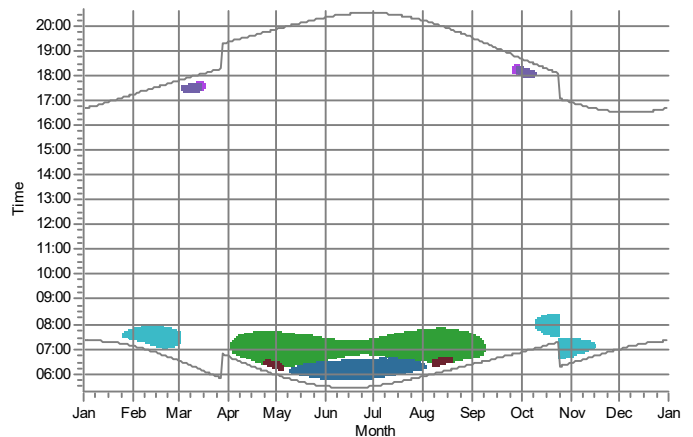
AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m)



AR05: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 210,0 m)



AR06: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m)



Shadow receptors

- R2: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (59)
- R4: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (60)
- R43: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (74)
- R44: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (75)
- R45: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (76)
- R46: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (77)
- R51: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (80)
- R56: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (96)

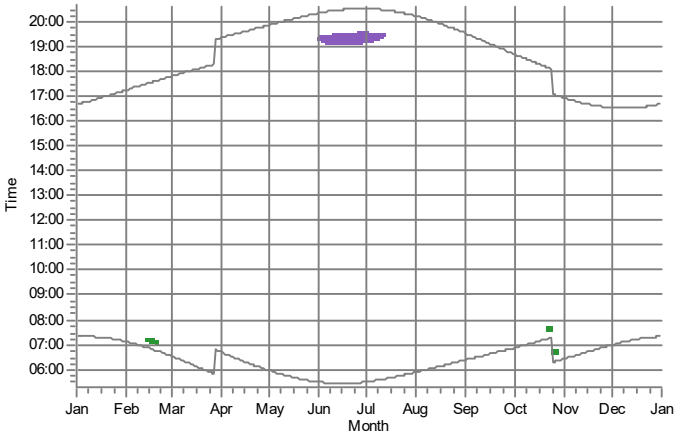
- R58: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (84)
- R59: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (85)
- R62: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (86)
- R64: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (87)
- R67: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (88)
- R78: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (89)
- R79: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (90)
- R82: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (91)

- R84: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (92)
- R86: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (93)
- R88: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (94)
- R89: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (61)
- R90: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (95)
- R91: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (82)
- R94: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (97)
- R95: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (98)

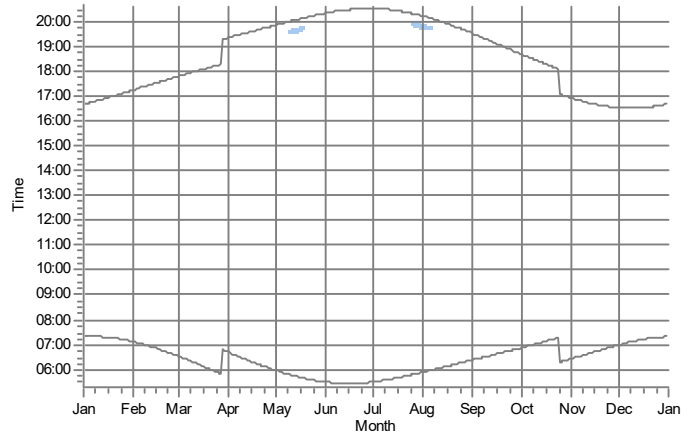
## SHADOW - Calendar per WTG, graphical

Calculation: Worst case

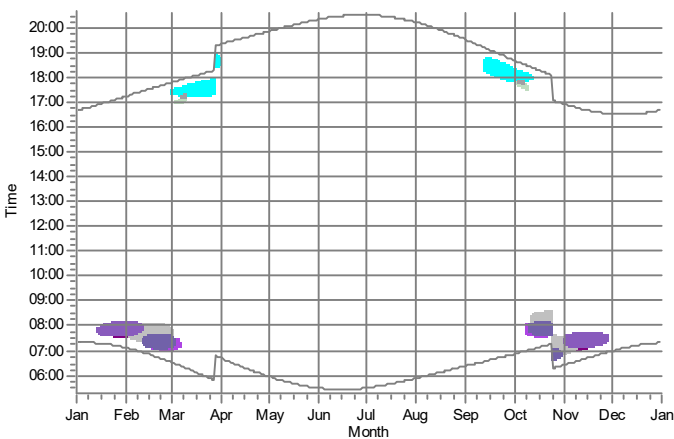
AR07: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m)



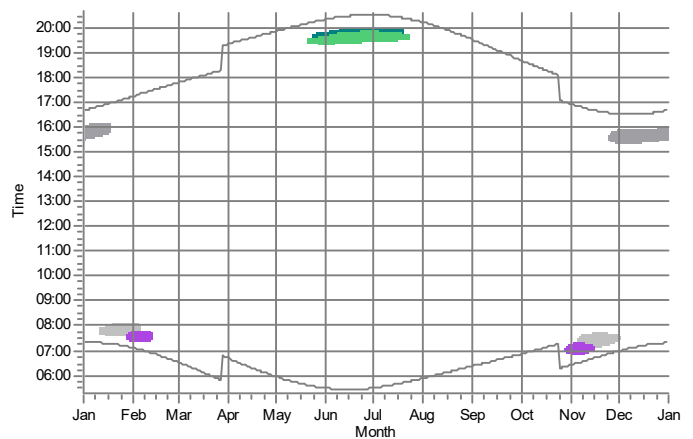
AR08: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m)



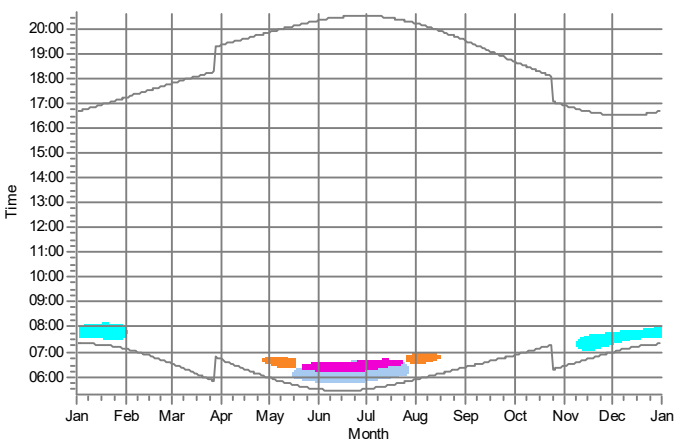
AR09: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m)



AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m)



AR11: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (16)



Shadow receptors

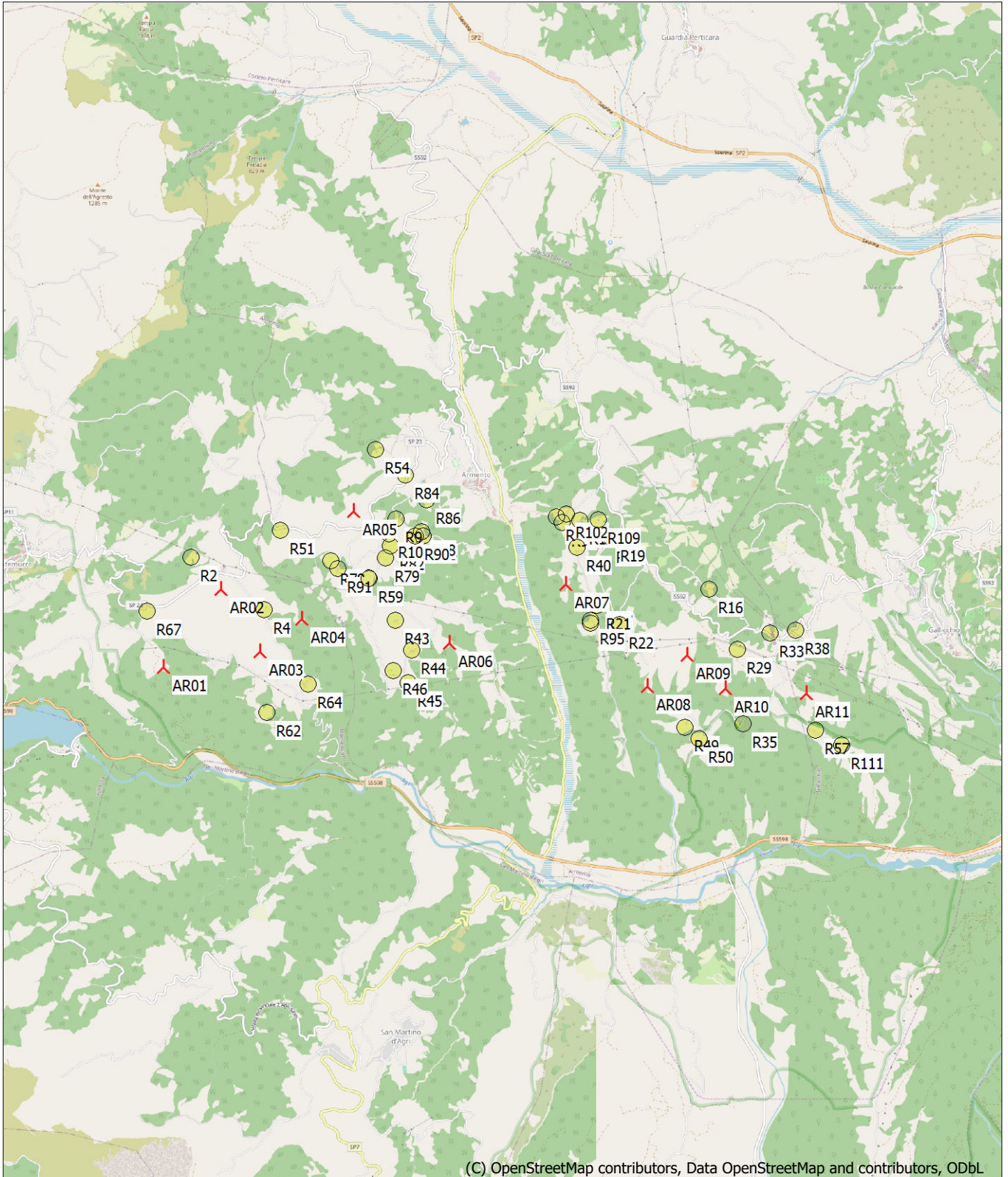
- R111: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (105)
- R21: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (67)
- R22: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (68)
- R29: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (69)
- R33: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (70)

- R35: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (71)
- R38: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (72)
- R49: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (78)
- R50: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (79)
- R56: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (96)

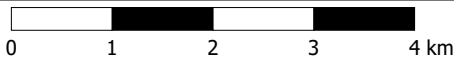
- R57: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (83)
- R94: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (97)
- R95: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (98)
- R97: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (99)

## SHADOW - Map

Calculation: Worst case



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



Map: EMD OpenStreetMap, Print scale 1:75.000, Map center Geo WGS84 East: 16,067867° E North: 40,292719° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: WF Val d'Agri\_EMDGrid\_0.wpg (14)



9. ALLEGATO 2: SHADOW – MAIN RESULT – ELABORAZIONE MEDIANTE IL SOFTWARE WINDPRO 3.4 – EXPECTED VALUES

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## SHADOW - Main Result

Calculation: Parco Eolico Val d'Agri

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  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time  
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

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 Val d'Agri\_EMDGrid\_0.w  
Obstacles used in calculation  
Receptor grid resolution: 1,0 m  
Topographic shadow included in calculation

All coordinates are in  
Geo [deg]-WGS84

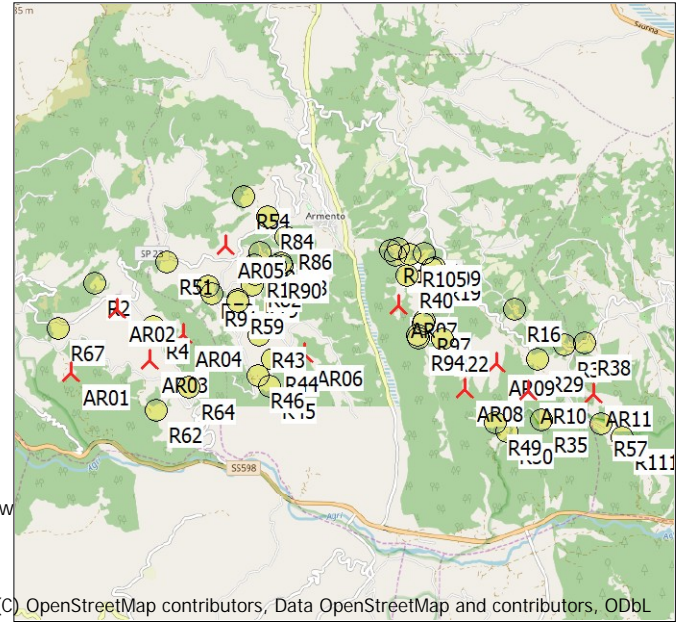
### WTGs

	Longitude	Latitude	Z [m]	Row data/Description	WTG type			Shadow data				
					Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM
AR01	16,015401° E	40,284384° N	775,5	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR02	16,024487° E	40,293744° N	861,1	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR03	16,030729° E	40,286214° N	783,3	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR04	16,037346° E	40,290155° N	841,3	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR05	16,045512° E	40,303170° N	956,5	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR06	16,060763° E	40,287263° N	734,1	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR07	16,079120° E	40,294414° N	733,8	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR08	16,092013° E	40,282025° N	700,8	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR09	16,098284° E	40,285832° N	781,5	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR10	16,104428° E	40,281757° N	797,9	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8
AR11	16,117212° E	40,281172° N	821,1	Siemens Gamesa SG ...	Yes	Siemens Gamesa	SG 6.6-170-6.600	6.600	170,0	115,0	2.041	8,8

### Shadow receptor-Input

No.	Longitude	Latitude	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
R10	16,051199° E	40,300458° N	839,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R101	16,077600° E	40,302525° N	740,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R102	16,079250° E	40,302850° N	755,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R105	16,081394° E	40,302052° N	752,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R109	16,084309° E	40,302205° N	805,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R111	16,122859° E	40,274846° N	738,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R16	16,101822° E	40,293828° N	787,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R19	16,086364° E	40,300000° N	795,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R2	16,019876° E	40,297680° N	862,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R20	16,085735° E	40,299819° N	784,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R21	16,084063° E	40,291749° N	721,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R22	16,087707° E	40,289504° N	732,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R29	16,106377° E	40,286435° N	867,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R33	16,111559° E	40,288526° N	794,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R35	16,107216° E	40,277459° N	811,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R38	16,115580° E	40,288770° N	788,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R4	16,031401° E	40,291262° N	869,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R40	16,080868° E	40,298833° N	745,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R43	16,052139° E	40,290007° N	765,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL  
Scale 1:125.000  
New WTG Shadow receptor

## SHADOW - Main Result

Calculation: Parco Eolico Val d'Agri

...continued from previous page

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]
R44	16,054683° E	40,286425° N	745,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R45	16,054181° E	40,282468° N	737,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R46	16,051809° E	40,283920° N	764,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R49	16,098021° E	40,277056° N	724,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R50	16,100333° E	40,275683° N	725,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R51	16,034000° E	40,300867° N	974,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R54	16,049073° E	40,310591° N	874,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R56	16,056592° E	40,300196° N	801,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R57	16,118745° E	40,276711° N	763,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R58	16,047935° E	40,295206° N	809,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R59	16,048014° E	40,295039° N	807,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R62	16,031887° E	40,278865° N	718,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R64	16,038397° E	40,282275° N	770,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R67	16,012875° E	40,291083° N	860,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R78	16,042016° E	40,297193° N	868,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R79	16,050608° E	40,297522° N	824,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R82	16,051353° E	40,299043° N	821,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R84	16,053732° E	40,307555° N	869,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R86	16,057148° E	40,304524° N	809,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R88	16,056348° E	40,300763° N	803,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R9	16,052277° E	40,302251° N	842,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R90	16,055309° E	40,300192° N	798,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R91	16,043012° E	40,296196° N	848,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R94	16,083056° E	40,289672° N	730,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R95	16,083009° E	40,290004° N	731,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R97	16,084335° E	40,292162° N	723,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
R99	16,078578° E	40,301815° N	744,7	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]

R10	0:00
R101	0:00
R102	0:00
R105	0:00
R109	0:00
R111	3:10
R16	0:00
R19	0:00
R2	27:02
R20	0:00
R21	7:02
R22	16:34
R29	19:51
R33	0:14
R35	12:53
R38	8:58
R4	49:14
R40	0:00
R43	16:55
R44	47:23
R45	0:16
R46	12:53
R49	2:45
R50	3:33
R51	6:56
R54	0:00
R56	18:15
R57	3:50
R58	19:30

To be continued on next page...

## SHADOW - Main Result

Calculation: Parco Eolico Val d'Agri

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]
R59	15:31
R62	1:08
R64	2:17
R67	11:43
R78	3:01
R79	13:11
R82	1:56
R84	20:22
R86	8:44
R88	21:50
R9	32:14
R90	12:32
R91	3:05
R94	10:14
R95	7:06
R97	10:37
R99	0:00

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

No.	Name	Expected [h/year]
AR01	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (6)	3:11
AR02	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (7)	60:17
AR03	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)	5:04
AR04	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (9)	66:06
AR05	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (10)	78:09
AR06	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (11)	74:33
AR07	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (12)	2:54
AR08	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (13)	0:13
AR09	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)	32:16
AR10	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)	23:33
AR11	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (16)	26:49

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

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R10 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (62)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	07:00 16:31
3	07:19 16:42	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:05 16:30
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:06 16:30
9	07:19 16:48	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:25	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	05:36 20:28	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27	05:37 20:27	06:04 19:58	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:20	06:40 16:41	07:11 16:31
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:27	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:39	07:13 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:29	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:45 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:11	06:47 16:36	07:15 16:32
21	07:15 17:01	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:41	05:35 20:11	05:27 20:30	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	06:49 16:35	07:16 16:33
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:44	06:44 18:53	07:15 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:12	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:17 16:34
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:44	05:33 20:14	05:27 20:30	05:47 20:18	06:16 19:41	06:46 18:50	06:17 17:04	06:52 16:33	07:17 16:35
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04 19:46	05:32 20:15	05:28 20:30	05:47 20:18	06:17 19:39	06:47 18:48	06:18 17:02	06:54 16:33	07:17 16:36
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	06:19 17:01	06:55 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 17:00	06:56 16:32	07:18 16:37
29	07:09 17:10	06:32 17:47	05:47 18:17	06:00 19:49	05:31 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11	06:31 17:48	05:46 18:18	05:59 19:50	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:22 16:57	06:58 16:31	07:19 16:38
31	07:07 17:13	06:30 17:49	05:45 18:19	05:58 19:51	05:30 20:19	05:29 20:30	05:52 20:13	06:22 19:31	06:52 18:41	06:24 16:56	06:59 16:31	07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R101 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (101)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

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

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

Day in month	Sun rise (hh:mm)	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: Parco Eolico Val d'AgriShadow receptor: R102 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (102)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

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

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R105 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (103)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

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

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R109 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (104)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

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

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

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

Calculation: Parco Eolico Val d'Agri Shadow receptor: R111 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (105)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

#### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

Table with 12 columns (January to December) and 30 rows (01 to 31). Columns contain start and end times (hh:mm). Summary rows include: Potential sun hours, Total, worst case, Sun reduction, Oper. time red., Wind dir. red., Total reduction, Total, real.

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

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R16 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (64)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:29	06:51 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51	05:28 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:52 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52	05:28 20:21	05:30 20:30	05:55 20:09	06:24 19:26	06:53 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:53	05:28 20:21	05:31 20:29	05:56 20:08	06:25 19:25	06:54 18:35	06:28 16:51	07:02 16:30
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8	07:19 16:46	06:59 17:22	06:21 17:54	06:30 19:27	05:48 19:58	05:26 20:24	05:33 20:28	05:59 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:05 16:30
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10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 16:44	07:07 16:30
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:25	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:18 16:50	06:54 17:27	06:14 17:59	06:24 19:31	05:44 20:01	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30
13	07:18 16:51	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:02	05:26 20:26	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	05:26 20:27	05:37 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
15	07:17 16:54	06:51 17:31	06:09 18:02	06:19 19:34	05:41 20:04	05:26 20:27	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
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17	07:17 16:56	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:12 16:31
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19	07:16 16:58	06:46 17:35	06:03 18:06	06:13 19:38	05:37 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:45 16:37	07:14 16:32
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32
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22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33
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Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R19 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (65)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
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18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:28	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:37 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32
21	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:15 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:16 16:34
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:14	05:27 20:30	05:46 20:18	06:16 19:40	06:46 18:50	06:17 17:03	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:51 18:14	06:04 19:45	05:32 20:14	05:28 20:30	05:47 20:17	06:17 19:39	06:47 18:48	06:18 17:02	06:53 16:33	07:17 16:36
27	07:11 17:08	06:34 17:44	05:50 18:15	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	06:19 17:01	06:54 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 16:59	06:56 16:32	07:18 16:37
29	07:09 17:10	06:32 19:17	06:47 19:48	06:00 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11	06:31 19:18	06:45 19:49	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:22 16:57	06:58 16:31	07:18 16:38
31	07:07 17:12	06:30 19:19	06:43 19:49	06:03 19:49	05:29 20:18	05:29 20:30	05:52 20:13	06:22 19:31	06:52 16:56	06:24 16:56	06:59 16:39	07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

Day in month	Sun rise (hh:mm)	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 Val d'Agri

Licensed user:

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

Gaetano D'Oronzio / info@gecodor.it

Calculated:

06/12/2022 16:14/3.5.587

SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R2 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (59)
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

Table with columns for months (January to December) and rows for each day of the month, showing sun rise/set times and shadow reduction percentages. Includes a summary row at the bottom for 'Potential sun hours' and 'Total, real'.

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

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R20 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (66)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:28 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:26	06:54 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:08	06:25 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:26 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:27 19:22	06:57 18:32	06:30 16:49	07:04 16:30
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:05 16:30
8	07:19 16:46	06:59 17:22	06:21 17:55	06:30 19:27	05:48 19:58	05:27 20:24	05:33 20:29	05:59 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:05 16:30
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:24	05:34 20:28	06:00 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:18 16:50	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:26	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
15	07:17 16:54	06:51 17:31	06:09 18:02	06:20 19:34	05:41 20:04	05:26 20:27	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 20:28	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:13 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:28	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:37 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32
21	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:15 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:16 16:34
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:14	05:27 20:30	05:46 20:18	06:16 19:40	06:46 18:50	06:17 17:03	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:51 18:14	06:04 19:45	05:32 20:14	05:28 20:30	05:47 20:17	06:17 19:39	06:47 18:48	06:18 17:02	06:53 16:33	07:17 16:36
27	07:11 17:08	06:34 17:44	05:50 18:15	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	06:19 17:01	06:54 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 16:59	06:56 16:32	07:18 16:37
29	07:09 17:10	06:32 19:17	06:47 19:48	06:00 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11	06:31 19:18	06:45 19:49	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:22 16:57	06:58 16:31	07:18 16:38
31	07:07 17:12	06:30 19:19	06:43 19:49	06:03 19:49	05:29 20:18	05:29 20:30	05:52 20:13	06:22 19:31	06:22 16:56	06:24 16:56	06:59 16:39	07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R21 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (67)
Sunshine probability S (Average daily sunshine hours) []

Table with 12 columns (Jan-Dec) and 1 row of values (7,40, 7,40, 7,40, etc.)

Operational time

Table with 13 columns (N, NNE, ENE, E, ESE, SSE, S, SSW, WSW, W, WNW, NNW, Sum) and 1 row of values (391, 238, 271, etc.)

Main shadow calculation table with columns for months (January-December) and rows for each hour of the day (07:19 to 17:00). Includes summary rows at the bottom for 'Potential sun hours', 'Total, worst case', etc.

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

Matrix with 4 columns: Day in month, Sun rise (hh:mm), Sun set (hh:mm), Minutes with flicker, First time (hh:mm) with flicker, Last time (hh:mm) with flicker, (WTG causing flicker first time), (WTG causing flicker last time)

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R22 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (68)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

## Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40	07:06 17:14	07:42 (AR10) 08:02 (AR10)	06:31 17:47	07:31 (AR09) 07:50 (AR09)	06:42 19:20
2	07:19 16:41	07:05 17:15	07:43 (AR10) 08:01 (AR10)	06:30 17:48	07:35 (AR09) 07:47 (AR09)	06:40 19:21
3	07:19 16:42	07:04 17:16	07:36 (AR09) 08:00 (AR10)	06:28 17:49	06:38 19:22	05:54 19:53
4	07:19 16:43	07:03 17:17	07:33 (AR09) 07:58 (AR10)	06:27 17:50	06:37 19:23	05:53 19:54
5	07:19 16:44	07:02 17:19	07:31 (AR09) 07:54 (AR09)	06:25 17:51	06:35 19:24	05:52 19:55
6	07:19 16:44	07:01 17:20	07:30 (AR09) 07:55 (AR09)	06:24 17:52	06:34 19:25	05:51 19:56
7	07:19 16:45	07:00 17:21	07:28 (AR09) 07:57 (AR09)	06:22 17:53	06:32 19:26	05:50 19:57
8	07:19 16:46	06:59 17:22	07:27 (AR09) 07:58 (AR09)	06:21 17:54	06:30 19:27	05:48 19:58
9	07:19 16:47	06:58 17:23	07:26 (AR09) 07:59 (AR09)	06:19 17:56	06:29 19:28	05:47 19:59
10	07:19 16:48	06:57 17:25	07:25 (AR09) 08:00 (AR09)	06:17 17:57	06:27 19:29	05:46 20:00
11	07:19 16:49	06:56 17:26	07:25 (AR09) 08:01 (AR09)	06:16 17:58	06:26 19:30	05:45 20:01
12	07:18 16:50	07:43 (AR10) 07:51 (AR10)	06:55 17:27	07:24 (AR09) 08:01 (AR09)	06:14 17:59	06:24 19:31
13	07:18 16:52	8 07:42 (AR10) 07:52 (AR10)	06:53 17:28	07:24 (AR09) 08:02 (AR09)	06:13 18:00	06:23 19:32
14	07:18 16:53	10 07:42 (AR10) 07:54 (AR10)	06:52 17:29	07:23 (AR09) 08:02 (AR09)	06:11 18:01	06:21 19:33
15	07:17 16:54	12 07:41 (AR10) 07:55 (AR10)	06:51 17:31	07:23 (AR09) 08:02 (AR09)	06:09 18:02	06:20 19:34
16	07:17 16:55	14 07:42 (AR10) 07:57 (AR10)	06:50 17:32	07:23 (AR09) 08:03 (AR09)	06:08 18:03	06:18 19:35
17	07:17 16:56	15 07:41 (AR10) 07:57 (AR10)	06:48 17:33	07:22 (AR09) 08:02 (AR09)	06:06 18:04	06:17 19:36
18	07:16 16:57	16 07:41 (AR10) 07:59 (AR10)	06:47 17:34	07:23 (AR09) 08:02 (AR09)	06:05 18:05	06:15 19:37
19	07:16 16:58	18 07:41 (AR10) 07:59 (AR10)	06:46 17:35	07:23 (AR09) 08:02 (AR09)	06:03 18:06	06:14 19:38
20	07:15 16:59	18 07:41 (AR10) 08:01 (AR10)	06:44 17:36	07:23 (AR09) 08:02 (AR09)	06:01 18:07	06:12 19:39
21	07:15 17:00	20 07:40 (AR10) 08:01 (AR10)	06:43 17:38	07:23 (AR09) 08:01 (AR09)	06:00 18:08	06:11 19:40
22	07:14 17:02	21 07:39 (AR10) 08:01 (AR10)	06:41 17:39	07:23 (AR09) 08:00 (AR09)	05:58 18:09	06:09 19:41
23	07:13 17:03	22 07:39 (AR10) 08:03 (AR10)	06:40 17:40	07:24 (AR09) 08:00 (AR09)	05:56 18:10	06:08 19:42
24	07:13 17:04	24 07:39 (AR10) 08:03 (AR10)	06:39 17:41	07:25 (AR09) 07:59 (AR09)	05:55 18:11	06:06 19:43
25	07:12 17:05	24 07:38 (AR10) 08:03 (AR10)	06:37 17:42	07:25 (AR09) 07:58 (AR09)	05:53 18:12	06:05 19:44
26	07:11 17:06	25 07:38 (AR10) 08:03 (AR10)	06:36 17:43	07:27 (AR09) 07:57 (AR09)	05:51 18:14	06:04 19:45
27	07:11 17:08	25 07:39 (AR10) 08:04 (AR10)	06:34 17:45	07:28 (AR09) 07:55 (AR09)	05:50 18:15	06:02 19:46
28	07:10 17:09	25 07:40 (AR10) 08:04 (AR10)	06:33 17:46	07:30 (AR09) 07:53 (AR09)	05:48 18:16	06:01 19:47
29	07:09 17:10	23 07:40 (AR10) 08:03 (AR10)	06:47 19:17	06:47 19:17	06:47 19:48	05:30 20:17
30	07:08 17:11	23 07:41 (AR10) 08:03 (AR10)	06:45 19:18	06:45 19:18	05:58 19:49	05:30 20:18
31	07:07 17:12	22 07:41 (AR10) 08:03 (AR10)	06:43 19:19	06:43 19:19	05:29 20:18	05:29 20:18
Potential sun hours	300	298	370	398	446	450
Total, worst case	388	907	31			
Sun reduction	0,77	0,69	0,62			
Oper. time red.	0,81	0,81	0,81			
Wind dir. red.	0,63	0,66	0,67			
Total reduction	0,39	0,37	0,33			
Total, real	151	338	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: Parco Eolico Val d'AgriShadow receptor: R22 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (68)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:55 (AR09) 07:28 (AR10)
2	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:38	06:26 16:53	06:56 (AR09) 07:00 07:28 (AR09)
3	05:31 20:30	05:55 20:09	06:25 19:26	06:54 18:37	06:27 16:52	06:56 (AR09) 07:01 07:27 (AR09)
4	05:31 20:30	05:56 20:08	06:25 19:25	06:55 18:35	06:28 16:51	06:58 (AR09) 16:30 07:27 (AR09)
5	05:32 20:29	05:57 20:07	06:26 19:23	06:56 18:34	06:29 16:50	07:00 (AR09) 16:30 07:25 (AR09)
6	05:32 20:29	05:58 20:06	06:27 19:22	06:57 18:32	06:30 16:49	07:01 (AR09) 16:30 07:24 (AR10)
7	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:03 (AR09) 16:30 07:28 (AR10)
8	05:33 20:28	05:59 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:07 (AR09) 16:30 07:31 (AR10)
9	05:34 20:28	06:00 20:02	06:30 19:17	07:00 18:27	06:34 16:46	07:14 (AR10) 16:30 07:32 (AR10)
10	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:13 (AR10) 16:30 07:33 (AR10)
11	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:12 (AR10) 16:30 07:34 (AR10)
12	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 16:43	07:12 (AR10) 16:30 08:07 (AR09)
13	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:39 16:42	07:12 (AR10) 16:30 08:04 (AR09)
14	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:12 (AR10) 16:30 08:01 (AR09)
15	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 (AR10) 16:31 08:28 (AR09)
16	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 16:39	07:12 (AR10) 16:31 07:58 (AR09)
17	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:12 (AR10) 16:31 08:29 (AR09)
18	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:44 16:38	07:13 (AR10) 16:32 07:57 (AR09)
19	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:45 16:37	07:13 (AR10) 16:32 08:31 (AR09)
20	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 (AR10) 16:32 07:54 (AR09)
21	05:43 20:21	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:16 (AR10) 16:33 08:32 (AR09)
22	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:17 (AR10) 16:33 07:53 (AR09)
23	05:45 20:20	06:14 19:43	06:44 18:53	07:15 18:06	06:50 16:34	07:18 (AR10) 16:34 08:32 (AR09)
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:18 (AR10) 16:34 07:52 (AR09)
25	05:46 20:18	06:16 19:40	06:46 18:50	07:17 18:03	06:52 16:33	07:19 (AR10) 16:35 08:32 (AR09)
26	05:47 20:17	06:17 19:39	06:47 18:48	07:18 17:02	06:53 16:33	07:20 (AR10) 16:36 07:53 (AR09)
27	05:48 20:17	06:18 19:37	06:48 18:47	07:19 17:01	06:54 16:32	07:21 (AR10) 16:36 07:54 (AR09)
28	05:49 20:16	06:19 19:36	06:49 18:45	07:20 16:59	06:55 16:32	07:22 (AR10) 16:37 07:53 (AR09)
29	05:50 20:15	06:20 19:34	06:50 18:43	07:21 16:58	06:57 16:32	07:23 (AR10) 16:38 07:54 (AR09)
30	05:51 20:14	06:21 19:33	06:51 18:42	07:22 16:57	06:58 16:31	07:24 (AR10) 16:38 07:55 (AR09)
31	05:52 20:13	06:22 19:31	06:52 16:56	07:23 16:56	06:54 (AR09) 07:30 (AR09)	07:19 16:39
Potential sun hours	457	426	375	346	300	290
Total, worst case				685	654	1
Sun reduction				0,66	0,74	0,79
Oper. time red.				0,81	0,81	0,81
Wind dir. red.				0,67	0,64	0,63
Total reduction				0,36	0,38	0,40
Total, real				244	251	0

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R29 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (69) Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

## Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40	07:41 (AR11) 17:14	07:06 07:46 (AR11)	06:31 07:50 (AR11)	06:42 19:20	05:57 20:19
2	07:19 16:41	07:41 (AR11) 17:15	07:05 07:57 (AR11)	06:30 17:48	06:40 17:24 (AR09)	05:56 19:51
3	07:19 16:42	07:41 (AR11) 17:16	07:04 07:57 (AR11)	06:28 17:49	06:38 17:28 (AR09)	05:54 19:52
4	07:19 16:43	07:41 (AR11) 17:17	07:03 07:58 (AR11)	06:27 17:50	06:37 17:29 (AR09)	05:53 19:53
5	07:19 16:44	07:41 (AR11) 17:18	07:02 07:59 (AR11)	06:25 17:51	06:35 17:30 (AR09)	05:52 19:54
6	07:19 16:44	07:41 (AR11) 17:19	07:01 07:59 (AR11)	06:24 17:52	06:34 17:31 (AR09)	05:51 19:55
7	07:19 16:45	07:41 (AR11) 17:20	07:00 08:00 (AR11)	06:22 17:53	06:32 17:33 (AR09)	05:50 19:56
8	07:19 16:46	07:41 (AR11) 17:21	06:59 08:01 (AR11)	06:21 17:54	06:30 17:33 (AR09)	05:48 19:57
9	07:19 16:47	07:40 (AR11) 17:22	06:58 08:00 (AR11)	06:19 17:56	06:29 17:34 (AR09)	05:47 19:58
10	07:19 16:48	07:40 (AR11) 17:23	06:57 08:01 (AR11)	06:17 17:57	06:27 17:36 (AR09)	05:46 19:59
11	07:19 16:49	07:40 (AR11) 17:24	06:56 08:02 (AR11)	06:16 17:58	06:26 17:37 (AR09)	05:45 20:00
12	07:18 16:50	07:39 (AR11) 17:25	06:54 08:03 (AR11)	06:14 17:59	06:24 17:38 (AR09)	05:44 20:01
13	07:18 16:51	07:39 (AR11) 17:26	06:53 08:02 (AR11)	06:13 18:00	06:23 17:39 (AR09)	05:43 20:02
14	07:18 16:53	07:39 (AR11) 17:27	06:52 08:03 (AR11)	06:11 18:01	06:21 17:40 (AR09)	05:42 20:03
15	07:17 16:54	07:38 (AR11) 17:28	06:51 08:02 (AR11)	06:09 18:02	06:19 17:41 (AR09)	05:41 20:04
16	07:17 16:55	07:38 (AR11) 17:29	06:49 08:03 (AR11)	06:08 18:03	06:18 17:42 (AR09)	05:40 20:05
17	07:17 16:56	07:37 (AR11) 17:30	06:48 08:03 (AR11)	06:06 18:04	06:16 17:44 (AR09)	05:39 20:06
18	07:16 16:57	07:37 (AR11) 17:31	06:47 08:04 (AR11)	06:04 18:05	06:15 17:44 (AR09)	05:38 20:07
19	07:16 16:58	07:36 (AR11) 17:32	06:45 08:03 (AR11)	06:03 18:06	06:13 17:45 (AR09)	05:37 20:08
20	07:15 16:59	07:36 (AR11) 17:33	06:44 08:04 (AR11)	06:01 18:07	06:12 17:47 (AR09)	05:36 20:09
21	07:15 17:00	07:35 (AR11) 17:34	06:43 08:03 (AR11)	06:00 18:08	06:11 17:48 (AR09)	05:35 20:10
22	07:14 17:02	07:34 (AR11) 17:35	06:41 08:03 (AR11)	05:58 18:09	06:09 17:48 (AR09)	05:34 20:11
23	07:13 17:03	07:34 (AR11) 17:36	06:40 08:03 (AR11)	05:56 18:10	06:08 17:50 (AR09)	05:33 20:12
24	07:13 17:04	07:33 (AR11) 17:37	06:39 08:03 (AR11)	05:55 18:11	06:06 17:51 (AR09)	05:32 20:13
25	07:12 17:05	07:32 (AR11) 17:38	06:37 08:03 (AR11)	05:53 18:12	06:05 17:51 (AR09)	05:31 20:14
26	07:11 17:06	07:32 (AR11) 17:39	06:36 08:01 (AR11)	05:51 18:13	06:04 17:50 (AR09)	05:30 20:15
27	07:10 17:08	07:31 (AR11) 17:40	06:34 08:01 (AR11)	05:50 18:14	06:02 17:51 (AR09)	05:29 20:16
28	07:10 17:09	07:31 (AR11) 17:41	06:33 08:00 (AR11)	05:48 18:15	06:01 17:52 (AR09)	05:28 20:17
29	07:09 17:10	07:30 (AR11) 17:42	06:31 07:59 (AR11)	06:46 19:17	05:59 18:54 (AR09)	05:29 20:30
30	07:08 17:11	07:29 (AR11) 17:43	06:29 07:57 (AR11)	06:45 19:18	05:58 18:27 (AR09)	05:29 20:30
31	07:07 17:12	07:29 (AR11) 17:44	06:28 07:55 (AR11)	06:43 19:19	05:57 18:31 (AR09)	05:29 20:30
Potential sun hours	300	298	370	398	446	450
Total, worst case	709	4	691			
Sun reduction	0,77	0,69	0,62			
Oper. time red.	0,81	0,81	0,81			
Wind dir. red.	0,62	0,62	0,76			
Total reduction	0,39	0,35	0,39			
Total, real	276	1	266			

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: Parco Eolico Val d'AgriShadow receptor: R29 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (69)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30	05:53	06:23	06:51	17:55 (AR09) 06:25	06:59
	20:30	20:12	19:29	18:40	22 18:17 (AR09) 16:54	16:31 22 07:44 (AR11)
2	05:30	05:54	06:23	06:52	17:54 (AR09) 06:26	07:00
	20:30	20:10	19:28	18:38	22 18:16 (AR09) 16:53	16:31 21 07:44 (AR11)
3	05:30	05:55	06:24	06:53	17:54 (AR09) 06:27	07:01
	20:30	20:09	19:26	18:37	20 18:14 (AR09) 16:52	16:30 20 07:44 (AR11)
4	05:31	05:56	06:25	06:54	17:54 (AR09) 06:28	07:02
	20:29	20:08	19:25	18:35	18 18:12 (AR09) 16:51	16:30 20 07:45 (AR11)
5	05:32	05:57	06:26	06:55	17:54 (AR09) 06:29	07:03
	20:29	20:07	19:23	18:33	17 18:11 (AR09) 16:50	16:30 19 07:45 (AR11)
6	05:32	05:57	06:27	06:56	17:54 (AR09) 06:30	07:03
	20:29	20:06	19:21	18:32	15 18:09 (AR09) 16:49	16:30 18 07:45 (AR11)
7	05:33	05:58	06:28	06:57	17:55 (AR09) 06:31	07:04
	20:29	20:05	19:20	18:30	12 18:07 (AR09) 16:48	16:30 18 07:46 (AR11)
8	05:33	05:59	06:29	06:59	17:55 (AR09) 06:33	07:05
	20:28	20:04	19:18	18:29	11 18:06 (AR09) 16:47	16:30 17 07:46 (AR11)
9	05:34	06:00	06:30	07:00	17:55 (AR09) 06:34	07:06
	20:28	20:02	19:17	18:27	9 18:04 (AR09) 16:45	16:30 16 07:46 (AR11)
10	05:35	06:01	06:31	07:01	17:57 (AR09) 06:35	07:07
	20:28	20:01	19:15	18:25	6 18:03 (AR09) 16:44	5 07:21 (AR11) 16:30 16 07:46 (AR11)
11	05:35	06:02	06:32	07:02	17:58 (AR09) 06:36	07:08
	20:27	20:00	19:13	18:24	4 18:02 (AR09) 16:44	14 07:26 (AR11) 16:30 15 07:46 (AR11)
12	05:36	06:03	06:33	18:24 (AR09) 07:03	17:59 (AR09) 06:37	07:09
	20:27	19:59	19:12	18:36 (AR09) 18:22	1 18:00 (AR09) 16:43	19 07:28 (AR11) 16:30 15 07:47 (AR11)
13	05:37	06:04	06:34	18:19 (AR09) 07:04	06:38	07:08 (AR11) 07:10 16:30 15 07:47 (AR11)
	20:26	19:57	19:10	22 18:41 (AR09) 18:21	16:42 23 07:31 (AR11) 16:30 14 07:47 (AR11)	
14	05:37	06:05	06:35	18:16 (AR09) 07:05	06:40	07:07 (AR11) 07:10 16:30 14 07:48 (AR11)
	20:26	19:56	19:08	28 18:44 (AR09) 18:19	16:41 25 07:32 (AR11) 16:30 14 07:48 (AR11)	
15	05:38	06:06	06:36	18:13 (AR09) 07:06	06:41	07:06 (AR11) 07:11 16:30 14 07:48 (AR11)
	20:25	19:55	19:07	32 18:45 (AR09) 18:18	16:40 27 07:33 (AR11) 16:31 14 07:48 (AR11)	
16	05:39	06:07	06:37	18:11 (AR09) 07:07	06:42	07:05 (AR11) 07:12 16:31 13 07:48 (AR11)
	20:25	19:53	19:05	32 18:43 (AR09) 18:16	16:39 29 07:34 (AR11) 16:31 13 07:48 (AR11)	
17	05:40	06:08	06:38	18:09 (AR09) 07:08	06:43	07:06 (AR11) 07:12 16:31 13 07:49 (AR11)
	20:24	19:52	19:03	32 18:41 (AR09) 18:15	16:38 30 07:36 (AR11) 16:31 13 07:49 (AR11)	
18	05:41	06:09	06:39	18:07 (AR09) 07:09	06:44	07:07 (AR11) 07:13 16:31 13 07:49 (AR11)
	20:23	19:50	19:02	33 18:40 (AR09) 18:13	16:38 30 07:37 (AR11) 16:32 13 07:49 (AR11)	
19	05:41	06:10	06:40	18:06 (AR09) 07:10	06:45	07:08 (AR11) 07:14 16:32 13 07:50 (AR11)
	20:23	19:49	19:00	32 18:38 (AR09) 18:12	16:37 29 07:37 (AR11) 16:32 13 07:50 (AR11)	
20	05:42	06:11	06:41	18:04 (AR09) 07:11	06:47	07:09 (AR11) 07:14 16:32 13 07:50 (AR11)
	20:22	19:48	18:58	33 18:37 (AR09) 18:10	16:36 29 07:38 (AR11) 16:32 13 07:50 (AR11)	
21	05:43	06:12	06:42	18:03 (AR09) 07:12	06:48	07:10 (AR11) 07:15 16:32 13 07:51 (AR11)
	20:21	19:46	18:57	32 18:35 (AR09) 18:09	16:36 28 07:38 (AR11) 16:33 13 07:51 (AR11)	
22	05:44	06:13	06:43	18:01 (AR09) 07:13	06:49	07:12 (AR11) 07:15 16:33 13 07:51 (AR11)
	20:21	19:45	18:55	31 18:32 (AR09) 18:08	16:35 28 07:40 (AR11) 16:33 13 07:51 (AR11)	
23	05:45	06:14	06:44	18:00 (AR09) 07:14	06:50	07:13 (AR11) 07:16 16:33 13 07:52 (AR11)
	20:20	19:43	18:53	31 18:31 (AR09) 18:06	16:34 27 07:40 (AR11) 16:34 13 07:52 (AR11)	
24	05:46	06:15	06:45	17:59 (AR09) 07:16	06:51	07:14 (AR11) 07:16 16:34 13 07:52 (AR11)
	20:19	19:42	18:52	30 18:29 (AR09) 18:05	16:34 27 07:41 (AR11) 16:34 13 07:52 (AR11)	
25	05:46	06:16	06:46	17:58 (AR09) 06:17	06:52	07:15 (AR11) 07:17 16:34 13 07:53 (AR11)
	20:18	19:40	18:50	29 18:27 (AR09) 17:03	16:33 26 07:41 (AR11) 16:35 13 07:52 (AR11)	
26	05:47	06:17	06:47	17:57 (AR09) 06:18	06:53	07:16 (AR11) 07:17 16:35 13 07:53 (AR11)
	20:17	19:39	18:48	29 18:26 (AR09) 17:02	16:33 25 07:41 (AR11) 16:35 13 07:53 (AR11)	
27	05:48	06:18	06:47	17:56 (AR09) 06:19	06:54	07:17 (AR11) 07:17 16:35 13 07:53 (AR11)
	20:16	19:37	18:47	28 18:24 (AR09) 17:01	16:32 25 07:42 (AR11) 16:36 13 07:53 (AR11)	
28	05:49	06:19	06:48	17:56 (AR09) 06:20	06:55	07:19 (AR11) 07:18 16:36 14 07:54 (AR11)
	20:16	19:36	18:45	26 18:22 (AR09) 16:59	16:32 24 07:43 (AR11) 16:37 14 07:54 (AR11)	
29	05:50	06:20	06:49	17:55 (AR09) 06:21	06:56	07:20 (AR11) 07:18 16:37 14 07:54 (AR11)
	20:15	19:34	18:43	26 18:21 (AR09) 16:58	16:32 23 07:43 (AR11) 16:38 14 07:55 (AR11)	
30	05:51	06:21	06:50	17:55 (AR09) 06:22	06:58	07:21 (AR11) 07:18 16:38 14 07:55 (AR11)
	20:14	19:33	18:42	24 18:19 (AR09) 16:57	16:31 22 07:43 (AR11) 16:38 14 07:55 (AR11)	
31	05:52	06:22		06:23		07:19
	20:13	19:31		16:56		16:39 15 07:56 (AR11)
Potential sun hours	457	426	375	346	300	290
Total, worst case			542		157	472
Sun reduction			0,59		0,66	0,79
Oper. time red.			0,81		0,81	0,81
Wind dir. red.			0,76		0,76	0,62
Total reduction			0,37		0,41	0,40
Total, real			199		65	190

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'AgriShadow receptor: R33 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (70) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations  
 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
 391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 20:19	05:29 20:30	05:53 20:12	06:23 19:29	06:51 18:40	06:25 16:54	06:59 16:31		
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51	05:28 20:20	05:30 20:30	05:54 20:10	06:23 19:28	06:52 18:38	06:26 16:53	07:00 16:31		
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52	05:28 20:20	05:30 20:30	05:55 20:09	06:24 19:26	06:53 18:37	17:46 (AR09) 17:47 (AR09)	06:27 16:52	07:01 16:30	
4	07:19 16:43	07:03 17:17	06:27 17:50	16:58 (AR09) 06:37	06:37 19:23	05:53 19:53	05:28 20:21	05:31 20:29	05:56 20:08	06:25 19:25	06:54 18:35	17:42 (AR09) 17:39 (AR09)	06:28 16:51	07:02 16:30
5	07:19 16:43	07:02 17:18	06:25 17:51	16:59 (AR09) 06:35	06:35 19:24	05:52 19:54	05:27 20:22	05:57 20:29	06:26 19:23	06:55 18:33	17:39 (AR09) 17:43 (AR09)	06:29 16:50	07:03 16:30	
6	07:19 16:44	07:01 17:20	06:24 17:52	16:59 (AR09) 06:34	06:34 19:25	05:51 19:55	05:27 20:22	05:32 20:29	06:27 20:06	06:56 19:21	17:37 (AR09) 17:41 (AR09)	06:30 16:49	07:03 16:30	
7	07:19 16:45	07:00 17:21	06:22 17:53	17:01 (AR09) 06:32	06:32 19:26	05:50 19:56	05:27 20:23	05:33 20:29	05:58 20:05	06:28 19:20	17:35 (AR09) 17:38 (AR09)	06:31 16:48	07:04 16:30	
8	07:19 16:46	06:59 17:22	06:20 17:54	17:02 (AR09) 06:30	06:30 19:27	05:48 19:57	05:26 20:24	05:33 20:28	05:59 20:04	06:29 19:18	17:34 (AR09) 17:36 (AR09)	06:33 16:46	07:05 16:30	
9	07:19 16:47	06:58 17:23	06:19 17:55	17:03 (AR09) 06:29	06:29 19:28	05:47 19:58	05:26 20:24	05:34 20:28	06:00 20:02	06:30 19:17	17:33 (AR09) 17:34 (AR09)	06:34 16:45	07:06 16:30	
10	07:19 16:48	06:57 17:24	06:17 17:57	17:06 (AR09) 06:27	06:27 19:29	05:46 19:59	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:25	06:35 16:44	07:07 16:30	
11	07:19 16:49	06:56 17:26	06:16 17:58	17:09 (AR09) 06:26	06:26 19:30	05:45 20:00	05:26 20:25	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30	
12	07:18 16:50	06:54 17:27	06:14 17:59	06:24 19:31	05:44 20:01	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30		
13	07:18 16:51	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:02	05:26 20:26	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:38 16:42	07:09 16:30		
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	05:26 20:27	05:37 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30		
15	07:17 16:54	06:51 17:30	06:09 18:02	06:19 19:34	05:41 20:04	05:26 20:27	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31		
16	07:17 16:55	06:49 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 20:28	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31		
17	07:17 16:56	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:12 16:31		
18	07:16 16:57	06:47 17:34	06:04 18:05	06:15 19:37	05:38 20:07	05:26 20:28	05:41 20:23	06:09 19:50	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:31		
19	07:16 16:58	06:45 17:35	06:03 18:06	06:13 19:38	05:37 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:45 16:37	07:14 16:32		
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32		
21	07:14 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:21	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:35	07:15 16:33		
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33		
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:14 18:06	06:50 16:34	07:16 16:34		
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:16 16:34		
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:13	05:27 20:30	05:46 20:18	06:16 19:40	06:46 18:50	06:17 17:03	06:52 16:33	07:17 16:35		
26	07:11 17:06	06:36 17:43	05:51 18:13	06:03 19:45	05:32 20:14	05:27 20:30	05:47 20:17	06:17 19:39	06:46 18:48	06:18 17:02	06:53 16:33	07:17 16:35		
27	07:10 17:07	06:34 17:44	05:50 18:14	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:16	06:18 19:37	06:47 18:47	06:19 17:01	06:54 16:32	07:17 16:36		
28	07:10 17:09	06:33 17:46	05:48 18:15	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:15	06:19 19:36	06:48 18:45	06:20 16:59	06:55 16:32	07:18 16:37		
29	07:09 17:10		06:46 19:16	05:59 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:49 18:43	06:21 16:58	06:56 16:31	07:18 16:37		
30	07:08 17:11		06:45 19:18	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:50 18:42	06:22 16:57	06:58 16:31	07:18 16:38		
31	07:07 17:12		06:43 19:19		05:29 20:18		05:52 20:13	06:22 19:31		06:23 16:56		07:19 16:39		
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290		
Total, worst case			18							18				
Sun reduction			0,62							0,66				
Oper. time red.			0,81							0,81				
Wind dir. red.			0,76							0,76				
Total reduction			0,38							0,41				
Total, real			7							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 Last time (hh:mm) with flicker	(WTG causing flicker first time) (WTG causing flicker last time)
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### SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R35 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (71)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

#### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50							
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51							
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52							
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:53							
5	07:19 16:44	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:54							
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:55							
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:56							
8	07:19 16:46	06:59 17:22	06:21 17:54	06:30 19:27	05:48 19:57							
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:58	19:34 (AR08)						
10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 19:59	19:34 (AR08)						
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:00	19:34 (AR08)						
12	07:18 16:50	06:54 17:27	06:14 17:59	06:24 19:31	05:44 20:01	19:35 (AR08)						
13	07:18 16:51	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:02	19:35 (AR08)						
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	19:36 (AR08)						
15	07:17 16:54	06:51 17:31	06:09 18:02	06:19 19:34	05:41 20:04	19:37 (AR08)						
16	07:17 16:55	06:49 17:32	06:08 18:03	06:18 19:35	05:40 20:05	19:38 (AR08)						
17	07:17 16:56	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06	19:42 (AR08)						
18	07:16 16:57	06:47 17:34	06:04 18:05	06:15 19:37	05:38 20:07	19:42 (AR08)						
19	07:16 16:58	06:45 17:35	06:03 18:06	06:13 19:38	05:37 20:08	19:43 (AR08)						
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	19:43 (AR08)						
21	07:14 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	19:44 (AR08)						
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	19:44 (AR08)						
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	19:45 (AR08)						
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	19:45 (AR08)						
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:13	19:46 (AR08)						
26	07:11 17:06	06:36 17:43	05:51 18:13	06:04 19:45	05:32 20:14	19:46 (AR08)						
27	07:10 17:08	06:34 17:44	05:50 18:14	06:02 19:46	05:32 20:15	19:47 (AR08)						
28	07:10 17:09	06:33 17:46	05:48 18:15	06:01 19:47	05:31 20:16	19:47 (AR08)						
29	07:09 17:10		06:46 19:17	05:59 19:48	05:30 20:17	19:48 (AR08)						
30	07:08 17:11		06:45 19:18	05:58 19:49	05:30 20:18	19:49 (AR08)						
31	07:07 17:12		06:43 19:19	05:29 19:50	05:29 20:18	19:50 (AR08)						
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290
Total, worst case					405	1266	854	10				
Sun reduction					0,51	0,49	0,50	0,54				
Oper. time red.					0,81	0,81	0,81	0,81				
Wind dir. red.					0,75	0,76	0,76	0,68				
Total reduction					0,31	0,30	0,31	0,29				
Total, real					126	382	262	3				

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

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R38 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (72)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

## Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40 24	15:33 (AR10) 15:57 (AR10)	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50
2	07:19 16:41 24	15:34 (AR10) 15:58 (AR10)	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51
3	07:19 16:42 24	15:35 (AR10) 15:59 (AR10)	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52
4	07:19 16:43 25	15:35 (AR10) 16:00 (AR10)	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:53
5	07:19 16:43 25	15:36 (AR10) 16:01 (AR10)	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:54
6	07:19 16:44 25	15:37 (AR10) 16:02 (AR10)	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:55
7	07:19 16:45 25	15:38 (AR10) 16:03 (AR10)	07:00 17:21	06:22 17:53	17:11 (AR09) 17:12 (AR09)	06:32 19:26
8	07:19 16:46 25	15:39 (AR10) 16:04 (AR10)	06:59 17:22	06:20 17:54	17:11 (AR09) 17:12 (AR09)	06:30 19:27
9	07:19 16:47 26	15:39 (AR10) 16:05 (AR10)	06:58 17:23	06:19 17:55	17:12 (AR09) 17:13 (AR09)	06:29 19:28
10	07:19 16:48 26	15:40 (AR10) 16:06 (AR10)	06:57 17:24	06:17 17:57	17:14 (AR09) 17:15 (AR09)	06:27 19:29
11	07:19 16:49 24	15:42 (AR10) 16:06 (AR10)	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:00
12	07:18 16:50 23	15:42 (AR10) 16:05 (AR10)	06:54 17:27	06:14 17:59	06:24 19:31	05:44 20:01
13	07:18 16:51 20	15:44 (AR10) 16:04 (AR10)	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:02
14	07:18 16:52 18	15:46 (AR10) 16:04 (AR10)	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03
15	07:17 16:54 16	15:47 (AR10) 16:03 (AR10)	06:51 17:30	06:09 18:02	06:19 19:34	05:41 20:04
16	07:17 16:55 12	15:50 (AR10) 16:02 (AR10)	06:49 17:32	06:08 18:03	06:18 19:35	05:40 20:05
17	07:17 16:56 5	15:53 (AR10) 15:58 (AR10)	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06
18	07:16 16:57		06:47 17:34	06:04 18:05	06:15 19:37	05:38 20:07
19	07:16 16:58		06:45 17:35	06:03 18:06	06:13 19:38	05:37 20:08
20	07:15 16:59		06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09
21	07:14 17:00		06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10
22	07:14 17:02		06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11
23	07:13 17:03		06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12
24	07:13 17:04		06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13
25	07:12 17:05		06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:13
26	07:11 17:06		06:36 17:43	05:51 18:13	06:03 19:45	05:32 20:14
27	07:10 17:07		06:34 17:44	05:50 18:14	06:02 19:46	05:32 20:15
28	07:10 17:09		06:33 17:46	05:48 18:15	06:01 19:47	05:31 20:16
29	07:09 17:10			06:46 19:16	05:59 19:48	05:30 20:17
30	07:08 17:11			06:45 19:18	05:58 19:49	05:30 20:18
31	07:07 17:12			06:43 19:19		05:29 20:18
Potential sun hours	300	298	370	398	446	450
Total, worst case	367					
Sun reduction	0,77			0,62		
Oper. time red.	0,81			0,81		
Wind dir. red.	0,72			0,76		
Total reduction	0,44			0,38		
Total, real	163		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: Parco Eolico Val d'Agri Shadow receptor: R38 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (72)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:29	05:53	06:22	06:51	06:25	06:59
	20:30	20:11	19:29	18:40	16:54	15:24 (AR10)
2	05:30	05:54	06:23	06:52	06:26	07:00
	20:30	20:10	19:28	18:38	16:53	15:24 (AR10)
3	05:30	05:55	06:24	06:53	06:27	07:01
	20:30	20:09	19:26	18:37	16:52	15:23 (AR10)
4	05:31	05:56	06:25	06:54	17:50 (AR09)	07:02
	20:29	20:08	19:25	18:35	16:51	15:23 (AR10)
5	05:32	05:57	06:26	06:55	17:48 (AR09)	07:03
	20:29	20:07	19:23	18:33	16:50	15:23 (AR10)
6	05:32	05:57	06:27	06:56	17:47 (AR09)	07:03
	20:29	20:06	19:21	18:32	16:49	15:23 (AR10)
7	05:33	05:58	06:28	06:57	06:31	07:04
	20:29	20:05	19:20	18:30	16:48	15:23 (AR10)
8	05:33	05:59	06:29	06:58	06:33	07:05
	20:28	20:04	19:18	18:29	16:46	15:24 (AR10)
9	05:34	06:00	06:30	06:59	06:34	07:06
	20:28	20:02	19:17	18:27	16:45	15:24 (AR10)
10	05:35	06:01	06:31	07:01	06:35	07:07
	20:28	20:01	19:15	18:25	16:44	15:23 (AR10)
11	05:35	06:02	06:32	07:02	06:36	07:08
	20:27	20:00	19:13	18:24	16:43	15:24 (AR10)
12	05:36	06:03	06:33	07:03	06:37	07:09
	20:27	19:59	19:12	18:22	16:43	15:24 (AR10)
13	05:37	06:04	06:34	07:04	06:38	07:09
	20:26	19:57	19:10	18:21	16:42	15:25 (AR10)
14	05:37	06:05	06:35	07:05	06:40	07:10
	20:26	19:56	19:08	18:19	16:41	15:24 (AR10)
15	05:38	06:06	06:36	07:06	06:41	07:11
	20:25	19:55	19:07	18:18	16:40	15:25 (AR10)
16	05:39	06:07	06:37	07:07	06:42	07:12
	20:25	19:53	19:05	18:16	16:39	15:24 (AR10)
17	05:40	06:08	06:38	07:08	06:43	07:12
	20:24	19:52	19:03	18:15	16:38	15:26 (AR10)
18	05:40	06:09	06:39	07:09	06:44	07:13
	20:23	19:50	19:02	18:13	16:38	15:26 (AR10)
19	05:41	06:10	06:40	07:10	06:45	07:14
	20:23	19:49	19:00	18:12	16:37	15:27 (AR10)
20	05:42	06:11	06:41	07:11	06:47	07:14
	20:22	19:48	18:58	18:10	16:36	15:27 (AR10)
21	05:43	06:12	06:42	07:12	06:48	07:15
	20:21	19:46	18:57	18:09	16:35	15:28 (AR10)
22	05:44	06:13	06:43	07:13	06:49	07:15
	20:21	19:45	18:55	18:07	16:35	15:28 (AR10)
23	05:45	06:14	06:44	07:14	06:50	07:16
	20:20	19:43	18:53	18:06	16:34	15:29 (AR10)
24	05:46	06:15	06:45	07:15	06:51	07:16
	20:19	19:42	18:52	18:05	16:34	15:29 (AR10)
25	05:46	06:16	06:46	06:17	06:52	07:17
	20:18	19:40	18:50	17:03	16:33	15:29 (AR10)
26	05:47	06:17	06:46	06:18	06:53	07:17
	20:17	19:39	18:48	17:02	16:33	15:30 (AR10)
27	05:48	06:18	06:47	06:19	06:54	07:17
	20:16	19:37	18:47	17:01	16:32	15:30 (AR10)
28	05:49	06:19	06:48	06:20	06:55	07:18
	20:15	19:36	18:45	16:59	16:32	15:31 (AR10)
29	05:50	06:20	06:49	06:21	06:56	07:18
	20:15	19:34	18:43	16:58	16:31	15:32 (AR10)
30	05:51	06:21	06:50	06:22	06:58	07:18
	20:14	19:33	18:42	16:57	16:31	15:32 (AR10)
31	05:52	06:22		06:23		07:19
	20:13	19:31		16:56		15:33 (AR10)
Potential sun hours	457	426	375	346	300	290
Total, worst case				4	94	723
Sun reduction				0,66	0,74	0,79
Oper. time red.				0,81	0,81	0,81
Wind dir. red.				0,76	0,72	0,72
Total reduction				0,41	0,43	0,46
Total, real				2	40	332

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R4 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (60)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40	07:07 17:14	06:32 17:47	06:50 (AR04)   06:42 07:47 (AR04)   19:20	07:50 (AR04)   05:57 08:14 (AR04)   19:51	05:29 19:01 (AR02)
2	07:19 16:41	07:06 17:15	06:30 17:48	06:49 (AR04)   06:40 07:48 (AR04)   19:21	07:56 (AR04)   05:56 08:08 (AR04)   19:52	05:29 19:01 (AR02)
3	07:19 16:42	07:05 17:16	06:29 17:49	06:47 (AR04)   06:39 07:47 (AR04)   19:22	05:55 19:53	05:28 19:01 (AR02)
4	07:19 16:43	07:04 17:18	06:27 17:50	06:46 (AR04)   06:37 07:48 (AR04)   19:23	05:53 19:54	05:28 19:01 (AR02)
5	07:19 16:44	07:03 17:19	06:25 17:51	06:44 (AR04)   06:35 07:48 (AR04)   19:24	05:52 19:55	05:28 19:01 (AR02)
6	07:19 16:45	07:02 17:20	06:24 17:53	06:43 (AR04)   06:34 07:48 (AR04)   19:25	05:51 19:56	05:27 19:01 (AR02)
7	07:19 16:46	07:00 17:21	06:22 17:54	06:41 (AR04)   06:32 07:48 (AR04)   19:26	05:50 19:57	05:27 19:01 (AR02)
8	07:19 16:47	06:59 17:22	06:21 17:55	06:39 (AR04)   06:31 07:47 (AR04)   19:27	05:49 19:58	05:27 19:01 (AR02)
9	07:19 16:48	06:58 17:24	06:19 17:56	06:38 (AR04)   06:29 07:48 (AR04)   19:28	05:48 19:59	05:27 19:01 (AR02)
10	07:19 16:49	06:57 17:25	06:18 17:57	06:36 (AR04)   06:28 07:47 (AR04)   19:29	05:46 20:00	05:26 19:01 (AR02)
11	07:19 16:50	06:56 17:26	06:16 17:58	06:35 (AR04)   06:26 07:47 (AR04)   19:30	05:45 20:01	05:26 19:01 (AR02)
12	07:19 16:51	06:55 17:27	06:14 17:59	06:33 (AR04)   06:24 07:46 (AR04)   19:31	05:44 20:02	05:26 19:01 (AR02)
13	07:18 16:52	06:54 17:28	06:13 18:00	06:32 (AR04)   06:23 07:45 (AR04)   19:32	05:43 20:03	05:26 19:01 (AR02)
14	07:18 16:53	06:52 17:30	06:11 18:01	06:33 (AR04)   06:21 07:45 (AR04)   19:33	05:42 20:04	05:26 19:02 (AR02)
15	07:18 16:54	06:51 17:31	06:10 18:02	06:32 (AR04)   06:20 07:44 (AR04)   19:34	05:41 20:05	05:26 19:02 (AR02)
16	07:17 16:55	16:29 (AR01) 17:32	06:08 18:03	06:32 (AR04)   06:18 07:43 (AR04)   19:35	05:40 20:06	05:26 19:02 (AR02)
17	07:17 16:56	16:30 (AR01) 17:33	06:06 18:04	06:33 (AR04)   06:17 07:43 (AR04)   19:36	05:39 20:07	05:26 19:02 (AR02)
18	07:16 16:57	16:30 (AR01) 17:34	06:05 18:05	06:33 (AR04)   06:15 07:41 (AR04)   19:37	05:39 20:08	05:26 19:02 (AR02)
19	07:16 16:58	16:31 (AR01) 17:36	06:03 18:06	06:34 (AR04)   06:14 07:41 (AR04)   19:38	05:38 20:08	05:26 19:02 (AR02)
20	07:15 17:00	16:31 (AR01) 17:37	06:02 18:08	06:34 (AR04)   06:12 07:41 (AR04)   19:39	05:37 20:09	05:26 19:02 (AR02)
21	07:15 17:01	16:32 (AR01) 17:38	06:00 18:09	06:34 (AR04)   06:11 07:41 (AR04)   19:40	05:36 20:10	05:26 19:03 (AR02)
22	07:14 17:02	16:33 (AR01) 17:39	05:58 18:10	06:35 (AR04)   06:09 07:37 (AR04)   19:41	05:35 20:11	05:27 19:03 (AR02)
23	07:14 17:03	16:34 (AR01) 17:40	05:57 18:11	06:36 (AR04)   06:08 07:35 (AR04)   19:42	05:35 20:12	05:27 19:03 (AR02)
24	07:13 17:04	16:35 (AR01) 17:41	05:55 18:12	06:36 (AR04)   06:07 07:34 (AR04)   19:44	05:34 20:13	05:27 19:03 (AR02)
25	07:12 17:05	16:40 (AR01) 17:42	05:53 18:13	06:38 (AR04)   06:05 07:33 (AR04)   19:45	05:33 20:14	05:27 19:04 (AR02)
26	07:12 17:07	16:41 (AR01) 17:44	05:52 18:14	06:38 (AR04)   06:04 07:30 (AR04)   19:46	05:32 20:15	05:28 19:04 (AR02)
27	07:11 17:08	16:43 (AR01) 17:45	05:50 18:15	06:39 (AR04)   06:02 07:28 (AR04)   19:47	05:32 20:15	05:28 19:04 (AR02)
28	07:10 17:09	16:44 (AR01) 17:46	05:48 18:16	06:41 (AR04)   06:01 07:26 (AR04)   19:48	05:31 20:16	05:29 19:05 (AR02)
29	07:09 17:10		06:47 19:17	07:43 (AR04)   06:00 08:24 (AR04)   19:49	05:31 20:17	05:29 19:05 (AR02)
30	07:08 17:11		06:45 19:18	07:44 (AR04)   05:58 08:21 (AR04)   19:50	05:30 20:18	05:29 19:05 (AR02)
31	07:07 17:13		06:44 19:19	07:47 (AR04)   05:57 08:18 (AR04)   19:51	05:30 20:19	05:29 19:05 (AR02)
Potential sun hours	299	298	370	398	446	450
Total, worst case	43	567	1900	36	836	1790
Sun reduction	0,77	0,69	0,62	0,56	0,51	0,49
Oper. time red.	0,81	0,81	0,81	0,81	0,81	0,81
Wind dir. red.	0,75	0,71	0,71	0,71	0,66	0,66
Total reduction	0,46	0,39	0,35	0,32	0,27	0,26
Total, real	20	224	670	11	229	470

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'AgriShadow receptor: R4 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (60)  
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	July		August		September		October		November		December	
1	05:30		19:05 (AR02)	05:53	19:29 (AR02)	06:23	06:52	07:12 (AR04)	06:25			06:59
	20:30	60	20:05 (AR02)	20:12	20	19:49 (AR02)	19:30	18:40	74	08:26 (AR04)	16:55	16:31
2	05:30		19:06 (AR02)	05:54		19:32 (AR02)	06:24	06:53		07:13 (AR04)	06:26	07:00
	20:30	59	20:05 (AR02)	20:11	16	19:48 (AR02)	19:28	18:39	73	08:26 (AR04)	16:53	16:31
3	05:31		19:06 (AR02)	05:55			06:25	06:54		07:14 (AR04)	06:27	07:01
	20:30	59	20:05 (AR02)	20:10			19:27	18:37	71	08:25 (AR04)	16:52	16:31
4	05:31		19:07 (AR02)	05:56			06:26	06:55		07:15 (AR04)	06:28	07:02
	20:30	58	20:05 (AR02)	20:09			19:25	18:35	70	08:25 (AR04)	16:51	16:30
5	05:32		19:06 (AR02)	05:57			06:27	06:56		07:16 (AR04)	06:29	07:03
	20:30	58	20:04 (AR02)	20:07			19:23	18:34	69	08:25 (AR04)	16:50	16:30
6	05:32		19:07 (AR02)	05:58			06:28	06:57		07:17 (AR04)	06:31	07:04
	20:29	58	20:05 (AR02)	20:06			19:22	18:32	67	08:24 (AR04)	16:49	16:30
7	05:33		19:07 (AR02)	05:59			06:29	06:58		07:18 (AR04)	06:32	07:05
	20:29	57	20:04 (AR02)	20:05			19:20	18:31	66	08:24 (AR04)	16:48	16:30
8	05:34		19:07 (AR02)	06:00			06:30	06:59		07:19 (AR04)	06:33	07:06
	20:29	57	20:04 (AR02)	20:04			19:18	18:29	65	08:24 (AR04)	16:47	16:30
9	05:34		19:08 (AR02)	06:01			06:30	07:00		07:20 (AR04)	06:34	07:07
	20:28	56	20:04 (AR02)	20:03			19:17	18:27	63	08:23 (AR04)	16:46	16:30
10	05:35		19:08 (AR02)	06:02			06:31	07:01		07:21 (AR04)	06:35	07:07
	20:28	55	20:03 (AR02)	20:01			19:15	10 08:00 (AR04)	18:26	61 08:22 (AR04)	16:45	16:30
11	05:36		19:09 (AR02)	06:03			06:32	07:02		07:22 (AR04)	06:36	07:08
	20:28	54	20:03 (AR02)	20:00			19:14	22 08:06 (AR04)	18:24	60 08:22 (AR04)	16:44	16:30
12	05:36		19:09 (AR02)	06:04			06:33	07:03		07:23 (AR04)	06:38	07:09
	20:27	54	20:03 (AR02)	19:59			19:12	30 08:09 (AR04)	18:23	58 08:21 (AR04)	16:43	16:30
13	05:37		19:09 (AR02)	06:05			06:34	07:04		07:24 (AR04)	06:39	07:10
	20:27	53	20:02 (AR02)	19:58			19:10	35 08:11 (AR04)	18:21	56 08:20 (AR04)	16:42	16:30
14	05:38		19:10 (AR02)	06:05			06:35	07:05		07:25 (AR04)	06:40	07:11
	20:26	52	20:02 (AR02)	19:56			19:09	41 08:14 (AR04)	18:20	54 08:19 (AR04)	16:41	16:31
15	05:38		19:11 (AR02)	06:06			06:36	07:06		07:26 (AR04)	06:41	16:13 (AR01)
	20:26	50	20:01 (AR02)	19:55			19:07	44 08:15 (AR04)	18:18	52 08:18 (AR04)	16:40	3 16:16 (AR01)
16	05:39		19:10 (AR02)	06:07			06:37	07:07		07:27 (AR04)	06:42	16:12 (AR01)
	20:25	50	20:00 (AR02)	19:54			19:05	48 08:17 (AR04)	18:17	50 08:17 (AR04)	16:39	4 16:16 (AR01)
17	05:40		19:11 (AR02)	06:08			06:38	07:08		07:28 (AR04)	06:43	16:10 (AR01)
	20:24	49	20:00 (AR02)	19:52			19:04	51 08:18 (AR04)	18:15	48 08:16 (AR04)	16:39	5 16:15 (AR01)
18	05:41		19:12 (AR02)	06:09			06:39	07:09		07:30 (AR04)	06:45	16:09 (AR01)
	20:24	48	20:00 (AR02)	19:51			19:02	54 08:19 (AR04)	18:14	45 08:15 (AR04)	16:38	5 16:14 (AR01)
19	05:42		19:13 (AR02)	06:10			06:40	07:10		07:31 (AR04)	06:46	16:08 (AR01)
	20:23	46	19:59 (AR02)	19:49			19:00	57 08:21 (AR04)	18:12	43 08:14 (AR04)	16:37	5 16:13 (AR01)
20	05:42		19:14 (AR02)	06:11			06:41	07:11		07:32 (AR04)	06:47	16:08 (AR01)
	20:22	45	19:59 (AR02)	19:48			18:59	59 08:21 (AR04)	18:11	40 08:12 (AR04)	16:36	5 16:13 (AR01)
21	05:43		19:13 (AR02)	06:12			06:42	07:12		07:33 (AR04)	06:48	16:08 (AR01)
	20:22	44	19:57 (AR02)	19:47			18:57	61 08:22 (AR04)	18:09	38 08:11 (AR04)	16:36	4 16:12 (AR01)
22	05:44		19:14 (AR02)	06:13			06:43	07:14		07:34 (AR04)	06:49	16:07 (AR01)
	20:21	43	19:57 (AR02)	19:45			18:55	63 08:23 (AR04)	18:08	35 08:09 (AR04)	16:35	4 16:11 (AR01)
23	05:45		19:15 (AR02)	06:14			06:44	07:15		07:35 (AR04)	06:50	16:07 (AR01)
	20:20	41	19:56 (AR02)	19:44			18:54	66 08:24 (AR04)	18:06	32 08:07 (AR04)	16:35	3 16:10 (AR01)
24	05:46		19:16 (AR02)	06:15			06:45	07:16		07:37 (AR04)	06:51	16:07 (AR01)
	20:19	40	19:56 (AR02)	19:42			18:52	67 08:24 (AR04)	18:05	29 08:06 (AR04)	16:34	2 16:09 (AR01)
25	05:47		19:18 (AR02)	06:16			06:46	07:17		06:38 (AR04)	06:52	16:08 (AR01)
	20:19	37	19:55 (AR02)	19:41			18:50	69 08:25 (AR04)	17:04	26 07:04 (AR04)	16:34	2 16:10 (AR01)
26	05:48		19:19 (AR02)	06:17			06:47	07:18		06:39 (AR04)	06:54	16:08 (AR01)
	20:18	35	19:54 (AR02)	19:39			18:49	70 08:25 (AR04)	17:02	22 07:01 (AR04)	16:33	1 16:09 (AR01)
27	05:48		19:19 (AR02)	06:18			06:48	07:19		06:40 (AR04)	06:55	07:18
	20:17	34	19:53 (AR02)	19:38			18:47	70 08:25 (AR04)	17:01	18 06:58 (AR04)	16:33	16:36
28	05:49		19:20 (AR02)	06:19			06:49	07:20		06:41 (AR04)	06:56	07:18
	20:16	32	19:52 (AR02)	19:36			18:45	71 08:25 (AR04)	17:00	13 06:54 (AR04)	16:32	16:37
29	05:50		19:22 (AR02)	06:20			06:50	07:21		06:42 (AR04)	06:57	07:18
	20:15	29	19:51 (AR02)	19:34			18:44	73 08:26 (AR04)	16:58	6 06:48 (AR04)	16:32	16:38
30	05:51		19:24 (AR02)	06:21			06:51	07:22		07:13 (AR04)	06:23	07:19
	20:14	26	19:50 (AR02)	19:33			18:42	73 08:26 (AR04)	16:57		16:31	16:39
31	05:52		19:26 (AR02)	06:22				06:24				07:19
	20:13	23	19:49 (AR02)	19:31				16:56				16:39
Potential sun hours	457		426			375		346		300		290
Total, worst case	1462		36			1134		1404		43		
Sun reduction	0,50		0,54			0,59		0,66		0,74		
Oper. time red.	0,81		0,81			0,81		0,81		0,81		
Wind dir. red.	0,66		0,66			0,71		0,71		0,75		
Total reduction	0,27		0,29			0,34		0,38		0,45		
Total, real	391		10			382		529		19		

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

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

Calculation: Parco Eolico Val d'Agri Shadow receptor: R40 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (73)  
 Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time  
 N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
 391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:26	06:54 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:08	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:02 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:26 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:27 19:22	06:57 18:32	06:30 16:49	07:04 16:30
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:05 16:30
8	07:19 16:46	06:59 17:22	06:21 17:55	06:30 19:27	05:48 19:58	05:27 20:24	05:33 20:29	05:59 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:05 16:30
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:24	05:34 20:28	06:00 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	05:35 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:18 16:50	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:26	05:37 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
15	07:17 16:54	06:51 17:31	06:09 18:02	06:20 19:34	05:41 20:05	05:26 20:27	05:38 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 20:28	05:39 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:38	07:13 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:28	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 16:36	07:14 16:32
21	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:42 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	05:44 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 16:35	07:15 16:33
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:43	06:44 18:53	07:15 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:16 16:34
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:14	05:27 20:30	05:46 20:18	06:16 19:40	06:46 18:50	06:17 17:03	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:51 18:14	06:04 19:45	05:32 20:14	05:28 20:30	05:47 20:17	06:17 19:39	06:47 18:48	06:18 17:02	06:53 16:33	07:17 16:36
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:46	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	06:19 17:01	06:54 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:47	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 16:59	06:56 16:32	07:18 16:37
29	07:09 17:10	06:32 19:17	06:47 19:48	06:00 19:48	05:30 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11	06:31 19:18	06:45 19:49	05:58 19:49	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:22 16:57	06:58 16:31	07:19 16:38
31	07:07 17:12	06:30 19:19	06:43 19:49	06:03 19:49	05:29 20:18	05:29 20:30	05:52 20:13	06:22 19:31	06:52 16:56	06:24 16:56	06:59 16:39	07:19 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R43 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (74)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June			
1	07:19 16:40	07:06 17:14	07:26 (AR06) 07:45 (AR06)	06:31 17:47	07:14 (AR06) 07:37 (AR06)	06:42 18:21 (AR04)	05:57 19:51	05:29 20:19	
2	07:19 16:41	07:05 17:15	07:25 (AR06) 07:46 (AR06)	06:30 17:48	07:18 (AR06) 07:34 (AR06)	06:40 19:21	11 18:20 (AR04)	05:56 19:52	05:29 20:20
3	07:19 16:42	07:05 17:16	07:24 (AR06) 07:47 (AR06)	06:28 17:49	06:39 19:22	12 18:32 (AR04)	05:55 19:53	05:28 20:21	
4	07:19 16:43	07:04 17:17	07:23 (AR06) 07:48 (AR06)	06:27 17:50	06:37 19:23	14 18:33 (AR04)	05:53 19:54	05:28 20:21	
5	07:19 16:44	07:03 17:19	07:22 (AR06) 07:49 (AR06)	06:25 17:51	06:35 19:24	15 18:34 (AR04)	05:52 19:55	05:28 20:22	
6	07:19 16:45	07:01 17:20	07:21 (AR06) 07:50 (AR06)	06:24 17:52	06:34 19:25	16 18:35 (AR04)	05:51 19:56	05:27 20:23	
7	07:19 16:46	07:00 17:21	07:20 (AR06) 07:51 (AR06)	06:22 17:54	06:32 19:26	17 18:35 (AR04)	05:50 19:57	05:27 20:23	
8	07:19 16:47	06:59 17:22	07:19 (AR06) 07:52 (AR06)	06:21 17:55	06:31 19:27	18 18:37 (AR04)	05:49 19:58	05:27 20:24	
9	07:19 16:48	06:58 17:24	07:18 (AR06) 07:52 (AR06)	06:19 17:56	06:29 19:28	18 18:37 (AR04)	05:48 19:59	05:26 20:25	
10	07:19 16:49	06:57 17:25	07:16 (AR06) 07:52 (AR06)	06:18 17:57	06:27 19:29	18 18:38 (AR04)	05:46 20:00	05:26 20:25	
11	07:19 16:50	06:56 17:26	07:15 (AR06) 07:52 (AR06)	06:16 17:58	06:26 19:30	19 18:39 (AR04)	05:45 20:01	05:26 20:26	
12	07:19 16:51	06:55 17:27	07:14 (AR06) 07:53 (AR06)	06:14 17:59	06:24 19:31	19 18:40 (AR04)	05:44 20:02	05:26 20:26	
13	07:18 16:52	06:53 17:28	07:13 (AR06) 07:53 (AR06)	06:13 18:00	06:23 19:32	19 18:41 (AR04)	05:43 20:03	05:26 20:27	
14	07:18 16:53	06:52 17:30	07:11 (AR06) 07:52 (AR06)	06:11 18:01	06:21 19:33	16 18:42 (AR04)	05:42 20:04	05:26 20:27	
15	07:18 16:54	06:51 17:31	07:10 (AR06) 07:52 (AR06)	06:10 18:02	06:20 19:34	9 18:36 (AR04)	05:41 20:05	05:26 20:27	
16	07:17 16:55	06:50 17:32	07:09 (AR06) 07:53 (AR06)	06:08 18:03	06:18 19:35		05:40 20:06	05:26 20:28	
17	07:17 16:56	06:48 17:33	07:07 (AR06) 07:52 (AR06)	06:06 18:04	06:17 19:36		05:39 20:06	05:26 20:28	
18	07:16 16:57	06:47 17:34	07:06 (AR06) 07:52 (AR06)	06:05 18:05	06:15 19:37		05:39 20:07	05:26 20:29	
19	07:16 16:58	06:46 17:35	07:05 (AR06) 07:51 (AR06)	06:03 18:06	06:14 19:38		05:38 20:08	05:26 20:29	
20	07:15 16:59	06:44 17:37	07:03 (AR06) 07:50 (AR06)	06:01 18:07	06:12 19:39		05:37 20:09	05:26 20:29	
21	07:15 17:01	06:43 17:38	07:04 (AR06) 07:50 (AR06)	06:00 18:08	06:11 19:40		05:36 20:10	05:26 20:29	
22	07:14 17:02	06:42 17:39	07:05 (AR06) 07:50 (AR06)	05:58 18:10	06:09 19:41		05:35 20:11	05:27 20:30	
23	07:14 17:03	06:40 17:40	07:05 (AR06) 07:48 (AR06)	05:57 18:11	06:08 19:42		05:34 20:12	05:27 20:30	
24	07:13 17:04	06:39 17:41	07:07 (AR06) 07:47 (AR06)	05:55 18:12	06:06 19:43		05:34 20:13	05:27 20:30	
25	07:12 17:05	06:37 17:42	07:07 (AR06) 07:45 (AR06)	05:53 18:13	06:05 19:44		05:33 20:14	05:27 20:30	
26	07:11 17:07	06:36 17:44	07:09 (AR06) 07:44 (AR06)	05:52 18:14	06:04 19:45		05:32 20:15	05:28 20:30	
27	07:11 17:08	06:34 17:45	07:10 (AR06) 07:42 (AR06)	05:50 18:15	06:02 19:47		05:32 20:15	05:28 20:30	
28	07:10 17:09	06:33 17:46	07:12 (AR06) 07:40 (AR06)	05:48 18:16	06:01 19:48		05:31 20:16	05:28 20:30	
29	07:09 17:10	06:32 (AR06) 07:29 (AR06)		06:47 19:17	3 18:25 (AR04) 18:28 (AR04)		06:00 20:17	05:29 20:30	
30	07:08 17:11	07:28 (AR06) 07:43 (AR06)		06:45 19:18	5 18:23 (AR04) 18:28 (AR04)		05:58 20:18	05:29 20:30	
31	07:07 17:13	07:27 (AR06) 07:44 (AR06)		06:43 19:19	7 18:23 (AR04) 18:30 (AR04)		05:30 20:19		
Potential sun hours	300	298	370	398	446	450			
Total, worst case	62	1012	54	230					
Sun reduction	0,77	0,69	0,62	0,56					
Oper. time red.	0,81	0,81	0,81	0,81					
Wind dir. red.	0,67	0,67	0,70	0,75					
Total reduction	0,42	0,38	0,35	0,34					
Total, real	26	383	19	78					

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: Parco Eolico Val d'AgriShadow receptor: R43 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (74)  
 Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

Operational time												
N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	July	August	September		October		November			December		
1	05:30 20:30	05:53 20:12	06:23 19:30	18:19 (AR04) 18:38 (AR04)	06:52 18:40		06:25 16:55		06:46 (AR06) 07:21 (AR06)	06:59 16:31		
2	05:30 20:30	05:54 20:11	06:24 19:28	18:18 (AR04) 18:36 (AR04)	06:53 18:39		06:26 16:53	34	06:47 (AR06) 07:21 (AR06)	07:00 16:31		
3	05:31 20:30	05:55 20:10	06:25 19:26	18:17 (AR04) 18:35 (AR04)	06:54 18:37		06:27 16:52	32	06:49 (AR06) 07:21 (AR06)	07:01 16:31		
4	05:31 20:30	05:56 20:09	06:26 19:25	18:16 (AR04) 18:34 (AR04)	06:55 18:35		06:28 16:51	31	06:50 (AR06) 07:21 (AR06)	07:02 16:30		
5	05:32 20:29	05:57 20:07	06:27 19:23	18:15 (AR04) 18:32 (AR04)	06:56 18:34		06:29 16:50	29	06:51 (AR06) 07:20 (AR06)	07:03 16:30		
6	05:32 20:29	05:58 20:06	06:28 19:22	18:15 (AR04) 18:31 (AR04)	06:57 18:32		06:31 16:49	27	06:52 (AR06) 07:19 (AR06)	07:04 16:30		
7	05:33 20:29	05:59 20:05	06:28 19:20	18:14 (AR04) 18:29 (AR04)	06:58 18:30		06:32 16:48	25	06:53 (AR06) 07:18 (AR06)	07:05 16:30		
8	05:34 20:29	06:00 20:04	06:29 19:18	18:14 (AR04) 18:28 (AR04)	06:59 18:29		06:33 16:47	23	06:55 (AR06) 07:18 (AR06)	07:06 16:30		
9	05:34 20:28	06:01 20:03	06:30 19:17	18:14 (AR04) 18:26 (AR04)	07:00 18:27		06:34 16:46	21	06:56 (AR06) 07:17 (AR06)	07:06 16:30		
10	05:35 20:28	06:02 20:01	06:31 19:15	18:14 (AR04) 18:25 (AR04)	07:01 18:26		06:35 16:45	19	06:57 (AR06) 07:16 (AR06)	07:07 16:30		
11	05:36 20:27	06:02 20:00	06:32 19:13	18:13 (AR04) 18:23 (AR04)	07:02 18:24	07:54 (AR06)	06:36 16:44	17	06:58 (AR06) 07:15 (AR06)	07:08 16:30		
12	05:36 20:27	06:03 19:59	06:33 19:12	18:13 (AR04) 18:21 (AR04)	07:03 18:23	11 08:05 (AR06)	06:38 16:43	14	07:00 (AR06) 07:14 (AR06)	07:09 16:30		
13	05:37 20:27	06:04 19:58	06:34 19:10	18:14 (AR04) 18:20 (AR04)	07:04 18:21	20 08:09 (AR06)	06:39 16:42	12	07:01 (AR06) 07:13 (AR06)	07:10 16:30		
14	05:38 20:26	06:05 19:56	06:35 19:08	18:15 (AR04) 18:18 (AR04)	07:05 18:20	26 08:12 (AR06)	06:40 16:41	9	07:02 (AR06) 07:11 (AR06)	07:11 16:31		
15	05:38 20:26	06:06 19:55	06:36 19:07	18:15 (AR04) 18:18 (AR04)	07:06 18:18	30 08:14 (AR06)	06:41 16:40	6	07:03 (AR06) 07:09 (AR06)	07:11 16:31		
16	05:39 20:25	06:07 19:53	06:37 19:05	18:16 (AR04) 18:15 (AR04)	07:07 18:18	33 08:15 (AR06)	06:42 16:40	6	07:05 (AR06) 07:08 (AR06)	07:12 16:31		
17	05:40 20:24	06:08 19:52	06:38 19:03	18:16 (AR04) 18:15 (AR04)	07:08 18:15	36 08:16 (AR06)	06:43 16:39	3	07:08 (AR06) 07:08 (AR06)	16:31 16:31		
18	05:41 20:24	06:09 19:51	06:39 19:02	18:17 (AR04) 18:14 (AR04)	07:09 18:14	39 08:17 (AR06)	06:44 16:38		07:09 (AR06) 07:09 (AR06)	16:31 16:32		
19	05:42 20:23	06:10 19:49	06:40 19:00	18:17 (AR04) 18:12 (AR04)	07:10 18:12	41 08:19 (AR06)	06:46 16:37		07:11 (AR06) 07:11 (AR06)	16:31 16:32		
20	05:42 20:22	06:11 19:48	06:41 18:58	18:18 (AR04) 18:15 (AR04)	07:11 18:11	43 08:20 (AR06)	06:47 16:36		07:13 (AR06) 07:13 (AR06)	16:31 16:33		
21	05:43 20:22	06:12 19:46	06:42 18:57	18:19 (AR04) 18:09 (AR06)	07:12 18:09	45 08:21 (AR06)	06:48 16:36		07:15 (AR06) 07:15 (AR06)	16:31 16:33		
22	05:44 20:21	06:13 19:45	06:43 18:55	18:20 (AR04) 18:08 (AR06)	07:14 18:08	46 08:22 (AR06)	06:49 16:35		07:17 (AR06) 07:17 (AR06)	16:31 16:33		
23	05:45 20:20	06:14 19:43	06:44 18:53	18:21 (AR04) 18:06 (AR06)	07:15 18:06	47 08:23 (AR06)	06:50 16:35		07:19 (AR06) 07:19 (AR06)	16:31 16:34		
24	05:46 20:19	06:15 19:42	06:45 18:52	18:22 (AR04) 18:05 (AR06)	07:16 18:05	48 08:24 (AR06)	06:51 16:34		07:21 (AR06) 07:21 (AR06)	16:31 16:35		
25	05:47 20:18	06:16 19:41	06:46 18:50	18:23 (AR04) 17:04 (AR06)	07:17 17:04	49 08:25 (AR06)	06:52 16:33		07:23 (AR06) 07:23 (AR06)	16:31 16:35		
26	05:48 20:18	06:17 19:39	06:47 18:48	18:24 (AR04) 17:02 (AR06)	07:18 17:02	44 07:22 (AR06)	06:53 16:33		07:25 (AR06) 07:25 (AR06)	16:31 16:36		
27	05:48 20:17	06:18 19:37	06:48 18:47	18:25 (AR04) 17:01 (AR06)	07:19 17:01	45 07:23 (AR06)	06:55 16:33		07:27 (AR06) 07:27 (AR06)	16:31 16:36		
28	05:49 20:16	06:19 19:36	06:49 18:45	18:26 (AR04) 17:00 (AR06)	07:20 17:00	46 07:24 (AR06)	06:56 16:32		07:29 (AR06) 07:29 (AR06)	16:31 16:37		
29	05:50 20:15	06:20 19:34	06:50 18:41	18:27 (AR04) 18:41 (AR04)	07:21 18:43	47 07:25 (AR06)	06:57 16:32		07:31 (AR06) 07:31 (AR06)	16:31 16:38		
30	05:51 20:14	06:21 19:33	06:51 18:41	18:28 (AR04) 18:41 (AR04)	07:22 18:42	48 07:26 (AR06)	06:58 16:31		07:33 (AR06) 07:33 (AR06)	16:31 16:38		
31	05:52 20:13	06:22 19:31	06:52 18:39	18:29 (AR04) 18:39 (AR04)	07:23 07:22	49 07:27 (AR06)	06:59 16:31		07:35 (AR06) 07:35 (AR06)	16:31 16:39		
Potential sun hours	457	426		375		346		300			290	
Total, worst case			63		184		793		337			
Sun reduction			0,54		0,59		0,66		0,74			
Oper. time red.			0,81		0,81		0,81		0,81			
Wind dir. red.			0,75		0,75		0,67		0,67			
Total reduction			0,33		0,36		0,36		0,40			
Total, real			21		66		286		136			

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R44 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (75)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	06:22 (AR06)   05:29 06:36 (AR06)
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	78   06:22 (AR06)   05:29 06:38 (AR06)
3	07:19 16:42	07:04 17:16	06:28 17:49	06:39 19:22	05:55 19:53	79   06:22 (AR06)   05:28 06:38 (AR06)
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	81   06:22 (AR06)   05:28 06:39 (AR06)
5	07:19 16:44	07:02 17:19	06:25 17:51	06:35 19:24	05:52 19:55	82   06:22 (AR06)   05:28 06:40 (AR06)
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	83   06:22 (AR06)   05:27 06:41 (AR06)
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	84   06:22 (AR06)   05:27 06:41 (AR06)
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	85   06:22 (AR06)   05:27 06:42 (AR06)
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 19:28	05:48 19:59	86   06:23 (AR06)   05:26 06:43 (AR06)
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	87   06:23 (AR06)   05:26 06:44 (AR06)
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	88   06:23 (AR06)   05:26 06:45 (AR06)
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	89   06:23 (AR06)   05:26 06:46 (AR06)
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	90   06:24 (AR06)   05:26 06:47 (AR06)
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	91   06:24 (AR06)   05:26 06:48 (AR06)
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	92   06:24 (AR06)   05:26 06:48 (AR06)
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	93   06:25 (AR06)   05:26 06:49 (AR06)
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:06	94   06:25 (AR06)   05:26 06:49 (AR06)
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:39 20:07	95   06:27 (AR06)   05:26 06:50 (AR06)
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	96   06:27 (AR06)   05:26 06:50 (AR06)
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	97   06:27 (AR06)   05:26 06:50 (AR06)
21	07:15 17:01	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	98   06:28 (AR06)   05:26 06:50 (AR06)
22	07:14 17:02	06:42 17:39	05:58 18:09	06:09 19:41	05:35 20:11	99   06:29 (AR06)   05:27 06:51 (AR06)
23	07:13 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	100   06:29 (AR06)   05:27 06:51 (AR06)
24	07:13 17:04	06:39 17:41	05:55 18:12	06:06 19:43	05:34 20:13	101   06:30 (AR06)   05:27 06:51 (AR06)
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:44	05:33 20:14	102   06:31 (AR06)   05:27 06:52 (AR06)
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04 19:45	05:32 20:15	103   06:31 (AR06)   05:28 06:51 (AR06)
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	104   06:33 (AR06)   05:28 06:51 (AR06)
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	105   06:33 (AR06)   05:28 06:51 (AR06)
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 20:17	106   06:34 (AR06)   05:29 06:50 (AR06)
30	07:08 17:11		06:45 19:18	05:58 19:50	05:30 20:18	107   06:35 (AR06)   05:29 06:50 (AR06)
31	07:07 17:13		06:43 19:19		05:30 20:19	108   06:36 (AR06)   07:22 (AR06)
Potential sun hours	300	298	370	398	446	450
Total, worst case				1521	2218	905
Sun reduction				0,56	0,51	0,49
Oper. time red.				0,81	0,81	0,81
Wind dir. red.				0,76	0,76	0,76
Total reduction				0,34	0,31	0,30
Total, real				521	694	274

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R44 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (75)
Assumptions for shadow calculations

Table with 12 columns (Jan-Dec) showing sunshine probability S (Average daily sunshine hours) with values ranging from 7,40 to 7,40.

Operational time table with columns N, NNE, ENE, E, ESE, SSE, S, SSW, WSW, W, WNW, NNW, Sum and values ranging from 391 to 7.057.

Main shadow calculation table with columns for months (July-December) and rows for each day (1-31) showing sun rise/set times, minutes with flicker, and various reduction metrics.

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

Matrix layout table with columns: Day in month, Sun rise (hh:mm), Sun set (hh:mm), Minutes with flicker, First time (hh:mm) with flicker, Last time (hh:mm) with flicker, (WTG causing flicker first time), (WTG causing flicker last time).

SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R45 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (76)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:39 19:22	05:55 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:26	06:54 18:37	06:27 16:52	07:01 16:31
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:08	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:02 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:28 20:22	05:32 20:29	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48	07:05 16:30
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	06:33 16:47	07:06 16:30
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 19:28	05:48 19:59	05:26 20:24	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	05:36 20:27	06:03 20:00	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:18 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27	05:37 20:27	06:04 19:57	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:20	06:40 16:41	07:10 16:31
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:27	05:38 20:26	06:06 19:55	19:14 (AR03) 06:36	07:06 19:07	06:41 18:18	07:11 16:40
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28	05:39 20:25	06:07 19:53	19:16 (AR03) 06:37	19:11 (AR03) 07:07	18:16 16:39	16:31 07:12
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:06	05:26 20:28	05:40 20:24	06:08 19:52	19:15 (AR03) 06:38	19:09 (AR03) 07:08	18:16 16:39	16:31 07:13
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:36 20:07	05:26 20:29	05:41 20:24	06:09 19:51	19:13 (AR03) 06:39	19:08 (AR03) 07:09	18:15 16:39	16:31 07:13
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29	05:42 20:23	06:10 19:49	19:12 (AR03) 06:40	19:07 (AR03) 07:10	18:14 16:38	16:32 07:14
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	19:11 (AR03) 06:41	19:06 (AR03) 07:11	18:12 16:37	16:32 07:14
21	07:15 17:01	06:43 17:38	06:00 18:08	06:11 19:40	19:01 (AR03) 05:36	05:26 20:29	05:43 20:22	06:12 19:46	19:10 (AR03) 06:42	19:06 (AR03) 07:12	18:11 16:36	16:31 07:15
22	07:14 17:02	06:42 17:39	05:58 18:09	06:09 19:41	19:03 (AR03) 05:35	05:27 20:30	05:44 20:21	06:13 19:45	19:09 (AR03) 06:43	19:06 (AR03) 07:14	18:09 16:36	16:33 07:16
23	07:13 17:03	06:40 17:40	05:57 18:11	06:08 19:42	19:04 (AR03) 05:34	05:27 20:30	05:45 20:20	06:14 19:43	19:07 (AR03) 06:44	19:05 (AR03) 07:15	18:08 16:35	16:33 07:16
24	07:13 17:04	06:39 17:41	05:55 18:12	06:06 19:43	19:05 (AR03) 05:34	05:27 20:30	05:46 20:19	06:15 19:42	18:53 06:45	18:06 07:16	16:35 16:51	16:34 07:17
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:44	19:02 (AR03) 05:33	05:27 20:30	05:47 20:18	06:16 19:40	18:52 06:46	18:05 06:17	16:34 16:52	16:35 07:17
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04 19:45	19:06 (AR03) 05:32	05:28 20:30	05:48 20:18	06:17 19:39	18:50 06:47	17:04 06:18	16:33 16:53	16:35 07:17
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:46	19:08 (AR03) 05:32	05:28 20:30	05:48 20:17	06:18 19:37	18:48 06:49	17:02 06:19	16:33 16:56	16:36 07:18
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	19:07 (AR03) 05:31	05:28 20:30	05:49 20:16	06:19 19:36	18:47 06:50	17:01 06:20	16:33 16:56	16:36 07:18
29	07:09 17:10		06:47 19:17	06:00 19:49	19:09 (AR03) 05:31	05:29 20:30	05:50 20:15	06:20 19:34	18:45 06:51	17:00 06:21	16:32 16:57	16:37 07:18
30	07:08 17:11		06:45 19:18	05:58 19:50	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	18:42 06:51	16:57 06:22	16:31 16:58	16:38 07:19
31	07:07 17:13		06:43 19:19		05:30 20:18		05:52 20:13	06:22 19:31	18:42 06:51	16:57 06:24	16:31 16:56	16:38 07:19
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290
Total, worst case				27				26				
Sun reduction				0,56				0,54				
Oper. time red.				0,81				0,81				
Wind dir. red.				0,72				0,72				
Total reduction				0,32				0,31				
Total, real				9				8				

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

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

Project:

WF Val d'Agri

Licensed user:

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

Gaetano D'Oronzio / info@gecodor.it

Calculated:

06/12/2022 16:14/3.5.587

SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R46 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (77)
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

Table with columns for months (January to December) and rows for each day (1-31) showing sun rise/set times, operational time, and reduction percentages.

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

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





Project:

WF Val d'Agri

Licensed user:

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

Gaetano D'Oronzio / info@gecodor.it

Calculated:

06/12/2022 16:14/3.5.587

### SHADOW - Calendar

Calculation: Parco Eolico Val d'Agri Shadow receptor: R49 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (78)  
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

#### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50	06:35 (AR11) 06:44 (AR11)	05:29 20:19	05:30 20:30	05:53 20:12	06:35 (AR11) 06:53 (AR11)	06:23 19:29	06:51 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51	06:34 (AR11) 06:44 (AR11)	05:28 20:20	05:30 20:30	05:54 20:10	06:36 (AR11) 06:54 (AR11)	06:24 19:28	06:52 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52	06:32 (AR11) 06:45 (AR11)	05:28 20:20	05:31 20:30	05:55 20:09	06:35 (AR11) 06:53 (AR11)	06:24 19:26	06:53 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:53	06:30 (AR11) 06:44 (AR11)	05:28 20:21	05:31 20:29	05:56 20:08	06:36 (AR11) 06:54 (AR11)	06:25 19:25	06:54 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:54	06:28 (AR11) 06:44 (AR11)	05:27 20:22	05:32 20:29	05:57 20:07	06:36 (AR11) 06:54 (AR11)	06:26 19:23	06:55 18:33	06:29 16:50	07:03 16:30
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:55	06:28 (AR11) 06:44 (AR11)	05:27 20:22	05:32 20:29	05:58 20:06	06:37 (AR11) 06:54 (AR11)	06:27 19:21	06:56 18:32	06:30 16:49	07:03 16:30
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:57	06:27 (AR11) 06:44 (AR11)	05:27 20:23	05:33 20:29	05:59 20:05	06:37 (AR11) 06:54 (AR11)	06:28 19:20	06:58 18:30	06:32 16:48	07:04 16:30
8	07:19 16:46	06:59 17:22	06:21 17:54	06:30 19:27	05:48 19:58	06:27 (AR11) 06:44 (AR11)	05:27 20:24	05:33 20:28	05:59 20:04	06:39 (AR11) 06:54 (AR11)	06:29 19:18	06:59 18:29	06:33 16:47	07:05 16:30
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	06:26 (AR11) 06:44 (AR11)	05:26 20:24	05:34 20:28	06:00 20:02	06:40 (AR11) 06:54 (AR11)	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:48	06:57 17:25	06:17 17:57	06:27 19:29	05:46 19:59	06:26 (AR11) 06:43 (AR11)	05:26 20:25	05:35 20:28	06:01 20:01	06:41 (AR11) 06:53 (AR11)	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:00	06:25 (AR11) 06:43 (AR11)	05:26 20:25	05:35 20:27	06:02 20:00	06:43 (AR11) 06:53 (AR11)	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	07:18 16:49	06:54 17:26	06:14 17:59	06:24 19:31	05:44 20:01	06:24 (AR11) 06:42 (AR11)	05:26 20:26	05:36 20:27	06:03 19:59	06:44 (AR11) 06:52 (AR11)	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30
13	07:18 16:50	06:53 17:27	06:13 17:59	06:23 19:31	05:43 20:01	06:24 (AR11) 06:42 (AR11)	05:26 20:26	05:37 20:27	06:04 19:59	06:45 (AR11) 06:52 (AR11)	06:34 19:12	07:04 18:22	06:38 16:43	07:10 16:30
14	07:18 16:52	06:52 17:28	06:11 18:00	06:21 19:32	05:42 20:02	06:24 (AR11) 06:41 (AR11)	05:26 20:26	05:38 20:26	06:05 19:57	06:46 (AR11) 06:51 (AR11)	06:35 19:10	07:05 18:21	06:40 16:42	07:10 16:30
15	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	06:24 (AR11) 06:41 (AR11)	05:26 20:26	05:38 20:26	06:05 19:56	06:46 (AR11) 06:50 (AR11)	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
16	07:17 16:54	06:51 17:31	06:09 18:02	06:20 19:34	05:41 20:04	06:25 (AR11) 06:39 (AR11)	05:26 20:27	05:38 20:25	06:06 19:55	06:46 (AR11) 06:50 (AR11)	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
17	07:17 16:55	06:50 17:32	06:08 18:03	06:19 19:35	05:40 20:05	06:27 (AR11) 06:37 (AR11)	05:26 20:28	05:39 20:25	06:07 19:53	06:37 (AR11) 06:50 (AR11)	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
18	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:06	06:30 (AR11) 06:34 (AR11)	05:26 20:28	05:40 20:24	06:08 19:52	06:38 (AR11) 19:03	07:08 18:15	06:43 18:15	06:44 16:38	07:12 16:31
19	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	06:34 (AR11) 20:28	05:26 20:24	05:41 20:24	06:09 19:51	06:39 (AR11) 19:02	07:09 18:13	06:44 18:13	06:45 16:38	07:13 16:32
20	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	06:34 (AR11) 20:29	05:26 20:23	05:41 20:23	06:10 19:49	06:40 (AR11) 19:00	07:10 18:12	06:45 16:37	06:46 16:37	07:14 16:32
21	07:15 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	06:34 (AR11) 20:29	05:26 20:22	05:42 20:22	06:11 19:48	06:41 (AR11) 18:58	07:11 18:10	06:47 16:36	06:47 16:36	07:14 16:32
22	07:15 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	06:34 (AR11) 20:29	05:26 20:21	05:43 20:21	06:12 19:46	06:42 (AR11) 18:57	07:12 18:09	06:48 16:36	06:48 16:36	07:15 16:33
23	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	06:34 (AR11) 20:29	05:26 20:21	05:44 20:21	06:13 19:45	06:43 (AR11) 18:55	07:13 18:08	06:49 16:35	06:49 16:33	07:15 16:33
24	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	06:34 (AR11) 20:30	05:27 20:20	05:45 20:20	06:14 19:43	06:44 (AR11) 18:53	07:14 18:06	06:50 16:34	06:50 16:34	07:16 16:34
25	07:13 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 20:13	06:34 (AR11) 20:30	05:27 20:19	05:46 20:19	06:15 19:42	06:45 (AR11) 18:52	07:16 18:05	06:51 16:34	06:51 16:34	07:16 16:34
26	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:13	06:34 (AR11) 20:30	05:27 20:18	05:46 20:18	06:16 19:40	06:46 (AR11) 18:50	07:17 17:03	06:52 16:33	06:52 16:33	07:17 16:35
27	07:11 17:06	06:36 17:43	05:51 18:13	06:04 19:45	05:32 20:14	06:34 (AR11) 20:30	05:28 20:17	05:47 20:17	06:17 19:39	06:47 (AR11) 18:48	07:18 17:02	06:53 16:33	06:53 16:33	07:17 16:36
28	07:10 17:08	06:34 17:44	05:50 18:14	06:02 19:46	05:32 20:15	06:34 (AR11) 20:30	05:28 20:16	05:48 20:16	06:18 19:37	06:48 (AR11) 18:47	07:19 17:01	06:54 16:32	06:54 16:32	07:18 16:36
29	07:09 17:10	06:33 17:45	05:48 18:15	06:01 19:47	05:31 20:16	06:34 (AR11) 20:30	05:28 20:16	05:49 20:16	06:19 19:36	06:49 (AR11) 18:45	07:20 16:59	06:55 16:32	06:55 16:32	07:18 16:37
30	07:09 17:11	06:32 17:46	05:47 18:16	06:00 19:47	05:30 20:17	06:34 (AR11) 20:30	05:29 20:15	05:50 20:15	06:20 19:34	06:49 (AR11) 18:43	07:21 16:58	06:56 16:32	06:56 16:32	07:18 16:38
31	07:08 17:11	06:31 17:47	05:46 18:17	06:00 19:48	05:29 20:18	06:34 (AR11) 20:30	05:29 20:14	05:51 20:14	06:21 19:33	06:50 (AR11) 18:42	07:22 16:57	06:57 16:31	06:57 16:31	07:19 16:38
	07:07 17:12	06:30 17:48	05:45 18:18	06:00 19:49	05:29 20:19	06:34 (AR11) 20:30	05:29 20:13	05:52 20:13	06:22 19:31	06:35 (AR11) 18:42	07:23 16:56	06:58 16:30	06:58 16:30	07:19 16:39
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290		
Total, worst case					244			194						
Sun reduction				0,56	0,51		0,50	0,54						
Oper. time red.				0,81	0,81		0,81	0,81						
Wind dir. red.				0,76	0,76		0,76	0,76						
Total reduction				0,34	0,31		0,31	0,33						
Total, real				4	77		21	64						

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

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R50 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (79)  
Sunshine probability S (Average daily sunshine hours) []Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

## Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:19	07:06	06:31	06:42	05:57	05:29	06:18 (AR11)	05:30	06:20 (AR11)	05:53	06:23	06:51	06:25	06:59
	16:40	17:14	17:47	19:20	19:50	20:19	11 06:29 (AR11)	20:30	15 06:35 (AR11)	20:12	19:29	18:40	16:54	16:31
2	07:19	07:05	06:30	06:40	05:56	05:28	06:18 (AR11)	05:30	06:20 (AR11)	05:54	06:24	06:52	06:26	07:00
	16:41	17:15	17:48	19:21	19:51	20:20	11 06:29 (AR11)	20:30	14 06:34 (AR11)	20:10	19:28	18:38	16:53	16:31
3	07:19	07:04	06:28	06:38	05:54	05:28	06:17 (AR11)	05:31	06:21 (AR11)	05:55	06:24	06:53	06:27	07:01
	16:42	17:16	17:49	19:22	19:52	20:20	12 06:29 (AR11)	20:30	14 06:35 (AR11)	20:09	19:26	18:37	16:52	16:30
4	07:19	07:03	06:27	06:37	05:53	05:28	06:17 (AR11)	05:31	06:21 (AR11)	05:56	06:25	06:54	06:28	07:02
	16:43	17:17	17:50	19:23	19:53	20:21	12 06:29 (AR11)	20:29	14 06:35 (AR11)	20:08	19:25	18:35	16:51	16:30
5	07:19	07:02	06:25	06:35	05:52	05:27	06:17 (AR11)	05:32	06:22 (AR11)	05:57	06:26	06:55	06:29	07:03
	16:44	17:18	17:51	19:24	19:54	20:22	13 06:30 (AR11)	20:29	14 06:36 (AR11)	20:07	19:23	18:33	16:50	16:30
6	07:19	07:01	06:24	06:34	05:51	05:27	06:16 (AR11)	05:32	06:22 (AR11)	05:58	06:27	06:56	06:30	07:03
	16:44	17:20	17:52	19:25	19:55	20:22	13 06:29 (AR11)	20:29	13 06:35 (AR11)	20:06	19:21	18:32	16:49	16:30
7	07:19	07:00	06:22	06:32	05:50	05:27	06:16 (AR11)	05:33	06:23 (AR11)	05:59	06:28	06:58	06:31	07:04
	16:45	17:21	17:53	19:26	19:56	20:23	13 06:29 (AR11)	20:29	13 06:36 (AR11)	20:05	19:20	18:30	16:48	16:30
8	07:19	06:59	06:21	06:30	05:48	05:27	06:16 (AR11)	05:33	06:24 (AR11)	05:59	06:29	06:59	06:33	07:05
	16:46	17:22	17:54	19:27	19:57	20:24	14 06:30 (AR11)	20:28	12 06:36 (AR11)	20:04	19:18	18:29	16:47	16:30
9	07:19	06:58	06:19	06:29	05:47	05:26	06:16 (AR11)	05:34	06:24 (AR11)	06:00	06:30	07:00	06:34	07:06
	16:47	17:23	17:56	19:28	19:58	20:24	14 06:30 (AR11)	20:28	12 06:36 (AR11)	20:02	19:17	18:27	16:46	16:30
10	07:19	06:57	06:17	06:27	05:46	05:26	06:16 (AR11)	05:35	06:25 (AR11)	06:01	06:31	07:01	06:35	07:07
	16:48	17:25	17:57	19:29	19:59	20:25	14 06:30 (AR11)	20:28	11 06:36 (AR11)	20:01	19:15	18:26	16:45	16:30
11	07:19	06:56	06:16	06:26	05:45	05:26	06:16 (AR11)	05:35	06:26 (AR11)	06:02	06:32	07:02	06:36	07:08
	16:49	17:26	17:58	19:30	20:00	20:25	14 06:30 (AR11)	20:27	11 06:37 (AR11)	20:00	19:13	18:24	16:44	16:30
12	07:18	06:54	06:14	06:24	05:44	05:26	06:16 (AR11)	05:36	06:26 (AR11)	06:03	06:33	07:03	06:37	07:09
	16:50	17:27	17:59	19:31	20:01	20:26	15 06:31 (AR11)	20:27	10 06:36 (AR11)	19:59	19:12	18:22	16:43	16:30
13	07:18	06:53	06:13	06:23	05:43	05:26	06:16 (AR11)	05:37	06:27 (AR11)	06:04	06:34	07:04	06:38	07:10
	16:52	17:28	18:00	19:32	20:02	20:26	15 06:31 (AR11)	20:26	10 06:37 (AR11)	19:57	19:10	18:21	16:42	16:30
14	07:18	06:52	06:11	06:21	05:42	05:26	06:16 (AR11)	05:38	06:28 (AR11)	06:05	06:35	07:05	06:40	07:10
	16:53	17:29	18:01	19:33	20:03	20:27	15 06:31 (AR11)	20:26	9 06:37 (AR11)	19:56	19:08	18:19	16:41	16:30
15	07:17	06:51	06:09	06:20	05:41	05:26	06:16 (AR11)	05:38	06:28 (AR11)	06:06	06:36	07:06	06:41	07:11
	16:54	17:31	18:02	19:34	20:04	20:27	15 06:31 (AR11)	20:25	8 06:36 (AR11)	19:55	19:07	18:18	16:40	16:31
16	07:17	06:49	06:08	06:18	05:40	05:26	06:16 (AR11)	05:39	06:29 (AR11)	06:07	06:37	07:07	06:42	07:12
	16:55	17:32	18:03	19:35	20:05	20:28	15 06:31 (AR11)	20:25	7 06:36 (AR11)	19:53	19:05	18:16	16:39	16:31
17	07:17	06:48	06:06	06:16	05:39	05:26	06:16 (AR11)	05:40	06:30 (AR11)	06:08	06:38	07:08	06:43	07:12
	16:56	17:33	18:04	19:36	20:06	20:28	15 06:31 (AR11)	20:24	6 06:36 (AR11)	19:52	19:03	18:15	16:38	16:31
18	07:16	06:47	06:05	06:15	05:38	05:26	06:16 (AR11)	05:41	06:31 (AR11)	06:09	06:39	07:09	06:44	07:13
	16:57	17:34	18:05	19:37	20:07	20:28	15 06:31 (AR11)	20:23	5 06:36 (AR11)	19:50	19:02	18:13	16:38	16:32
19	07:16	06:46	06:03	06:14	05:38	05:26	06:16 (AR11)	05:41	06:32 (AR11)	06:10	06:40	07:10	06:45	07:14
	16:58	17:35	18:06	19:38	20:08	20:29	15 06:31 (AR11)	20:23	4 06:36 (AR11)	19:49	19:00	18:12	16:37	16:32
20	07:15	06:44	06:01	06:12	05:37	05:26	06:16 (AR11)	05:42	06:31 (AR11)	06:11	06:41	07:11	06:47	07:14
	16:59	17:36	18:07	19:39	20:09	20:29	15 06:31 (AR11)	20:22	4 06:35 (AR11)	19:48	18:58	18:10	16:36	16:32
21	07:15	06:43	06:00	06:11	05:36	05:26	06:16 (AR11)	05:43	06:32 (AR11)	06:12	06:42	07:12	06:48	07:15
	17:00	17:38	18:08	19:40	20:10	20:29	15 06:31 (AR11)	20:21	3 06:35 (AR11)	19:46	18:57	18:09	16:36	16:33
22	07:14	06:41	05:58	06:09	05:35	05:26	06:17 (AR11)	05:44	06:33 (AR11)	06:13	06:43	07:13	06:49	07:15
	17:02	17:39	18:09	19:41	20:11	2 06:24 (AR11)	15 06:32 (AR11)	20:21	1 06:34 (AR11)	19:45	18:55	18:08	16:35	16:33
23	07:13	06:40	05:56	06:08	05:34	05:27	06:17 (AR11)	05:45	06:14	06:44	07:14	06:50	07:16	07:16
	17:03	17:40	18:10	19:42	20:12	3 06:25 (AR11)	15 06:32 (AR11)	20:20	19:43	18:53	18:06	16:34	16:34	16:34
24	07:13	06:39	05:55	06:06	05:34	05:27	06:17 (AR11)	05:46	06:15	06:45	07:16	06:51	07:16	07:16
	17:04	17:41	18:11	19:43	20:13	5 06:26 (AR11)	15 06:32 (AR11)	20:19	19:42	18:52	18:05	16:34	16:34	16:34
25	07:12	06:37	05:53	06:05	05:33	05:27	06:17 (AR11)	05:46	06:16	06:46	07:17	06:52	07:17	07:17
	17:05	17:42	18:12	19:44	20:13	5 06:27 (AR11)	15 06:32 (AR11)	20:18	19:40	18:50	17:03	16:33	16:35	16:35
26	07:11	06:36	05:51	06:04	05:32	05:28	06:18 (AR11)	05:47	06:17	06:47	07:18	06:53	07:17	07:17
	17:06	17:43	18:13	19:45	20:14	6 06:27 (AR11)	15 06:33 (AR11)	20:17	19:39	18:48	17:02	16:33	16:36	16:36
27	07:10	06:34	05:50	06:02	05:32	05:28	06:18 (AR11)	05:48	06:18	06:48	07:19	06:54	07:17	07:17
	17:08	17:44	18:14	19:46	20:15	7 06:27 (AR11)	15 06:33 (AR11)	20:16	19:37	18:47	17:01	16:32	16:36	16:36
28	07:10	06:33	05:48	06:01	05:31	05:28	06:18 (AR11)	05:49	06:19	06:49	07:20	06:55	07:18	07:18
	17:09	17:46	18:16	19:47	20:16	8 06:28 (AR11)	15 06:33 (AR11)	20:16	19:36	18:45	16:59	16:32	16:37	16:37
29	07:09	06:47	06:00	06:00	05:30	05:29	06:19 (AR11)	05:50	06:20	06:49	07:21	06:56	07:18	07:18
	17:10	19:17	19:48	20:17	9 06:28 (AR11)	20:30	15 06:34 (AR11)	20:15	19:34	18:43	16:58	16:32	16:38	16:38
30	07:08	06:45	05:58	06:00	05:30	05:29	06:19 (AR11)	05:51	06:21	06:50	07:22	06:58	07:18	07:18
	17:11	19:18	19:49	20:18	9 06:28 (AR11)	20:30	15 06:34 (AR11)	20:14	19:33	18:42	16:57	16:31	16:38	16:38
31	07:07	06:43	05:56	06:00	05:30	05:29	06:18 (AR11)	05:52	06:22	06:51	07:23	06:59	07:19	07:19
	17:12	19:19	19:50	20:19	10 06:28 (AR11)	20:31	20:13	05:53	19:31	18:42	16:56	16:39	16:39	16:39
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290		
Total, worst case					64			426						
Sun reduction					0,51			0,49						
Oper. time red.					0,81			0,81						
Wind dir. red.					0,76			0,76						
Total reduction					0,32			0,30						
Total, real					20			129						

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: Parco Eolico Val d'AgriShadow receptor: R51 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (80)
Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

Table with columns for months (January to December) and rows for each day of the month, showing start and end times and AROS values. Summary rows at the bottom show total sun hours, worst case, and total reduction.

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

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

### SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R54 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (81) Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

#### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

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

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R56 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (96)  
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January		February		March	April	May	June		
1	07:19	15:59 (AR04)	07:06		06:31	06:42	05:57	05:29	18:37 (AR05)	
	16:40	15 16:14 (AR04)	17:14		17:47	19:20	19:51	20:19	35 19:12 (AR05)	
2	07:19	16:00 (AR04)	07:05		06:30	06:40	05:56	05:29	18:37 (AR05)	
	16:41	15 16:15 (AR04)	17:15		17:48	19:21	19:52	20:20	36 19:13 (AR05)	
3	07:19	16:00 (AR04)	07:05		06:28	06:39	05:55	05:28	18:36 (AR05)	
	16:42	16 16:16 (AR04)	17:16		17:49	19:22	19:53	20:21	37 19:13 (AR05)	
4	07:19	16:00 (AR04)	07:04		06:27	06:37	05:53	05:28	18:36 (AR05)	
	16:43	17 16:17 (AR04)	17:17		17:50	19:23	19:54	20:21	38 19:14 (AR05)	
5	07:19	16:01 (AR04)	07:03		06:25	06:35	05:52	05:27	18:37 (AR05)	
	16:44	17 16:18 (AR04)	17:19		17:51	19:24	19:55	20:22	37 19:14 (AR05)	
6	07:19	16:01 (AR04)	07:01		06:24	06:34	05:51	05:27	18:37 (AR05)	
	16:45	18 16:19 (AR04)	17:20		17:52	19:25	19:56	20:23	38 19:15 (AR05)	
7	07:19	16:02 (AR04)	07:00		06:22	06:32	05:50	05:27	18:36 (AR05)	
	16:46	18 16:20 (AR04)	17:21		17:54	19:26	19:57	20:23	39 19:15 (AR05)	
8	07:19	16:02 (AR04)	06:59		06:21	06:31	05:49	05:27	18:36 (AR05)	
	16:47	19 16:21 (AR04)	17:22		17:55	19:27	19:58	20:24	39 19:15 (AR05)	
9	07:19	16:03 (AR04)	06:58		06:19	06:29	05:47	05:26	18:37 (AR05)	
	16:47	20 16:23 (AR04)	17:23		17:56	19:28	19:59	20:25	39 19:16 (AR05)	
10	07:19	16:03 (AR04)	06:57		06:18	06:27	05:46	05:26	18:37 (AR05)	
	16:48	20 16:23 (AR04)	17:25		17:57	19:29	20:00	20:25	39 19:16 (AR05)	
11	07:19	16:03 (AR04)	06:56		06:16	06:26	05:45	05:26	18:37 (AR05)	
	16:50	21 16:24 (AR04)	17:26		17:58	19:30	20:01	20:26	39 19:16 (AR05)	
12	07:19	16:04 (AR04)	06:55		06:14	06:24	05:44	05:26	18:37 (AR05)	
	16:51	21 16:25 (AR04)	17:27		17:59	19:31	20:02	20:26	40 19:17 (AR05)	
13	07:18	16:04 (AR04)	06:53		06:13	06:23	05:43	05:26	18:37 (AR05)	
	16:52	20 16:24 (AR04)	17:28		18:00	19:32	20:03	20:27	40 19:17 (AR05)	
14	07:18	16:05 (AR04)	06:52	07:11 (AR07)	06:11	06:21	05:42	05:26	18:38 (AR05)	
	16:53	20 16:25 (AR04)	17:29	1 07:12 (AR07)	18:01	19:33	20:04	20:27	39 19:17 (AR05)	
15	07:18	16:06 (AR04)	06:51	07:10 (AR07)	06:10	06:20	05:41	05:26	18:38 (AR05)	
	16:54	19 16:25 (AR04)	17:31	2 07:12 (AR07)	18:02	19:34	20:05	20:27	40 19:18 (AR05)	
16	07:17	16:07 (AR04)	06:50	07:09 (AR07)	06:08	06:18	05:40	05:26	18:38 (AR05)	
	16:55	18 16:25 (AR04)	17:32	3 07:12 (AR07)	18:03	19:35	20:06	20:28	40 19:18 (AR05)	
17	07:17	16:08 (AR04)	06:48	07:07 (AR07)	06:06	06:17	05:39	05:26	18:38 (AR05)	
	16:56	17 16:25 (AR04)	17:33	4 07:11 (AR07)	18:04	19:36	20:07	20:28	40 19:18 (AR05)	
18	07:16	16:09 (AR04)	06:47	07:06 (AR07)	06:05	06:15	05:38	05:26	18:38 (AR05)	
	16:57	15 16:24 (AR04)	17:34	4 07:10 (AR07)	18:05	19:37	20:07	20:29	40 19:18 (AR05)	
19	07:16	16:10 (AR04)	06:46	07:05 (AR07)	06:03	06:14	05:38	18:48 (AR05)	05:26 18:38 (AR05)	
	16:58	13 16:23 (AR04)	17:35	4 07:09 (AR07)	18:06	19:38	20:08	20:29	40 19:18 (AR05)	
20	07:15	16:12 (AR04)	06:44	07:03 (AR07)	06:01	06:12	05:37	18:45 (AR05)	05:26 18:38 (AR05)	
	16:59	11 16:23 (AR04)	17:37	3 07:06 (AR07)	18:07	19:39	20:09	16 19:01 (AR05)	20:29 40 19:18 (AR05)	
21	07:15	16:14 (AR04)	06:43		06:00	06:11	05:36	18:43 (AR05)	05:26 18:38 (AR05)	
	17:01	7 16:21 (AR04)	17:38		18:08	19:40	20:10	20 19:03 (AR05)	20:29 40 19:18 (AR05)	
22	07:14		06:42		05:58	06:09	05:35	18:43 (AR05)	05:27 18:39 (AR05)	
	17:02		17:39		18:09	19:41	20:11	22 19:05 (AR05)	20:30 40 19:19 (AR05)	
23	07:14		06:40		05:57	06:08	05:34	18:41 (AR05)	05:27 18:39 (AR05)	
	17:03		17:40		18:11	19:42	20:12	25 19:06 (AR05)	20:30 40 19:19 (AR05)	
24	07:13		06:39		05:55	06:06	05:34	18:40 (AR05)	05:27 18:39 (AR05)	
	17:04		17:41		18:12	19:43	20:13	27 19:07 (AR05)	20:30 40 19:19 (AR05)	
25	07:12		06:37		05:53	06:05	05:33	18:40 (AR05)	05:27 18:40 (AR05)	
	17:05		17:42		18:13	19:44	20:14	28 19:08 (AR05)	20:30 40 19:20 (AR05)	
26	07:11		06:36		05:52	06:04	05:32	18:39 (AR05)	05:28 18:40 (AR05)	
	17:06		17:43		18:14	19:45	20:15	30 19:09 (AR05)	20:30 40 19:20 (AR05)	
27	07:11		06:34		05:50	06:02	05:32	18:39 (AR05)	05:28 18:40 (AR05)	
	17:08		17:45		18:15	19:47	20:15	31 19:10 (AR05)	20:30 40 19:20 (AR05)	
28	07:10		06:33		05:48	06:01	05:31	18:38 (AR05)	05:28 18:41 (AR05)	
	17:09		17:46		18:16	19:48	20:16	32 19:10 (AR05)	20:30 40 19:21 (AR05)	
29	07:09				06:47	06:00	05:31	18:37 (AR05)	05:29 18:41 (AR05)	
	17:10				19:17	19:49	20:17	33 19:10 (AR05)	20:30 39 19:20 (AR05)	
30	07:08				06:45	05:58	05:30	18:37 (AR05)	05:29 18:40 (AR05)	
	17:11				19:18	19:50	20:18	34 19:11 (AR05)	20:30 40 19:20 (AR05)	
31	07:07				06:43		05:30	18:37 (AR05)		
	17:13				19:19		20:19	35 19:12 (AR05)		
Potential sun hours	299		298		370	398	446		450	
Total, worst case		357		21			343			1174
Sun reduction		0,77		0,69			0,51			0,49
Oper. time red.		0,81		0,81			0,81			0,81
Wind dir. red.		0,74		0,69			0,69			0,69
Total reduction		0,45		0,38			0,28			0,27
Total, real		162		8			97			318

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'Agri Shadow receptor: R56 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (96)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July		August		September		October		November			December		
1	05:30		18:41 (AR05)	05:53	06:23	06:52			06:25			06:59		15:45 (AR04)
	20:30	40	19:21 (AR05)	20:12	19:30	18:40			16:55			16:31	21	16:06 (AR04)
2	05:30		18:41 (AR05)	05:54	06:24	06:53			06:26			07:00		15:46 (AR04)
	20:30	39	19:20 (AR05)	20:11	19:28	18:39			16:53			16:31	20	16:06 (AR04)
3	05:31		18:42 (AR05)	05:55	06:25	06:54			06:27			07:01		15:46 (AR04)
	20:30	39	19:21 (AR05)	20:10	19:26	18:37			16:52			16:31	20	16:06 (AR04)
4	05:31		18:41 (AR05)	05:56	06:26	06:55			06:28			07:02		15:46 (AR04)
	20:30	39	19:20 (AR05)	20:09	19:25	18:35			16:51			16:30	19	16:05 (AR04)
5	05:32		18:42 (AR05)	05:57	06:27	06:56			06:29			07:03		15:47 (AR04)
	20:29	39	19:21 (AR05)	20:07	19:23	18:34			16:50			16:30	18	16:05 (AR04)
6	05:32		18:43 (AR05)	05:58	06:28	06:57			06:31			07:04		15:47 (AR04)
	20:29	38	19:21 (AR05)	20:06	19:22	18:32			16:49			16:30	18	16:05 (AR04)
7	05:33		18:43 (AR05)	05:59	06:28	06:58			06:32			07:05		15:48 (AR04)
	20:29	38	19:21 (AR05)	20:05	19:20	18:30			16:48			16:30	17	16:05 (AR04)
8	05:34		18:43 (AR05)	06:00	06:29	06:59			06:33			07:06		15:48 (AR04)
	20:29	38	19:21 (AR05)	20:04	19:18	18:29			16:47			16:30	17	16:05 (AR04)
9	05:34		18:43 (AR05)	06:01	06:30	07:00			06:34			07:06		15:49 (AR04)
	20:28	37	19:20 (AR05)	20:03	19:17	18:27			16:46			16:30	16	16:05 (AR04)
10	05:35		18:44 (AR05)	06:01	06:31	07:01			06:35			07:07		15:50 (AR04)
	20:28	37	19:21 (AR05)	20:01	19:15	18:26			16:45			16:30	15	16:05 (AR04)
11	05:35		18:45 (AR05)	06:02	06:32	07:02			06:36			07:08		15:49 (AR04)
	20:28	36	19:21 (AR05)	20:00	19:13	18:24			16:44			16:30	15	16:04 (AR04)
12	05:36		18:44 (AR05)	06:03	06:33	07:03			06:38			07:09		15:50 (AR04)
	20:27	36	19:20 (AR05)	19:59	19:12	18:23			16:43			16:30	15	16:05 (AR04)
13	05:37		18:45 (AR05)	06:04	06:34	07:04			06:39			07:10		15:51 (AR04)
	20:27	35	19:20 (AR05)	19:58	19:10	18:21			16:42			16:30	14	16:05 (AR04)
14	05:38		18:46 (AR05)	06:05	06:35	07:05			06:40			07:11		15:52 (AR04)
	20:26	34	19:20 (AR05)	19:56	19:08	18:19			16:41			16:31	14	16:06 (AR04)
15	05:38		18:47 (AR05)	06:06	06:36	07:06			06:41			07:11		15:52 (AR04)
	20:26	33	19:20 (AR05)	19:55	19:07	18:18			16:40			16:31	13	16:05 (AR04)
16	05:39		18:47 (AR05)	06:07	06:37	07:07			06:42			07:12		15:52 (AR04)
	20:25	32	19:19 (AR05)	19:53	19:05	18:16			16:39			16:31	14	16:06 (AR04)
17	05:40		18:48 (AR05)	06:08	06:38	07:08			06:43			07:13		15:53 (AR04)
	20:24	30	19:18 (AR05)	19:52	19:03	18:15			16:39			16:31	13	16:06 (AR04)
18	05:41		18:49 (AR05)	06:09	06:39	07:09			06:44			07:13		15:53 (AR04)
	20:24	29	19:18 (AR05)	19:51	19:02	18:13			16:38			16:32	13	16:06 (AR04)
19	05:42		18:50 (AR05)	06:10	06:40	07:10			06:46			07:14		15:54 (AR04)
	20:23	27	19:17 (AR05)	19:49	19:00	18:12			16:37			16:32	13	16:07 (AR04)
20	05:42		18:50 (AR05)	06:11	06:41	07:11			06:47			07:15		15:55 (AR04)
	20:22	26	19:16 (AR05)	19:48	18:58	18:11			16:36			16:32	12	16:07 (AR04)
21	05:43		18:51 (AR05)	06:12	06:42	07:12			06:48		15:50 (AR04)	07:15		15:55 (AR04)
	20:22	24	19:15 (AR05)	19:46	18:57	18:09			16:36	7	15:57 (AR04)	16:33	12	16:07 (AR04)
22	05:44		18:53 (AR05)	06:13	06:43	07:14		07:34 (AR07)	06:49		15:48 (AR04)	07:16		15:56 (AR04)
	20:21	21	19:14 (AR05)	19:45	18:55	18:08	3	07:37 (AR07)	16:35	11	15:59 (AR04)	16:33	12	16:08 (AR04)
23	05:45		18:55 (AR05)	06:14	06:44	07:15		07:35 (AR07)	06:50		15:47 (AR04)	07:16		15:56 (AR04)
	20:20	18	19:13 (AR05)	19:43	18:53	18:06	4	07:39 (AR07)	16:34	13	16:00 (AR04)	16:34	12	16:08 (AR04)
24	05:46		18:57 (AR05)	06:15	06:45	07:16		07:36 (AR07)	06:51		15:46 (AR04)	07:17		15:56 (AR04)
	20:19	14	19:11 (AR05)	19:42	18:52	18:05	4	07:40 (AR07)	16:34	15	16:01 (AR04)	16:34	13	16:09 (AR04)
25	05:47		19:01 (AR05)	06:16	06:46	06:17		06:38 (AR07)	06:52		15:45 (AR04)	07:17		15:57 (AR04)
	20:18	6	19:07 (AR05)	19:41	18:50	17:04	4	06:42 (AR07)	16:33	17	16:02 (AR04)	16:35	13	16:10 (AR04)
26	05:47			06:17	06:47	06:18		06:39 (AR07)	06:53		15:46 (AR04)	07:17		15:57 (AR04)
	20:18			19:39	18:48	17:02	3	06:42 (AR07)	16:33	18	16:04 (AR04)	16:36	13	16:10 (AR04)
27	05:48			06:18	06:48	06:19		06:40 (AR07)	06:55		15:45 (AR04)	07:18		15:57 (AR04)
	20:17			19:37	18:47	17:01	2	06:42 (AR07)	16:32	19	16:04 (AR04)	16:36	13	16:10 (AR04)
28	05:49			06:19	06:49	06:20		06:41 (AR07)	06:56		15:45 (AR04)	07:18		15:59 (AR04)
	20:16			19:36	18:45	17:00	1	06:42 (AR07)	16:32	20	16:05 (AR04)	16:37	13	16:12 (AR04)
29	05:50			06:20	06:50	06:21		06:57			15:45 (AR04)	07:18		15:59 (AR04)
	20:15			19:34	18:43	16:58		16:32	21	16:06 (AR04)	16:38	13	16:12 (AR04)	
30	05:51			06:21	06:51	06:22		06:58			15:45 (AR04)	07:19		15:59 (AR04)
	20:14			19:33	18:42	16:57		16:31	21	16:06 (AR04)	16:38	14	16:13 (AR04)	
31	05:52			06:22	06:24							07:19		15:59 (AR04)
	20:13			19:31	16:56							16:39	15	16:14 (AR04)
Potential sun hours	457			426	375	346		300				290		
Total, worst case		785							162				460	
Sun reduction		0,50					21		0,66				0,79	
Oper. time red.		0,81							0,81				0,81	
Wind dir. red.		0,69							0,69				0,74	
Total reduction		0,28							0,37				0,47	
Total, real		216					8		71				215	

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

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R57 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (83) Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 20:19	19:23 (AR10) 20:30	05:29 20:19	19:29 (AR10) 20:11	06:22 19:29	06:51 18:40	06:24 16:54	06:58 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:51	05:28 20:20	19:24 (AR10) 20:30	05:28 20:19	19:29 (AR10) 20:10	06:23 19:28	06:52 18:38	06:26 16:53	07:00 16:31
3	07:19 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 19:52	05:28 20:20	19:23 (AR10) 20:30	05:28 20:20	19:30 (AR10) 20:09	06:24 19:26	06:53 18:37	06:27 16:52	07:01 16:30
4	07:19 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 19:53	05:28 20:21	19:24 (AR10) 20:30	05:28 20:21	19:29 (AR10) 20:08	06:25 19:25	06:54 18:35	06:28 16:51	07:02 16:30
5	07:19 16:43	07:02 17:18	06:25 17:51	06:35 19:24	05:52 19:54	05:27 20:22	19:24 (AR10) 20:29	05:27 20:22	19:30 (AR10) 20:07	06:26 19:23	06:55 18:33	06:29 16:50	07:02 16:30
6	07:19 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:55	05:27 20:22	19:23 (AR10) 20:29	05:27 20:22	19:30 (AR10) 20:06	06:27 19:21	06:56 18:32	06:30 16:49	07:03 16:30
7	07:19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 19:56	05:27 20:23	19:24 (AR10) 20:29	05:27 20:23	19:30 (AR10) 20:05	06:28 19:20	06:57 18:30	06:31 16:48	07:04 16:30
8	07:19 16:46	06:59 17:22	06:20 17:54	06:30 19:27	05:48 19:57	05:26 20:24	19:40 (AR10) 20:28	05:26 20:24	19:46 (AR10) 20:04	06:29 19:18	06:58 18:29	06:33 16:46	07:05 16:30
9	07:19 16:47	06:58 17:23	06:19 17:55	06:29 19:28	05:47 19:58	05:26 20:24	19:25 (AR10) 20:28	05:26 20:24	19:30 (AR10) 20:02	06:30 19:16	06:59 18:27	06:34 16:45	07:06 16:30
10	07:19 16:48	06:57 17:24	06:17 17:57	06:27 19:29	05:46 19:59	05:26 20:25	19:25 (AR10) 20:28	05:26 20:25	19:31 (AR10) 20:01	06:31 19:15	07:01 18:25	06:35 16:44	07:07 16:30
11	07:18 16:48	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:00	05:26 20:25	19:25 (AR10) 20:27	05:26 20:25	19:32 (AR10) 20:00	06:32 19:13	07:02 18:24	06:36 16:43	07:08 16:30
12	07:18 16:50	06:54 17:27	06:14 17:59	06:24 19:31	05:44 20:01	05:26 20:26	19:26 (AR10) 20:27	05:26 20:26	19:31 (AR10) 20:02	06:33 19:12	07:03 18:22	06:37 16:43	07:09 16:30
13	07:18 16:51	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:02	05:26 20:26	19:25 (AR10) 20:26	05:26 20:26	19:32 (AR10) 20:01	06:34 19:10	07:04 18:21	06:38 16:42	07:09 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:03	05:26 20:27	19:25 (AR10) 20:26	05:26 20:27	19:32 (AR10) 20:05	06:35 19:08	07:05 18:19	06:40 16:41	07:10 16:30
15	07:17 16:54	06:51 17:30	06:09 18:02	06:19 19:34	05:41 20:04	05:26 20:27	19:25 (AR10) 20:25	05:26 20:27	19:32 (AR10) 20:06	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:49 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 20:28	19:26 (AR10) 20:25	05:26 20:28	19:33 (AR10) 20:03	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:16 19:36	05:39 20:06	05:26 20:28	19:27 (AR10) 20:24	05:26 20:28	19:34 (AR10) 20:02	06:38 19:03	07:08 18:15	06:43 16:38	07:12 16:31
18	07:16 16:57	06:47 17:34	06:04 18:05	06:15 19:37	05:38 20:07	05:26 20:28	19:27 (AR10) 20:23	05:26 20:28	19:34 (AR10) 20:01	06:39 19:02	07:09 18:13	06:44 16:38	07:13 16:32
19	07:16 16:58	06:45 17:35	06:03 18:06	06:13 19:38	05:37 20:08	05:26 20:29	19:27 (AR10) 20:23	05:26 20:29	19:34 (AR10) 20:00	06:40 19:00	07:10 18:12	06:45 16:37	07:14 16:32
20	07:16 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	19:27 (AR10) 20:22	05:26 20:29	19:35 (AR10) 20:06	06:41 19:08	07:11 18:10	06:46 16:36	07:14 16:32
21	07:14 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29	19:27 (AR10) 20:21	05:26 20:29	19:36 (AR10) 20:05	06:42 18:57	07:12 18:09	06:48 16:35	07:15 16:33
22	07:14 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:26 20:29	19:26 (AR10) 20:21	05:26 20:29	19:37 (AR10) 20:04	06:43 18:55	07:13 18:07	06:49 16:35	07:15 16:33
23	07:13 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 20:12	05:27 20:29	19:26 (AR10) 20:20	05:27 20:29	19:38 (AR10) 20:03	06:44 18:53	07:14 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:38 17:41	05:55 18:11	06:06 19:43	05:34 20:13	05:27 20:30	19:25 (AR10) 20:30	05:27 20:30	19:44 (AR10) 20:19	06:45 19:42	07:15 18:05	06:51 16:34	07:16 16:34
25	07:12 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 20:13	05:27 20:30	19:24 (AR10) 20:30	05:27 20:30	19:47 (AR10) 20:18	06:46 19:40	07:16 18:03	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:51 18:13	06:03 19:45	05:32 20:14	05:27 20:30	19:24 (AR10) 20:30	05:27 20:30	19:47 (AR10) 20:17	06:47 19:39	07:17 18:48	06:53 16:33	07:17 16:35
27	07:10 17:07	06:34 17:44	05:50 18:14	06:02 19:46	05:32 20:15	05:28 20:30	19:24 (AR10) 20:30	05:28 20:30	19:47 (AR10) 20:16	06:48 19:37	07:18 18:47	06:54 16:32	07:17 16:36
28	07:10 17:09	06:33 17:46	05:48 18:15	06:01 19:47	05:31 20:16	05:28 20:30	19:24 (AR10) 20:30	05:28 20:30	19:47 (AR10) 20:15	06:49 19:36	07:19 18:45	06:55 16:32	07:18 16:37
29	07:09 17:10	06:46 19:16	05:59 19:48	05:30 20:17	05:30 20:17	05:29 20:30	19:23 (AR10) 20:30	05:29 20:30	19:47 (AR10) 20:14	06:20 19:34	06:49 18:43	06:56 16:58	07:18 16:37
30	07:08 17:11	06:45 19:17	05:58 19:49	05:30 20:17	05:30 20:17	05:29 20:30	19:24 (AR10) 20:30	05:29 20:30	19:29 (AR10) 20:13	06:21 19:33	06:50 18:42	06:57 16:57	07:18 16:38
31	07:07 17:12	06:43 19:19	06:43 19:19	05:29 20:18	05:29 20:18	05:29 20:30	19:23 (AR10) 20:12	05:29 20:30	19:47 (AR10) 20:12	06:22 19:31	06:23 16:56	06:31 16:39	07:19 16:39
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290	
Total, worst case					79		524						
Sun reduction					0,51		0,49						
Oper. time red.					0,81		0,81						
Wind dir. red.					0,67		0,67						
Total reduction					0,28		0,26						
Total, real					22		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: Parco Eolico Val d'AgriShadow receptor: R58 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (84)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40	16:02 (AR03) 16:11 (AR03)	07:06 17:14	15:59 (AR04) 16:36 (AR04)	06:31 17:47	06:42 19:20
2	07:19 16:41	16:03 (AR03) 16:11 (AR03)	07:06 17:15	15:59 (AR04) 16:36 (AR04)	06:30 17:48	06:40 19:21
3	07:19 16:42	16:03 (AR03) 16:12 (AR03)	07:05 17:16	16:00 (AR04) 16:36 (AR04)	06:28 17:49	06:39 19:22
4	07:19 16:43	16:04 (AR03) 16:13 (AR03)	07:04 17:17	16:01 (AR04) 16:35 (AR04)	06:27 17:50	06:37 19:23
5	07:19 16:44	16:04 (AR04) 16:14 (AR04)	07:03 17:19	16:02 (AR04) 16:35 (AR04)	06:25 17:51	06:35 19:24
6	07:19 16:45	16:03 (AR04) 16:15 (AR04)	07:01 17:20	16:03 (AR04) 16:34 (AR04)	06:24 17:52	06:34 19:25
7	07:19 16:46	16:02 (AR04) 16:17 (AR04)	07:00 17:21	16:04 (AR04) 16:33 (AR04)	06:22 17:54	06:32 19:26
8	07:19 16:47	16:01 (AR04) 16:18 (AR04)	06:59 17:22	16:05 (AR04) 16:32 (AR04)	06:21 17:55	06:31 19:27
9	07:19 16:48	16:01 (AR04) 16:19 (AR04)	06:58 17:24	16:07 (AR04) 16:31 (AR04)	06:19 17:56	06:29 19:28
10	07:19 16:49	16:00 (AR04) 16:20 (AR04)	06:57 17:25	16:08 (AR04) 16:29 (AR04)	06:18 17:57	06:27 19:29
11	07:19 16:50	16:00 (AR04) 16:21 (AR04)	06:56 17:26	16:11 (AR04) 16:27 (AR04)	06:16 17:58	06:26 19:30
12	07:19 16:51	15:59 (AR04) 16:23 (AR04)	06:55 17:27	16:16 (AR04) 17:59	06:14 17:59	06:24 19:31
13	07:18 16:52	15:58 (AR04) 16:23 (AR04)	06:53 17:28	06:13 18:00	06:13 18:00	06:23 19:32
14	07:18 16:53	15:58 (AR04) 16:25 (AR04)	06:52 17:30	06:11 18:01	06:21 18:01	06:21 19:33
15	07:18 16:54	15:59 (AR04) 16:27 (AR04)	06:51 17:31	06:10 18:02	17:31 (AR02) 17:34 (AR02)	06:20 19:34
16	07:17 16:55	15:58 (AR04) 16:27 (AR04)	06:50 17:32	06:08 18:03	3 17:30 (AR02) 4 17:34 (AR02)	06:18 19:35
17	07:17 16:56	15:58 (AR04) 16:29 (AR04)	06:48 17:33	06:06 18:04	17:29 (AR02) 6 17:35 (AR02)	06:17 19:36
18	07:16 16:57	15:57 (AR04) 16:30 (AR04)	06:47 17:34	06:05 18:05	7 17:28 (AR02) 7 17:35 (AR02)	06:15 19:37
19	07:16 16:58	15:57 (AR04) 16:31 (AR04)	06:46 17:35	06:03 18:06	9 17:27 (AR02) 9 17:36 (AR02)	06:14 19:38
20	07:15 16:59	15:57 (AR04) 16:32 (AR04)	06:44 17:37	06:01 18:07	17:28 (AR02) 9 17:37 (AR02)	06:12 19:39
21	07:15 17:01	15:57 (AR04) 16:33 (AR04)	06:43 17:38	06:00 18:08	17:27 (AR02) 10 17:37 (AR02)	06:11 19:40
22	07:14 17:02	15:57 (AR04) 16:34 (AR04)	06:42 17:39	05:58 18:10	10 17:28 (AR02) 10 17:38 (AR02)	06:09 19:41
23	07:14 17:03	15:57 (AR04) 16:34 (AR04)	06:40 17:40	05:57 18:11	10 17:29 (AR02) 10 17:39 (AR02)	06:08 19:42
24	07:13 17:04	15:57 (AR04) 16:35 (AR04)	06:39 17:41	05:55 18:12	9 17:30 (AR02) 9 17:39 (AR02)	06:06 19:43
25	07:12 17:05	15:57 (AR04) 16:35 (AR04)	06:37 17:42	05:53 18:13	6 17:33 (AR02) 6 17:39 (AR02)	06:05 19:44
26	07:11 17:07	15:58 (AR04) 16:36 (AR04)	06:36 17:44	05:52 18:14	06:04 18:14	05:32 19:46
27	07:11 17:08	15:58 (AR04) 16:36 (AR04)	06:34 17:45	05:50 18:15	06:02 18:15	05:32 19:47
28	07:10 17:09	15:58 (AR04) 16:36 (AR04)	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16
29	07:09 17:10	15:58 (AR04) 16:36 (AR04)	06:32 17:46	06:47 19:17	06:00 19:49	05:31 20:17
30	07:08 17:11	15:58 (AR04) 16:36 (AR04)	06:31 17:46	06:45 19:18	05:58 19:50	05:30 20:18
31	07:07 17:13	15:58 (AR04) 16:36 (AR04)	06:30 17:46	06:43 19:19	05:57 19:50	05:29 20:19
Potential sun hours	299	298	370	398	446	450
Total, worst case	828	331	83			
Sun reduction	0,77	0,69	0,62			
Oper. time red.	0,81	0,81	0,81			
Wind dir. red.	0,75	0,75	0,76			
Total reduction	0,46	0,42	0,38			
Total, real	381	138	32			

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

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

Calculation: Parco Eolico Val d'Agri Shadow receptor: R58 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (84)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

## Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December		
1	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	15:38 (AR04) 16:31	06:59 21	15:42 (AR04) 16:03 (AR04)
2	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	15:36 (AR04) 16:31	07:00 24	15:43 (AR04) 16:03 (AR04)
3	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	15:35 (AR04) 16:31	07:01 27	15:44 (AR04) 16:02 (AR04)
4	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	15:34 (AR04) 16:30	07:02 29	15:45 (AR04) 16:02 (AR04)
5	05:32 20:29	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	15:32 (AR04) 16:30	07:03 32	15:47 (AR04) 16:02 (AR04)
6	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	15:31 (AR04) 16:30	07:04 34	15:49 (AR04) 16:02 (AR04)
7	05:33 20:29	05:59 20:05	06:29 19:20	06:58 18:30	06:32 16:48	15:31 (AR04) 16:30	07:05 34	15:51 (AR04) 16:01 (AR04)
8	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	06:33 16:47	15:31 (AR04) 16:30	07:06 35	15:52 (AR03) 16:01 (AR03)
9	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46	15:30 (AR04) 16:30	07:06 37	15:52 (AR03) 16:01 (AR03)
10	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45	15:30 (AR04) 16:30	07:07 37	15:53 (AR03) 16:01 (AR03)
11	05:36 20:28	06:03 20:00	06:32 19:13	07:02 18:24	06:36 16:44	15:29 (AR04) 16:30	07:08 38	15:52 (AR03) 16:01 (AR03)
12	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	06:38 16:43	15:30 (AR04) 16:30	07:09 38	15:53 (AR03) 16:01 (AR03)
13	05:37 20:27	06:04 19:58	06:34 19:10	07:04 18:21	06:39 16:42	15:30 (AR04) 16:30	07:10 38	15:54 (AR03) 16:01 (AR03)
14	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:20	06:40 16:41	15:30 (AR04) 16:31	07:11 38	15:54 (AR03) 16:02 (AR03)
15	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	15:30 (AR04) 16:31	07:11 38	15:54 (AR03) 16:01 (AR03)
16	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:16	06:42 16:39	15:31 (AR04) 16:31	07:12 38	15:55 (AR03) 16:02 (AR03)
17	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:39	15:31 (AR04) 16:31	07:13 38	15:55 (AR03) 16:02 (AR03)
18	05:41 20:24	06:09 19:51	06:39 19:02	18:21 (AR02) 18:26 (AR02)	07:09 18:14	16:09 (AR04) 16:32	16:31 37	16:02 (AR03) 16:02 (AR03)
19	05:42 20:23	06:10 19:49	06:40 19:00	18:17 (AR02) 18:26 (AR02)	07:10 18:12	16:08 (AR04) 16:32	16:32 37	16:03 (AR03) 16:03 (AR03)
20	05:42 20:22	06:11 19:48	06:41 18:58	18:15 (AR02) 18:25 (AR02)	07:11 18:11	16:08 (AR04) 16:33	16:33 37	16:04 (AR03) 16:04 (AR03)
21	05:43 20:22	06:12 19:46	06:42 18:57	18:14 (AR02) 18:24 (AR02)	07:12 18:09	16:09 (AR04) 16:33	16:34 36	16:05 (AR03) 16:03 (AR03)
22	05:44 20:21	06:13 19:45	06:43 18:55	18:13 (AR02) 18:23 (AR02)	07:14 18:08	16:09 (AR04) 16:33	16:35 35	16:06 (AR03) 16:04 (AR03)
23	05:45 20:20	06:14 19:44	06:44 18:53	18:12 (AR02) 18:22 (AR02)	07:15 18:06	16:09 (AR04) 16:34	16:36 34	16:07 (AR03) 16:04 (AR03)
24	05:46 20:19	06:15 19:42	06:45 18:52	18:12 (AR02) 18:20 (AR02)	07:16 18:05	16:08 (AR04) 16:35	16:37 33	16:05 (AR03) 16:05 (AR03)
25	05:47 20:18	06:16 19:41	06:46 18:50	18:11 (AR02) 18:19 (AR02)	06:17 17:04	16:07 (AR04) 16:35	16:38 31	16:06 (AR03) 16:06 (AR03)
26	05:48 20:18	06:17 19:39	06:47 18:48	18:11 (AR02) 18:18 (AR02)	06:18 17:02	16:07 (AR04) 16:36	16:39 30	16:07 (AR03) 16:06 (AR03)
27	05:48 20:17	06:18 19:37	06:48 18:47	18:12 (AR02) 18:17 (AR02)	06:19 17:01	16:07 (AR04) 16:36	16:40 28	16:08 (AR03) 16:06 (AR03)
28	05:49 20:16	06:19 19:36	06:49 18:45	18:12 (AR02) 18:16 (AR02)	06:20 17:00	16:08 (AR04) 16:37	16:41 27	16:09 (AR03) 16:08 (AR03)
29	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	06:21 16:58	16:08 (AR04) 16:38	16:42 25	16:10 (AR03) 16:08 (AR03)
30	05:51 20:14	06:21 19:33	06:51 18:42	06:23 16:57	15:44 (AR04) 9 15:53 (AR04)	16:39 (AR04) 16:31	16:43 24	16:11 (AR03) 16:09 (AR03)
31	05:52 20:13	06:22 19:31	06:52 18:41	06:24 16:56	15:40 (AR04) 17 15:57 (AR04)	16:40 (AR04) 16:39	16:44 8	16:12 (AR03) 16:10 (AR03)
Potential sun hours	457	426	375	346	300	290		
Total, worst case			86	26	990	289		
Sun reduction			0,59	0,66	0,74	0,79		
Oper. time red.			0,81	0,81	0,81	0,81		
Wind dir. red.			0,76	0,75	0,75	0,74		
Total reduction			0,36	0,40	0,45	0,47		
Total, real			31	10	441	136		

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R59 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (85)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40	07:06 17:14 38	16:01 (AR04) 16:39 (AR04)	06:31 17:47	06:42 19:20	05:57 19:51
2	07:19 16:41	07:06 17:15 38	16:01 (AR04) 16:39 (AR04)	06:30 17:48	06:40 19:21	05:56 19:52
3	07:19 16:42	07:05 17:16 37	16:02 (AR04) 16:39 (AR04)	06:28 17:49	06:39 19:22	05:55 19:53
4	07:19 16:43	16:05 (AR03) 17:17 37	07:04 16:39 (AR04)	06:27 17:50	06:37 19:23	05:53 19:54
5	07:19 16:44	16:06 (AR03) 17:19 36	07:03 16:39 (AR04)	06:25 17:51	06:35 19:24	05:52 19:55
6	07:19 16:45	16:07 (AR03) 17:20 35	17:19 16:04 (AR04)	17:51 06:24	19:24 06:34	20:22 05:51
7	07:19 16:46	16:06 (AR03) 17:21 34	07:01 16:38 (AR04)	06:24 17:54	06:34 19:26	05:51 19:57
8	07:19 16:47	16:09 (AR03) 17:22 33	17:20 16:05 (AR04)	17:52 06:21	19:25 06:31	20:23 05:49
9	07:19 16:48	16:07 (AR03) 17:24 30	07:00 16:38 (AR04)	06:22 17:55	06:32 19:27	05:50 19:58
10	07:19 16:49	16:09 (AR03) 17:25 28	06:58 16:07 (AR04)	06:19 17:56	06:29 19:28	05:48 19:59
11	07:19 16:50	16:13 (AR03) 17:26 25	06:57 16:37 (AR04)	06:18 17:58	06:27 19:30	05:46 20:01
12	07:19 16:51	16:08 (AR04) 17:27 22	06:55 16:11 (AR04)	06:14 17:59	06:24 19:31	05:44 20:02
13	07:18 16:52	16:16 (AR04) 17:28 18	17:27 16:33 (AR04)	17:59 06:13	19:31 06:23	20:26 05:43
14	07:18 16:53	16:06 (AR04) 17:29 12	06:53 16:13 (AR04)	06:13 18:01	06:23 19:33	05:26 20:04
15	07:18 16:54	16:17 (AR04) 17:28 18	17:28 16:31 (AR04)	18:00 06:11	19:32 06:21	20:27 05:42
16	07:17 16:55	16:05 (AR04) 17:30 12	06:51 16:27 (AR04)	06:10 18:01	06:20 19:33	05:26 20:04
17	07:17 16:56	16:20 (AR04) 17:31 15	17:31 18:02	06:08 18:02	19:34 20:05	05:26 20:27
18	07:16 16:57	16:04 (AR04) 17:32 14	06:50 18:03	06:08 18:03	06:18 19:35	05:26 20:28
19	07:16 16:58	16:21 (AR04) 17:33 19	17:32 06:06	2 17:34 (AR02) 17:31 (AR02)	19:35 06:17	20:28 05:26
20	07:15 16:59	16:04 (AR04) 17:34 18	06:48 18:04	4 17:35 (AR02) 17:30 (AR02)	19:36 06:15	20:28 05:39
21	07:15 17:01	16:03 (AR04) 17:35 17	06:47 18:05	6 17:36 (AR02) 17:29 (AR02)	06:15 06:14	05:39 05:38
22	07:14 17:02	16:02 (AR04) 17:36 16	06:46 18:06	8 17:37 (AR02) 17:29 (AR02)	06:14 06:12	05:26 05:37
23	07:14 17:03	16:02 (AR04) 17:37 15	06:44 18:07	9 17:38 (AR02) 17:28 (AR02)	06:12 06:11	05:26 05:36
24	07:13 17:04	16:01 (AR04) 17:38 14	06:43 18:08	11 17:39 (AR02) 17:29 (AR02)	06:11 06:09	05:26 05:35
25	07:12 17:05	16:02 (AR04) 17:39 13	06:42 18:10	12 17:41 (AR02) 17:29 (AR02)	06:09 06:08	05:27 05:34
26	07:11 17:07	16:01 (AR04) 17:40 12	06:41 18:11	13 17:42 (AR02) 17:29 (AR02)	06:08 06:07	05:27 05:33
27	07:11 17:08	16:01 (AR04) 17:41 11	06:40 18:12	13 17:42 (AR02) 17:31 (AR02)	06:07 06:05	05:27 05:33
28	07:10 17:09	16:33 (AR04) 17:42 10	06:39 18:13	13 17:44 (AR02) 17:33 (AR02)	06:06 06:04	05:27 05:32
29	07:09 17:10	16:01 (AR04) 17:43 9	06:38 18:14	7 17:40 (AR02) 17:33 (AR02)	06:04 06:04	05:28 05:32
30	07:08 17:11	16:35 (AR04) 17:44 8	06:37 18:15	17:40 (AR02) 17:33 (AR02)	06:04 06:04	05:28 05:32
31	07:07 17:13	16:01 (AR04) 17:45 7	06:36 18:16	17:45 (AR02) 17:33 (AR02)	06:04 06:04	05:28 05:32
Potential sun hours	299	298	370	398	446	450
Total, worst case	540	423	98			
Sun reduction	0,77	0,69	0,62			
Oper. time red.	0,81	0,81	0,81			
Wind dir. red.	0,75	0,75	0,76			
Total reduction	0,46	0,42	0,38			
Total, real	249	177	37			

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: Parco Eolico Val d'AgriShadow receptor: R59 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (85)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December	
1	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	15:37 (AR04) 16:31	15:51 (AR04) 15:57 (AR04)
2	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	15:35 (AR04) 16:31	15:51 (AR03) 15:56 (AR04)
3	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	15:35 (AR04) 16:31	15:52 (AR03) 15:56 (AR03)
4	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	15:34 (AR04) 16:30	15:52 (AR03) 15:55 (AR03)
5	05:32 20:29	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	15:33 (AR04) 16:30	15:52 (AR03) 15:55 (AR03)
6	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	15:33 (AR04) 16:30	15:52 (AR03) 15:55 (AR03)
7	05:33 20:29	05:59 20:05	06:29 19:20	06:58 18:30	06:32 16:48	15:32 (AR04) 16:30	15:53 (AR03) 15:55 (AR03)
8	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	06:33 16:47	15:33 (AR04) 16:30	15:53 (AR03) 15:54 (AR03)
9	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46	15:32 (AR04) 16:30	15:53 (AR03) 16:30
10	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45	15:32 (AR04) 16:30	07:07 16:30
11	05:36 20:28	06:03 20:00	06:32 19:13	07:02 18:24	06:36 16:44	15:32 (AR04) 16:30	07:08 16:30
12	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	06:38 16:43	15:33 (AR04) 16:30	07:09 16:30
13	05:37 20:27	06:04 19:58	06:34 19:10	07:04 18:21	06:39 16:42	15:33 (AR04) 16:30	07:10 16:30
14	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:20	06:40 16:41	15:33 (AR04) 16:31	07:11 16:31
15	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	15:33 (AR04) 16:31	07:11 16:31
16	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:16	06:42 16:39	15:34 (AR04) 16:31	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 19:03	18:22 (AR02) 18:28 (AR02)	07:08 18:15	15:34 (AR04) 16:31	07:13 16:31
18	05:41 20:24	06:09 19:51	06:39 19:02	18:19 (AR02) 18:30 (AR02)	07:09 18:14	15:35 (AR04) 16:32	07:13 16:32
19	05:42 20:23	06:10 19:49	06:40 19:00	18:17 (AR02) 18:30 (AR02)	07:10 18:12	15:35 (AR04) 16:32	07:14 16:32
20	05:42 20:22	06:11 19:48	06:41 18:58	18:15 (AR02) 18:28 (AR02)	07:11 18:11	15:37 (AR04) 16:33	07:15 16:33
21	05:43 20:22	06:12 19:46	06:42 18:57	18:14 (AR02) 18:27 (AR02)	07:12 18:09	15:37 (AR04) 16:33	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:55	18:14 (AR02) 18:25 (AR02)	07:14 18:08	15:38 (AR04) 16:33	07:16 16:33
23	05:45 20:20	06:14 19:44	06:44 18:53	18:13 (AR02) 18:23 (AR02)	07:15 18:06	15:39 (AR04) 16:34	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	18:13 (AR02) 18:21 (AR02)	07:16 18:05	15:40 (AR04) 16:35	07:17 16:35
25	05:47 20:18	06:16 19:41	06:46 18:50	18:13 (AR02) 18:20 (AR02)	06:17 17:04	15:41 (AR04) 16:35	07:17 16:35
26	05:48 20:18	06:17 19:39	06:47 18:48	18:13 (AR02) 18:18 (AR02)	06:18 17:02	15:43 (AR04) 16:36	07:17 16:36
27	05:48 20:17	06:18 19:37	06:48 18:47	18:14 (AR02) 18:17 (AR02)	06:19 17:01	15:44 (AR04) 16:36	07:18 16:36
28	05:49 20:16	06:19 19:36	06:49 18:45	06:20 17:00	15:44 (AR04) 16:32	15:45 (AR04) 16:37	07:18 16:37
29	05:50 20:15	06:20 19:34	06:50 18:43	06:21 16:58	15:41 (AR04) 16:32	15:47 (AR04) 16:38	07:18 16:38
30	05:51 20:14	06:21 19:33	06:51 18:42	06:23 16:57	16:00 (AR04) 16:31	15:58 (AR04) 16:39	16:38 16:39
31	05:52 20:13	06:22 19:31	06:52 18:42	06:24 16:56	15:38 (AR04) 16:04 (AR04)	15:59 (AR04) 16:39	07:19 16:39
Potential sun hours	457	426	375	346	300	290	
Total, worst case			100	82	862		27
Sun reduction			0,59	0,66	0,74		0,79
Oper. time red.			0,81	0,81	0,81		0,81
Wind dir. red.			0,76	0,75	0,75		0,74
Total reduction			0,36	0,40	0,45		0,47
Total, real			36	33	385		13

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R62 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (86)  
Sunshine probability S (Average daily sunshine hours) []

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:19 16:40	07:06 17:14	06:32 17:47	06:42 19:20	05:57 19:51	05:29 20:19	19:22 (AR01) 20:30	05:30 20:30	19:29 (AR01) 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	19:22 (AR01) 20:30	05:30 20:30	19:30 (AR01) 20:11	06:24 19:28	06:53 18:39	06:26 16:54	07:00 16:31
3	07:19 16:42	07:05 17:16	06:29 17:49	06:39 19:22	05:55 19:53	05:28 20:21	19:23 (AR01) 20:30	05:31 20:30	19:29 (AR01) 20:10	06:25 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	19:22 (AR01) 20:30	05:31 20:30	19:30 (AR01) 20:09	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:31
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:28 20:22	19:23 (AR01) 20:29	05:32 20:29	19:29 (AR01) 20:07	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:45	07:02 17:20	06:24 17:53	06:34 19:25	05:51 19:56	05:27 20:23	19:23 (AR01) 20:29	05:32 20:29	19:30 (AR01) 20:06	06:28 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23	19:24 (AR01) 20:29	05:33 20:29	19:29 (AR01) 20:05	06:29 19:20	06:58 18:31	06:32 16:48	07:05 16:30
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24	19:23 (AR01) 20:29	05:34 20:29	19:30 (AR01) 20:04	06:30 19:18	06:59 18:29	06:33 16:47	07:06 16:30
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 19:28	05:48 19:59	05:27 20:25	19:24 (AR01) 20:28	05:34 20:28	19:30 (AR01) 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:49	06:57 17:25	06:18 17:57	06:28 19:29	05:47 20:00	05:26 20:25	19:24 (AR01) 20:28	05:35 20:28	19:30 (AR01) 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	19:25 (AR01) 20:28	05:36 20:28	19:30 (AR01) 20:00	06:32 19:14	07:02 18:24	06:36 16:44	07:08 16:30
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	19:25 (AR01) 20:27	05:36 20:27	19:31 (AR01) 19:59	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	07:18 16:52	06:54 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27	19:26 (AR01) 20:27	05:37 20:27	19:30 (AR01) 19:58	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:31
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	19:26 (AR01) 20:26	05:38 20:26	19:30 (AR01) 19:56	06:35 19:09	07:05 18:20	06:40 16:41	07:11 16:31
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:27	19:27 (AR01) 20:26	05:39 20:26	19:31 (AR01) 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28	19:27 (AR01) 20:25	05:39 20:25	19:32 (AR01) 19:54	06:37 19:05	07:07 18:17	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:40 20:07	05:26 20:28	19:28 (AR01) 20:24	05:40 20:24	19:33 (AR01) 19:52	06:38 19:04	07:08 18:15	06:43 16:38	07:13 16:32
18	07:17 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:39 20:07	05:26 20:29	19:27 (AR01) 20:24	05:41 20:24	19:34 (AR01) 19:51	06:39 19:02	07:09 18:14	06:45 16:38	07:13 16:32
19	07:16 16:58	06:46 17:36	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29	19:28 (AR01) 20:23	05:42 20:23	19:34 (AR01) 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 17:00	06:44 17:37	06:02 18:08	06:12 19:39	05:37 20:09	05:26 20:29	19:27 (AR01) 20:22	05:42 20:22	19:34 (AR01) 19:48	06:41 18:59	07:11 18:11	06:47 16:36	07:15 16:33
21	07:15 17:01	06:43 17:38	06:00 18:09	06:11 19:40	05:36 20:10	05:27 20:29	19:28 (AR01) 20:22	05:43 20:22	19:35 (AR01) 19:46	06:42 18:57	07:13 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:41	05:35 20:11	05:27 20:30	19:28 (AR01) 20:21	05:44 20:21	19:35 (AR01) 19:45	06:43 18:55	07:14 18:08	06:49 16:35	07:16 16:34
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:35 20:12	05:27 20:30	19:28 (AR01) 20:20	05:45 20:20	19:35 (AR01) 19:44	06:44 18:54	07:15 18:06	06:50 16:35	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:12	06:07 19:43	05:34 20:13	05:27 20:30	19:28 (AR01) 20:19	05:46 20:19	19:35 (AR01) 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:17 16:35
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:45	05:33 20:14	05:28 20:30	19:29 (AR01) 20:18	05:47 20:18	19:36 (AR01) 19:41	06:46 18:50	06:17 17:04	06:52 16:34	07:17 16:35
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04 19:46	05:33 20:15	05:28 20:30	19:28 (AR01) 20:18	05:48 20:18	19:37 (AR01) 19:39	06:47 18:49	06:18 17:02	06:54 16:33	07:17 16:36
27	07:11 17:08	06:35 17:45	05:50 18:15	06:02 19:47	05:32 20:15	05:28 20:30	19:28 (AR01) 20:17	05:49 20:17	19:38 (AR01) 19:38	06:48 18:47	06:19 17:01	06:55 16:33	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:29 20:30	19:29 (AR01) 20:16	05:49 20:16	19:39 (AR01) 19:36	06:49 18:45	06:20 17:00	06:56 16:32	07:18 16:37
29	07:09 17:10	06:47 17:17	06:00 18:17	06:00 19:49	05:31 20:17	05:29 20:30	19:22 (AR01) 20:15	05:29 20:15	19:36 (AR01) 19:34	06:50 18:44	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11	06:45 17:18	05:58 18:18	05:30 19:50	05:30 20:18	05:29 20:30	19:22 (AR01) 20:14	05:29 20:14	19:36 (AR01) 19:33	06:51 18:42	06:23 16:57	06:58 16:31	07:19 16:39
31	07:07 17:13	06:44 17:19	06:00 18:19	05:30 20:19	05:30 20:20	05:29 20:30	19:22 (AR01) 20:13	05:52 20:13	19:37 (AR01) 19:31	06:52 18:42	06:24 16:56	06:59 16:39	07:19 16:39
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290	
Total, worst case					4	191	60						
Sun reduction					0,51	0,49	0,50						
Oper. time red.					0,81	0,81	0,81						
Wind dir. red.					0,67	0,67	0,67						
Total reduction					0,28	0,27	0,27						
Total, real					1	51	16						

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: Parco Eolico Val d'AgriShadow receptor: R64 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (87)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:19 16:40	07:06 17:14	06:32 17:47	06:42 19:20	05:57 19:51	06:16 (AR06) 20:19	05:29 20:30	05:53 20:12	06:23 19:30	18:53 (AR01) 19:07 (AR01)	06:52 18:40	06:25 16:55	06:59 16:31
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	06:15 (AR06) 20:20	05:29 20:30	05:54 20:11	06:24 19:28	18:53 (AR01) 19:06 (AR01)	06:53 18:39	06:26 16:53	07:00 16:31
3	07:19 16:42	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	06:14 (AR06) 20:21	05:28 20:30	05:55 20:10	06:25 19:27	18:52 (AR01) 19:04 (AR01)	06:54 18:37	06:27 16:52	07:01 16:31
4	07:19 16:43	07:04 17:18	06:27 17:50	06:37 19:23	18:59 (AR01) 05:53 19:02 (AR01)	05:28 19:54	06:13 (AR06) 20:21	05:31 20:09	05:56 20:29	06:26 19:25	18:52 (AR01) 19:03 (AR01)	06:55 16:51	07:02 16:30
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	18:58 (AR01) 05:52 19:03 (AR01)	05:28 19:55	06:12 (AR06) 20:22	05:32 20:07	05:57 20:29	06:27 19:23	18:51 (AR01) 19:01 (AR01)	06:56 16:50	07:03 16:30
6	07:19 16:45	07:01 17:20	06:24 17:53	06:34 19:25	18:56 (AR01) 05:51 19:04 (AR01)	05:27 19:56	06:17 (AR06) 20:23	05:27 20:06	05:58 20:29	06:28 19:22	18:50 (AR01) 19:00 (AR01)	06:57 16:49	07:04 16:30
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	18:55 (AR01) 05:50 19:04 (AR01)	05:27 19:57	06:18 (AR06) 20:24	05:33 20:05	05:59 20:05	06:29 19:20	18:53 (AR01) 18:58 (AR01)	06:58 16:48	07:05 16:30
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	18:55 (AR01) 05:49 19:06 (AR01)	05:49 19:58	06:19 (AR06) 20:25	06:00 20:04	06:30 19:18	06:30 19:18	18:54 (AR01) 18:57 (AR01)	06:59 16:47	07:06 16:30
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 19:28	18:54 (AR01) 05:48 19:06 (AR01)	05:48 19:59	06:20 (AR06) 20:25	06:01 20:03	06:30 19:17	06:30 19:17	18:53 (AR01) 18:27	07:00 16:46	07:06 16:30
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	18:55 (AR01) 05:46 19:08 (AR01)	05:46 20:00	06:21 (AR06) 20:25	06:02 20:01	06:31 19:15	06:31 19:15	18:52 (AR01) 18:26	07:01 16:45	07:07 16:30
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	18:54 (AR01) 05:45 19:08 (AR01)	05:45 20:01	06:22 (AR06) 20:26	06:03 20:00	06:32 19:14	06:32 19:14	18:53 (AR01) 18:24	07:02 16:44	07:08 16:30
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	18:55 (AR01) 05:44 19:10 (AR01)	05:44 20:02	06:23 (AR06) 20:26	06:04 20:00	06:33 19:12	06:33 19:12	18:54 (AR01) 18:23	07:03 16:43	07:09 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	18:55 (AR01) 05:43 19:10 (AR01)	05:43 20:03	06:24 (AR06) 20:27	06:04 20:07	06:34 19:58	06:34 19:10	18:53 (AR01) 18:21	07:04 16:42	07:10 16:30
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	18:57 (AR01) 05:42 19:10 (AR01)	05:42 20:04	06:25 (AR06) 20:27	06:05 20:06	06:35 19:56	06:35 19:09	18:52 (AR01) 18:20	07:05 16:41	07:11 16:31
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	18:59 (AR01) 05:41 19:06 (AR01)	05:41 20:05	06:26 (AR06) 20:27	06:06 20:06	06:36 19:55	06:36 19:07	18:51 (AR01) 18:18	07:06 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:40 20:06	06:27 (AR06) 20:28	06:07 20:05	06:37 19:54	06:37 19:05	18:50 (AR01) 18:17	07:07 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	05:39 20:07	06:28 (AR06) 20:28	06:08 20:24	06:38 19:52	06:38 19:04	18:49 (AR01) 18:15	07:08 16:39	07:13 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:39 20:07	05:39 20:07	06:29 (AR06) 20:29	06:09 20:24	06:39 19:51	06:39 19:02	18:48 (AR01) 18:14	07:09 16:38	07:13 16:32
19	07:16 16:58	06:46 17:36	06:03 18:06	06:14 19:38	05:38 20:08	05:38 20:08	06:30 (AR06) 20:29	06:10 20:23	06:40 19:49	06:40 19:00	18:47 (AR01) 18:12	07:10 16:37	07:14 16:32
20	07:15 17:00	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	05:37 20:09	06:31 (AR06) 20:29	06:11 20:22	06:41 19:48	06:41 18:59	18:46 (AR01) 18:11	07:11 16:36	07:15 16:33
21	07:15 17:01	06:43 17:38	06:00 18:09	06:11 19:40	05:36 20:10	05:36 20:10	06:32 (AR06) 20:29	06:12 20:22	06:42 19:46	06:42 18:57	18:45 (AR01) 18:09	07:12 16:36	07:15 16:33
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:41	05:35 20:11	05:35 20:11	06:33 (AR06) 20:30	06:13 20:21	06:43 19:45	06:43 18:55	18:44 (AR01) 18:08	07:13 16:35	07:16 16:34
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:35 20:12	05:35 20:12	06:34 (AR06) 20:30	06:14 20:20	06:44 19:44	06:44 18:54	18:43 (AR01) 18:06	07:14 16:35	07:17 16:34
24	07:13 17:04	06:39 17:41	05:55 18:12	06:07 19:43	06:25 (AR06) 05:34 06:27 (AR06)	05:34 20:13	06:35 (AR06) 20:30	06:15 20:19	06:45 19:42	06:45 18:52	18:42 (AR01) 18:05	07:15 16:34	07:18 16:35
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:45	06:24 (AR06) 05:33 06:28 (AR06)	05:33 20:14	06:36 (AR06) 20:30	06:16 20:18	06:46 19:41	06:46 18:50	18:41 (AR01) 18:04	07:16 16:34	07:19 16:36
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04 19:46	06:23 (AR06) 05:32 06:28 (AR06)	05:32 20:15	06:37 (AR06) 20:30	06:17 20:18	06:47 19:39	06:47 18:49	18:40 (AR01) 18:03	07:17 16:33	07:20 16:36
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	06:21 (AR06) 05:32 06:27 (AR06)	05:32 20:15	06:38 (AR06) 20:30	06:18 20:17	06:48 19:38	06:48 18:47	18:39 (AR01) 18:02	07:18 16:33	07:21 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	06:20 (AR06) 05:31 06:27 (AR06)	05:31 20:16	06:39 (AR06) 20:30	06:19 20:16	06:49 19:36	06:49 18:45	19:01 (AR01) 19:08 (AR01)	07:19 16:33	07:22 16:36
29	07:09 17:10	06:47 19:17	06:47 19:49	06:00 19:50	06:19 (AR06) 05:31 06:27 (AR06)	05:31 20:17	06:40 (AR06) 20:30	06:20 20:15	06:50 19:34	06:50 18:44	18:58 (AR01) 19:11 (AR01)	07:20 16:32	07:23 16:38
30	07:08 17:11	06:45 19:18	06:45 19:50	05:58 19:50	06:17 (AR06) 05:30 06:26 (AR06)	05:30 20:18	06:41 (AR06) 20:30	06:21 20:14	06:21 19:33	06:51 18:54	18:56 (AR01) 19:11 (AR01)	07:21 16:31	07:24 16:39
31	07:07 17:13	06:44 19:19	06:44 19:49	06:44 19:49	06:44 19:49	06:44 19:49	06:44 19:49	06:44 19:49	06:44 19:49	06:44 19:49	06:44 19:49	06:44 19:49	06:44 19:49
Potential sun hours	300	298	370	398	446	450	457	426	375	346	300	290	
Total, worst case				166	39			132	75				
Sun reduction				0,56	0,51			0,54	0,59				
Oper. time red.				0,81	0,81			0,81	0,81				
Wind dir. red.				0,74	0,76			0,75	0,74				
Total reduction				0,33	0,31			0,33	0,35				
Total, real				55	12			43	26				

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

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R67 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (88)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June		
1	07:19 16:40	07:07 17:14	06:32 17:47	06:42 19:20	05:57 19:51	06:16 (AR02) 06:46 (AR02)	05:29 20:19	
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	06:15 (AR02) 06:47 (AR02)	05:29 20:20	
3	07:19 16:42	07:05 17:16	06:29 17:49	06:39 19:22	05:55 19:53	06:14 (AR02) 06:47 (AR02)	05:28 20:21	
4	07:20 16:43	07:04 17:18	06:27 17:50	06:37 19:23	05:53 19:54	06:13 (AR02) 06:48 (AR02)	05:28 20:22	
5	07:20 16:44	07:03 17:19	06:26 17:52	06:36 19:24	05:52 19:55	06:12 (AR02) 06:48 (AR02)	05:28 20:22	
6	07:20 16:45	07:02 17:20	06:24 17:53	06:34 19:25	05:51 19:56	06:10 (AR02) 06:47 (AR02)	05:27 20:23	
7	07:19 16:46	07:01 17:21	06:22 17:54	06:32 19:26	05:50 19:57	06:09 (AR02) 06:47 (AR02)	05:27 20:24	
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	06:08 (AR02) 06:47 (AR02)	05:27 20:24	
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 19:28	05:48 19:59	06:08 (AR02) 06:47 (AR02)	05:27 20:25	
10	07:19 16:49	06:57 17:25	07:17 (AR03) 17:57	06:18 19:29	05:47 20:00	06:08 (AR02) 06:47 (AR02)	05:26 20:25	
11	07:19 16:50	06:56 17:26	07:15 (AR03) 17:58	06:16 19:30	05:45 20:01	06:08 (AR02) 06:46 (AR02)	05:26 20:26	
12	07:19 16:51	06:55 17:27	07:14 (AR03) 17:59	06:15 19:31	05:44 20:02	06:08 (AR02) 06:46 (AR02)	05:26 20:26	
13	07:18 16:52	06:54 17:28	07:13 (AR03) 18:00	06:13 19:32	05:43 20:03	06:09 (AR02) 06:46 (AR02)	05:26 20:27	
14	07:18 16:53	06:52 17:30	07:12 (AR03) 18:01	06:11 19:33	05:42 20:04	06:09 (AR02) 06:45 (AR02)	05:26 20:27	
15	07:18 16:54	06:51 17:31	07:10 (AR03) 18:02	06:10 19:34	05:41 20:05	06:09 (AR02) 06:45 (AR02)	05:26 20:28	
16	07:17 16:55	06:50 17:32	07:09 (AR03) 18:03	06:08 19:35	05:40 20:06	06:10 (AR02) 06:44 (AR02)	05:26 20:28	
17	07:17 16:56	06:49 17:33	07:08 (AR03) 18:04	06:06 19:36	05:40 20:07	06:11 (AR02) 06:44 (AR02)	05:26 20:28	
18	07:16 16:57	06:47 17:34	07:06 (AR03) 18:05	06:05 19:37	05:39 20:08	06:12 (AR02) 06:43 (AR02)	05:26 20:29	
19	07:16 16:58	06:46 17:36	07:05 (AR03) 18:07	06:03 19:38	05:38 20:09	06:12 (AR02) 06:43 (AR02)	05:26 20:29	
20	07:15 17:00	06:45 17:37	07:04 (AR03) 18:08	06:02 19:39	05:37 20:09	06:13 (AR02) 06:42 (AR02)	05:26 20:29	
21	07:15 17:01	06:43 17:38	07:07 (AR03) 18:09	06:00 19:41	05:36 20:10	06:14 (AR02) 06:41 (AR02)	05:27 20:30	
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:42	06:28 (AR02) 06:35 (AR02)	05:35 20:11	06:15 (AR02) 06:40 (AR02)	05:27 20:30
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:43	06:27 (AR02) 06:39 (AR02)	05:35 20:12	06:16 (AR02) 06:39 (AR02)	05:27 20:30
24	07:13 17:04	06:39 17:41	05:55 18:12	06:07 19:44	06:25 (AR02) 06:40 (AR02)	05:34 20:13	06:17 (AR02) 06:38 (AR02)	05:27 20:30
25	07:12 17:05	06:38 17:43	05:53 18:13	06:05 19:45	06:24 (AR02) 06:42 (AR02)	05:33 20:14	06:19 (AR02) 06:37 (AR02)	05:28 20:30
26	07:12 17:07	06:36 17:44	05:52 18:14	06:04 19:46	06:23 (AR02) 06:44 (AR02)	05:33 20:15	06:20 (AR02) 06:35 (AR02)	05:28 20:30
27	07:11 17:08	06:35 17:45	05:50 18:15	06:03 19:47	06:21 (AR02) 06:44 (AR02)	05:32 20:16	06:22 (AR02) 06:34 (AR02)	05:28 20:30
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	06:20 (AR02) 06:45 (AR02)	05:31 20:16	06:25 (AR02) 06:30 (AR02)	05:29 20:30
29	07:09 17:10	06:47 17:47	06:47 19:17	06:00 19:49	06:19 (AR02) 06:46 (AR02)	05:31 20:17	05:29 20:30	05:29 20:30
30	07:08 17:12	06:45 17:48	06:45 19:18	05:59 19:50	06:18 (AR02) 06:47 (AR02)	05:30 20:18	05:29 20:30	05:29 20:30
31	07:07 17:13	06:44 17:49	06:44 19:19	05:58 19:51	06:17 (AR02) 06:48 (AR02)	05:29 20:19	05:28 20:30	05:28 20:30
Potential sun hours	299	298	370	398	446		450	
Total, worst case		56		177		847		
Sun reduction		0,69		0,56		0,51		
Oper. time red.		0,81		0,81		0,81		
Wind dir. red.		0,69		0,76		0,76		
Total reduction		0,38		0,34		0,32		
Total, real		22		61		267		

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'AgriShadow receptor: R67 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (88)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30	05:53	06:19 (AR02)	06:23	06:52	06:25
	20:30	20:12	38 06:57 (AR02)	19:30	18:40	06:46 (AR03)
2	05:30	05:54	06:19 (AR02)	06:24	06:53	06:26
	20:30	20:11	38 06:57 (AR02)	19:28	18:39	06:47 (AR03)
3	05:31	05:55	06:18 (AR02)	06:25	06:54	06:27
	20:30	20:10	39 06:57 (AR02)	19:27	18:37	06:52
4	05:31	05:56	06:18 (AR02)	06:26	06:55	06:28
	20:30	20:09	40 06:58 (AR02)	19:25	18:35	06:31
5	05:32	05:57	06:19 (AR02)	06:27	06:56	06:30
	20:30	20:08	39 06:58 (AR02)	19:23	18:34	06:50
6	05:33	05:58	06:19 (AR02)	06:28	06:57	06:31
	20:29	20:06	38 06:57 (AR02)	19:22	18:32	06:49
7	05:33	05:59	06:20 (AR02)	06:29	06:58	06:32
	20:29	20:05	37 06:57 (AR02)	19:20	18:31	06:48
8	05:34	06:00	06:21 (AR02)	06:30	06:59	06:33
	20:29	20:04	36 06:57 (AR02)	19:19	18:29	06:47
9	05:34	06:01	06:22 (AR02)	06:31	07:00	06:34
	20:28	20:03	34 06:56 (AR02)	19:17	18:27	06:46
10	05:35	06:02	06:23 (AR02)	06:32	07:01	06:35
	20:28	20:02	33 06:56 (AR02)	19:15	18:26	06:45
11	05:36	06:03	06:24 (AR02)	06:32	07:02	06:37
	20:28	20:00	32 06:56 (AR02)	19:14	18:24	06:44
12	05:36	06:04	06:25 (AR02)	06:33	07:03	06:38
	20:27	19:59	30 06:55 (AR02)	19:12	18:23	06:43
13	05:37	06:05	06:26 (AR02)	06:34	07:04	06:39
	20:27	19:58	28 06:54 (AR02)	19:10	18:21	06:42
14	05:38	06:06	06:27 (AR02)	06:35	07:05	06:40
	20:26	19:56	27 06:54 (AR02)	19:09	18:20	06:41
15	05:39	06:07	06:28 (AR02)	06:36	07:06	06:41
	20:26	19:55	25 06:53 (AR02)	19:07	18:18	06:40
16	05:39	06:33 (AR02)	06:07	06:29 (AR02)	06:37	07:07
	20:25	9 06:42 (AR02)	19:54	23 06:52 (AR02)	19:05	18:17
17	05:40	06:30 (AR02)	06:08	06:30 (AR02)	06:38	07:08
	20:25	14 06:44 (AR02)	19:52	20 06:50 (AR02)	19:04	18:15
18	05:41	06:29 (AR02)	06:09	06:31 (AR02)	06:39	07:09
	20:24	17 06:46 (AR02)	19:51	18 06:49 (AR02)	19:02	18:14
19	05:42	06:28 (AR02)	06:10	06:31 (AR02)	06:40	07:10
	20:23	19 06:47 (AR02)	19:49	15 06:46 (AR02)	19:00	18:12
20	05:43	06:27 (AR02)	06:11	06:32 (AR02)	06:41	07:12
	20:23	22 06:49 (AR02)	19:48	11 06:43 (AR02)	18:59	18:11
21	05:43	06:25 (AR02)	06:12	06:33 (AR02)	06:42	07:13
	20:22	24 06:49 (AR02)	19:47	6 06:39 (AR02)	18:57	18:09
22	05:44	06:24 (AR02)	06:13	06:43	07:14	06:49
	20:21	26 06:50 (AR02)	19:45	18:55	18:08	5 07:34 (AR03)
23	05:45	06:23 (AR02)	06:14	06:44	07:15	07:39 (AR03)
	20:20	29 06:52 (AR02)	19:44	18:54	18:06	7 07:35 (AR03)
24	05:46	06:23 (AR02)	06:15	06:45	07:16	07:42 (AR03)
	20:19	30 06:53 (AR02)	19:42	18:52	18:05	7 07:37 (AR03)
25	05:47	06:22 (AR02)	06:16	06:46	06:17	07:44 (AR03)
	20:19	31 06:53 (AR02)	19:41	18:50	17:04	7 06:48 (AR03)
26	05:48	06:22 (AR02)	06:17	06:47	06:18	06:39 (AR03)
	20:18	32 06:54 (AR02)	19:39	18:49	17:02	7 06:45 (AR03)
27	05:49	06:21 (AR02)	06:18	06:48	06:19	06:40 (AR03)
	20:17	34 06:55 (AR02)	19:38	18:47	17:01	6 06:46 (AR03)
28	05:49	06:20 (AR02)	06:19	06:49	06:20	06:41 (AR03)
	20:16	35 06:55 (AR02)	19:36	18:45	17:00	6 06:47 (AR03)
29	05:50	06:20 (AR02)	06:20	06:50	06:22	06:43 (AR03)
	20:15	35 06:55 (AR02)	19:35	18:44	16:58	5 06:48 (AR03)
30	05:51	06:19 (AR02)	06:21	06:51	06:23	06:44 (AR03)
	20:14	37 06:56 (AR02)	19:33	18:42	16:57	4 06:48 (AR03)
31	05:52	06:19 (AR02)	06:22	06:52	06:24	06:45 (AR03)
	20:13	37 06:56 (AR02)	19:31	18:41	16:56	2 06:47 (AR03)
Potential sun hours	457	426		375	346	300
Total, worst case		607			56	
Sun reduction	0,50	0,54			0,66	1
Oper. time red.	0,81	0,81			0,81	0,81
Wind dir. red.	0,76	0,76			0,69	0,69
Total reduction	0,31	0,33			0,37	0,41
Total, real	133	200			21	0

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: Parco Eolico Val d'AgriShadow receptor: R78 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (89)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:32 17:47	17:06 (AR02) 19:20	06:42 19:51	05:57 20:19	05:29 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	07:19 16:41	07:06 17:15	06:30 17:48	17:07 (AR02) 19:21	06:40 19:52	05:56 20:20	05:29 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	07:00 16:31
3	07:19 16:42	07:05 17:16	06:28 17:49	17:07 (AR02) 19:22	06:39 19:53	05:55 20:21	05:28 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	07:19 16:43	07:04 17:17	06:27 17:50	17:08 (AR02) 19:23	06:37 19:54	05:53 20:21	05:28 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:03 17:19	06:25 17:51	17:09 (AR02) 19:24	06:35 19:55	05:52 20:22	05:28 20:30	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:45	07:02 17:20	06:24 17:52	17:11 (AR02) 19:25	06:34 19:56	05:51 20:23	05:27 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	07:19 16:46	07:00 17:21	06:22 17:54	17:14 (AR02) 19:26	06:32 19:57	05:50 20:23	05:27 20:29	05:59 20:05	06:29 19:20	06:58 18:30	17:48 (AR02) 16:48	06:32 16:30
8	07:19 16:47	06:59 17:22	06:21 17:55	17:21 (AR02) 19:27	06:31 19:58	05:49 20:24	05:27 20:29	06:00 20:04	06:29 19:18	06:59 18:29	11 17:59 (AR02) 16:48	06:33 16:30
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 19:28	05:48 19:59	05:26 20:25	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	16 18:01 (AR02) 16:47	06:34 16:30
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	19 17:42 (AR02) 16:45	06:35 16:30
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	05:36 20:28	06:03 20:00	06:32 19:14	07:02 18:24	21 18:03 (AR02) 16:44	06:36 16:30
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	20 17:40 (AR02) 16:43	06:38 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27	05:37 20:27	06:04 19:58	06:34 19:10	07:04 18:21	19 17:58 (AR02) 16:42	06:39 16:30
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:09	07:05 18:20	18 17:57 (AR02) 16:41	06:40 16:31
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:28	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	17 17:55 (AR02) 16:40	06:41 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:17	15 17:53 (AR02) 16:39	06:42 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	05:26 20:28	05:40 20:24	06:08 19:52	06:38 19:04	07:08 18:15	14 17:52 (AR02) 16:39	06:43 16:31
18	07:17 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:39 20:07	05:26 20:29	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:14	12 17:51 (AR02) 16:38	06:45 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	9 17:49 (AR02) 16:37	06:46 16:32
20	07:16 16:59	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29	05:42 20:22	06:11 19:48	06:41 18:59	07:11 18:11	8 17:48 (AR02) 16:36	06:47 16:33
21	07:15 17:01	06:43 17:38	06:00 18:09	06:11 19:40	05:36 20:10	05:26 20:29	05:43 20:22	06:12 19:46	06:42 18:57	07:12 18:09	7 17:47 (AR02) 16:36	06:48 16:33
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:41	05:35 20:11	05:27 20:30	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	6 17:46 (AR02) 16:35	06:49 16:33
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:44	06:44 18:53	07:15 18:06	5 17:45 (AR02) 16:35	06:50 16:34
24	07:13 17:04	06:39 17:41	05:55 18:12	06:07 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	4 17:44 (AR02) 16:34	06:51 16:35
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:45	05:33 20:14	05:27 20:30	05:47 20:18	06:16 19:41	06:46 18:50	06:17 17:04	3 17:43 (AR02) 16:33	06:52 16:35
26	07:11 17:07	06:36 17:44	05:52 18:14	06:04 19:46	05:32 20:15	05:28 20:30	05:48 20:18	06:17 19:39	06:47 18:48	06:18 17:02	2 17:42 (AR02) 16:33	06:54 16:36
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:38	06:48 18:47	06:19 17:01	1 17:41 (AR02) 16:33	06:55 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 17:00	0 17:40 (AR02) 16:32	06:56 16:37
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 20:17	05:29 20:30	05:50 20:15	06:20 19:34	06:50 18:44	06:21 16:58	0 16:31 (AR02) 16:32	06:57 16:38
30	07:08 17:11		06:45 19:18	05:58 19:50	05:30 20:18	05:29 20:30	05:51 20:14	06:21 19:33	06:51 18:42	06:23 16:57	0 16:30 (AR02) 16:31	06:58 16:38
31	07:07 17:13		06:43 19:19	06:00 20:19	05:30 20:13	05:29 20:30	05:52 20:13	06:22 19:31	06:52 18:42	06:24 16:56	0 16:29 (AR02) 16:39	06:59 16:39
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case			105		120					227		
Sun reduction			0,69		0,62					0,66		
Oper. time red.			0,81		0,81					0,81		
Wind dir. red.			0,76		0,76					0,76		
Total reduction			0,42		0,38					0,40		
Total, real			45		45					92		

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

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



## SHADOW - Calendar

Calculation: Parco Eolico Val d'Agri Shadow receptor: R79 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (90)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December					
1	07:19	15:46 (AR04)	07:06	06:31	06:42	05:57	05:29	05:30	05:53	06:23	06:52	06:25	06:59	15:33 (AR04)			
	16:40	28	16:14 (AR04)	17:14	17:47	19:20	19:51	20:19	20:30	20:12	19:30	18:40	16:55	16:31	30	16:03 (AR04)	
2	07:19	15:47 (AR04)	07:06	06:30	06:40	05:56	05:29	05:30	05:54	06:24	06:53	06:26	07:00	16:00		15:33 (AR04)	
	16:41	28	16:15 (AR04)	17:15	17:48	19:21	19:52	20:20	20:30	20:11	19:28	18:39	16:53	16:31	30	16:03 (AR04)	
3	07:19	15:47 (AR04)	07:05	06:28	06:39	05:55	05:28	05:31	05:55	06:25	06:54	06:27	07:01	16:31		15:34 (AR04)	
	16:42	29	16:16 (AR04)	17:16	17:49	19:22	19:53	20:21	20:30	20:10	19:27	18:37	16:52	16:31	30	16:04 (AR04)	
4	07:19	15:48 (AR04)	07:04	06:27	06:37	05:53	05:28	05:31	05:56	06:26	06:55	06:28	07:02	16:31		15:34 (AR04)	
	16:43	29	16:17 (AR04)	17:17	17:50	19:23	19:54	20:21	20:30	20:09	19:25	18:35	16:51	16:30	30	16:04 (AR04)	
5	07:19	15:48 (AR04)	07:03	06:25	06:35	05:52	05:27	05:32	05:57	06:27	06:56	06:29	07:03	16:30		15:34 (AR04)	
	16:44	30	16:18 (AR04)	17:19	17:51	19:24	19:55	20:22	20:29	20:07	19:23	18:34	16:50	16:30	31	16:05 (AR04)	
6	07:19	15:49 (AR04)	07:01	06:24	06:34	05:51	05:27	05:32	05:58	06:28	06:57	06:31	07:04	16:30		15:35 (AR04)	
	16:45	30	16:19 (AR04)	17:20	17:52	19:25	19:56	20:23	20:29	20:06	19:22	18:32	16:49	16:30	30	16:05 (AR04)	
7	07:19	15:49 (AR04)	07:00	06:22	06:32	05:50	05:27	05:33	05:59	06:28	06:58	06:32	07:05	16:30		15:35 (AR04)	
	16:46	30	16:19 (AR04)	17:21	17:54	19:26	19:57	20:23	20:29	20:05	19:20	18:30	16:48	16:30	30	16:05 (AR04)	
8	07:19	15:50 (AR04)	06:59	06:21	06:31	05:49	05:27	05:34	06:00	06:29	06:59	06:33	07:06	16:30		15:36 (AR04)	
	16:47	30	16:20 (AR04)	17:22	17:55	19:27	19:58	20:24	20:29	20:04	19:18	18:29	16:47	16:30	29	16:05 (AR04)	
9	07:19	15:51 (AR04)	06:58	06:19	06:29	05:47	05:26	05:34	06:01	06:30	07:00	06:34	07:06	16:30		15:36 (AR04)	
	16:48	30	16:21 (AR04)	17:24	17:56	19:28	19:59	20:25	20:28	20:03	19:17	18:27	16:46	16:30	29	16:05 (AR04)	
10	07:19	15:50 (AR04)	06:57	06:18	06:27	05:46	05:26	05:35	06:02	06:31	07:01	06:35	07:07	16:30		15:37 (AR04)	
	16:49	30	16:20 (AR04)	17:25	17:57	19:29	20:00	20:25	20:28	20:01	19:15	18:26	16:45	16:30	28	16:05 (AR04)	
11	07:19	15:51 (AR04)	06:56	06:16	06:26	05:45	05:26	05:36	06:02	06:32	07:02	06:36	07:08	16:30		15:36 (AR04)	
	16:50	30	16:21 (AR04)	17:26	17:58	19:30	20:01	20:26	20:28	20:00	19:13	18:24	16:44	16:30	29	16:05 (AR04)	
12	07:19	15:52 (AR04)	06:55	06:14	06:24	05:44	05:26	05:36	06:03	06:33	07:03	06:38	07:09	16:30		15:37 (AR04)	
	16:51	29	16:21 (AR04)	17:27	17:59	19:31	20:02	20:26	20:27	19:59	19:12	18:23	16:43	16:30	28	16:05 (AR04)	
13	07:18	15:52 (AR04)	06:53	06:13	06:23	05:43	05:26	05:37	06:04	06:34	07:04	06:39	07:10	16:30		15:38 (AR04)	
	16:52	29	16:21 (AR04)	17:28	18:00	19:32	20:03	20:27	20:27	19:58	19:10	18:21	16:42	16:30	27	16:05 (AR04)	
14	07:18	15:53 (AR04)	06:52	06:11	06:21	05:42	05:26	05:38	06:05	06:35	07:05	06:40	07:11	16:30		15:38 (AR04)	
	16:53	28	16:21 (AR04)	17:30	18:01	19:33	20:04	20:27	20:26	19:56	19:08	18:20	16:41	16:31	28	16:06 (AR04)	
15	07:18	15:54 (AR04)	06:51	06:10	06:20	05:41	05:26	05:38	06:06	06:36	07:06	06:41	07:11	16:30		15:38 (AR04)	
	16:54	27	16:21 (AR04)	17:31	18:02	19:34	20:05	20:27	20:26	19:55	19:07	18:18	16:40	16:31	27	16:05 (AR04)	
16	07:17	15:55 (AR04)	06:50	06:08	06:18	05:40	05:26	05:39	06:07	06:37	07:07	06:42	07:12	16:30		15:39 (AR04)	
	16:55	26	16:21 (AR04)	17:32	18:03	19:35	20:06	20:28	20:25	19:54	19:05	18:16	16:39	16:31	27	16:06 (AR04)	
17	07:17	15:56 (AR04)	06:48	06:06	06:17	05:39	05:26	05:40	06:08	06:38	07:08	06:43	07:13	16:30		15:40 (AR04)	
	16:56	25	16:21 (AR04)	17:33	18:04	19:36	20:07	20:28	20:24	19:52	19:03	18:15	16:39	16:31	26	16:06 (AR04)	
18	07:16	15:57 (AR04)	06:47	06:05	06:15	05:39	05:26	05:41	06:09	06:39	07:09	06:45	7	15:43 (AR04)	07:13	15:40 (AR04)	
	16:57	23	16:20 (AR04)	17:34	18:05	19:37	20:07	20:29	20:24	19:51	19:02	18:14	16:38	3	15:46 (AR04)	16:32	16:06 (AR04)
19	07:16	15:57 (AR04)	06:46	06:03	06:14	05:38	05:26	05:42	06:10	06:40	07:10	06:46	7	15:39 (AR04)	07:14	15:41 (AR04)	
	16:58	22	16:19 (AR04)	17:35	18:06	19:38	20:08	20:29	20:23	19:49	19:00	18:12	16:37	11	15:50 (AR04)	16:32	16:07 (AR04)
20	07:15	15:59 (AR04)	06:44	06:01	06:12	05:37	05:26	05:42	06:11	06:41	07:11	06:47	7	15:38 (AR04)	07:15	15:42 (AR04)	
	16:59	20	16:19 (AR04)	17:37	18:07	19:39	20:09	20:29	20:22	19:48	18:58	18:11	16:36	15	15:53 (AR04)	16:32	16:08 (AR04)
21	07:15	16:00 (AR04)	06:43	06:00	06:11	05:36	05:26	05:43	06:12	06:42	07:12	06:48	7	15:36 (AR04)	07:15	15:42 (AR04)	
	17:01	18	16:18 (AR04)	17:38	18:08	19:40	20:10	20:29	20:22	19:46	18:57	18:09	16:36	18	15:54 (AR04)	16:33	16:07 (AR04)
22	07:14	16:03 (AR04)	06:42	05:58	06:09	05:35	05:27	05:44	06:13	06:43	07:14	06:49	7	15:35 (AR04)	07:16	15:43 (AR04)	
	17:02	15	16:18 (AR04)	17:39	18:10	19:41	20:11	20:30	20:21	19:45	18:55	18:08	16:35	20	15:55 (AR04)	16:33	16:08 (AR04)
23	07:14	16:05 (AR04)	06:40	05:57	06:08	05:34	05:27	05:45	06:14	06:44	07:15	06:50	7	15:34 (AR04)	07:16	15:43 (AR04)	
	17:03	11	16:16 (AR04)	17:40	18:11	19:42	20:12	20:30	20:20	19:44	18:53	18:06	16:34	22	15:56 (AR04)	16:34	16:08 (AR04)
24	07:13	16:09 (AR04)	06:39	05:55	06:06	05:34	05:27	05:46	06:15	06:45	07:16	06:51	7	15:34 (AR04)	07:17	15:43 (AR04)	
	17:04	3	16:12 (AR04)	17:41	18:12	19:43	20:13	20:30	20:19	19:42	18:52	18:05	16:34	23	15:57 (AR04)	16:34	16:09 (AR04)
25	07:12	17:05	06:37	05:53	06:05	05:33	05:27	05:47	06:16	06:46	07:17	06:52	7	15:33 (AR04)	07:17	15:44 (AR04)	
	17:07	17:05	17:44	18:14	19:46	20:15	20:30	20:18	19:39	18:48	17:02	16:33	26	16:00 (AR04)	16:36	16:10 (AR04)	
26	07:11	17:08	06:34	05:50	06:02	05:32	05:28	05:48	06:17	06:47	07:18	06:52	7	15:33 (AR04)	07:17	15:44 (AR04)	
	17:08	17:08	17:45	18:15	19:47	20:15	20:30	20:17	19:37	18:47	17:01	16:32	26	16:00 (AR04)	16:36	16:10 (AR04)	
27	07:10	17:10	06:33	05:48	06:01	05:31	05:28	05:49	06:19	06:49	07:20	06:56	7	15:33 (AR04)	07:18	15:45 (AR04)	
	17:09	17:09	17:46	18:16	19:48	20:16	20:30	20:16	19:36	18:45	17:00	16:32	28	16:01 (AR04)	16:37	16:12 (AR04)	
28	07:09	17:10	06:45	05:58	06:00	05:31	05:29	05:50	06:20	06:50	07:21	06:57	7	15:33 (AR04)	07:18	15:45 (AR04)	
	17:11	30	17:11	18:18	19:50	20:18	20:30	20:14	19:33	18:42	16:57	16:31	29	16:02 (AR04)	16:38	16:12 (AR04)	
29	07:08	17:11	06:43	05:58	06:00	05:31	05:29	05:51	06:21	06:51	07:22	06:58	7	15:33 (AR04)	07:19	15:46 (AR04)	
	17:13	31	17:13	18:19	19:51	20:19	20:30	20:13	19:31	18:40	16:56	16:31	29	16:02 (AR04)	16:39	16:12 (AR04)	
	17:13	299	298	370	398	446	450	457	426	375	346	300	290	855			
Potential sun hours	299																
Total, worst case	600													855			
Sun reduction	0,77											0,74				0,79	
Oper. time red.	0,81											0,81				0,81	
Wind dir. red.	0,73											0,73				0,73	
Total reduction	0,45											0,44				0,47	
Total, real	272											120				400	

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'AgriShadow receptor: R82 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (91)  
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	15:42 (AR04) 15:50 (AR04)	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55
2	07:19 16:41	15:43 (AR04) 15:50 (AR04)	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53
3	07:19 16:42	15:44 (AR04) 15:51 (AR04)	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52
4	07:19 16:43	15:45 (AR04) 15:52 (AR04)	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51
5	07:19 16:44	15:46 (AR04) 15:53 (AR04)	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50
6	07:19 16:45	15:48 (AR04) 15:54 (AR04)	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49
7	07:19 16:46	15:50 (AR04) 15:55 (AR04)	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	06:32 16:48
8	07:19 16:47	15:51 (AR04) 16:01	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	06:33 16:47
9	07:19 16:48	15:52 (AR04) 16:02	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:25	05:35 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46
10	07:19 16:49	15:53 (AR04) 16:03	06:57 17:24	06:18 17:57	06:27 19:29	05:46 20:00	05:26 20:25	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45
11	07:19 16:50	15:54 (AR04) 16:04	06:56 17:25	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26	05:36 20:28	06:02 20:00	06:32 19:13	07:02 18:24	06:36 16:44
12	07:19 16:51	15:55 (AR04) 16:05	06:55 17:26	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	06:38 16:43
13	07:18 16:52	15:56 (AR04) 16:06	06:53 17:27	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27	05:37 20:27	06:04 19:58	06:34 19:10	07:04 18:21	06:39 16:42
14	07:18 16:53	15:57 (AR04) 16:07	06:52 17:28	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:20	06:40 16:41
15	07:18 16:54	15:58 (AR04) 16:08	06:51 17:29	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:27	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40
16	07:17 16:55	15:59 (AR04) 16:09	06:50 17:30	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:16	06:42 16:39
17	07:17 16:56	15:59 (AR04) 16:10	06:50 17:31	06:08 18:04	06:18 19:36	05:40 20:07	05:26 20:29	05:39 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 16:39
18	07:16 16:57	15:59 (AR04) 16:11	06:48 17:32	06:06 18:05	06:17 19:37	05:39 20:07	05:26 20:29	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:14	06:45 16:38
19	07:16 16:58	15:59 (AR04) 16:12	06:47 17:33	06:05 18:06	06:15 19:38	05:39 20:08	05:26 20:29	05:41 20:23	06:09 19:49	06:39 19:00	07:09 18:12	06:45 16:37
20	07:15 16:59	15:59 (AR04) 16:13	06:46 17:34	06:03 18:07	06:14 19:39	05:38 20:09	05:26 20:29	05:42 20:22	06:10 19:48	06:40 18:58	07:10 18:11	06:46 16:36
21	07:15 17:00	15:59 (AR04) 16:14	06:44 17:35	06:01 18:08	06:12 19:40	05:37 20:10	05:26 20:29	05:42 20:22	06:11 19:46	06:41 18:57	07:11 18:09	06:47 16:36
22	07:14 17:01	15:59 (AR04) 16:15	06:43 17:36	06:00 18:09	06:11 19:41	05:36 20:11	05:26 20:30	05:43 20:21	06:12 19:45	06:42 18:55	07:12 18:08	06:48 16:35
23	07:14 17:02	15:59 (AR04) 16:16	06:43 17:37	06:00 18:10	06:11 19:42	05:36 20:11	05:26 20:30	05:43 20:21	06:12 19:45	06:42 18:55	07:12 18:08	06:48 16:35
24	07:13 17:03	15:59 (AR04) 16:17	06:40 17:38	05:57 18:11	06:08 19:42	05:34 20:12	05:27 20:30	05:45 20:20	06:14 19:44	06:44 18:53	07:15 18:06	06:50 16:34
25	07:12 17:04	15:59 (AR04) 16:18	06:39 17:39	05:55 18:12	06:06 19:43	05:34 20:13	05:27 20:30	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34
26	07:11 17:05	15:59 (AR04) 16:19	06:37 17:40	05:53 18:13	06:05 19:44	05:33 20:14	05:27 20:30	05:47 20:18	06:16 19:41	06:46 18:50	06:17 17:04	06:52 16:33
27	07:11 17:06	15:59 (AR04) 16:20	06:36 17:41	05:52 18:14	06:04 19:46	05:32 20:15	05:28 20:30	05:47 20:18	06:17 19:39	06:47 18:48	06:18 17:02	06:54 16:33
28	07:10 17:07	15:59 (AR04) 16:21	06:34 17:42	05:50 18:15	06:02 19:47	05:32 20:15	05:28 20:30	05:48 20:17	06:18 19:37	06:48 18:47	06:19 17:01	06:55 16:32
29	07:09 17:08	15:59 (AR04) 16:22	06:33 17:43	05:48 18:16	06:01 19:48	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 17:00	06:56 16:32
30	07:08 17:09	15:59 (AR04) 16:23	06:33 17:44	05:48 18:17	06:01 19:48	05:31 20:16	05:28 20:30	05:49 20:16	06:19 19:36	06:49 18:45	06:20 17:00	06:56 16:32
31	07:07 17:10	15:59 (AR04) 16:24	06:33 17:45	05:48 18:17	06:01 19:49	05:31 20:17	05:28 20:30	05:49 20:15	06:19 19:34	06:49 18:43	06:20 16:58	06:57 16:32
Potential sun hours	299	298	370	398	446	450	457	426	375	346	300	290
Total, worst case												47
Sun reduction												0,77
Oper. time red.												0,81
Wind dir. red.												0,72
Total reduction												0,44
Total, real												21

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: Parco Eolico Val d'AgriShadow receptor: R84 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (92)  
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

#### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

January	February	March	April	May	June	July	August	September	October	November	December	
1 07:19 16:40	07:06 17:14	15:30 (AR05) 17:47	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:59 16:31	
2 07:19 16:41	07:06 17:15	15:30 (AR05) 17:48	06:30 19:21	06:40 19:21	05:56 19:52	05:29 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	07:00 16:31	
3 07:19 16:42	07:05 17:16	15:30 (AR05) 17:49	06:28 19:22	06:39 19:22	05:55 19:53	05:28 20:21	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	07:01 16:31	
4 07:19 16:43	07:04 17:17	15:30 (AR05) 17:50	06:27 19:23	06:37 19:23	05:53 19:54	05:28 20:21	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	07:02 16:30	
5 07:19 16:44	07:03 17:19	15:31 (AR05) 17:51	06:25 19:24	06:35 19:24	05:52 19:55	05:27 20:22	05:32 20:29	05:57 20:07	06:27 19:23	06:56 18:34	07:03 16:30	
6 07:19 16:45	07:01 17:20	15:31 (AR05) 17:52	06:24 19:25	06:34 19:25	05:51 19:56	05:27 20:23	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	07:04 16:30	
7 07:19 16:46	07:00 17:21	15:31 (AR05) 17:54	06:22 19:26	06:32 19:26	05:50 19:57	05:27 20:23	05:33 20:29	05:59 20:05	06:28 19:20	06:58 18:30	07:05 16:30	
8 07:19 16:46	06:59 17:22	15:32 (AR05) 17:55	06:21 19:27	06:31 19:27	05:49 19:58	05:27 20:24	05:34 20:29	06:00 20:04	06:29 19:18	06:59 18:29	07:06 16:30	
9 07:19 16:47	06:58 17:23	15:33 (AR05) 17:56	06:19 19:28	06:29 19:28	05:47 19:59	05:26 20:25	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	07:06 16:30	
10 07:19 16:48	06:57 17:25	15:32 (AR05) 17:57	06:18 19:29	06:27 20:00	05:46 20:25	05:26 20:28	05:35 20:01	06:01 19:15	06:31 18:26	07:01 18:02	07:07 16:30	
11 07:19 16:50	06:56 17:26	15:33 (AR05) 17:58	06:16 19:30	06:26 20:01	05:45 20:26	05:26 20:28	05:35 20:00	06:02 19:13	06:32 18:24	07:02 18:24	07:08 16:30	
12 07:19 16:51	06:55 17:27	15:34 (AR05) 17:59	06:14 19:31	06:24 20:02	05:44 20:26	05:26 20:27	05:36 20:27	06:03 19:59	06:33 19:12	07:03 18:23	07:09 16:30	
13 07:18 16:52	15:42 (AR05) 17:28	06:53 17:58	06:13 19:32	06:23 20:03	05:43 20:27	05:26 20:27	05:37 20:27	06:04 19:58	06:34 19:10	07:04 18:21	07:10 16:30	
14 07:18 16:53	15:41 (AR05) 17:29	06:52 17:59	06:11 19:33	06:21 20:04	05:42 20:27	05:26 20:26	05:38 20:26	06:05 19:56	06:35 19:08	07:05 18:19	07:11 16:31	
15 07:18 16:54	15:56 (AR05) 17:31	06:51 17:57	06:10 19:34	06:20 20:05	05:41 20:27	05:26 20:26	05:38 20:26	06:06 19:55	06:36 19:07	07:06 18:18	07:11 16:31	
16 07:17 16:55	15:58 (AR05) 17:32	06:50 17:58	06:10 19:35	06:18 20:06	05:40 20:28	05:26 20:25	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:16	07:12 16:31	
17 07:17 16:56	16:00 (AR05) 17:33	06:48 17:59	06:10 19:36	06:17 20:07	05:39 20:28	05:26 20:24	05:40 20:24	06:08 19:52	06:38 19:03	07:08 18:15	07:13 16:31	
18 07:16 16:57	15:37 (AR05) 17:34	06:48 17:34	06:10 19:37	06:17 20:07	05:39 20:29	05:26 20:24	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:13	07:13 16:32	
19 07:16 16:58	16:03 (AR05) 17:35	06:47 17:35	06:10 19:38	06:16 20:08	05:38 20:29	05:26 20:23	05:41 20:23	06:10 19:49	06:40 19:00	07:10 18:12	07:14 16:32	
20 07:15 16:59	15:35 (AR05) 17:36	06:46 17:36	06:10 19:39	06:16 20:09	05:38 20:29	05:26 20:22	05:41 20:22	06:11 19:48	06:41 18:58	07:11 18:11	07:15 16:32	
21 07:15 17:01	16:06 (AR05) 17:37	06:44 17:37	06:11 19:40	06:12 20:10	05:37 20:29	05:26 20:22	05:42 20:22	06:11 19:46	06:41 18:57	07:11 18:09	07:15 16:33	
22 07:14 17:02	15:33 (AR05) 17:38	06:42 17:38	06:11 19:41	06:11 20:11	05:36 20:30	05:26 20:21	05:43 20:21	06:12 19:45	06:42 18:55	07:12 18:08	07:15 16:33	
23 07:14 17:03	16:09 (AR05) 17:40	06:40 17:40	06:11 19:42	06:09 20:12	05:35 20:30	05:27 20:20	05:44 20:20	06:13 19:44	06:43 18:53	07:14 18:06	07:16 16:34	
24 07:13 17:04	15:32 (AR05) 17:41	06:39 17:41	06:11 19:43	06:08 20:13	05:34 20:30	05:27 20:19	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	07:17 16:34	
25 07:12 17:05	15:31 (AR05) 17:42	06:37 17:42	06:12 19:44	06:07 20:14	05:33 20:30	05:27 20:18	05:47 20:18	06:16 19:41	06:46 18:50	07:17 18:04	07:18 16:35	
26 07:11 17:06	16:10 (AR05) 17:43	06:36 17:43	06:12 19:45	06:06 20:15	05:32 20:30	05:28 20:18	05:47 20:18	06:17 19:39	06:47 18:48	07:18 18:02	07:19 16:36	
27 07:11 17:08	15:32 (AR05) 17:44	06:34 17:44	06:13 19:46	06:05 20:16	05:32 20:30	05:28 20:17	05:48 20:17	06:18 19:37	06:48 18:47	07:19 18:01	07:20 16:36	
28 07:10 17:09	16:13 (AR05) 17:45	06:33 17:45	06:13 19:47	06:04 20:17	05:31 20:30	05:28 20:17	05:49 20:17	06:19 19:37	06:49 18:47	07:20 18:01	07:21 16:36	
29 07:09 17:10	15:31 (AR05) 17:46	06:32 17:46	06:14 19:48	06:03 20:18	05:30 20:30	05:29 20:16	05:50 20:16	06:20 19:36	06:50 18:45	07:21 18:00	07:22 16:37	
30 07:08 17:11	16:14 (AR05) 17:47	06:31 17:47	06:14 19:49	06:02 20:19	05:29 20:30	05:29 20:15	05:51 20:15	06:21 19:34	06:51 18:43	07:22 18:00	07:23 16:38	
31 07:07 17:13	15:30 (AR05) 17:48	06:30 17:48	06:15 19:50	06:01 20:18	05:28 20:30	05:29 20:14	05:52 20:14	06:22 19:33	06:52 18:42	07:23 18:02	07:24 16:38	
Potential sun hours	299	298	370	398	446	450	457	427	375	346	345	290
Total, worst case	624	788								345	1084	
Sun reduction	0,77	0,69								0,66	0,74	
Oper. time red.	0,81	0,81								0,81	0,81	
Wind dir. red.	0,74	0,74								0,74	0,74	
Total reduction	0,46	0,41								0,39	0,44	
Total, real	284	325								136	477	

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

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

# SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R86 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (93) Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January	February	March	April	May	June	July	August	September	October	November	December	
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	17:36 (AR05) 19:51	05:57 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31	
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	17:36 (AR05) 19:52	05:56 20:20	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:53	07:00 16:31	
3	07:19 16:42	07:05 17:16	06:28 17:49	06:39 19:22	17:37 (AR05) 19:53	05:55 20:21	05:31 20:30	05:55 20:10	06:25 19:26	17:46 (AR05) 17:53 (AR05)	06:54 18:37	06:27 16:52	07:01 16:31
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	17:38 (AR05) 19:54	05:53 20:21	05:31 20:30	05:56 20:09	06:26 19:25	17:41 (AR05) 17:57 (AR05)	06:55 18:35	06:28 16:51	07:02 16:30
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	17:39 (AR05) 19:55	05:52 20:22	05:32 20:29	05:57 20:07	06:27 19:23	17:38 (AR05) 17:59 (AR05)	06:56 18:34	06:29 16:50	07:03 16:30
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	17:40 (AR05) 19:56	05:51 20:23	05:32 20:29	05:58 20:06	06:28 19:22	17:36 (AR05) 18:01 (AR05)	06:57 18:32	06:31 16:49	07:04 16:30
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	17:41 (AR05) 19:57	05:50 20:23	05:33 20:29	05:59 20:05	06:28 19:20	17:31 (AR05) 18:02 (AR05)	06:58 18:30	06:32 16:48	07:05 16:30
8	07:19 16:46	06:59 17:22	06:21 17:55	06:31 19:27	17:44 (AR05) 19:58	05:49 20:24	05:33 20:29	06:00 20:04	06:29 19:18	17:31 (AR05) 18:03 (AR05)	06:59 18:29	06:33 16:47	07:06 16:30
9	07:19 16:47	06:58 17:23	06:19 17:56	06:29 19:28	17:48 (AR05) 19:59	05:47 20:25	05:34 20:28	06:01 20:03	06:30 19:17	18:03 (AR05) 18:03 (AR05)	07:00 18:27	06:34 16:46	07:06 16:30
10	07:19 16:48	06:57 17:25	06:18 17:57	06:27 19:29	17:55 (AR05) 20:00	05:46 20:25	05:35 20:28	06:01 20:01	06:31 19:15	17:29 (AR05) 18:03 (AR05)	07:01 18:26	06:35 16:45	07:07 16:30
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:45 20:26	05:35 20:28	06:02 20:00	06:32 19:13	17:28 (AR05) 18:03 (AR05)	07:02 18:24	06:36 16:44	07:08 16:30
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:44 20:26	05:36 20:27	06:03 19:59	06:33 19:12	17:27 (AR05) 18:03 (AR05)	07:03 18:23	06:38 16:43	07:09 16:30
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:43 20:27	05:37 20:27	06:04 19:58	06:34 19:10	17:27 (AR05) 18:03 (AR05)	07:04 18:21	06:39 16:42	07:10 16:30
14	07:18 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:42 20:27	05:38 20:26	06:05 19:56	06:35 19:08	17:26 (AR05) 18:03 (AR05)	07:05 18:19	06:40 16:41	07:11 16:31
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:41 20:27	05:38 20:26	06:06 19:55	06:36 19:07	17:26 (AR05) 18:03 (AR05)	07:06 18:18	06:41 16:40	07:11 16:31
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:40 20:28	05:39 20:25	06:07 19:53	06:37 19:05	17:25 (AR05) 18:03 (AR05)	07:07 18:16	06:42 16:39	07:12 16:31
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	16:50 (AR05) 17:05 (AR05)	05:39 20:07	05:40 20:24	06:08 19:52	06:38 19:03	17:25 (AR05) 18:02 (AR05)	07:08 18:15	06:43 16:38	07:13 16:31
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	16:47 (AR05) 17:08 (AR05)	05:38 20:08	05:41 20:24	06:09 19:51	06:39 19:02	17:25 (AR05) 18:01 (AR05)	07:09 18:13	06:45 16:38	07:13 16:32
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	16:44 (AR05) 17:09 (AR05)	05:37 20:08	05:41 20:23	06:10 19:49	06:40 19:00	17:25 (AR05) 18:01 (AR05)	07:10 18:12	06:46 16:37	07:14 16:32
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12 19:39	16:43 (AR05) 17:11 (AR05)	05:37 20:09	05:42 20:22	06:11 19:48	06:41 18:58	17:25 (AR05) 18:00 (AR05)	07:11 18:11	06:47 16:36	07:15 16:32
21	07:15 17:01	06:43 17:38	06:00 18:08	06:11 19:40	16:41 (AR05) 17:12 (AR05)	05:36 20:10	05:43 20:22	06:12 19:46	06:42 18:57	17:26 (AR05) 17:59 (AR05)	07:12 18:09	06:48 16:36	07:15 16:33
22	07:14 17:02	06:42 17:39	05:58 18:09	06:09 19:41	16:39 (AR05) 17:12 (AR05)	05:35 20:11	05:44 20:21	06:13 19:45	06:43 18:55	17:26 (AR05) 17:57 (AR05)	07:14 18:08	06:49 16:35	07:16 16:33
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	16:39 (AR05) 17:13 (AR05)	05:34 20:12	05:45 20:20	06:14 19:43	06:44 18:53	17:27 (AR05) 17:56 (AR05)	07:15 18:06	06:50 16:34	07:16 16:34
24	07:13 17:04	06:39 17:41	05:55 18:12	06:06 19:43	16:38 (AR05) 17:13 (AR05)	05:34 20:13	05:46 20:19	06:15 19:42	06:45 18:52	17:28 (AR05) 17:54 (AR05)	07:16 18:05	06:51 16:34	07:17 16:34
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:44	16:38 (AR05) 17:14 (AR05)	05:33 20:14	05:47 20:18	06:16 19:41	06:46 18:50	17:30 (AR05) 17:52 (AR05)	06:17 17:04	06:52 16:33	07:17 16:35
26	07:11 17:06	06:36 17:43	05:52 18:14	06:04 19:45	16:37 (AR05) 17:14 (AR05)	05:32 20:15	05:47 20:18	06:17 19:39	06:47 18:48	17:32 (AR05) 17:49 (AR05)	06:18 17:02	06:54 16:33	07:17 16:36
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	16:36 (AR05) 17:13 (AR05)	05:32 20:15	05:48 20:17	06:18 19:37	06:48 18:47	17:35 (AR05) 17:43 (AR05)	06:19 17:01	06:55 16:32	07:18 16:36
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	16:36 (AR05) 17:14 (AR05)	05:31 20:16	05:49 20:16	06:19 19:36	06:49 18:45	07:49 (AR05) 18:45	06:20 17:00	06:56 16:32	07:18 16:37
29	07:10 17:10		06:47 19:17	06:00 19:49	17:36 (AR05) 18:13 (AR05)	05:31 20:17	05:50 20:15	06:20 19:34	06:50 18:43	06:51 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	07:08 17:11		06:45 19:18	05:58 19:50	17:35 (AR05) 18:12 (AR05)	05:30 20:18	05:29 20:14	06:21 19:33	06:51 18:42	06:51 18:42	06:23 16:57	06:58 16:31	07:19 16:38
31	07:07 17:13		06:43 19:19	05:59 19:51	17:36 (AR05) 18:12 (AR05)	05:29 20:19	05:52 20:13	06:22 19:31	06:52 19:31	06:52 19:31	06:24 16:56	07:19 16:39	07:19 16:39
Potential sun hours	299	298	370	398	480	446	450	427	375	346	300	290	
Total, worst case				228	228				722				
Sun reduction				0,62	0,56				0,59				
Oper. time red.				0,81	0,81				0,81				
Wind dir. red.				0,76	0,76				0,76				
Total reduction				0,38	0,34				0,36				
Total, real				183	78				263				

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R88 - Shadow Receptor: 1,0 x 1,0 Azimuth: 0,0° Slope: 90,0° (94°)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

		January	February	March	April	May	June				
1	07:19	15:54 (AR04)	07:06	06:31	06:42	05:57	05:29	18:24 (AR05)			
	16:40	20 16:14 (AR04)	17:14	17:47	19:20	19:51	20:19	42	19:06 (AR05)		
2	07:19	15:54 (AR04)	07:05	06:30	06:40	05:56	05:29	18:25 (AR05)			
	16:41	21 16:15 (AR04)	17:15	17:48	19:21	19:52	20:20	41	19:06 (AR05)		
3	07:19	15:55 (AR04)	07:05	06:28	06:39	05:55	05:28	18:24 (AR05)			
	16:42	20 16:15 (AR04)	17:16	17:49	19:22	19:53	20:21	42	19:06 (AR05)		
4	07:19	15:55 (AR04)	07:04	06:27	06:37	05:53	05:28	18:25 (AR05)			
	16:43	20 16:15 (AR04)	17:17	17:50	19:23	19:54	20:21	41	19:06 (AR05)		
5	07:19	15:56 (AR04)	07:03	06:25	06:35	05:52	05:27	18:25 (AR05)			
	16:44	20 16:16 (AR04)	17:19	17:51	19:24	19:55	20:22	42	19:07 (AR05)		
6	07:19	15:57 (AR04)	07:01	06:24	06:34	05:51	05:27	18:26 (AR05)			
	16:45	19 16:16 (AR04)	17:20	17:52	19:25	19:56	20:23	41	19:07 (AR05)		
7	07:19	15:57 (AR04)	07:00	06:22	06:32	05:50	05:27	18:25 (AR05)			
	16:46	19 16:16 (AR04)	17:21	17:54	19:26	19:57	20:23	42	19:07 (AR05)		
8	07:19	15:58 (AR04)	06:59	06:21	06:31	05:49	05:27	18:26 (AR05)			
	16:47	18 16:16 (AR04)	17:22	17:55	19:27	19:58	20:24	41	19:07 (AR05)		
9	07:19	15:59 (AR04)	06:58	06:19	06:29	05:47	05:26	18:26 (AR05)			
	16:47	18 16:17 (AR04)	17:23	17:56	19:28	19:59	3 20:25	41	19:07 (AR05)		
10	07:19	16:00 (AR04)	06:57	06:18	06:27	05:46	05:26	18:27 (AR05)			
	16:48	16 16:16 (AR04)	17:25	17:57	19:29	20:00	13 20:25	41	19:08 (AR05)		
11	07:19	16:01 (AR04)	06:56	06:16	06:26	05:45	05:26	18:27 (AR05)			
	16:50	15 16:16 (AR04)	17:26	17:58	19:30	20:01	19 20:26	41	19:08 (AR05)		
12	07:19	16:02 (AR04)	06:55	06:14	06:24	05:44	05:26	18:27 (AR05)			
	16:51	14 16:16 (AR04)	17:27	17:59	19:31	20:02	23 20:26	41	19:08 (AR05)		
13	07:18	16:03 (AR04)	06:53	06:13	06:23	05:43	05:26	18:28 (AR05)			
	16:52	12 16:15 (AR04)	17:28	18:00	19:32	20:03	25 20:27	40	19:08 (AR05)		
14	07:18	16:05 (AR04)	06:52	06:11	06:21	05:42	05:26	18:28 (AR05)			
	16:53	9 16:14 (AR04)	17:29	18:01	19:33	20:04	28 20:27	40	19:08 (AR05)		
15	07:18	16:08 (AR04)	06:51	06:10	06:20	05:41	05:26	18:28 (AR05)			
	16:54	5 16:13 (AR04)	17:31	18:02	19:34	20:05	30 20:27	41	19:09 (AR05)		
16	07:17		06:50	06:08	06:18	05:40	05:26	18:28 (AR05)			
	16:55		17:32	18:03	19:35	20:06	32 20:28	41	19:09 (AR05)		
17	07:17		06:48	06:06	06:17	05:39	05:26	18:29 (AR05)			
	16:56		17:33	18:04	19:36	20:07	34 20:28	40	19:09 (AR05)		
18	07:16		06:47	06:05	06:15	05:38	05:26	18:29 (AR05)			
	16:57		17:34	18:05	19:37	20:07	35 20:29	40	19:09 (AR05)		
19	07:16		06:46	06:03	06:14	05:38	05:26	18:29 (AR05)			
	16:58		17:35	18:06	19:38	20:08	36 20:29	40	19:09 (AR05)		
20	07:15		06:44	06:01	06:12	05:37	05:26	18:29 (AR05)			
	16:59		17:37	18:07	19:39	20:09	37 20:29	40	19:09 (AR05)		
21	07:15		06:43	06:00	06:11	05:36	05:26	18:29 (AR05)			
	17:01		17:38	18:08	19:40	20:10	37 20:29	40	19:09 (AR05)		
22	07:14		06:42	05:58	06:09	05:35	05:27	18:30 (AR05)			
	17:02		17:39	18:09	19:41	20:11	39 20:30	40	19:10 (AR05)		
23	07:14		06:40	05:57	06:08	05:34	05:27	18:30 (AR05)			
	17:03		17:40	18:11	19:42	20:12	40 20:30	40	19:10 (AR05)		
24	07:13		06:39	05:55	06:06	05:34	05:27	18:30 (AR05)			
	17:04		17:41	18:12	19:43	20:13	40 20:30	40	19:10 (AR05)		
25	07:12		06:37	05:53	06:05	05:33	05:27	18:31 (AR05)			
	17:05		17:42	18:13	19:44	20:14	41 20:30	40	19:11 (AR05)		
26	07:11		06:36	05:52	06:04	05:32	05:28	18:30 (AR05)			
	17:06		17:43	18:14	19:45	20:15	41 20:30	41	19:11 (AR05)		
27	07:11		06:34	05:50	06:02	05:32	05:28	18:30 (AR05)			
	17:08		17:45	18:15	19:47	20:15	40 20:30	41	19:11 (AR05)		
28	07:10		06:33	05:48	06:01	05:31	05:28	18:31 (AR05)			
	17:09		17:46	18:16	19:48	20:16	41 20:30	41	19:12 (AR05)		
29	07:09		06:47	06:00	06:00	05:31	05:29	18:31 (AR05)			
	17:10			19:17	19:49	20:17	41 20:30	40	19:11 (AR05)		
30	07:08		06:45	05:58	05:50	05:30	05:29	18:30 (AR05)			
	17:11		19:18	19:50	20:18	20:18	42 20:30	41	19:11 (AR05)		
31	07:07		06:43			05:30	05:29	18:30 (AR05)			
	17:13		19:19			20:19	41 19:06 (AR05)				
Potential sun hours		299	298	370	398	446	450				
Total, worst case						758	1222				
Sun reduction		0,77				0,51	0,49				
Oper. time red.		0,81				0,81	0,81				
Wind dir. red.		0,73				0,70	0,70				
Total reduction		0,45				0,29	0,28				
Total, real		111				218	337				

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

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

### SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R88 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (94)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

July		August		September		October		November		December	
1	05:30	18:31 (AR05)	05:53	18:43 (AR05)	06:23	06:52	06:25	06:59	15:43 (AR04)		
	20:30	41 19:12 (AR05)	20:12	22 19:05 (AR05)	19:30	18:40	16:55	16:31	15	15:58 (AR04)	
2	05:30	18:31 (AR05)	05:54	18:45 (AR05)	06:24	06:53	06:26	07:00		15:43 (AR04)	
	20:30	41 19:12 (AR05)	20:11	18 19:03 (AR05)	19:28	18:39	16:53	16:31	16	15:59 (AR04)	
3	05:31	18:31 (AR05)	05:55	18:48 (AR05)	06:25	06:54	06:27	07:01		15:42 (AR04)	
	20:30	41 19:12 (AR05)	20:10	12 19:00 (AR05)	19:26	18:37	16:52	16:31	18	16:00 (AR04)	
4	05:31	18:31 (AR05)	05:56		06:26	06:55	06:28	07:02		15:42 (AR04)	
	20:30	41 19:12 (AR05)	20:09		19:25	18:35	16:51	16:30	18	16:00 (AR04)	
5	05:32	18:32 (AR05)	05:57		06:27	06:56	06:29	07:03		15:43 (AR04)	
	20:29	41 19:13 (AR05)	20:07		19:23	18:34	16:50	16:30	18	16:01 (AR04)	
6	05:32	18:32 (AR05)	05:58		06:28	06:57	06:31	07:04		15:43 (AR04)	
	20:29	41 19:13 (AR05)	20:06		19:22	18:32	16:49	16:30	19	16:02 (AR04)	
7	05:33	18:32 (AR05)	05:59		06:28	06:58	06:32	07:05		15:43 (AR04)	
	20:29	41 19:13 (AR05)	20:05		19:20	18:30	16:48	16:30	20	16:03 (AR04)	
8	05:34	18:32 (AR05)	06:00		06:29	06:59	06:33	07:06		15:43 (AR04)	
	20:29	42 19:14 (AR05)	20:04		19:18	18:29	16:47	16:30	20	16:03 (AR04)	
9	05:34	18:32 (AR05)	06:01		06:30	07:00	06:34	07:06		15:44 (AR04)	
	20:28	41 19:13 (AR05)	20:03		19:17	18:27	16:46	16:30	20	16:04 (AR04)	
10	05:35	18:32 (AR05)	06:01		06:31	07:01	06:35	07:07		15:44 (AR04)	
	20:28	42 19:14 (AR05)	20:01		19:15	18:26	16:45	16:30	21	16:05 (AR04)	
11	05:35	18:33 (AR05)	06:02		06:32	07:02	06:36	07:08		15:44 (AR04)	
	20:28	41 19:14 (AR05)	20:00		19:13	18:24	16:44	16:30	20	16:04 (AR04)	
12	05:36	18:32 (AR05)	06:03		06:33	07:03	06:38	07:09		15:44 (AR04)	
	20:27	42 19:14 (AR05)	19:59		19:12	18:23	16:43	16:30	21	16:05 (AR04)	
13	05:37	18:32 (AR05)	06:04		06:34	07:04	06:39	07:10		15:45 (AR04)	
	20:27	42 19:14 (AR05)	19:58		19:10	18:21	16:42	16:30	20	16:05 (AR04)	
14	05:38	18:33 (AR05)	06:05		06:35	07:05	06:40	07:11		15:45 (AR04)	
	20:26	41 19:14 (AR05)	19:56		19:08	18:19	16:41	16:31	21	16:06 (AR04)	
15	05:38	18:33 (AR05)	06:06		06:36	07:06	06:41	07:11		15:45 (AR04)	
	20:26	42 19:15 (AR05)	19:55		19:07	18:18	16:40	16:31	20	16:05 (AR04)	
16	05:39	18:33 (AR05)	06:07		06:37	07:07	06:42	07:12		15:46 (AR04)	
	20:25	41 19:14 (AR05)	19:53		19:05	18:16	16:39	16:31	20	16:06 (AR04)	
17	05:40	18:33 (AR05)	06:08		06:38	07:08	06:43	07:13		15:47 (AR04)	
	20:24	41 19:14 (AR05)	19:52		19:03	18:15	16:39	16:31	19	16:06 (AR04)	
18	05:41	18:34 (AR05)	06:09		06:39	07:09	06:44	07:13		15:47 (AR04)	
	20:24	40 19:14 (AR05)	19:51		19:02	18:13	16:38	16:32	19	16:06 (AR04)	
19	05:42	18:34 (AR05)	06:10		06:40	07:10	06:46	07:14		15:47 (AR04)	
	20:23	40 19:14 (AR05)	19:49		19:00	18:12	16:37	16:32	20	16:07 (AR04)	
20	05:42	18:34 (AR05)	06:11		06:41	07:11	06:47	07:15		15:48 (AR04)	
	20:22	39 19:13 (AR05)	19:48		18:58	18:11	16:36	16:32	19	16:07 (AR04)	
21	05:43	18:34 (AR05)	06:12		06:42	07:12	06:48	07:15		15:48 (AR04)	
	20:22	39 19:13 (AR05)	19:46		18:57	18:09	16:36	16:33	19	16:07 (AR04)	
22	05:44	18:35 (AR05)	06:13		06:43	07:14	06:49	07:16		15:49 (AR04)	
	20:21	38 19:13 (AR05)	19:45		18:55	18:08	16:35	16:33	19	16:08 (AR04)	
23	05:45	18:35 (AR05)	06:14		06:44	07:15	06:50	07:16		15:49 (AR04)	
	20:20	38 19:13 (AR05)	19:43		18:53	18:06	16:34	16:34	19	16:08 (AR04)	
24	05:46	18:36 (AR05)	06:15		06:45	07:16	06:51	07:17		15:49 (AR04)	
	20:19	37 19:13 (AR05)	19:42		18:52	18:05	16:34	16:34	20	16:09 (AR04)	
25	05:47	18:37 (AR05)	06:16		06:46	06:17	06:52	07:17		15:50 (AR04)	
	20:18	35 19:12 (AR05)	19:41		18:50	17:04	16:33	16:35	20	16:10 (AR04)	
26	05:47	18:36 (AR05)	06:17		06:47	06:18	06:54	07:17		15:51 (AR04)	
	20:18	35 19:11 (AR05)	19:39		18:48	17:02	16:33	16:36	19	16:10 (AR04)	
27	05:48	18:37 (AR05)	06:18		06:48	06:19	06:55	07:18		15:51 (AR04)	
	20:17	33 19:10 (AR05)	19:37		18:47	17:01	16:32	4 15:51 (AR04)	16:36	19	16:10 (AR04)
28	05:49	18:38 (AR05)	06:19		06:49	06:20	06:56	15:45 (AR04)	07:18		15:52 (AR04)
	20:16	31 19:09 (AR05)	19:36		18:45	17:00	16:32	9 15:54 (AR04)	16:37	20	16:12 (AR04)
29	05:50	18:39 (AR05)	06:20		06:50	06:21	06:57	15:44 (AR04)	07:18		15:52 (AR04)
	20:15	30 19:09 (AR05)	19:34		18:43	16:58	16:32	12 15:56 (AR04)	16:38	20	16:12 (AR04)
30	05:51	18:40 (AR05)	06:21		06:51	06:22	06:58	15:43 (AR04)	07:19		15:53 (AR04)
	20:14	28 19:08 (AR05)	19:33		18:42	16:57	16:31	14 15:57 (AR04)	16:38	20	16:13 (AR04)
31	05:52	18:42 (AR05)	06:22			06:24		07:19			15:53 (AR04)
	20:13	24 19:06 (AR05)	19:31			16:56		16:39	21	16:14 (AR04)	
Potential sun hours	457		426		375	346	300	290			
Total, worst case		1189		52			39			600	
Sun reduction		0,50		0,54			0,74			0,79	
Oper. time red.		0,81		0,81			0,81			0,81	
Wind dir. red.		0,70		0,70			0,73			0,73	
Total reduction		0,28		0,30			0,44			0,47	
Total, real		333		16			17			279	

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

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

## SHADOW - Calendar

Calculation: Parco Eolico Val d'Agri Shadow receptor: R9 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (61)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	17:48 (AR05) 20:19 63
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	17:47 (AR05) 20:20 63
3	07:19 16:42	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	17:46 (AR05) 20:21 63
4	07:19 16:43	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	17:45 (AR05) 20:21 62
5	07:19 16:44	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	17:43 (AR05) 20:22 63
6	07:19 16:45	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	17:42 (AR05) 20:23 62
7	07:19 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	17:42 (AR05) 20:23 62
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	17:41 (AR05) 20:24 62
9	07:19 16:48	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	17:40 (AR05) 20:25 61
10	07:19 16:49	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	17:40 (AR05) 20:25 61
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	17:40 (AR05) 20:26 62
12	07:19 16:51	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	17:39 (AR05) 20:26 61
13	07:18 16:52	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	17:39 (AR05) 20:27 61
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 19:33	05:42 20:04	17:38 (AR05) 20:27 60
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	17:38 (AR05) 20:27 60
16	07:17 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	17:38 (AR05) 20:28 60
17	07:17 16:56	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	17:38 (AR05) 20:28 60
18	07:16 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	17:38 (AR05) 20:29 61
19	07:16 16:58	06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	17:38 (AR05) 20:29 61
20	07:15 16:59	06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	17:38 (AR05) 20:29 60
21	07:15 17:01	06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	17:38 (AR05) 20:29 60
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:41	05:35 20:11	17:38 (AR05) 20:30 60
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	17:38 (AR05) 20:30 61
24	07:13 17:04	06:39 17:41	05:55 18:12	06:06 19:43	05:34 20:13	17:38 (AR05) 20:30 61
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:44	05:33 20:14	17:39 (AR05) 20:30 61
26	07:11 17:06	06:36 17:43	05:52 18:14	06:04 19:46	05:32 20:15	17:39 (AR05) 20:30 60
27	07:11 17:08	06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	17:39 (AR05) 20:30 60
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	17:39 (AR05) 20:30 60
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 20:17	17:39 (AR05) 20:30 61
30	07:08 17:11		06:45 19:18	05:58 19:50	05:30 20:18	17:40 (AR05) 20:30 61
31	07:07 17:13		06:43 19:19		05:30 20:19	17:40 (AR05) 18:44 (AR05) 64
Potential sun hours	299	298	370	398	446	450
Total, worst case				141	1835	1833
Sun reduction				0,56	0,51	0,49
Oper. time red.				0,81	0,81	0,81
Wind dir. red.				0,72	0,72	0,72
Total reduction				0,33	0,30	0,29
Total, real				46	550	528

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'Agri Shadow receptor: R9 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (61)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December		
1	05:30 20:30	17:48 (AR05) 18:49 (AR05)	05:53 20:12	17:50 (AR05) 18:50 (AR05)	06:23 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	05:30 20:30	17:47 (AR05) 18:48 (AR05)	05:54 20:11	17:50 (AR05) 18:49 (AR05)	06:24 19:28	06:53 18:39	06:26 16:53	07:00 16:31
3	05:31 20:30	17:48 (AR05) 18:49 (AR05)	05:55 20:10	17:51 (AR05) 18:49 (AR05)	06:25 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	05:31 20:30	17:47 (AR05) 18:49 (AR05)	05:56 20:09	17:50 (AR05) 18:47 (AR05)	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:30
5	05:32 20:29	17:48 (AR05) 18:50 (AR05)	05:57 20:07	17:51 (AR05) 18:46 (AR05)	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	05:32 20:29	17:48 (AR05) 18:50 (AR05)	05:58 20:06	17:52 (AR05) 18:46 (AR05)	06:28 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	05:33 20:29	17:48 (AR05) 18:50 (AR05)	05:59 20:05	17:52 (AR05) 18:45 (AR05)	06:28 19:20	06:58 18:30	06:32 16:48	07:05 16:30
8	05:34 20:29	17:48 (AR05) 18:51 (AR05)	06:00 20:04	17:53 (AR05) 18:44 (AR05)	06:29 19:18	06:59 18:29	06:33 16:47	07:06 16:30
9	05:34 20:28	17:48 (AR05) 18:50 (AR05)	06:01 20:03	17:54 (AR05) 18:43 (AR05)	06:30 19:17	07:00 18:27	06:34 16:46	07:06 16:30
10	05:35 20:28	17:48 (AR05) 18:51 (AR05)	06:02 20:01	17:55 (AR05) 18:41 (AR05)	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	05:35 20:28	17:48 (AR05) 18:51 (AR05)	06:02 20:00	17:56 (AR05) 18:40 (AR05)	06:32 19:13	07:02 18:24	06:36 16:44	07:08 16:30
12	05:36 20:27	17:48 (AR05) 18:51 (AR05)	06:03 19:59	17:58 (AR05) 18:38 (AR05)	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	05:37 20:27	17:48 (AR05) 18:51 (AR05)	06:04 19:58	17:59 (AR05) 18:36 (AR05)	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:30
14	05:38 20:26	17:48 (AR05) 18:52 (AR05)	06:05 19:56	18:01 (AR05) 18:34 (AR05)	06:35 19:08	07:05 18:19	06:40 16:41	07:11 16:31
15	05:38 20:26	17:48 (AR05) 18:52 (AR05)	06:06 19:55	18:03 (AR05) 18:32 (AR05)	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	05:39 20:25	17:48 (AR05) 18:52 (AR05)	06:07 19:54	18:06 (AR05) 18:29 (AR05)	06:37 19:05	07:07 18:16	06:42 16:39	07:12 16:31
17	05:40 20:24	17:48 (AR05) 18:52 (AR05)	06:08 19:52	18:10 (AR05) 18:23 (AR05)	06:38 19:03	07:08 18:15	06:43 16:39	07:13 16:31
18	05:41 20:24	17:48 (AR05) 18:52 (AR05)	06:09 19:51		06:39 19:02	07:09 18:13	06:45 16:38	07:13 16:32
19	05:42 20:23	17:48 (AR05) 18:52 (AR05)	06:10 19:49		06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	05:42 20:22	17:48 (AR05) 18:52 (AR05)	06:11 19:48		06:41 18:58	07:11 18:11	06:47 16:36	07:15 16:32
21	05:43 20:22	17:48 (AR05) 18:52 (AR05)	06:12 19:46		06:42 18:57	07:12 18:09	06:48 16:36	07:15 16:33
22	05:44 20:21	17:48 (AR05) 18:52 (AR05)	06:13 19:45		06:43 18:55	07:14 18:08	06:49 16:35	07:16 16:33
23	05:45 20:20	17:48 (AR05) 18:52 (AR05)	06:14 19:44		06:44 18:53	07:15 18:06	06:50 16:34	07:16 16:34
24	05:46 20:19	17:48 (AR05) 18:52 (AR05)	06:15 19:42		06:45 18:52	07:16 18:05	06:51 16:34	07:17 16:34
25	05:47 20:18	17:49 (AR05) 18:52 (AR05)	06:16 19:41		06:46 18:50	06:17 17:04	06:52 16:33	07:17 16:35
26	05:47 20:18	17:48 (AR05) 18:51 (AR05)	06:17 19:39		06:47 18:48	06:18 17:02	06:54 16:33	07:17 16:36
27	05:48 20:17	17:48 (AR05) 18:51 (AR05)	06:18 19:37		06:48 18:47	06:19 17:01	06:55 16:32	07:18 16:36
28	05:49 20:16	17:48 (AR05) 18:51 (AR05)	06:19 19:36		06:49 18:45	06:20 17:00	06:56 16:32	07:18 16:37
29	05:50 20:15	17:49 (AR05) 18:51 (AR05)	06:20 19:34		06:50 18:43	06:21 16:58	06:57 16:32	07:18 16:38
30	05:51 20:14	17:49 (AR05) 18:50 (AR05)	06:21 19:33		06:51 18:42	06:23 16:57	06:58 16:31	07:19 16:38
31	05:52 20:13	17:49 (AR05) 18:50 (AR05)	06:22 19:31			06:24 16:56		07:19 16:39
Potential sun hours	457		427		375	346	300	290
Total, worst case		1948		761				
Sun reduction		0,50		0,54				
Oper. time red.		0,81		0,81				
Wind dir. red.		0,72		0,72				
Total reduction		0,29		0,31				
Total, real		571		239				

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R90 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (95)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	
1	07:19 16:40	15:52 (AR04) 16:13 (AR04)	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19
2	07:19 16:41	15:52 (AR04) 16:14 (AR04)	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20
3	07:19 16:42	15:53 (AR04) 16:15 (AR04)	07:05 17:16	06:28 17:49	06:39 19:22	05:55 19:53	05:28 20:21
4	07:19 16:43	15:53 (AR04) 16:15 (AR04)	07:04 17:17	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21
5	07:19 16:44	15:54 (AR04) 16:15 (AR04)	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:27 20:22
6	07:19 16:45	15:54 (AR04) 16:16 (AR04)	07:01 17:20	06:24 17:52	06:34 19:25	05:51 19:56	05:27 20:23
7	07:19 16:46	15:55 (AR04) 16:16 (AR04)	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23
8	07:19 16:47	15:56 (AR04) 16:17 (AR04)	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24
9	07:19 16:47	15:57 (AR04) 16:17 (AR04)	06:58 17:23	06:19 17:56	06:29 19:28	05:47 19:59	05:26 20:25
10	07:19 16:49	15:57 (AR04) 16:16 (AR04)	06:57 17:25	06:18 17:57	06:27 19:29	05:46 20:00	05:26 20:25
11	07:19 16:50	15:58 (AR04) 16:16 (AR04)	06:56 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26
12	07:19 16:51	15:59 (AR04) 16:17 (AR04)	06:55 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26
13	07:18 16:52	16:00 (AR04) 16:16 (AR04)	06:53 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27
14	07:18 16:53	16:01 (AR04) 16:16 (AR04)	06:52 17:29	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27
15	07:18 16:54	16:03 (AR04) 16:16 (AR04)	06:51 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:27
16	07:17 16:55	16:04 (AR04) 16:14 (AR04)	06:50 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28
17	07:17 16:56	16:07 (AR04) 16:13 (AR04)	06:48 17:33	06:06 18:04	06:17 19:36	05:39 20:07	05:26 20:28
18	07:16 16:57		06:47 17:34	06:05 18:05	06:15 19:37	05:38 20:07	05:26 20:29
19	07:16 16:58		06:46 17:35	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29
20	07:15 16:59		06:44 17:37	06:01 18:07	06:12 19:39	05:37 20:09	05:26 20:29
21	07:15 17:01		06:43 17:38	06:00 18:08	06:11 19:40	05:36 20:10	05:26 20:29
22	07:14 17:02		06:42 17:39	05:58 18:09	06:09 19:41	05:35 20:11	05:27 20:30
23	07:14 17:03		06:40 17:40	05:57 18:11	06:08 19:42	05:34 20:12	05:27 20:30
24	07:13 17:04		06:39 17:41	05:55 18:12	06:06 19:43	05:34 20:13	05:27 20:30
25	07:12 17:05		06:37 17:42	05:53 18:13	06:05 19:44	05:33 20:14	05:27 20:30
26	07:11 17:06		06:36 17:43	05:52 18:14	06:04 19:45	05:32 20:15	05:28 20:30
27	07:11 17:08		06:34 17:45	05:50 18:15	06:02 19:47	05:32 20:15	05:28 20:30
28	07:10 17:09		06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:28 20:30
29	07:09 17:10			06:47 19:17	06:00 19:49	05:31 20:17	05:29 20:30
30	07:08 17:11			06:45 19:18	05:58 19:50	05:30 20:18	05:29 20:30
31	07:07 17:13			06:43 19:19		05:30 20:19	
Potential sun hours	299		298	370	398	446	450
Total, worst case		307					817
Sun reduction		0,77					0,49
Oper. time red.		0,81					0,81
Wind dir. red.		0,73					0,68
Total reduction		0,45					0,27
Total, real		138					218

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'AgriShadow receptor: R90 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (95)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30	18:46 (AR05)	05:53	06:23	06:52	06:25
	20:30	29 19:15 (AR05)	20:12	19:30	18:40	16:55
2	05:30	18:46 (AR05)	05:54	06:24	06:53	06:26
	20:30	28 19:14 (AR05)	20:11	19:28	18:39	16:53
3	05:31	18:47 (AR05)	05:55	06:25	06:54	06:27
	20:30	27 19:14 (AR05)	20:10	19:26	18:37	16:52
4	05:31	18:48 (AR05)	05:56	06:26	06:55	06:28
	20:30	25 19:13 (AR05)	20:09	19:25	18:35	16:51
5	05:32	18:49 (AR05)	05:57	06:27	06:56	06:29
	20:29	24 19:13 (AR05)	20:07	19:23	18:34	16:50
6	05:32	18:50 (AR05)	05:58	06:28	06:57	06:31
	20:29	23 19:13 (AR05)	20:06	19:22	18:32	16:49
7	05:33	18:50 (AR05)	05:59	06:28	06:58	06:32
	20:29	22 19:12 (AR05)	20:05	19:20	18:30	16:48
8	05:34	18:52 (AR05)	06:00	06:29	06:59	06:33
	20:29	20 19:12 (AR05)	20:04	19:18	18:29	16:47
9	05:34	18:53 (AR05)	06:01	06:30	07:00	06:34
	20:28	17 19:10 (AR05)	20:03	19:17	18:27	16:46
10	05:35	18:55 (AR05)	06:02	06:31	07:01	06:35
	20:28	14 19:09 (AR05)	20:01	19:15	18:26	16:45
11	05:35	18:57 (AR05)	06:02	06:32	07:02	06:36
	20:28	10 19:07 (AR05)	20:00	19:13	18:24	16:44
12	05:36		06:03	06:33	07:03	06:38
	20:27		19:59	19:12	18:23	16:43
13	05:37		06:04	06:34	07:04	06:39
	20:27		19:58	19:10	18:21	16:42
14	05:38		06:05	06:35	07:05	06:40
	20:26		19:56	19:08	18:19	16:41
15	05:38		06:06	06:36	07:06	06:41
	20:26		19:55	19:07	18:18	16:40
16	05:39		06:07	06:37	07:07	06:42
	20:25		19:53	19:05	18:16	16:39
17	05:40		06:08	06:38	07:08	06:43
	20:24		19:52	19:03	18:15	16:39
18	05:41		06:09	06:39	07:09	06:44
	20:24		19:51	19:02	18:13	16:38
19	05:42		06:10	06:40	07:10	06:46
	20:23		19:49	19:00	18:12	16:37
20	05:42		06:11	06:41	07:11	06:47
	20:22		19:48	18:58	18:11	16:36
21	05:43		06:12	06:42	07:12	06:48
	20:22		19:46	18:57	18:09	16:36
22	05:44		06:13	06:43	07:14	06:49
	20:21		19:45	18:55	18:08	16:35
23	05:45		06:14	06:44	07:15	06:50
	20:20		19:43	18:53	18:06	16:34
24	05:46		06:15	06:45	07:16	06:51
	20:19		19:42	18:52	18:05	16:34
25	05:47		06:16	06:46	06:17	06:52
	20:18		19:41	18:50	17:04	16:33
26	05:47		06:17	06:47	06:18	06:54
	20:18		19:39	18:48	17:02	16:33
27	05:48		06:18	06:48	06:19	06:55
	20:17		19:37	18:47	17:01	16:32
28	05:49		06:19	06:49	06:20	06:56
	20:16		19:36	18:45	17:00	16:32
29	05:50		06:20	06:50	06:21	06:57
	20:15		19:34	18:43	16:58	16:32
30	05:51		06:21	06:51	06:23	06:58
	20:14		19:33	18:42	16:57	16:31
31	05:52		06:22		06:24	
	20:13		19:31		16:56	
Potential sun hours	457		426	375	346	300
Total, worst case		239				75
Sun reduction		0,50				0,74
Oper. time red.		0,81				0,81
Wind dir. red.		0,68				0,73
Total reduction		0,27				0,43
Total, real		65				33
						299

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'AgriShadow receptor: R91 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (82)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

#### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	July	August	September	October	November	December		
1	07:19 16:40	07:06 17:14	06:32 17:47		06:42 19:20	05:57 20:19	05:29 20:30	05:53 20:12	06:23 19:30		17:54 (AR02) 18:16 (AR02)	06:25 16:55	06:59 16:31	
2	07:19 16:41	07:06 17:15	06:30 17:48	4	17:23 (AR02) 19:21	05:56 19:52	05:29 20:20	05:54 20:11	06:24 19:28	22	18:16 (AR02) 17:54 (AR02)	06:26 16:53	07:00 16:31	
3	07:19 16:42	07:05 17:16	06:28 17:49	8	17:20 (AR02) 19:22	05:55 19:53	05:28 20:21	05:55 20:10	06:25 19:27	23	18:16 (AR02) 17:54 (AR02)	06:27 16:52	07:01 16:31	
4	07:19 16:43	07:04 17:17	06:27 17:50	11	17:19 (AR02) 19:23	05:53 19:54	05:28 20:21	05:56 20:20	06:26 19:25	21	18:15 (AR02) 17:53 (AR02)	06:28 16:51	07:02 16:30	
5	07:19 16:44	07:03 17:19	06:25 17:51	12	17:18 (AR02) 19:24	05:52 19:55	05:28 20:22	05:57 20:20	06:27 19:23	20	18:13 (AR02) 17:52 (AR02)	06:29 16:50	07:03 16:30	
6	07:19 16:45	07:02 17:20	06:24 17:52	15	17:17 (AR02) 19:25	05:51 19:56	05:27 20:23	05:58 20:06	06:28 19:22	19	18:12 (AR02) 17:51 (AR02)	06:31 16:50	07:04 16:30	
7	07:19 16:46	07:00 17:21	06:22 17:54	17	17:16 (AR02) 19:26	05:50 19:57	05:27 20:23	05:59 20:05	06:29 19:20	18	18:10 (AR02) 17:50 (AR02)	06:32 16:48	07:05 16:30	
8	07:19 16:47	06:59 17:22	06:21 17:55	18	17:15 (AR02) 19:27	05:49 19:58	05:27 20:24	06:00 20:04	06:29 19:18	15	18:08 (AR02) 17:53 (AR02)	06:33 16:48	07:06 16:30	
9	07:19 16:48	06:58 17:24	06:19 17:56	20	17:15 (AR02) 19:28	05:48 19:59	05:26 20:25	06:01 20:03	06:30 19:17	14	18:07 (AR02) 17:52 (AR02)	06:34 16:47	07:06 16:30	
10	07:19 16:49	06:57 17:25	06:18 17:57	21	17:15 (AR02) 19:29	05:46 20:00	05:26 20:25	06:02 20:01	06:31 19:15	12	18:05 (AR02) 17:51 (AR02)	06:35 16:46	07:07 16:30	
11	07:19 16:50	06:56 17:26	06:16 17:58	22	17:16 (AR02) 19:30	05:45 20:01	05:26 20:26	06:03 20:00	06:32 19:13	9	18:03 (AR02) 17:56 (AR02)	06:36 16:45	07:08 16:30	
12	07:19 16:51	06:55 17:27	06:14 17:59	23	17:15 (AR02) 19:31	05:44 20:02	05:26 20:26	06:03 19:59	06:33 19:12	6	18:02 (AR02) 17:58 (AR02)	06:38 16:44	07:09 16:30	
13	07:18 16:52	06:53 17:28	06:13 18:00	21	17:16 (AR02) 19:32	05:43 20:03	05:26 20:27	06:04 19:58	06:34 19:10	2	18:00 (AR02) 17:54 (AR02)	06:39 16:43	07:10 16:30	
14	07:18 16:53	06:52 17:30	06:11 18:01	19	17:17 (AR02) 19:33	05:42 20:04	05:26 20:27	06:05 19:56	06:35 19:09	07:05	17:53 (AR02) 18:00 (AR02)	06:40 16:41	07:11 16:31	
15	07:18 16:54	06:51 17:31	06:10 18:02	15	17:18 (AR02) 19:34	05:41 20:05	05:26 20:28	06:06 19:55	06:36 19:07	07:06	18:04 (AR02) 18:01 (AR02)	06:41 16:40	07:11 16:31	
16	07:17 16:55	06:50 17:32	06:08 18:03	10	17:33 (AR02) 19:34	06:18 20:06	05:40 20:28	06:07 19:54	06:37 19:05	07:07	18:03 (AR02) 17:59 (AR02)	06:42 16:39	07:12 16:31	
17	07:17 16:56	06:48 17:33	06:06 18:04		17:30 (AR02) 19:35	06:07 20:07	05:26 20:28	06:08 19:52	06:38 19:04	07:08	18:02 (AR02) 18:00 (AR02)	06:43 16:39	07:13 16:31	
18	07:16 16:57	06:47 17:34	06:05 18:05		06:15 19:37	05:39 20:07	05:26 20:29	06:09 19:51	06:39 19:02	07:09	18:01 (AR02) 18:00 (AR02)	06:45 16:38	07:13 16:32	
19	07:16 16:58	06:46 17:35	06:03 18:06		06:14 19:38	05:38 20:08	05:26 20:29	06:10 19:49	06:40 19:00	07:10	18:00 (AR02) 18:00 (AR02)	06:46 16:37	07:14 16:32	
20	07:15 16:59	06:44 17:37	06:01 18:07		06:12 19:39	05:37 20:09	05:26 20:29	06:11 19:48	06:41 18:58	07:11	18:00 (AR02) 18:00 (AR02)	06:47 16:36	07:15 16:33	
21	07:15 17:01	06:43 17:38	06:00 18:08		06:11 19:40	05:36 20:10	05:26 20:29	06:12 19:46	06:42 18:57	07:12	18:00 (AR02) 18:00 (AR02)	06:48 16:35	07:15 16:33	
22	07:14 17:02	06:42 17:39	05:58 18:10		06:09 19:41	05:35 20:11	05:27 20:30	06:13 19:45	06:43 18:55	07:14	18:00 (AR02) 18:00 (AR02)	06:49 16:34	07:16 16:33	
23	07:14 17:03	06:40 17:40	05:57 18:11		06:08 19:42	05:34 20:12	05:27 20:30	06:14 19:44	06:44 18:53	07:15	18:00 (AR02) 18:00 (AR02)	06:50 16:35	07:16 16:34	
24	07:13 17:04	06:39 17:41	05:55 18:12		06:07 19:43	05:34 20:13	05:27 20:30	06:15 19:42	06:45 18:52	07:16	18:00 (AR02) 18:00 (AR02)	06:51 16:34	07:17 16:35	
25	07:12 17:05	06:37 17:42	05:53 18:13		06:05 19:45	05:33 20:14	05:27 20:30	06:16 19:41	06:46 18:50	07:17	18:00 (AR02) 18:00 (AR02)	06:52 16:33	07:17 16:35	
26	07:11 17:07	06:36 17:44	05:52 18:14		06:04 19:46	05:32 20:15	05:28 20:30	06:17 19:39	06:47 18:48	07:18	18:00 (AR02) 18:00 (AR02)	06:53 16:33	07:17 16:36	
27	07:11 17:08	06:34 17:45	05:50 18:15		06:02 19:47	05:32 20:15	05:28 20:30	06:18 19:38	06:48 18:47	07:19	18:00 (AR02) 18:00 (AR02)	06:54 16:33	07:17 16:36	
28	07:10 17:09	06:33 17:46	05:48 18:16		06:01 19:48	05:31 20:16	05:29 20:30	06:19 19:36	06:49 18:45	07:20	18:00 (AR02) 18:00 (AR02)	06:55 16:32	07:18 16:37	
29	07:09 17:10	06:47 19:17	05:47 19:17		06:00 19:49	05:31 20:17	05:29 20:30	06:20 19:34	06:50 18:44	07:21	18:00 (AR02) 18:00 (AR02)	06:56 16:32	07:18 16:38	
30	07:08 17:11	06:45 19:18	05:45 19:18		05:58 19:50	05:30 20:18	05:29 20:30	06:21 19:33	06:51 18:42	07:22	18:00 (AR02) 18:00 (AR02)	06:57 16:31	07:19 16:38	
31	07:07 17:13	06:43 19:19	05:43 19:19		05:57 20:19	05:30 20:19	05:28 20:31	06:22 19:31	06:52 18:42	07:23	18:00 (AR02) 18:00 (AR02)	06:58 16:30	07:19 16:39	
Potential sun hours	299	298	370		398	446	450	457	426	375		346	300	290
Total, worst case				236						59		181		
Sun reduction				0,62						0,59		0,66		
Oper. time red.				0,81						0,81		0,81		
Wind dir. red.				0,76						0,76		0,76		
Total reduction				0,38						0,36		0,41		
Total, real				90						21		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	(WTG causing flicker first time)
	Sun set (hh:mm)		Last time (hh:mm) with flicker	(WTG causing flicker last time)

## SHADOW - Calendar

Calculation: Parco Eolico Val d'AgriShadow receptor: R94 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (97)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

## Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	
1	07:19 16:40	07:06 17:14	07:26 (AR10) 07:42 (AR10)	06:31 17:47	07:04 (AR09) 07:30 (AR09)	06:42 19:20	05:57 20:19
2	07:19 16:41	07:05 17:15	07:25 (AR10) 07:43 (AR10)	06:30 17:48	07:05 (AR09) 07:29 (AR09)	06:40 19:21	05:56 20:20
3	07:19 16:42	07:04 17:16	07:24 (AR10) 07:43 (AR10)	06:28 17:49	07:06 (AR09) 07:27 (AR09)	06:38 19:22	05:54 20:21
4	07:19 16:43	07:03 17:17	07:24 (AR10) 07:44 (AR10)	06:27 17:50	07:07 (AR09) 07:25 (AR09)	06:37 19:23	05:53 20:21
5	07:19 16:44	07:02 17:19	07:24 (AR10) 07:44 (AR10)	06:25 17:51	07:09 (AR09) 07:23 (AR09)	06:35 19:24	05:52 20:22
6	07:19 16:45	07:01 17:20	07:24 (AR10) 07:44 (AR10)	06:24 17:52	07:13 (AR09) 17:31 (AR06)	06:34 19:25	05:51 20:23
7	07:19 16:45	07:00 17:21	07:24 (AR10) 07:44 (AR10)	06:22 17:53	17:27 (AR06) 17:33 (AR06)	06:32 19:26	05:50 20:23
8	07:19 16:46	06:59 17:22	07:25 (AR10) 07:44 (AR10)	06:21 17:55	17:26 (AR06) 17:33 (AR06)	06:30 19:27	05:49 20:24
9	07:19 16:47	06:58 17:23	07:25 (AR10) 07:42 (AR10)	06:19 17:56	17:25 (AR06) 17:35 (AR06)	06:29 19:28	05:47 20:24
10	07:19 16:48	06:57 17:25	07:26 (AR10) 07:42 (AR10)	06:17 17:57	17:24 (AR06) 17:36 (AR06)	06:27 19:29	05:46 20:25
11	07:19 16:49	06:56 17:26	07:28 (AR10) 07:41 (AR10)	06:16 17:58	17:24 (AR06) 17:37 (AR06)	06:26 19:30	05:45 20:25
12	07:18 16:50	06:55 17:27	07:30 (AR10) 07:39 (AR10)	06:14 17:59	17:24 (AR06) 17:38 (AR06)	06:24 19:31	05:44 20:26
13	07:18 16:52	06:53 17:28		06:13 18:00	17:24 (AR06) 17:39 (AR06)	06:23 19:32	05:43 20:26
14	07:18 16:53	06:52 17:29		06:11 18:01	17:25 (AR06) 17:41 (AR06)	06:21 19:33	05:42 20:27
15	07:17 16:54	06:51 17:31	07:16 (AR09) 07:21 (AR09)	06:09 18:02	17:26 (AR06) 17:41 (AR06)	06:20 19:34	05:41 20:27
16	07:17 16:55	06:50 17:32	07:12 (AR09) 07:25 (AR09)	06:08 18:03	17:27 (AR06) 17:39 (AR06)	06:18 19:35	05:40 20:28
17	07:17 16:56	06:48 17:33	07:09 (AR09) 07:27 (AR09)	06:06 18:04	17:31 (AR06) 17:36 (AR06)	06:17 19:36	05:39 20:28
18	07:16 16:57	06:47 17:34	07:08 (AR09) 07:29 (AR09)	06:05 18:05		06:15 19:37	05:38 20:28
19	07:16 16:58	06:46 17:35	07:07 (AR09) 07:30 (AR09)	06:03 18:06		06:14 19:38	05:38 20:29
20	07:15 16:59	06:44 17:36	07:06 (AR09) 07:30 (AR09)	06:01 18:07		06:12 19:39	05:37 20:29
21	07:15 17:00	06:43 17:38	07:05 (AR09) 07:31 (AR09)	06:00 18:08		06:11 19:40	05:36 20:29
22	07:14 17:02	06:41 17:39	07:04 (AR09) 07:31 (AR09)	05:58 18:09		06:09 19:41	05:35 20:29
23	07:13 17:03	06:40 17:40	07:04 (AR09) 07:32 (AR09)	05:56 18:10		06:08 19:42	05:34 20:30
24	07:13 17:04	06:39 17:41	07:04 (AR09) 07:32 (AR09)	05:55 18:11		06:06 19:43	05:34 20:30
25	07:12 17:05	06:37 17:42	07:03 (AR09) 07:32 (AR09)	05:53 18:12		06:05 19:44	05:33 20:30
26	07:11 17:06	06:36 17:43	07:03 (AR09) 07:32 (AR09)	05:51 18:14		06:04 19:45	05:32 20:30
27	07:11 17:08	06:34 17:45	07:03 (AR09) 07:31 (AR09)	05:50 18:15		06:02 19:46	05:28 20:30
28	07:10 17:09	07:31 (AR10) 07:35 (AR10)	06:33 17:46	07:04 (AR09) 07:31 (AR09)	05:48 18:16	06:01 19:47	05:28 20:30
29	07:09 17:10	07:29 (AR10) 07:38 (AR10)		06:47 19:17		06:00 19:48	05:29 20:30
30	07:08 17:11	07:28 (AR10) 07:40 (AR10)		06:45 19:18	05:58 19:49	05:30 20:18	05:29 20:30
31	07:07 17:12	07:27 (AR10) 07:41 (AR10)		06:43 19:19		05:29 20:18	
Potential sun hours	300	298		370	398	446	450
Total, worst case	39	533		236			
Sun reduction	0,77	0,69		0,62			
Oper. time red.	0,81	0,81		0,81			
Wind dir. red.	0,66	0,68		0,73			
Total reduction	0,41	0,38		0,37			
Total, real	16	203		86			

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R94 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (97)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December				
1	05:30	05:53	06:23	06:52	18:03 (AR06)	06:25	06:56 (AR10)	06:59		
	20:30	20:12	19:30	18:40	14	18:17 (AR06)	16:54	16	07:12 (AR10)	16:31
2	05:30	05:54	06:24	06:53	18:02 (AR06)	06:26	06:55 (AR10)	07:00		
	20:30	20:11	19:28	18:38	14	18:16 (AR06)	16:53	17	07:12 (AR10)	16:31
3	05:31	05:55	06:25	06:54	18:02 (AR06)	06:27	06:54 (AR10)	07:01		
	20:30	20:09	19:26	18:37	12	18:14 (AR06)	16:52	19	07:13 (AR10)	16:30
4	05:31	05:56	06:26	06:55	18:02 (AR06)	06:28	06:54 (AR10)	07:02		
	20:30	20:08	19:25	18:35	10	18:12 (AR06)	16:51	20	07:14 (AR10)	16:30
5	05:32	05:57	06:26	06:56	18:02 (AR06)	06:29	06:54 (AR10)	07:03		
	20:29	20:07	19:23	18:34	9	18:11 (AR06)	16:50	20	07:14 (AR10)	16:30
6	05:32	05:58	06:27	06:57	18:02 (AR06)	06:30	06:54 (AR10)	07:04		
	20:29	20:06	19:22	18:32	7	18:09 (AR06)	16:49	20	07:14 (AR10)	16:30
7	05:33	05:59	06:28	06:58	18:03 (AR06)	06:32	06:54 (AR10)	07:05		
	20:29	20:05	19:20	18:30	4	18:07 (AR06)	16:48	19	07:13 (AR10)	16:30
8	05:33	05:59	06:29	06:59	07:45 (AR09)	06:33	06:55 (AR10)	07:05		
	20:29	20:04	19:18	18:29	13	18:06 (AR06)	16:47	19	07:14 (AR10)	16:30
9	05:34	06:00	06:30	07:00	07:43 (AR09)	06:34	06:56 (AR10)	07:06		
	20:28	20:02	19:17	18:27	17	08:00 (AR09)	16:46	17	07:13 (AR10)	16:30
10	05:35	06:01	06:31	07:01	07:41 (AR09)	06:35	06:57 (AR10)	07:07		
	20:28	20:01	19:15	18:26	20	08:01 (AR09)	16:45	16	07:13 (AR10)	16:30
11	05:35	06:02	06:32	07:02	07:39 (AR09)	06:36	06:58 (AR10)	07:08		
	20:27	20:00	19:13	18:24	23	08:02 (AR09)	16:44	14	07:12 (AR10)	16:30
12	05:36	06:03	06:33	07:03	07:38 (AR09)	06:37	07:00 (AR10)	07:09		
	20:27	19:59	19:12	18:22	25	08:03 (AR09)	16:43	11	07:11 (AR10)	16:30
13	05:37	06:04	06:34	07:04	07:37 (AR09)	06:39	07:01 (AR10)	07:10		
	20:26	19:57	19:10	18:21	26	08:03 (AR09)	16:42	9	07:10 (AR10)	16:30
14	05:38	06:05	06:35	07:05	07:36 (AR09)	06:40	07:03 (AR10)	07:10		
	20:26	19:56	19:08	18:19	28	08:04 (AR09)	16:41	4	07:07 (AR10)	16:30
15	05:38	06:06	06:36	07:06	07:35 (AR09)	06:41	07:11			
	20:25	19:55	19:07	18:18	29	08:04 (AR09)	16:40	07:11		
16	05:39	06:07	06:37	07:07	07:35 (AR09)	06:42	07:12			
	20:25	19:53	19:05	18:16	29	08:04 (AR09)	16:39	16:31		
17	05:40	06:08	06:38	07:08	07:34 (AR09)	06:43	07:13			
	20:24	19:52	19:03	18:15	29	08:03 (AR09)	16:38	16:31		
18	05:41	06:09	06:39	07:09	07:34 (AR09)	06:44	07:13			
	20:24	19:51	19:02	18:13	29	08:03 (AR09)	16:38	16:32		
19	05:41	06:10	06:40	07:10	07:35 (AR09)	06:46	07:14			
	20:23	19:49	19:00	18:12	28	08:03 (AR09)	16:37	16:32		
20	05:42	06:11	06:41	07:11	07:36 (AR09)	06:47	07:14			
	20:22	19:48	18:58	18:10	27	08:03 (AR09)	16:36	16:32		
21	05:43	06:12	06:42	07:12	07:36 (AR09)	06:48	07:15			
	20:22	19:46	18:57	18:09	26	08:02 (AR09)	16:36	16:33		
22	05:44	06:13	06:43	07:13	07:37 (AR09)	06:49	07:15			
	20:21	19:45	18:55	18:08	24	08:01 (AR09)	16:35	16:33		
23	05:45	06:14	06:44	07:15	07:37 (AR09)	06:50	07:16			
	20:20	19:43	18:53	18:06	22	07:59 (AR09)	16:34	16:34		
24	05:46	06:15	06:45	07:16	07:38 (AR09)	06:51	07:16			
	20:19	19:42	18:52	18:05	20	07:58 (AR09)	16:34	16:34		
25	05:47	06:16	06:46	06:17	06:39 (AR09)	06:52	07:17			
	20:18	19:40	18:50	17:03	17	06:56 (AR09)	16:33	16:35		
26	05:47	06:17	06:47	06:18	06:42 (AR09)	06:53	07:17			
	20:17	19:39	18:48	17:02	12	06:54 (AR09)	16:33	16:36		
27	05:48	06:18	06:48	18:09 (AR06)	06:19	06:54	07:18			
	20:17	19:37	18:47	10	18:19 (AR06)	17:01	16:32	16:36		
28	05:49	06:19	06:49	18:07 (AR06)	06:20	06:56	07:18			
	20:16	19:36	18:45	14	18:21 (AR06)	16:59	16:32	16:37		
29	05:50	06:20	06:50	18:05 (AR06)	06:21	07:02 (AR10)	06:57	07:18		
	20:15	19:34	18:43	16	18:21 (AR06)	16:58	2	07:04 (AR10)	16:32	
30	05:51	06:21	06:51	18:04 (AR06)	06:22	06:58 (AR10)	06:58	07:18		
	20:14	19:33	18:42	15	18:19 (AR06)	16:57	10	07:08 (AR10)	16:31	
31	05:52	06:22		06:24	06:57 (AR10)			07:19		
	20:13	19:31		16:56	14	07:11 (AR10)		16:39		
Potential sun hours	457	426	375	346	300	290				
Total, worst case			55	540	221					
Sun reduction			0,59	0,66	0,74					
Oper. time red.			0,81	0,81	0,81					
Wind dir. red.			0,76	0,70	0,66					
Total reduction			0,36	0,37	0,39					
Total, real			20	202	87					

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R95 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (98)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

		January	February	March	April	May	June	July	August	September	October	November	December					
1	07:19	07:06	06:31	07:11 (AR09)	06:42	05:57	05:29	05:30	05:53	06:23	06:52	18:02 (AR06)	06:25	06:59				
	16:40	17:14	17:47	18	07:29 (AR09)	19:20	19:50	20:19	20:30	20:12	18:40	15	18:17 (AR06)	16:54	16:31			
2	07:19	07:05	06:30	07:13 (AR09)	06:40	05:56	05:29	05:30	05:54	06:24	06:53	18:01 (AR06)	06:26	07:00				
	16:41	17:15	17:48	15	07:28 (AR09)	19:21	19:52	20:20	20:30	20:11	18:38	15	18:16 (AR06)	16:53	16:31			
3	07:19	07:04	06:28	07:17 (AR09)	06:38	05:54	05:28	05:31	05:55	06:25	06:54	18:00 (AR06)	06:27	07:01				
	16:42	17:16	17:49	6	07:23 (AR09)	19:22	19:53	20:21	20:30	20:09	18:37	14	18:14 (AR06)	16:52	16:30			
4	07:19	07:03	06:27	17:25 (AR06)	06:37	05:53	05:28	05:31	05:56	06:26	06:55	17:59 (AR06)	06:28	07:02				
	16:43	17:17	17:50	4	17:29 (AR06)	19:23	19:54	20:21	20:30	20:08	18:35	13	18:12 (AR06)	16:51	16:30			
5	07:19	07:02	06:25	17:24 (AR06)	06:35	05:52	05:27	05:32	05:57	06:26	06:56	17:58 (AR06)	06:29	07:03				
	16:44	17:19	17:51	6	17:30 (AR06)	19:24	19:55	20:22	20:29	20:07	18:34	13	18:11 (AR06)	16:50	16:30			
6	07:19	07:01	06:24	17:23 (AR06)	06:34	05:51	05:27	05:32	05:58	06:27	06:57	17:58 (AR06)	06:30	07:04				
	16:45	17:20	17:52	8	17:31 (AR06)	19:25	19:56	20:23	20:29	20:06	18:32	11	18:09 (AR06)	16:49	16:30			
7	07:19	07:00	06:22	17:23 (AR06)	06:32	05:50	05:27	05:33	05:59	06:28	06:58	17:58 (AR06)	06:32	07:05				
	16:45	17:21	17:53	10	17:33 (AR06)	19:26	19:57	20:23	20:29	20:05	18:30	9	18:07 (AR06)	16:48	16:30			
8	07:19	06:59	06:21	17:22 (AR06)	06:30	05:49	05:27	05:33	05:59	06:29	06:59	17:59 (AR06)	06:33	07:05				
	16:46	17:22	17:55	11	17:33 (AR06)	19:27	19:58	20:24	20:29	20:04	18:29	7	18:06 (AR06)	16:47	16:30			
9	07:19	06:58	06:19	17:22 (AR06)	06:29	05:47	05:26	05:34	06:00	06:30	07:00	18:00 (AR06)	06:34	07:06				
	16:47	17:23	17:56	13	17:35 (AR06)	19:28	19:59	20:24	20:28	20:02	18:27	5	18:05 (AR06)	16:46	16:30			
10	07:19	06:57	06:17	17:22 (AR06)	06:27	05:46	05:26	05:35	06:01	06:31	07:01	18:01 (AR06)	06:35	07:07				
	16:48	17:25	17:57	14	17:36 (AR06)	19:29	20:00	20:25	20:28	20:01	18:26	2	18:03 (AR06)	16:45	16:30			
11	07:19	06:56	06:16	17:22 (AR06)	06:26	05:45	05:26	05:35	06:02	06:32	07:02	18:02 (AR06)	06:36	07:08				
	16:49	17:26	17:58	15	17:37 (AR06)	19:30	20:01	20:25	20:27	20:00	18:24	11	08:00 (AR06)	16:44	16:30			
12	07:18	06:55	06:14	07:19 (AR09)	06:24	05:44	05:26	05:36	06:03	06:33	07:03	17:46 (AR09)	06:37	07:09				
	16:50	17:27	17:59	6	07:25 (AR09)	19:31	20:02	20:26	20:27	19:59	18:22	16	08:02 (AR09)	16:43	16:30			
13	07:18	06:53	06:13	07:15 (AR09)	06:23	05:43	05:26	05:37	06:04	06:34	07:04	18:04 (AR09)	06:39	07:10				
	16:52	17:28	18:00	14	07:29 (AR09)	19:32	20:03	20:26	20:26	19:57	18:21	20	08:04 (AR09)	16:42	16:30			
14	07:18	06:52	06:11	07:13 (AR09)	06:21	05:42	05:26	05:38	06:05	06:35	07:05	18:05 (AR09)	06:40	07:10				
	16:53	17:29	18:01	11	17:37 (AR06)	19:33	20:04	20:27	20:26	19:56	18:19	23	08:05 (AR09)	16:41	16:30			
15	07:17	06:51	06:09	07:11 (AR09)	06:20	05:41	05:26	05:38	06:06	06:36	07:06	18:06 (AR09)	06:41	07:11				
	16:54	17:31	18:02	3	17:32 (AR06)	19:34	20:04	20:27	20:25	19:55	18:18	24	08:05 (AR09)	16:40	16:31			
16	07:17	06:50	06:08	07:11 (AR09)	06:18	05:40	05:26	05:39	06:07	06:37	07:07	18:07 (AR09)	06:42	07:12				
	16:55	17:32	18:03	25	07:34 (AR09)	19:35	20:05	20:28	20:25	19:53	18:16	26	08:06 (AR09)	16:39	16:31			
17	07:17	06:48	06:06	07:09 (AR09)	06:17	05:39	05:26	05:40	06:08	06:38	07:08	18:07 (AR09)	06:43	07:13				
	16:56	17:33	18:04	23	07:34 (AR09)	19:36	20:06	20:28	20:24	19:52	18:15	27	08:06 (AR09)	16:38	16:31			
18	07:16	06:47	06:05	07:09 (AR09)	06:15	05:38	05:26	05:41	06:09	06:39	07:09	18:08 (AR09)	06:44	07:13				
	16:57	17:34	18:05	26	07:35 (AR09)	19:37	20:07	20:28	20:24	19:51	18:13	28	08:06 (AR09)	16:38	16:32			
19	07:16	06:46	06:03	07:08 (AR09)	06:14	05:38	05:26	05:41	06:10	06:40	07:10	18:09 (AR09)	06:46	07:14				
	16:58	17:35	18:06	28	07:36 (AR09)	19:38	20:08	20:29	20:23	19:49	18:12	28	08:07 (AR09)	16:37	16:32			
20	07:15	06:44	06:01	07:07 (AR09)	06:12	05:37	05:26	05:42	06:11	06:41	07:11	18:10	07:38 (AR09)	06:47	07:14			
	16:59	17:36	18:07	28	07:35 (AR09)	19:39	20:09	20:29	20:22	19:48	18:10	29	08:07 (AR09)	16:36	16:32			
21	07:15	06:43	06:00	07:07 (AR09)	06:11	05:36	05:26	05:43	06:12	06:42	07:12	18:12	07:38 (AR09)	06:48	07:15			
	17:00	17:38	18:08	29	07:36 (AR09)	19:40	20:10	20:29	20:22	19:46	18:09	29	08:07 (AR09)	16:36	16:33			
22	07:14	06:41	05:58	07:07 (AR09)	06:09	05:35	05:26	05:44	06:13	06:43	07:13	18:13	07:38 (AR09)	06:49	07:15			
	17:02	17:39	18:09	28	07:35 (AR09)	19:41	20:11	20:29	20:21	19:45	18:08	28	08:06 (AR09)	16:35	16:33			
23	07:13	06:40	05:56	07:07 (AR09)	06:08	05:34	05:27	05:45	06:14	06:44	07:15	18:14	07:38 (AR09)	06:50	07:16			
	17:03	17:40	18:10	28	07:35 (AR09)	19:42	20:12	20:30	20:20	19:43	18:06	27	08:05 (AR09)	16:34	16:34			
24	07:13	06:39	05:55	07:08 (AR09)	06:06	05:34	05:27	05:46	06:15	06:45	07:16	18:15	07:39 (AR09)	06:51	07:16			
	17:04	17:41	18:11	28	07:36 (AR09)	19:43	20:13	20:30	20:19	19:42	18:05	25	08:04 (AR09)	16:34	16:34			
25	07:12	06:37	05:53	07:07 (AR09)	06:05	05:33	05:27	05:47	06:16	06:46	07:17	18:16	07:39 (AR09)	06:52	07:17			
	17:05	17:42	18:12	27	07:34 (AR09)	19:44	20:14	20:30	20:18	19:40	18:05	24	07:03 (AR09)	16:33	16:35			
26	07:11	06:36	05:51	07:08 (AR09)	06:04	05:32	05:28	05:47	06:17	06:47	07:18	18:17	07:39 (AR09)	06:53	07:17			
	17:06	17:43	18:14	26	07:34 (AR09)	19:45	20:14	20:30	20:17	19:39	18:04	22	07:03 (AR09)	16:33	16:36			
27	07:11	06:34	05:50	07:09 (AR09)	06:02	05:32	05:28	05:48	06:18	06:48	07:19	18:18	07:40 (AR09)	06:54	07:18			
	17:08	17:45	18:15	24	07:33 (AR09)	19:46	20:15	20:30	20:17	19:37	18:07	21	07:02 (AR09)	16:32	16:36			
28	07:10	06:33	05:48	07:10 (AR09)	06:01	05:31	05:28	05:49	06:19	06:49	07:20	18:19	07:41 (AR09)	06:56	07:18			
	17:09	17:46	18:16	22	07:32 (AR09)	19:47	20:16	20:30	20:16	19:36	18:05	17	07:00 (AR09)	16:32	16:37			
29	07:09		06:47		06:00	05:30	05:29	05:50	06:20		18:06 (AR06)	06:21	06:45 (AR09)	06:57	07:18			
	17:10		19:17		19:48	20:17	20:30	20:15	19:34	18:43	9	18:15 (AR06)	16:58	12	06:57 (AR09)	16:32	16:38	
30	07:08		06:45		05:58	05:30	05:29	05:51	06:21	06:51	18:04 (AR06)	06:22	06:49 (AR09)	06:58	07:18			
	17:11		19:18		19:49	20:18	20:30	20:14	19:33	18:42	13	18:17 (AR06)	16:57	3	06:52 (AR09)	16:31	16:38	
31	07:07		06:43			05:29		05:52	06:22			06:24		07:19				
	17:12		19:19			20:18		20:13	19:31			16:56		07:19				
Potential sun hours	300	298	370		398	446	450	457	426	375		346		300		290		
Total, worst case		400		164						22			544					
Sun reduction		0.69		0.62						0.59			0.66					
Oper. time red.		0.81		0.81						0.81			0.81					
Wind dir. red.		0.69		0.74						0.76			0.70					
Total reduction		0.38		0.37						0.36			0.37					
Total, real		154		61						8			204					

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: Parco Eolico Val d'AgriShadow receptor: R97 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (99)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June	
1	07:19	07:06	07:39 (AR09)	06:31	06:42	05:57	05:29
	16:40	17:14	29 08:08 (AR09)	17:47	19:20	19:50	20:19
2	07:19	07:05	07:39 (AR09)	06:30	06:40	05:56	05:29
	16:41	17:15	29 08:08 (AR09)	17:48	19:21	19:52	20:20
3	07:19	07:04	07:40 (AR09)	06:28	06:38	05:54	05:28
	16:42	17:16	27 08:07 (AR09)	17:49	19:22	19:53	20:21
4	07:19	07:03	07:41 (AR09)	06:27	06:37	05:53	05:28
	16:43	17:17	26 08:07 (AR09)	17:50	19:23	19:54	20:21
5	07:19	07:02	07:42 (AR09)	06:25	06:35	05:52	05:27
	16:44	17:19	24 08:06 (AR09)	17:51	19:24	19:55	20:22
6	07:19	07:01	07:43 (AR09)	06:24	06:34	05:51	05:27
	16:45	17:20	23 08:06 (AR09)	17:52	19:25	19:56	20:23
7	07:19	07:00	07:44 (AR09)	06:22	06:32	05:50	05:27
	16:45	17:21	21 08:05 (AR09)	17:53	19:26	19:57	20:23
8	07:19	06:59	07:46 (AR09)	06:21	06:30	05:48	05:27
	16:46	17:22	17 08:03 (AR09)	17:55	19:27	19:58	20:24
9	07:19	06:58	07:47 (AR09)	06:19	06:29	05:47	05:26
	16:47	17:23	13 08:00 (AR09)	17:56	19:28	19:59	20:24
10	07:19	06:57	07:51 (AR09)	06:17	06:27	05:46	05:26
	16:48	17:25	6 07:57 (AR09)	17:57	19:29	20:00	20:25
11	07:19	06:56		06:16	06:26	05:45	05:26
	16:49	17:26		17:58	19:30	20:01	20:25
12	07:18	06:55		06:14	06:24	05:44	05:26
	16:50	17:27		17:59	19:31	20:02	20:26
13	07:18	06:53		06:13	06:23	05:43	05:26
	16:52	17:28		18:00	19:32	20:03	20:26
14	07:18	06:52		06:11	06:21	05:42	05:26
	16:53	4 07:51 (AR09)	17:29	18:01	19:33	20:04	20:27
15	07:17	07:43 (AR09)	06:51	06:09	06:20	05:41	05:26
	16:54	11 07:54 (AR09)	17:31	18:02	19:34	20:04	20:27
16	07:17	07:42 (AR09)	06:50	06:08	06:18	05:40	05:26
	16:55	14 07:56 (AR09)	17:32	18:03	19:35	20:05	20:28
17	07:17	07:41 (AR09)	06:48	06:06	06:17	05:39	05:26
	16:56	16 07:57 (AR09)	17:33	18:04	19:36	20:06	20:28
18	07:16	07:41 (AR09)	06:47	06:05	06:15	05:38	05:26
	16:57	18 07:59 (AR09)	17:34	18:05	19:37	20:07	20:28
19	07:16	07:40 (AR09)	06:46	06:03	06:14	05:38	05:26
	16:58	20 08:00 (AR09)	17:35	18:06	19:38	20:08	20:29
20	07:15	07:40 (AR09)	06:44	06:01	06:12	05:37	05:26
	16:59	22 08:02 (AR09)	17:36	18:07	19:39	20:09	20:29
21	07:15	07:40 (AR09)	06:43	06:00	06:11	05:36	05:26
	17:00	23 08:03 (AR09)	17:38	18:08	19:40	20:10	20:29
22	07:14	07:39 (AR09)	06:41	05:58	06:09	05:35	05:26
	17:02	24 08:03 (AR09)	17:39	18:09	19:41	20:11	20:29
23	07:13	07:39 (AR09)	06:40	05:56	06:08	05:34	05:27
	17:03	26 08:05 (AR09)	17:40	18:10	19:42	20:12	20:30
24	07:13	07:38 (AR09)	06:39	05:55	06:06	05:34	05:27
	17:04	27 08:05 (AR09)	17:41	18:11	19:43	20:13	20:30
25	07:12	07:38 (AR09)	06:37	05:53	06:05	05:33	05:27
	17:05	28 08:06 (AR09)	17:42	18:12	19:44	20:14	20:30
26	07:11	07:37 (AR09)	06:36	05:51	06:04	05:32	05:28
	17:06	29 08:06 (AR09)	17:43	18:14	19:45	20:14	20:30
27	07:11	07:38 (AR09)	06:34	05:50	06:02	05:32	05:28
	17:08	29 08:07 (AR09)	17:45	18:15	19:46	20:15	20:30
28	07:10	07:38 (AR09)	06:33	05:48	06:01	05:31	05:28
	17:09	30 08:08 (AR09)	17:46	18:16	19:47	20:16	20:30
29	07:09	07:38 (AR09)		06:47	06:00	05:30	05:29
	17:10	30 08:08 (AR09)		19:17	19:48	20:17	20:30
30	07:08	07:38 (AR09)		06:45	05:58	05:30	05:29
	17:11	30 08:08 (AR09)		19:18	19:49	20:18	20:30
31	07:07	07:38 (AR09)		06:43		05:29	
	17:12	30 08:08 (AR09)		19:19		20:18	
Potential sun hours	299	298	370	398	446	450	494
Total, worst case	411	215					0,49
Sun reduction	0,77	0,69					0,81
Oper. time red.	0,81	0,81					0,64
Wind dir. red.	0,63	0,63					0,26
Total reduction	0,39	0,36					126
Total, real	161	76					

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

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

Calculation: Parco Eolico Val d'AgriShadow receptor: R97 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (99)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December				
1	05:30	19:11 (AR07)	05:53	06:23	06:52	06:25	07:20 (AR09)	06:59		
	20:30	18	19:29 (AR07)	20:12	19:30	18:40	16:54	7	07:27 (AR09)	16:31
2	05:30	19:11 (AR07)	05:54	06:24	06:53	06:26	07:16 (AR09)	07:00		
	20:30	17	19:28 (AR07)	20:11	19:28	18:38	16:53	15	07:31 (AR09)	16:31
3	05:31	19:13 (AR07)	05:55	06:25	06:54	06:27	07:14 (AR09)	07:01		
	20:30	15	19:28 (AR07)	20:09	19:26	18:37	16:52	18	07:32 (AR09)	16:30
4	05:31	19:13 (AR07)	05:56	06:25	06:55	06:28	07:14 (AR09)	07:02		
	20:30	15	19:28 (AR07)	20:08	19:25	18:35	16:51	21	07:35 (AR09)	16:30
5	05:32	19:15 (AR07)	05:57	06:26	06:56	06:29	07:12 (AR09)	07:03		
	20:29	13	19:28 (AR07)	20:07	19:23	18:34	16:50	24	07:36 (AR09)	16:30
6	05:32	19:15 (AR07)	05:58	06:27	06:57	06:30	07:11 (AR09)	07:04		
	20:29	12	19:27 (AR07)	20:06	19:22	18:32	16:49	25	07:36 (AR09)	16:30
7	05:33	19:17 (AR07)	05:59	06:28	06:58	06:32	07:10 (AR09)	07:05		
	20:29	10	19:27 (AR07)	20:05	19:20	18:30	16:48	27	07:37 (AR09)	16:30
8	05:33	19:18 (AR07)	05:59	06:29	06:59	06:33	07:11 (AR09)	07:05		
	20:29	10	19:28 (AR07)	20:04	19:18	18:29	16:47	27	07:38 (AR09)	16:30
9	05:34	19:19 (AR07)	06:00	06:30	07:00	06:34	07:10 (AR09)	07:06		
	20:28	8	19:27 (AR07)	20:02	19:17	18:27	16:46	28	07:38 (AR09)	16:30
10	05:35	19:21 (AR07)	06:01	06:31	07:01	06:35	07:10 (AR09)	07:07		
	20:28	6	19:27 (AR07)	20:01	19:15	18:26	16:45	29	07:39 (AR09)	16:30
11	05:35	19:24 (AR07)	06:02	06:32	07:02	06:36	07:09 (AR09)	07:08		
	20:27	3	19:27 (AR07)	20:00	19:13	18:24	16:44	30	07:39 (AR09)	16:30
12	05:36	19:25 (AR07)	06:03	06:33	07:03	06:37	07:10 (AR09)	07:09		
	20:27		19:59	19:12	18:22	16:43	30	07:40 (AR09)	16:30	
13	05:37	19:26 (AR07)	06:04	06:34	07:04	06:39	07:10 (AR09)	07:10		
	20:26		19:57	19:10	18:21	16:42	30	07:40 (AR09)	16:30	
14	05:38	19:27 (AR07)	06:05	06:35	07:05	06:40	07:10 (AR09)	07:10		
	20:26		19:56	19:08	18:19	16:41	30	07:40 (AR09)	16:30	
15	05:38	19:28 (AR07)	06:06	06:36	07:06	06:41	07:10 (AR09)	07:11		
	20:25		19:55	19:07	18:18	16:40	29	07:39 (AR09)	16:31	
16	05:39	19:29 (AR07)	06:07	06:37	07:07	06:42	07:11 (AR09)	07:12		
	20:25		19:53	19:05	18:16	16:39	29	07:40 (AR09)	16:31	
17	05:40	19:30 (AR07)	06:08	06:38	07:08	06:43	07:12 (AR09)	07:13		
	20:24		19:52	19:03	18:15	16:38	28	07:40 (AR09)	16:31	
18	05:41	19:31 (AR07)	06:09	06:39	07:09	06:44	07:12 (AR09)	07:13		
	20:24		19:51	19:02	18:13	16:38	27	07:39 (AR09)	16:32	
19	05:41	19:32 (AR07)	06:10	06:40	07:10	06:46	07:13 (AR09)	07:14		
	20:23		19:49	19:00	18:12	16:37	26	07:39 (AR09)	16:32	
20	05:42	19:33 (AR07)	06:11	06:41	07:11	06:47	07:14 (AR09)	07:14		
	20:22		19:48	18:58	18:10	16:36	24	07:38 (AR09)	16:32	
21	05:43	19:34 (AR07)	06:12	06:42	07:12	06:48	07:16 (AR09)	07:15		
	20:22		19:46	18:57	18:09	16:36	23	07:39 (AR09)	16:33	
22	05:44	19:35 (AR07)	06:13	06:43	07:13	06:49	07:16 (AR09)	07:15		
	20:21		19:45	18:55	18:08	16:35	22	07:38 (AR09)	16:33	
23	05:45	19:36 (AR07)	06:14	06:44	07:15	06:50	07:17 (AR09)	07:16		
	20:20		19:43	18:53	18:06	16:34	20	07:37 (AR09)	16:34	
24	05:46	19:37 (AR07)	06:15	06:45	07:16	06:51	07:18 (AR09)	07:16		
	20:19		19:42	18:52	18:05	16:34	19	07:37 (AR09)	16:34	
25	05:46	19:38 (AR07)	06:16	06:46	06:17	06:52	07:19 (AR09)	07:17		
	20:18		19:40	18:50	17:03	16:33	17	07:36 (AR09)	16:35	
26	05:47	19:39 (AR07)	06:17	06:47	06:18	06:53	07:20 (AR09)	07:17		
	20:17		19:39	18:48	17:02	16:33	14	07:34 (AR09)	16:36	
27	05:48	19:40 (AR07)	06:18	06:48	06:19	06:54	07:23 (AR09)	07:18		
	20:17		19:37	18:47	17:01	16:32	11	07:34 (AR09)	16:36	
28	05:49	19:41 (AR07)	06:19	06:49	06:20	06:56	07:26 (AR09)	07:18		
	20:16		19:36	18:45	16:59	16:32	5	07:31 (AR09)	16:37	
29	05:50	19:42 (AR07)	06:20	06:50	06:21	06:57		07:18		
	20:15		19:34	18:43	16:58	16:32		16:38		
30	05:51	19:43 (AR07)	06:21	06:51	06:22	06:58		07:18		
	20:14		19:33	18:42	16:57	16:31		16:38		
31	05:52	19:44 (AR07)	06:22	06:52	06:23			07:19		
	20:13		19:31	18:41	16:56			16:39		
Potential sun hours	457	426	375	346	300			290		
Total, worst case						635				
Sun reduction	127					0,74				
Oper. time red.	0,50					0,81				
Wind dir. red.	0,81					0,63				
Total reduction	0,64					0,38				
Total, real	0,26					241				
	33									

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Parco Eolico Val d'AgriShadow receptor: R99 - Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (100)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

**Operational time**

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

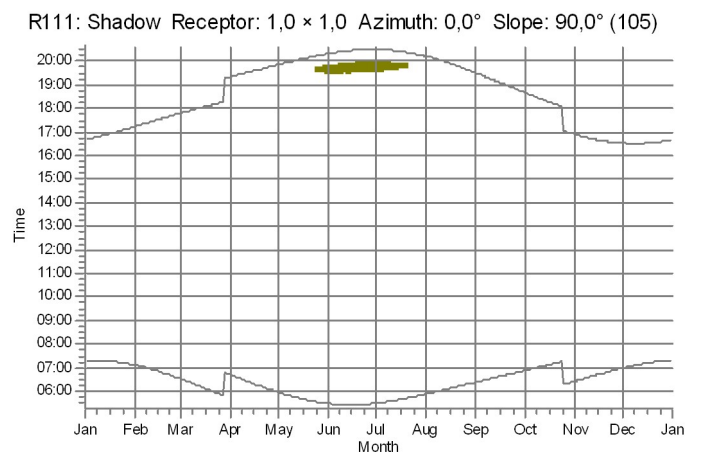
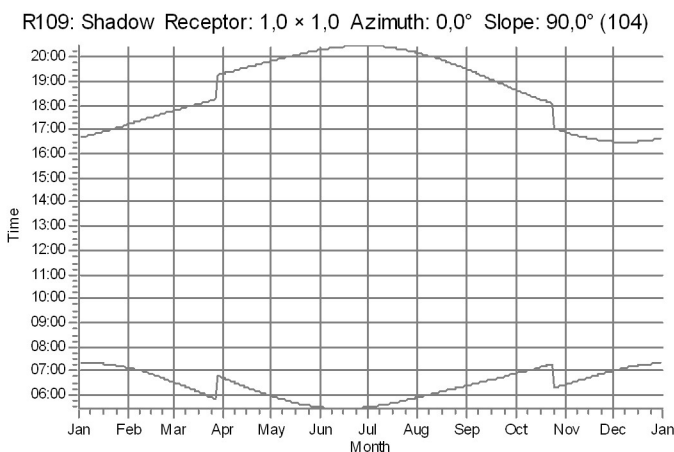
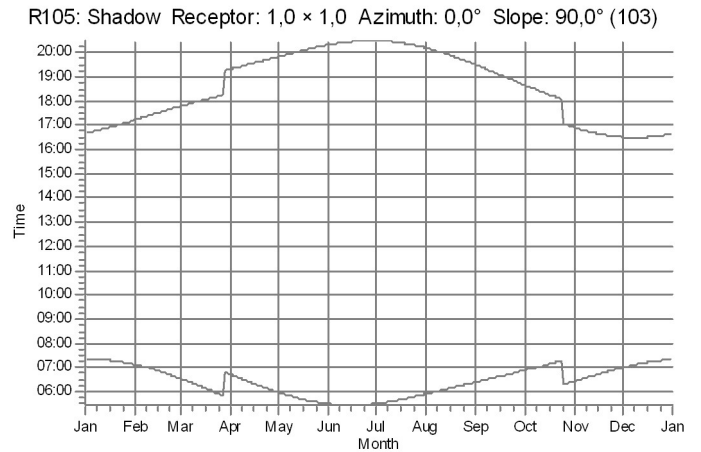
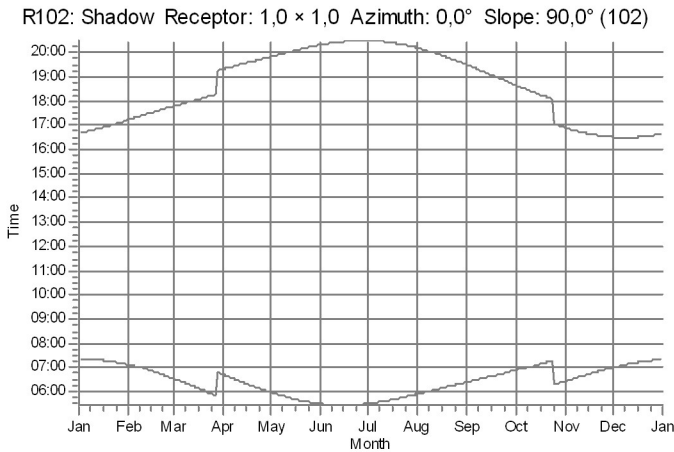
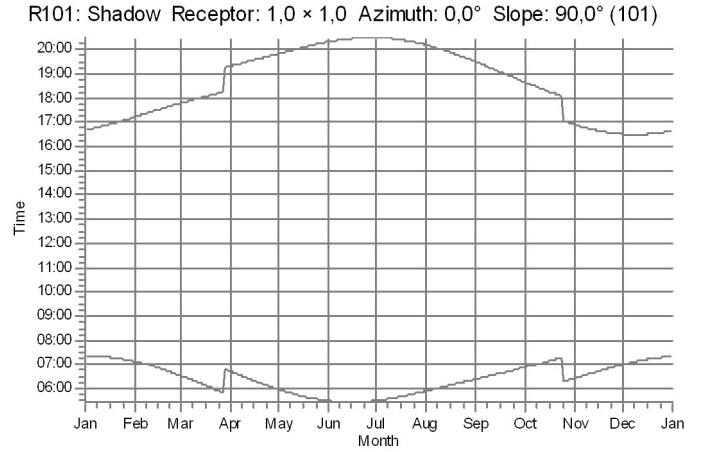
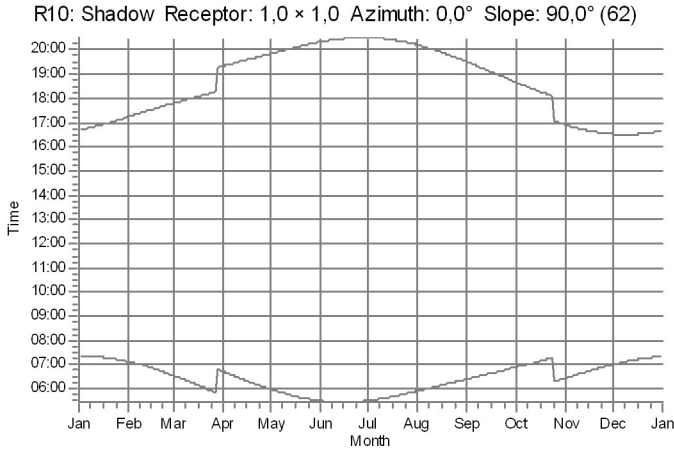
	January	February	March	April	May	June	July	August	September	October	November	December
1	07:19 16:40	07:06 17:14	06:31 17:47	06:42 19:20	05:57 19:51	05:29 20:19	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:54	06:59 16:31
2	07:19 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20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

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

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

Calculation: Parco Eolico Val d'Agri



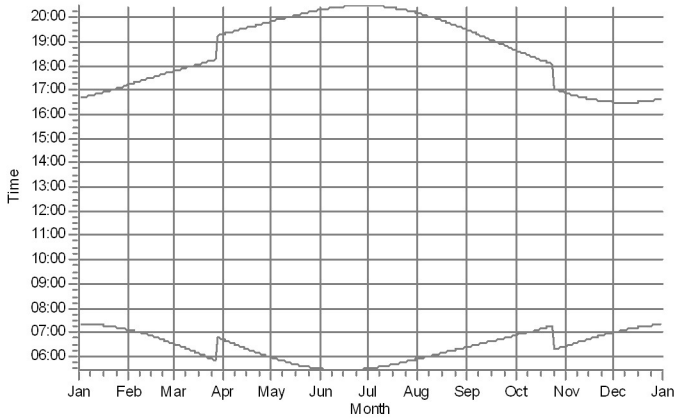
WTGs

AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !0! hub: 115,0 m (TOT: 200,0 m) (15)

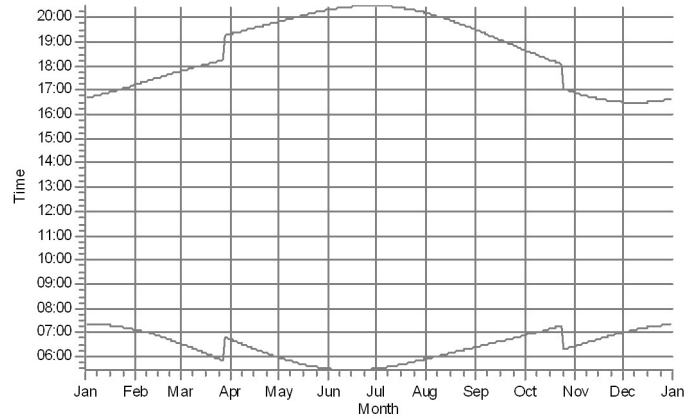
## SHADOW - Calendar, graphical

Calculation: Parco Eolico Val d'Agri

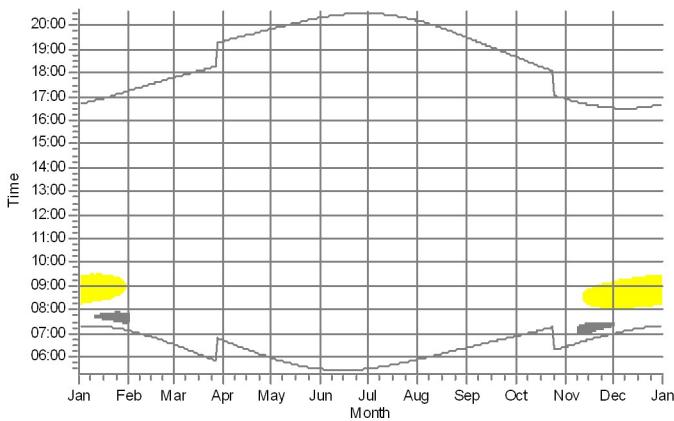
R16: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (64)



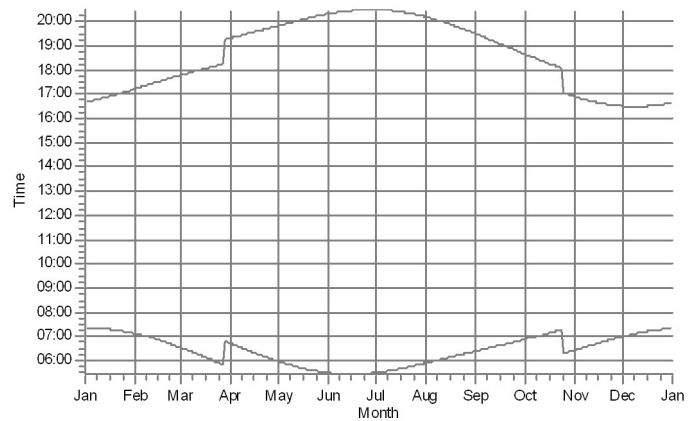
R19: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (65)



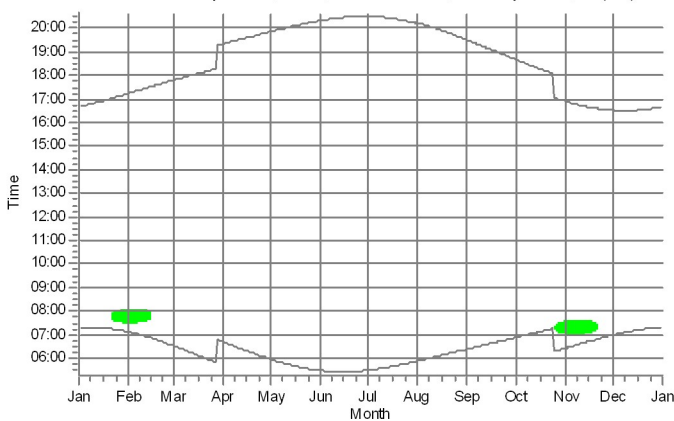
R2: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (59)



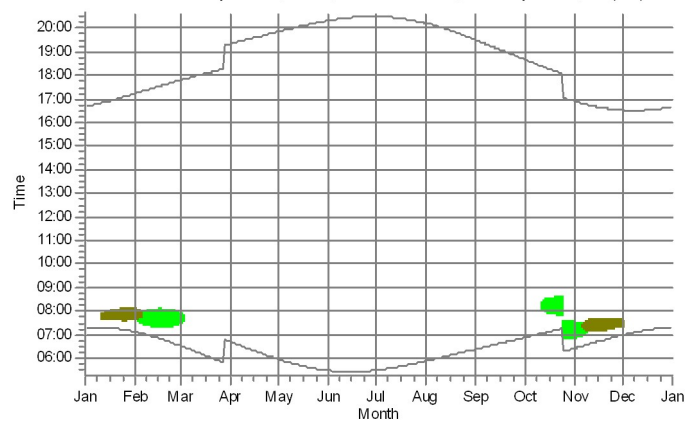
R20: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (66)



R21: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (67)



R22: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (68)



WTGs

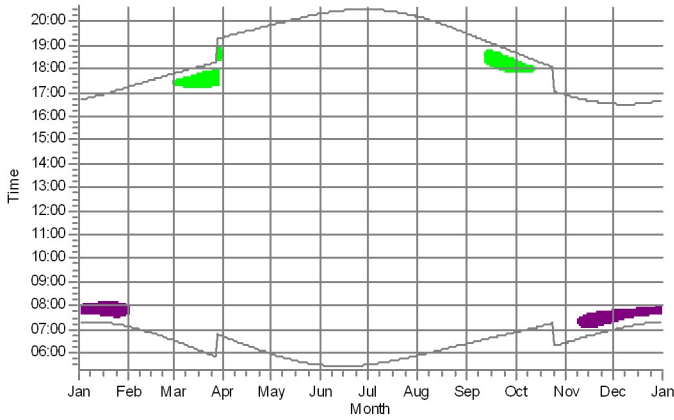
- AR02: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (7)
- AR04: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (9)

- AR09: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (14)
- AR10: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (15)

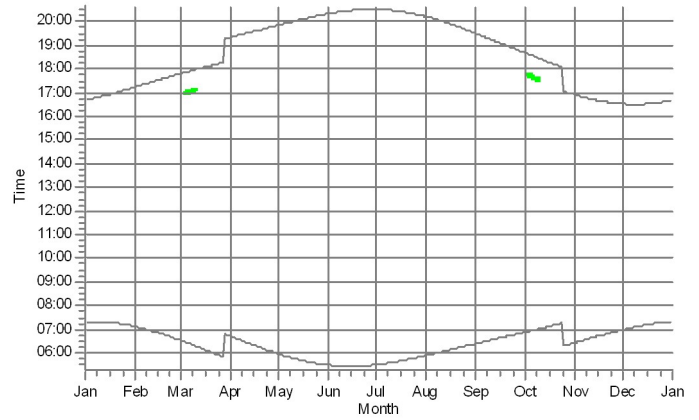
## SHADOW - Calendar, graphical

Calculation: Parco Eolico Val d'Agri

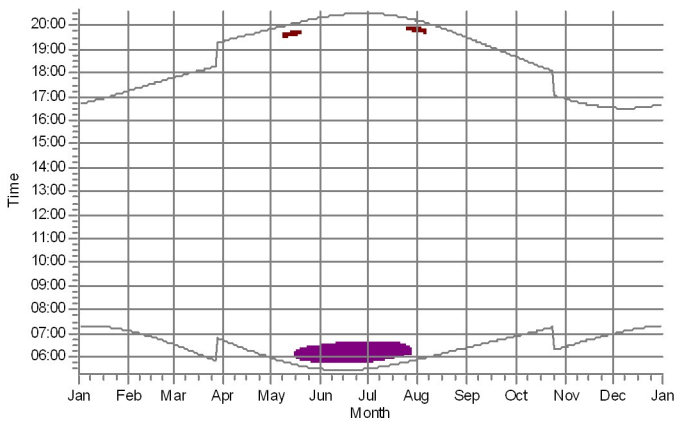
R29: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (69)



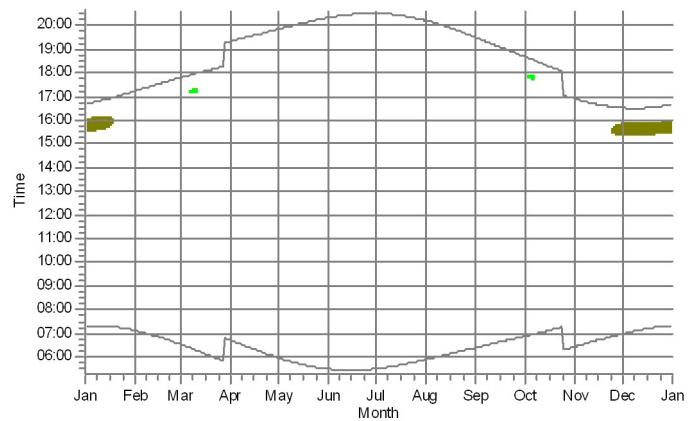
R33: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (70)



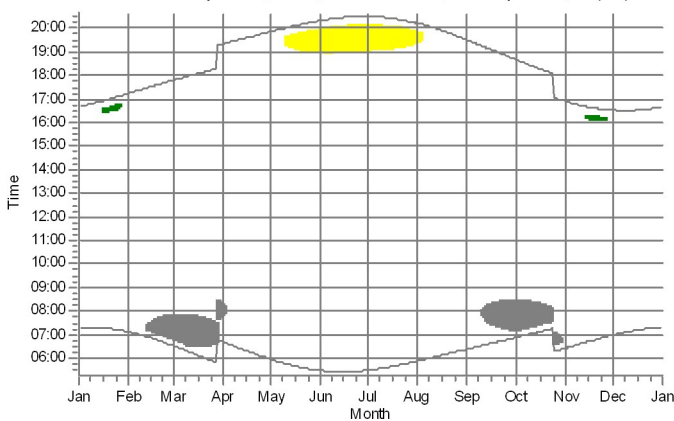
R35: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (71)



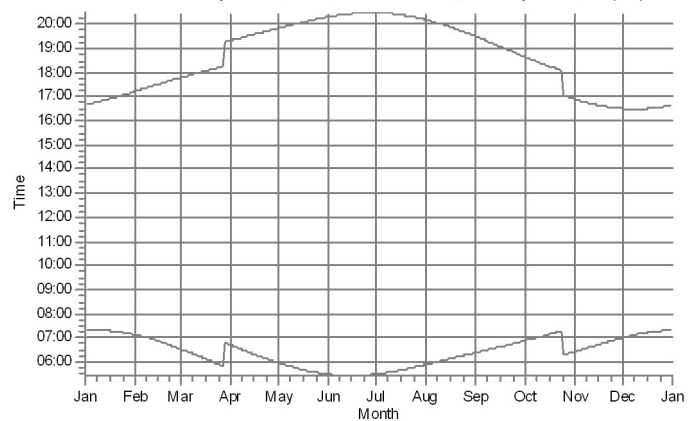
R38: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (72)



R4: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (60)



R40: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (73)



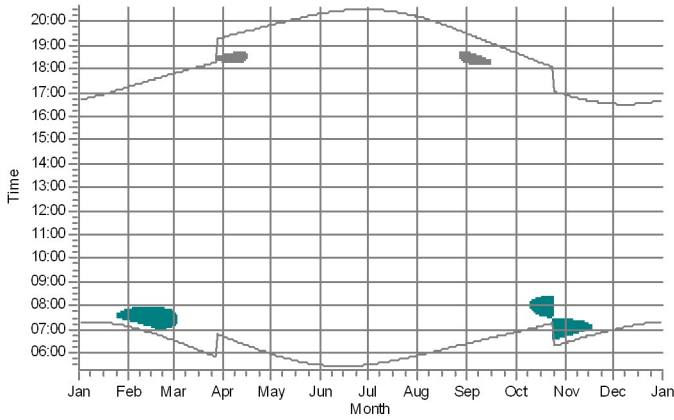
WTGs

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: green; margin-right: 5px;"></span> AR01: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (6)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; margin-right: 5px;"></span> AR02: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (7)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: grey; margin-right: 5px;"></span> AR04: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (9)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: red; margin-right: 5px;"></span> AR08: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (13)</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: lightgreen; margin-right: 5px;"></span> AR09: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (14)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: brown; margin-right: 5px;"></span> AR10: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (15)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: purple; margin-right: 5px;"></span> AR11: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (16)</li> </ul> |
|---|---|

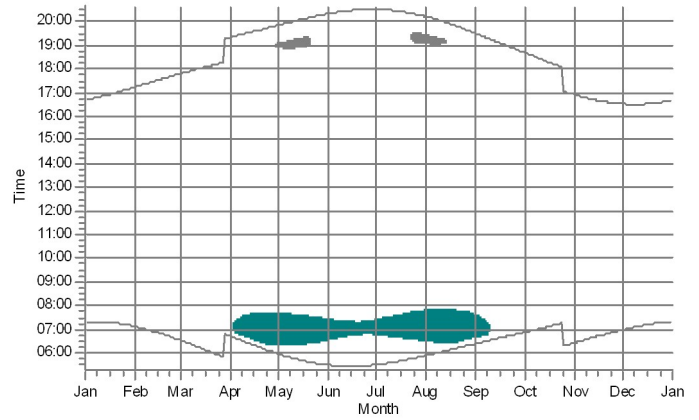
## SHADOW - Calendar, graphical

Calculation: Parco Eolico Val d'Agri

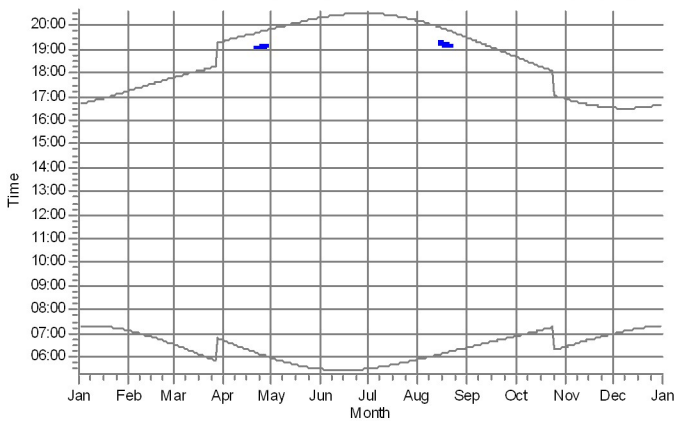
R43: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (74)



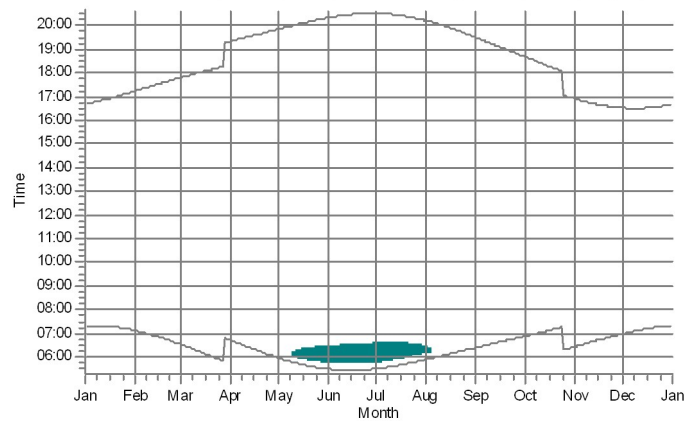
R44: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (75)



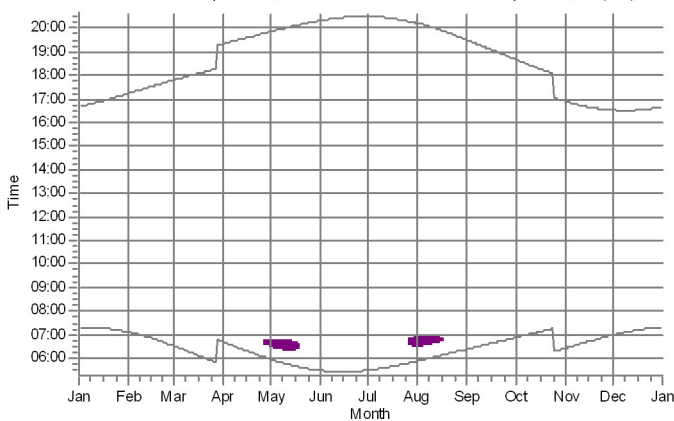
R45: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (76)



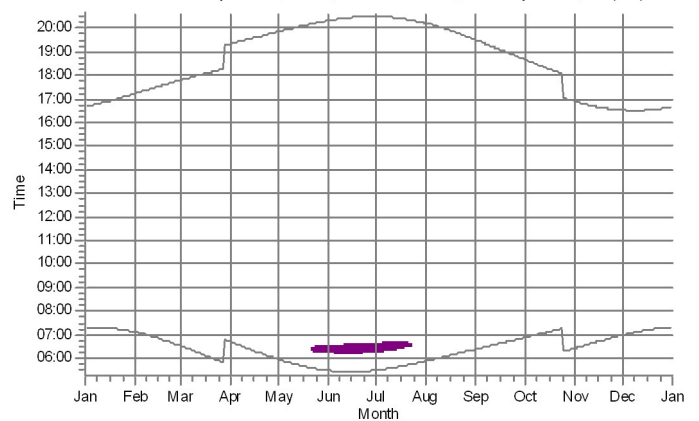
R46: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (77)



R49: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (78)



R50: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (79)



WTGs

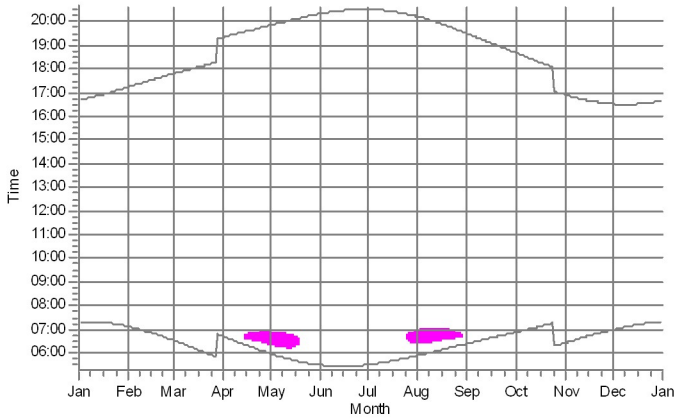
- AR03: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (8)
- AR04: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (9)

- AR06: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (11)
- AR11: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (16)

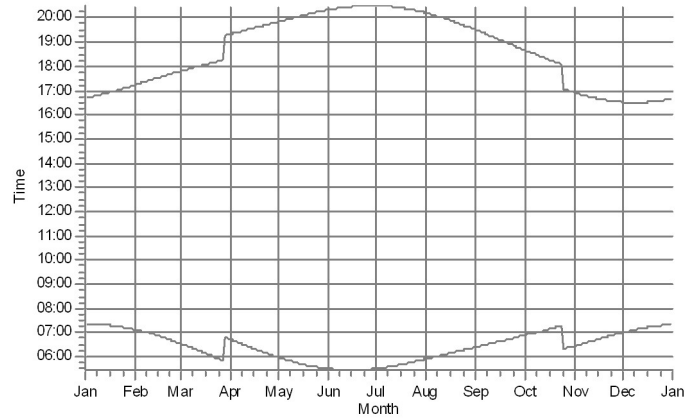
## SHADOW - Calendar, graphical

Calculation: Parco Eolico Val d'Agri

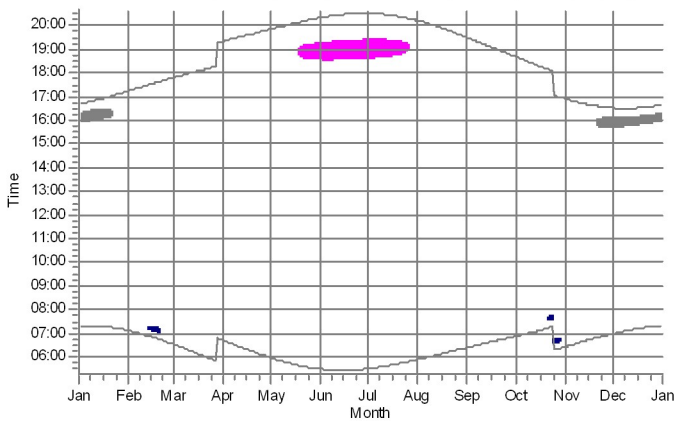
R51: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (80)



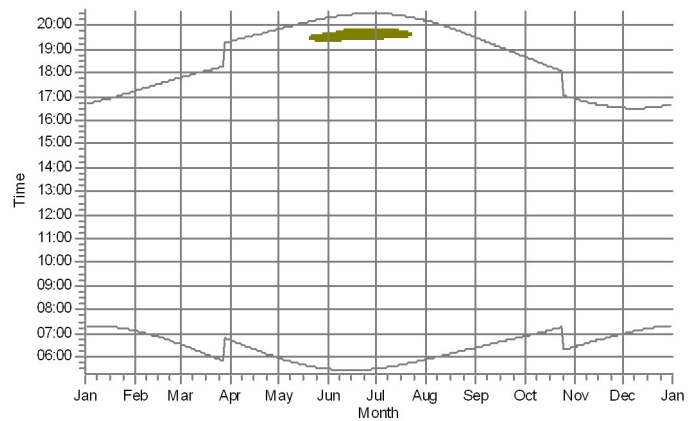
R54: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (81)



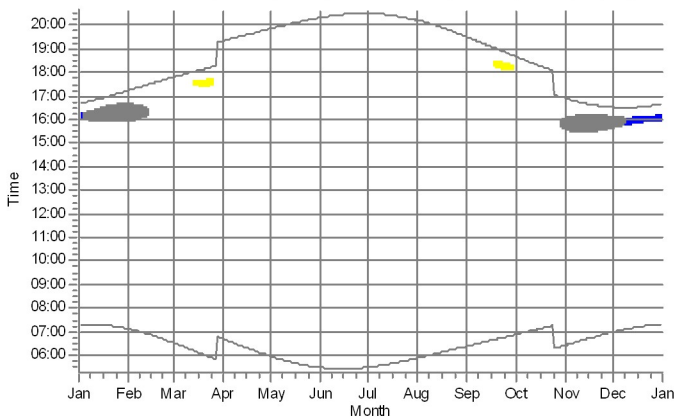
R56: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (96)



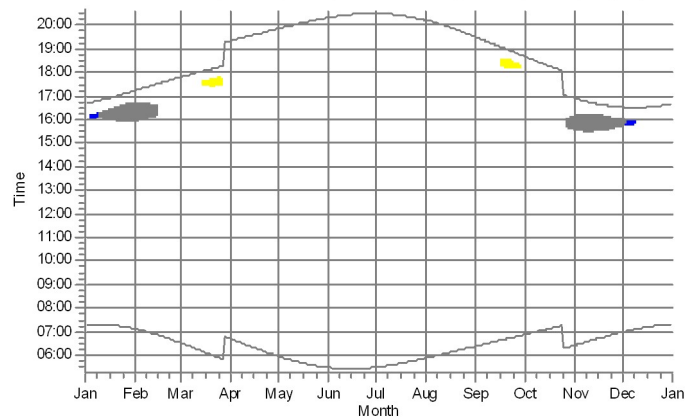
R57: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (83)



R58: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (84)



R59: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (85)



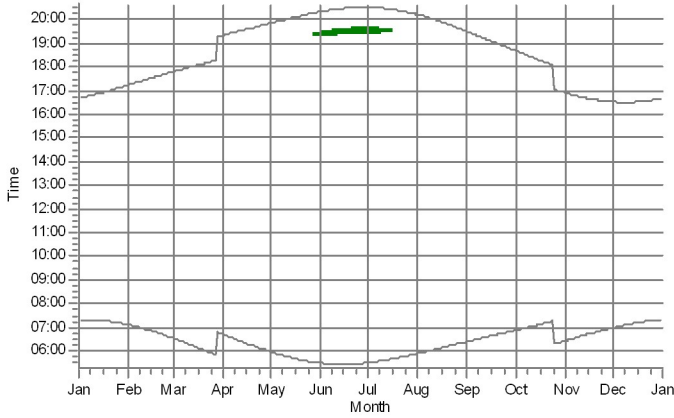
WTGs

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: yellow; margin-right: 5px;"></span> AR02: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (7)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: blue; margin-right: 5px;"></span> AR03: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (8)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: grey; margin-right: 5px;"></span> AR04: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (9)</li> </ul> | <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: pink; margin-right: 5px;"></span> AR05: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (10)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: darkblue; margin-right: 5px;"></span> AR07: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (12)</li> <li><span style="display: inline-block; width: 15px; height: 10px; background-color: olive; margin-right: 5px;"></span> AR10: Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (15)</li> </ul> |
|---|---|

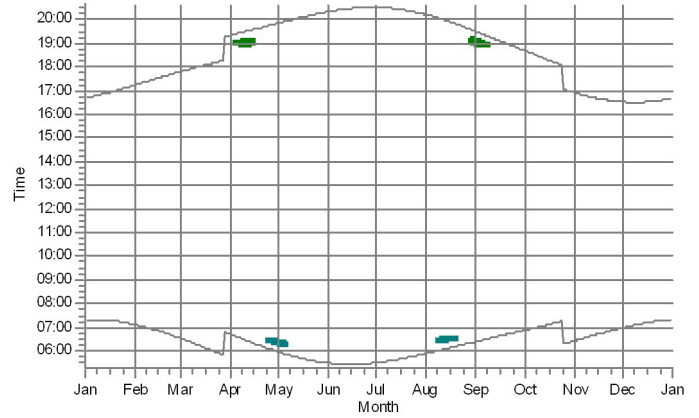
## SHADOW - Calendar, graphical

Calculation: Parco Eolico Val d'Agri

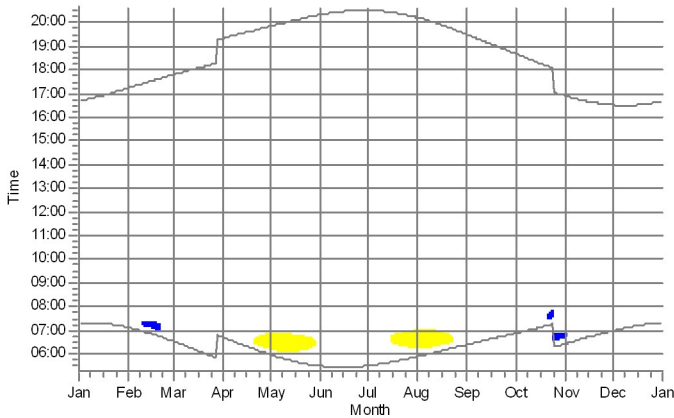
R62: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (86)



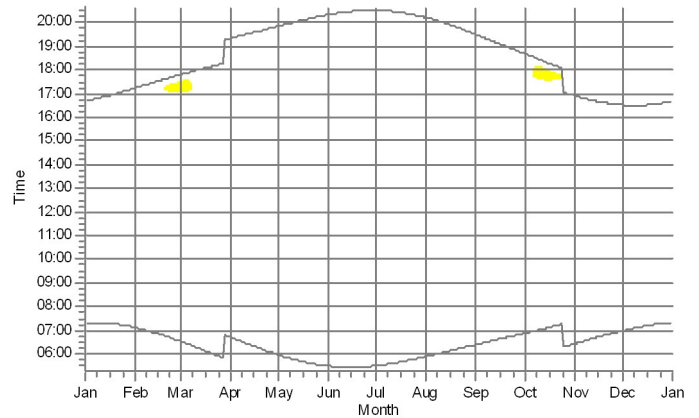
R64: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (87)



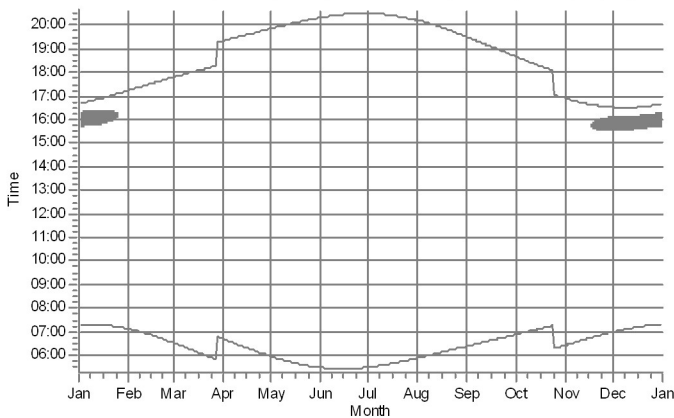
R67: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (88)



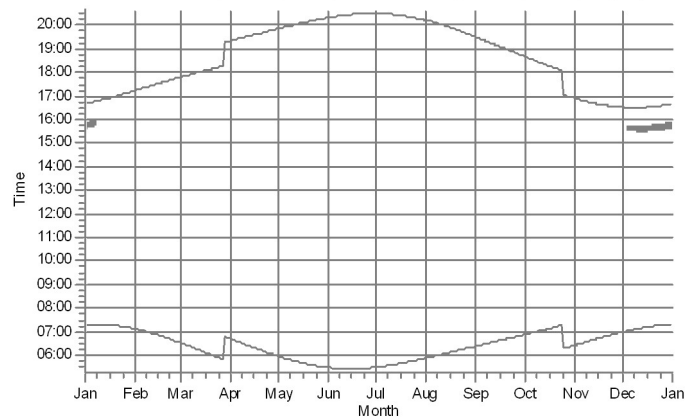
R78: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (89)



R79: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (90)



R82: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (91)



WTGs

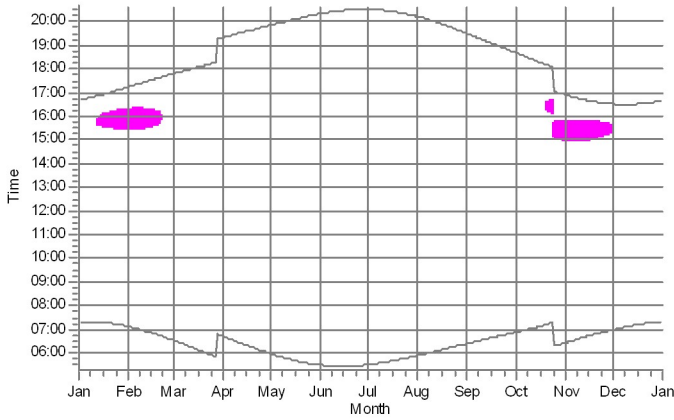
- AR01: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (6)
- AR02: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (7)
- AR03: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (8)

- AR04: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (9)
- AR06: Siemens Gamesa SG 6.6-170 6600 170.0 IOI hub: 115,0 m (TOT: 200,0 m) (11)

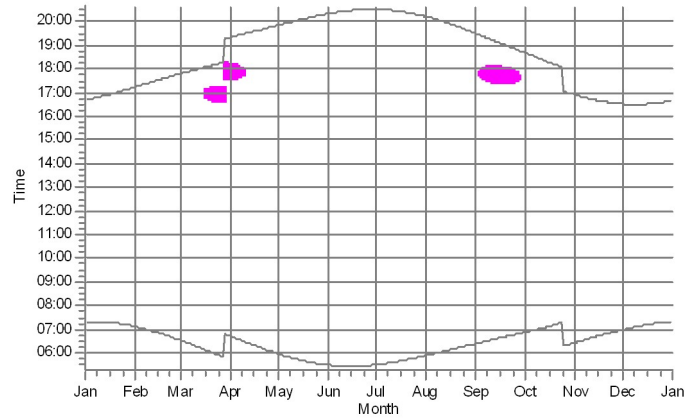
## SHADOW - Calendar, graphical

Calculation: Parco Eolico Val d'Agri

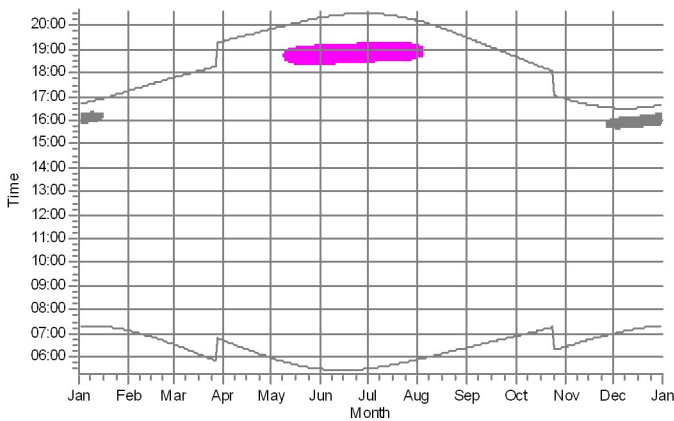
R84: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (92)



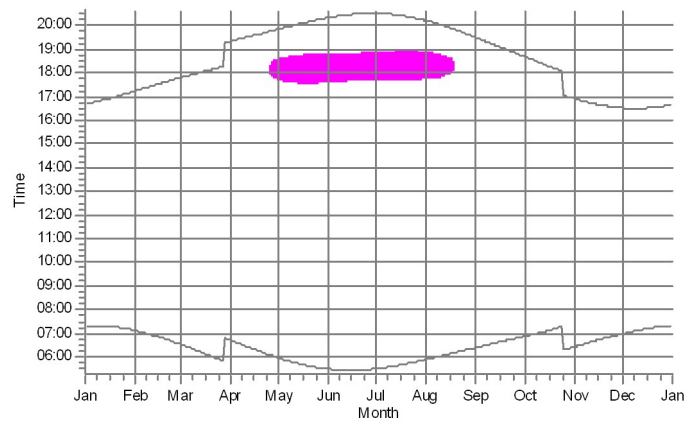
R86: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (93)



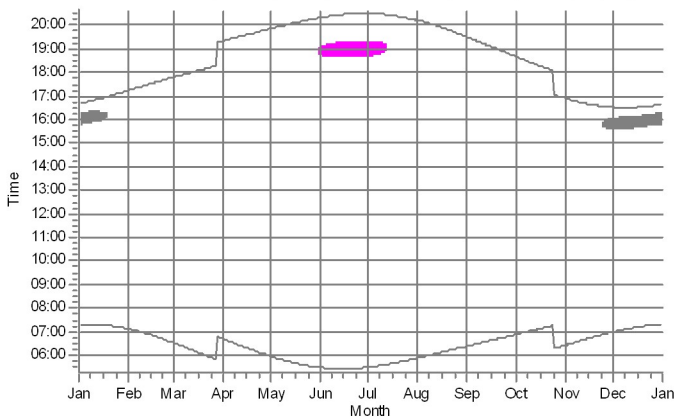
R88: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (94)



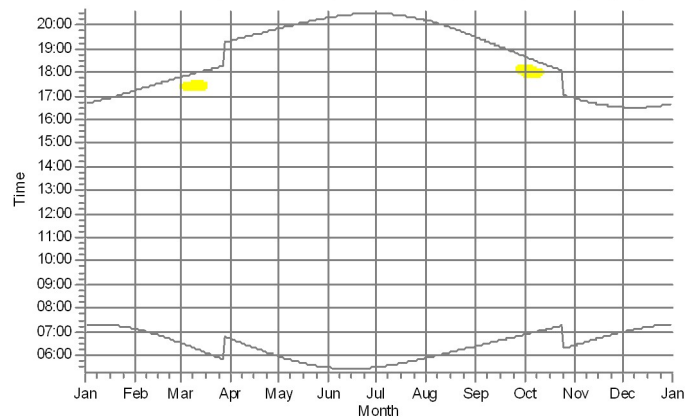
R9: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (61)



R90: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (95)



R91: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (82)



WTGs

- AR02: Siemens Gamesa SG 6.6-170 6600 170.0 !OI! hub: 115,0 m (TOT: 200,0 m) (7)
- AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !OI! hub: 115,0 m (TOT: 200,0 m) (9)

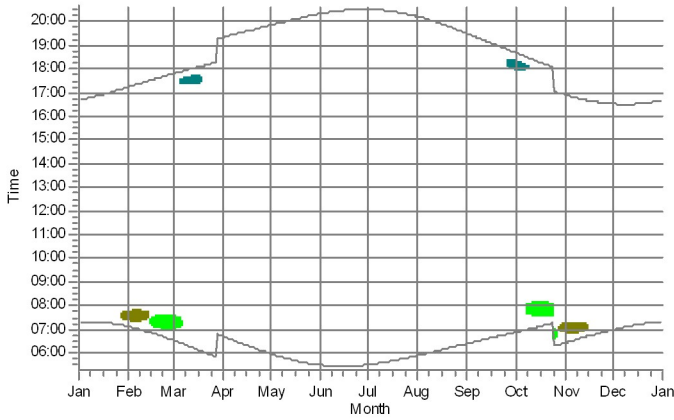
- AR05: Siemens Gamesa SG 6.6-170 6600 170.0 !OI! hub: 115,0 m (TOT: 200,0 m) (10)



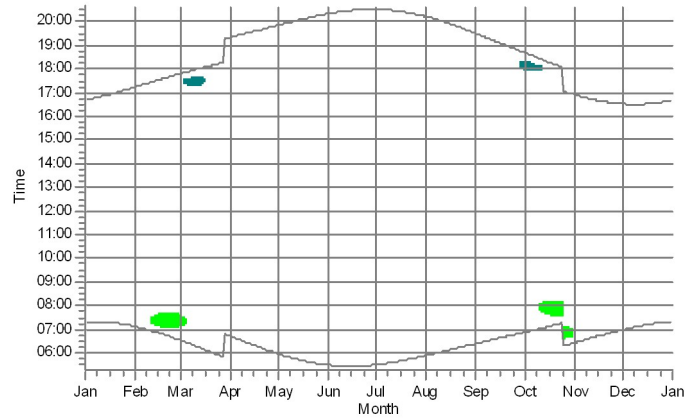
## SHADOW - Calendar, graphical

Calculation: Parco Eolico Val d'Agri

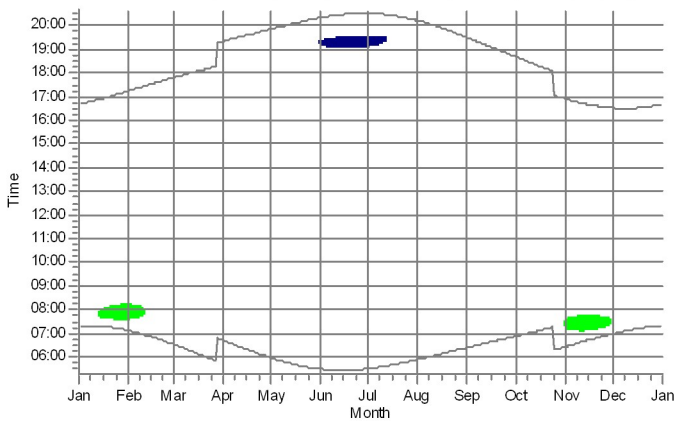
R94: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (97)



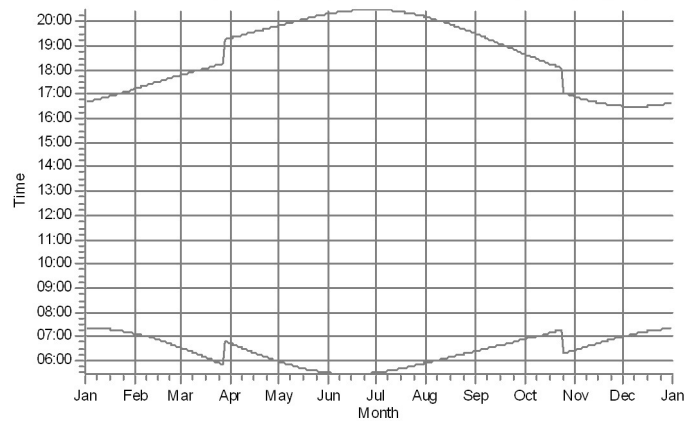
R95: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (98)



R97: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (99)



R99: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (100)



### WTGs

AR06: Siemens Gamesa SG 6.6-170 6600 170.0 !OI! hub: 115,0 m (TOT: 200,0 m) (11)  
 AR07: Siemens Gamesa SG 6.6-170 6600 170.0 !OI! hub: 115,0 m (TOT: 200,0 m) (12)

AR09: Siemens Gamesa SG 6.6-170 6600 170.0 !OI! hub: 115,0 m (TOT: 200,0 m) (14)  
 AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !OI! hub: 115,0 m (TOT: 200,0 m) (15)

## SHADOW - Calendar per WTG

Calculation: Parco Eolico Val d'AgriWTG: AR01 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 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  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:40	07:07 17:14	06:32 17:47	06:42 19:20	05:57 19:51	05:29 19:22-19:24/2 20:19
2	07:19 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 19:22-19:26/4 20:20
3	07:19 16:42	07:05 17:16	06:29 17:49	06:39 19:22	05:55 19:53	05:28 19:23-19:27/4 20:21
4	07:20 16:43	07:04 17:18	06:27 17:50	06:37 18:59-19:02/3 19:23	05:53 19:54	05:28 19:22-19:27/5 20:22
5	07:20 16:44	07:03 17:19	06:26 17:51	06:36 18:58-19:03/5 19:24	05:52 19:55	05:28 19:23-19:28/5 20:22
6	07:20 16:45	07:02 17:20	06:24 17:53	06:34 18:56-19:04/8 19:25	05:51 19:56	05:27 19:23-19:29/6 20:23
7	07:19 16:46	07:01 17:21	06:22 17:54	06:32 18:55-19:04/9 19:26	05:50 19:57	05:27 19:24-19:29/5 20:23
8	07:19 16:47	06:59 17:22	06:21 17:55	06:31 18:55-19:06/11 19:27	05:49 19:58	05:27 19:23-19:29/6 20:24
9	07:19 16:48	06:58 17:24	06:19 17:56	06:29 18:54-19:06/12 19:28	05:48 19:59	05:27 19:24-19:30/6 20:25
10	07:19 16:49	06:57 17:25	06:18 17:57	06:28 18:55-19:08/13 19:29	05:47 20:00	05:26 19:24-19:31/7 20:25
11	07:19 16:50	06:56 17:26	06:16 17:58	06:26 18:54-19:08/14 19:30	05:45 20:01	05:26 19:25-19:31/6 20:26
12	07:19 16:51	06:55 17:27	06:15 17:59	06:24 18:55-19:10/15 19:31	05:44 20:02	05:26 19:25-19:32/7 20:26
13	07:18 16:52	06:54 17:28	06:13 18:00	06:23 18:55-19:10/15 19:32	05:43 20:03	05:26 19:25-19:32/7 20:27
14	07:18 16:53	06:52 17:30	06:11 18:01	06:21 18:57-19:10/13 19:33	05:42 20:04	05:26 19:26-19:33/7 20:27
15	07:18 16:54	06:51 17:31	06:10 18:02	06:20 18:59-19:06/7 19:34	05:41 20:05	05:26 19:26-19:33/7 20:28
16	07:17 16:29-16:30/1 16:55	06:50 17:32	06:08 18:03	06:18 19:35	05:41 20:06	05:26 19:26-19:34/8 20:28
17	07:17 16:30-16:32/2 16:56	06:49 17:33	06:06 18:04	06:17 19:36	05:40 20:07	05:26 19:27-19:34/7 20:28
18	07:16 16:30-16:32/2 16:57	06:47 17:34	06:05 18:05	06:15 19:37	05:39 20:08	05:26 19:27-19:34/7 20:29
19	07:16 16:31-16:34/3 16:58	06:46 17:36	06:03 18:07	06:14 19:38	05:38 20:08	05:26 19:27-19:34/7 20:29
20	07:15 16:31-16:35/4 17:00	06:45 17:37	06:02 18:08	06:12 19:39	05:37 20:09	05:26 19:27-19:34/7 20:29
21	07:15 16:32-16:36/4 17:01	06:43 17:38	06:00 18:09	06:11 19:40	05:36 20:10	05:27 19:28-19:35/7 20:29
22	07:14 16:33-16:38/5 17:02	06:42 17:39	05:58 18:10	06:09 19:42	05:35 20:11	05:27 19:28-19:35/7 20:30
23	07:14 16:34-16:39/5 17:03	06:40 17:40	05:57 18:11	06:08 19:43	05:35 20:12	05:27 19:28-19:35/7 20:30
24	07:13 16:35-16:40/5 17:04	06:39 17:41	05:55 18:12	06:07 19:44	05:34 20:13	05:27 19:28-19:35/7 20:30
25	07:12 16:36-16:41/5 17:05	06:37 17:43	05:53 18:13	06:05 19:45	05:33 20:14	05:28 19:29-19:36/7 20:30
26	07:12 16:39-16:43/4 17:07	06:36 17:44	05:52 18:14	06:04 19:46	05:33 20:15	05:28 19:28-19:36/8 20:30
27	07:11 16:41-16:44/3 17:08	06:35 17:45	05:50 18:15	06:03 19:47	05:32 20:15	05:28 19:28-19:35/7 20:30
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:48	05:31 20:16	05:29 19:29-19:36/7 20:30
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 19:22-19:23/1 20:17	05:29 19:29-19:36/7 20:30
30	07:08 17:12		06:45 19:18	05:59 19:50	05:30 19:22-19:23/1 20:18	05:29 19:29-19:36/7 20:30
31	07:07 17:13		06:44 19:19		05:30 19:22-19:24/2 20:19	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	43	0	0	125	4	191

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: Parco Eolico Val d'Agri WTG: AR01 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 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  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30 19:29-19:36/7 20:30	05:53 20:12	06:23 18:53-19:07/14 19:30	06:52 18:40	06:25 16:55	06:59 16:31
2	05:30 19:30-19:36/6 20:30	05:54 20:11	06:24 18:53-19:06/13 19:28	06:53 18:39	06:26 16:54	07:00 16:31
3	05:31 19:29-19:35/6 20:30	05:55 20:10	06:25 18:52-19:04/12 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	05:31 19:30-19:36/6 20:30	05:56 20:09	06:26 18:52-19:03/11 19:25	06:55 18:35	06:28 16:51	07:02 16:31
5	05:32 19:29-19:35/6 20:30	05:57 20:08	06:27 18:52-19:01/9 19:23	06:56 18:34	06:30 16:50	07:03 16:30
6	05:33 19:30-19:35/5 20:29	05:58 20:06	06:28 18:52-19:00/8 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	05:33 19:29-19:34/5 20:29	05:59 20:05	06:29 18:53-18:58/5 19:20	06:58 18:31	06:32 16:48	07:05 16:30
8	05:34 19:30-19:34/4 20:29	06:00 20:04	06:30 18:54-18:57/3 19:19	06:59 18:29	06:33 16:47	07:06 16:30
9	05:34 19:30-19:34/4 20:28	06:01 20:03	06:31 19:17	07:00 18:27	06:34 16:46	07:07 16:30
10	05:35 19:30-19:33/3 20:28	06:02 20:02	06:32 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	05:36 19:30-19:33/3 20:28	06:03 20:00	06:32 19:14	07:02 18:24	06:37 16:44	07:08 16:30
12	05:36 19:31-19:33/2 20:27	06:04 19:59	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	05:37 19:30-19:32/2 20:27	06:05 19:58	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:31
14	05:38 19:30-19:31/1 20:26	06:06 19:56	06:35 19:09	07:05 18:20	06:40 16:41	07:11 16:31
15	05:39 20:26	06:07 19:55	06:36 19:07	07:06 18:18	06:41 16:13-16:16/3 16:40	07:11 16:31
16	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:17	06:42 16:12-16:16/4 16:39	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 19:04	07:08 18:15	06:43 16:10-16:15/5 16:39	07:13 16:32
18	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:14	06:45 16:09-16:14/5 16:38	07:13 16:32
19	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:08-16:13/5 16:37	07:14 16:32
20	05:43 20:22	06:11 19:48	06:41 18:59	07:11 18:11	06:47 16:08-16:13/5 16:37	07:15 16:33
21	05:43 20:22	06:12 19:47	06:42 18:57	07:13 18:09	06:48 16:08-16:12/4 16:36	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	06:49 16:07-16:11/4 16:35	07:16 16:34
23	05:45 20:20	06:14 19:44	06:44 18:54	07:15 18:06	06:50 16:07-16:10/3 16:35	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:07-16:09/2 16:34	07:17 16:35
25	05:47 20:19	06:16 19:41	06:46 18:50	06:17 17:04	06:53 16:08-16:10/2 16:34	07:17 16:35
26	05:48 20:18	06:17 19:39	06:47 18:49	06:18 17:02	06:54 16:08-16:09/1 16:33	07:17 16:36
27	05:49 20:17	06:18 19:38	06:48 18:47	06:19 17:01	06:55 16:33	07:18 16:37
28	05:49 20:16	06:19 19:01-19:08/7 19:36	06:49 18:45	06:20 17:00	06:56 16:32	07:18 16:37
29	05:50 20:15	06:20 18:58-19:11/13 19:35	06:50 18:44	06:22 16:58	06:57 16:32	07:18 16:38
30	05:51 20:14	06:21 18:56-19:11/15 19:33	06:51 18:42	06:23 16:57	06:58 16:32	07:19 16:39
31	05:52 20:13	06:22 18:54-19:09/15 19:31		06:24 16:56		07:19 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	60	50	75	0	43	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: Parco Eolico Val d'AgriWTG: AR02 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 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  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 08:17-09:24/67 16:40	07:07 17:14	06:32 17:06-17:25/19 17:47	06:42 19:20	05:57 06:16-06:46/30 19:51	05:29 19:01-19:55/54 20:19
2	07:19 08:17-09:24/67 16:41	07:06 17:15	06:30 17:07-17:27/20 17:48	06:40 19:21	05:56 06:15-06:47/32 19:52	05:29 19:01-19:56/55 20:20
3	07:19 08:18-09:24/66 16:42	07:05 17:16	06:29 17:07-17:28/21 17:49	06:39 19:22	05:55 06:14-06:47/33 19:53	05:28 19:01-19:57/56 20:21
4	07:19 08:19-09:24/65 16:43	07:04 17:18	06:27 17:08-17:30/22 17:50	06:37 19:23	05:53 06:13-06:48/35 19:54	05:28 19:00-19:57/57 20:22
5	07:20 08:19-09:25/66 16:44	07:03 17:19	06:26 17:09-17:30/21 17:51	06:35 19:24	05:52 06:12-06:48/36 19:55	05:28 19:01-19:57/56 20:22
6	07:20 08:20-09:25/65 16:45	07:02 17:20	06:24 17:11-17:32/21 17:53	06:34 19:25	05:51 06:10-06:47/37 19:56	05:27 19:01-19:58/57 20:23
7	07:19 08:21-09:25/64 16:46	07:01 17:21	06:22 17:14-17:33/19 17:54	06:32 19:26	05:50 06:09-06:47/38 19:57	05:27 19:00-19:58/58 20:23
8	07:19 08:22-09:25/63 16:47	06:59 17:22	06:21 17:15-17:33/18 17:55	06:31 19:27	05:49 06:08-06:47/39 19:58	05:27 19:00-19:59/59 20:24
9	07:19 08:23-09:26/63 16:48	06:58 17:24	06:19 17:15-17:35/20 17:56	06:29 19:28	05:48 06:08-06:47/39 19:59	05:27 19:01-20:00/59 20:25
10	07:19 08:23-09:25/62 16:49	06:57 17:25	06:18 17:15-17:36/21 17:57	06:28 19:29	05:47 06:08-06:47/39 20:00	05:26 19:01-20:00/59 20:25
11	07:19 08:24-09:25/61 16:50	06:56 17:26	06:16 17:16-17:38/22 17:58	06:26 19:30	05:45 06:08-06:46/38 20:01	05:26 19:01-20:01/60 20:26
12	07:19 08:25-09:25/60 16:51	06:55 17:27	06:15 17:15-17:38/23 17:59	06:24 19:31	05:44 06:08-06:46/38 20:02	05:26 19:01-20:01/60 20:26
13	07:18 08:26-09:26/60 16:52	06:54 17:28	06:13 17:16-17:37/21 18:00	06:23 19:32	05:43 06:09-06:46/37 20:03	05:26 19:01-20:02/61 20:27
14	07:18 08:26-09:25/59 16:53	06:52 17:30	06:11 17:17-17:36/19 18:01	06:21 19:33	05:42 06:09-06:45/36 20:04	05:26 19:02-20:02/60 20:27
15	07:18 08:28-09:25/57 16:54	06:51 17:31	06:10 17:18-17:34/16 18:02	06:20 19:34	05:41 06:09-06:45/36 20:05	05:26 19:02-20:03/61 20:28
16	07:17 08:28-09:24/56 16:55	06:50 17:32	06:08 17:20-17:34/14 18:03	06:18 19:35	05:40 06:10-06:44/34 20:06	05:26 19:02-20:03/61 20:28
17	07:17 08:30-09:24/54 16:56	06:48 17:33	06:06 17:29-17:35/6 18:04	06:17 19:36	05:40 06:11-06:44/33 20:07	05:26 19:02-20:03/61 20:28
18	07:16 08:30-09:23/53 16:57	06:47 17:34	06:05 17:28-17:36/8 18:05	06:15 19:37	05:39 06:12-06:43/31 20:08	05:26 19:02-20:03/61 20:29
19	07:16 08:32-09:23/51 16:58	06:46 17:36	06:03 17:27-17:37/10 18:06	06:14 19:38	05:38 06:12-06:43/31 20:08	05:26 19:02-20:04/62 20:29
20	07:15 08:33-09:22/49 17:00	06:44 17:12-17:14/2 17:37	06:02 17:28-17:38/10 18:08	06:12 19:39	05:37 06:13-06:42/29 20:09	05:26 19:02-20:04/62 20:29
21	07:15 08:34-09:21/47 17:01	06:43 17:10-17:16/6 17:38	06:00 17:27-17:39/12 18:09	06:11 19:40	05:36 06:14-06:41/27 20:10	05:27 19:03-20:05/62 20:29
22	07:14 08:36-09:20/44 17:02	06:42 17:09-17:18/9 17:39	05:58 17:28-17:41/13 18:10	06:09 06:28-06:35/7 19:41	05:35 06:15-06:40/25 20:11	05:27 19:03-20:05/62 20:30
23	07:14 08:37-09:19/42 17:03	06:40 17:08-17:18/10 17:40	05:57 17:29-17:42/13 18:11	06:08 06:27-06:39/12 19:43	05:35 06:16-06:39/23 20:12	05:27 19:03-20:05/62 20:30
24	07:13 08:38-09:17/39 17:04	06:39 17:08-17:20/12 17:41	05:55 17:29-17:42/13 18:12	06:07 06:25-06:40/15 19:44	05:34 06:17-06:38/21 20:13	05:27 19:03-20:04/61 20:30
25	07:12 08:41-09:17/36 17:05	06:37 17:06-17:21/15 17:42	05:53 17:31-17:44/13 18:13	06:05 06:24-06:42/18 19:45	05:33 06:19-06:37/18 20:14	05:27 19:04-20:05/61 20:30
26	07:12 08:43-09:15/32 17:07	06:36 17:07-17:22/15 17:44	05:52 17:33-17:40/7 18:14	06:04 06:23-06:44/21 19:46	05:32 06:20-06:35/15 20:15	05:28 19:04-20:05/61 20:30
27	07:11 08:45-09:12/27 17:08	06:35 17:06-17:23/17 17:45	05:50 18:15	06:02 06:21-06:44/23 19:47	05:32 06:22-06:34/12 20:15	05:28 19:04-20:05/61 20:30
28	07:10 08:48-09:09/21 17:09	06:33 17:06-17:25/19 17:46	05:48 18:16	06:01 06:20-06:45/25 19:48	05:31 06:25-06:30/5 20:16	05:29 19:05-20:05/60 20:30
29	07:09 08:53-09:04/11 17:10		06:47 19:17	06:00 06:19-06:46/27 19:49	05:31 19:02-19:53/51 20:17	05:29 19:05-20:05/60 20:30
30	07:08 17:11		06:45 19:18	05:58 06:18-06:47/29 19:50	05:30 19:01-19:53/52 20:18	05:29 19:05-20:06/61 20:30
31	07:07 17:13		06:44 19:19		05:30 19:01-19:54/53 20:19	
Potential sun hours	299	298	370	398	446	450
Sum of minutes with flicker	1507	105	422	177	1683	1790

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: Parco Eolico Val d'AgriWTG: AR02 - Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 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  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time  
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30 19:05-20:05/60 20:30	05:53 06:19-06:57/38 20:12 19:29-19:49/20	06:23 19:30	06:52 17:54-18:16/22 18:40	06:25 16:55	06:59 08:06-09:07/61 16:31
2	05:30 19:06-20:05/59 20:30	05:54 06:19-06:57/38 20:11 19:32-19:48/16	06:24 19:28	06:53 17:53-18:16/23 18:39	06:26 16:54	07:00 08:06-09:08/62 16:31
3	05:31 19:06-20:05/59 20:30	05:55 06:18-06:57/39 20:10	06:25 19:27	06:54 17:54-18:15/21 18:37	06:27 16:52	07:01 08:06-09:09/63 16:31
4	05:31 19:07-20:05/58 20:30	05:56 06:18-06:58/40 20:09	06:26 19:25	06:55 17:53-18:13/20 18:35	06:28 16:51	07:02 08:06-09:09/63 16:31
5	05:32 19:06-20:04/58 20:30	05:57 06:19-06:58/39 20:07	06:27 19:23	06:56 17:53-18:12/19 18:34	06:30 16:50	07:03 08:06-09:10/64 16:30
6	05:32 19:07-20:05/58 20:29	05:58 06:19-06:57/38 20:06	06:28 19:22	06:57 17:52-18:10/18 18:32	06:31 16:49	07:04 08:06-09:11/65 16:30
7	05:33 19:07-20:04/57 20:29	05:59 06:20-06:57/37 20:05	06:29 19:20	06:58 17:48-18:08/20 18:31	06:32 16:48	07:05 08:06-09:12/66 16:30
8	05:34 19:07-20:04/57 20:29	06:00 06:21-06:57/36 20:04	06:30 19:19	06:59 17:45-18:07/22 18:29	06:33 16:47	07:06 08:07-09:12/65 16:30
9	05:34 19:08-20:04/56 20:28	06:01 06:22-06:56/34 20:03	06:31 19:17	07:00 17:44-18:05/21 18:27	06:34 16:46	07:07 08:07-09:13/66 16:30
10	05:35 19:08-20:03/55 20:28	06:02 06:23-06:56/33 20:01	06:31 19:15	07:01 17:42-18:03/21 18:26	06:35 16:45	07:07 08:08-09:14/66 16:30
11	05:36 19:09-20:03/54 20:28	06:03 06:24-06:56/32 20:00	06:32 19:14	07:02 17:41-18:02/21 18:24	06:36 16:44	07:08 08:08-09:15/67 16:30
12	05:36 19:09-20:03/54 20:27	06:04 06:25-06:55/30 19:59	06:33 19:12	07:03 17:40-18:00/20 18:23	06:38 16:43	07:09 08:07-09:15/68 16:30
13	05:37 19:09-20:02/53 20:27	06:05 06:26-06:54/28 19:58	06:34 19:10	07:04 17:39-17:58/19 18:21	06:39 08:24-08:37/13 16:42	07:10 08:08-09:15/67 16:31
14	05:38 19:10-20:02/52 20:26	06:05 06:27-06:54/27 19:56	06:35 19:09	07:05 17:39-17:57/18 18:20	06:40 08:20-08:41/21 16:41	07:11 08:09-09:16/67 16:31
15	05:39 19:11-20:01/50 20:26	06:06 06:28-06:53/25 19:55	06:36 19:07	07:06 17:38-17:55/17 18:18	06:41 08:18-08:45/27 16:40	07:11 08:09-09:17/68 16:31
16	05:39 06:33-06:42/9 20:25 19:10-20:00/50	06:07 06:29-06:52/23 19:54	06:37 19:05	07:07 17:38-17:53/15 18:17	06:42 08:16-08:48/32 16:39	07:12 08:09-09:17/68 16:31
17	05:40 06:30-06:44/14 20:24 19:11-20:00/49	06:08 06:30-06:50/20 19:52	06:38 18:22-18:28/6 19:04	07:08 17:38-17:52/14 18:15	06:43 08:14-08:50/36 16:39	07:13 08:10-09:18/68 16:31
18	05:41 06:29-06:46/17 20:24 19:12-20:00/48	06:09 06:31-06:49/18 19:51	06:39 18:19-18:30/11 19:02	07:09 17:39-17:51/12 18:14	06:45 08:12-08:51/39 16:38	07:13 08:11-09:19/68 16:32
19	05:42 06:28-06:47/19 20:23 19:13-19:59/46	06:10 06:31-06:46/15 19:49	06:40 18:17-18:30/13 19:00	07:10 17:40-17:49/9 18:12	06:46 08:11-08:53/42 16:37	07:14 08:10-09:19/69 16:32
20	05:42 06:27-06:49/22 20:22 19:14-19:59/45	06:11 06:32-06:43/11 19:48	06:41 18:15-18:28/13 18:59	07:11 17:40-17:48/8 18:11	06:47 08:11-08:55/44 16:36	07:15 08:11-09:20/69 16:33
21	05:43 06:25-06:49/24 20:22 19:13-19:57/44	06:12 06:33-06:39/6 19:47	06:42 18:14-18:27/13 18:57	07:13 17:41-17:46/5 18:09	06:48 08:10-08:57/47 16:36	07:15 08:11-09:20/69 16:33
22	05:44 06:24-06:50/26 20:21 19:14-19:57/43	06:13 19:45	06:43 18:13-18:25/12 18:55	07:14 17:43-17:45/2 18:08	06:49 08:09-08:58/49 16:35	07:16 08:12-09:21/69 16:34
23	05:45 06:23-06:52/29 20:20 19:15-19:56/41	06:14 19:44	06:44 18:12-18:23/11 18:54	07:15 18:06	06:50 08:08-08:59/51 16:35	07:16 08:12-09:21/69 16:34
24	05:46 06:23-06:53/30 20:19 19:16-19:56/40	06:15 19:42	06:45 18:12-18:21/9 18:52	07:16 18:05	06:51 08:07-09:00/53 16:34	07:17 08:12-09:21/69 16:35
25	05:47 06:22-06:53/31 20:19 19:18-19:55/37	06:16 19:41	06:46 18:11-18:20/9 18:50	06:17 17:04	06:53 08:08-09:02/54 16:34	07:17 08:13-09:22/69 16:35
26	05:48 06:22-06:54/32 20:18 19:19-19:54/35	06:17 19:39	06:47 18:11-18:18/7 18:49	06:18 17:02	06:54 08:07-09:03/56 16:33	07:17 08:14-09:22/68 16:36
27	05:49 06:21-06:55/34 20:17 19:19-19:53/34	06:18 19:38	06:48 18:04-18:11/7 18:47 18:12-18:17/5	06:19 17:01	06:55 08:07-09:04/57 16:33	07:18 08:14-09:22/68 16:36
28	05:49 06:20-06:55/35 20:16 19:20-19:52/32	06:19 19:36	06:49 18:00-18:16/16 18:45	06:20 17:00	06:56 08:07-09:05/58 16:32	07:18 08:15-09:23/68 16:37
29	05:50 06:20-06:55/35 20:15 19:22-19:51/29	06:20 19:35	06:50 17:58-18:16/18 18:44	06:21 16:58	06:57 08:06-09:06/60 16:32	07:18 08:15-09:23/68 16:38
30	05:51 06:19-06:56/37 20:14 19:24-19:50/26	06:21 19:33	06:51 17:56-18:16/20 18:42	06:23 16:57	06:58 08:06-09:06/60 16:31	07:19 08:16-09:23/67 16:39
31	05:52 06:19-06:56/37 20:13 19:26-19:49/23	06:22 19:31		06:24 16:56		07:19 08:16-09:24/68 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	1893	643	170	367	799	2072

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: Parco Eolico Val d'AgriWTG: AR03 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 16:02-16:11/9 16:40	07:06 17:14	06:32 17:47	06:42 19:20	05:57 19:51	05:29 20:19
2	07:19 16:03-16:11/8 16:41	07:06 17:15	06:30 17:48	06:40 19:21	05:56 19:52	05:29 20:20
3	07:19 16:03-16:12/9 16:42	07:05 17:16	06:29 17:49	06:39 19:22	05:55 19:53	05:28 20:21
4	07:19 16:04-16:13/9 16:43	07:04 17:18	06:27 17:50	06:37 19:23	05:53 19:54	05:28 20:21
5	07:19 16:04-16:14/10 16:44	07:03 17:19	06:25 17:51	06:35 19:24	05:52 19:55	05:28 20:22
6	07:19 16:05-16:15/10 16:45	07:02 17:20	06:24 17:53	06:34 19:25	05:51 19:56	05:27 20:23
7	07:19 16:06-16:17/11 16:46	07:00 17:21	06:22 17:54	06:32 19:26	05:50 19:57	05:27 20:23
8	07:19 16:07-16:18/11 16:47	06:59 17:22	06:21 17:55	06:31 19:27	05:49 19:58	05:27 20:24
9	07:19 16:08-16:19/11 16:48	06:58 17:24	06:19 17:56	06:29 19:28	05:48 19:59	05:27 20:25
10	07:19 16:08-16:20/12 16:49	06:57 07:17-07:18/1 17:25	06:18 17:57	06:28 19:29	05:47 20:00	05:26 20:25
11	07:19 16:09-16:21/12 16:50	06:56 07:15-07:18/3 17:26	06:16 17:58	06:26 19:30	05:45 20:01	05:26 20:26
12	07:19 16:10-16:23/13 16:51	06:55 07:14-07:18/4 17:27	06:14 17:59	06:24 19:31	05:44 20:02	05:26 20:26
13	07:18 16:11-16:23/12 16:52	06:54 07:13-07:18/5 17:28	06:13 18:00	06:23 19:32	05:43 20:03	05:26 20:27
14	07:18 16:12-16:25/13 16:53	06:52 07:12-07:18/6 17:30	06:11 18:01	06:21 19:33	05:42 20:04	05:26 20:27
15	07:18 16:13-16:27/14 16:54	06:51 07:10-07:17/7 17:31	06:10 18:02	06:20 19:34	05:41 20:05	05:26 20:28
16	07:17 16:14-16:26/12 16:55	06:50 07:09-07:16/7 17:32	06:08 18:03	06:18 19:35	05:40 20:06	05:26 20:28
17	07:17 16:16-16:24/8 16:56	06:48 07:08-07:15/7 17:33	06:06 18:04	06:17 19:36	05:40 20:07	05:26 20:28
18	07:16 16:17-16:24/7 16:57	06:47 07:06-07:13/7 17:34	06:05 18:05	06:15 19:37	05:39 20:08	05:26 20:29
19	07:16 16:19-16:24/5 16:58	06:46 07:05-07:11/6 17:36	06:03 18:06	06:14 19:38	05:38 20:08	05:26 20:29
20	07:15 17:00	06:44 07:04-07:07/3 17:37	06:02 18:08	06:12 19:39	05:37 20:09	05:26 20:29
21	07:15 17:01	06:43 17:38	06:00 18:09	06:11 19:01-19:03/2 19:40	05:36 20:10	05:27 20:29
22	07:14 17:02	06:42 17:39	05:58 18:10	06:09 19:01-19:04/3 19:41	05:35 20:11	05:27 20:30
23	07:14 17:03	06:40 17:40	05:57 18:11	06:08 19:02-19:05/3 19:42	05:35 20:12	05:27 20:30
24	07:13 17:04	06:39 17:41	05:55 18:12	06:07 19:01-19:05/4 19:44	05:34 20:13	05:27 20:30
25	07:12 17:05	06:37 17:42	05:53 18:13	06:05 19:02-19:06/4 19:45	05:33 20:14	05:27 20:30
26	07:12 17:07	06:36 17:44	05:52 18:14	06:04 19:03-19:08/5 19:46	05:32 20:15	05:28 20:30
27	07:11 17:08	06:35 17:45	05:50 18:15	06:02 19:04-19:08/4 19:47	05:32 20:15	05:28 20:30
28	07:10 17:09	06:33 17:46	05:48 18:16	06:01 19:07-19:09/2 19:48	05:31 20:16	05:29 20:30
29	07:09 17:10		06:47 19:17	06:00 19:49	05:31 20:17	05:29 20:30
30	07:08 17:11		06:45 19:18	05:58 19:50	05:30 20:18	05:29 20:30
31	07:07 17:13		06:44 19:19		05:30 20:19	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	196	56	0	27	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: Parco Eolico Val d'AgriWTG: AR03 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (8)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30 20:30	05:53 20:12	06:23 19:30	06:52 18:40	06:25 16:55	06:46-06:47/1 16:31
2	05:30 20:30	05:54 20:11	06:24 19:28	06:53 18:39	06:26 16:54	07:00 16:31
3	05:31 20:30	05:55 20:10	06:25 19:27	06:54 18:37	06:27 16:52	07:01 16:31
4	05:31 20:30	05:56 20:09	06:26 19:25	06:55 18:35	06:28 16:51	07:02 16:31
5	05:32 20:30	05:57 20:07	06:27 19:23	06:56 18:34	06:29 16:50	07:03 16:30
6	05:32 20:29	05:58 20:06	06:28 19:22	06:57 18:32	06:31 16:49	07:04 16:30
7	05:33 20:29	05:59 20:05	06:29 19:20	06:58 18:31	06:32 16:48	07:05 16:30
8	05:34 20:29	06:00 20:04	06:30 19:18	06:59 18:29	06:33 16:47	07:06 16:30
9	05:34 20:28	06:01 20:03	06:30 19:17	07:00 18:27	06:34 16:46	07:07 16:30
10	05:35 20:28	06:02 20:01	06:31 19:15	07:01 18:26	06:35 16:45	07:07 16:30
11	05:36 20:28	06:03 20:00	06:32 19:14	07:02 18:24	06:36 16:44	07:08 16:30
12	05:36 20:27	06:04 19:59	06:33 19:12	07:03 18:23	06:38 16:43	07:09 16:30
13	05:37 20:27	06:05 19:58	06:34 19:10	07:04 18:21	06:39 16:42	07:10 16:31
14	05:38 20:26	06:05 19:56	06:35 19:09	07:05 18:20	06:40 16:41	07:11 16:31
15	05:39 20:26	06:06 19:55	06:36 19:07	07:06 18:18	06:41 16:40	07:11 16:31
16	05:39 20:25	06:07 19:54	06:37 19:05	07:07 18:17	06:42 16:39	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 19:04	07:08 18:15	06:43 16:39	07:13 16:31
18	05:41 20:24	06:09 19:51	06:39 19:02	07:09 18:14	06:45 16:38	07:13 16:32
19	05:42 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:46 16:37	07:14 16:32
20	05:42 20:22	06:11 19:48	06:41 18:59	07:11 18:11	06:47 16:36	07:15 16:33
21	05:43 20:22	06:12 19:47	06:42 18:57	07:13 18:09	06:48 16:36	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:55	07:14 18:08	06:49 16:35	07:16 16:34
23	05:45 20:20	06:14 19:44	06:44 18:54	07:15 18:06	06:50 16:35	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 16:34	07:17 16:35
25	05:47 20:19	06:16 19:41	06:46 18:50	07:17 17:04	06:52 16:34	07:17 16:35
26	05:48 20:18	06:17 19:39	06:47 18:49	07:18 17:02	06:54 16:33	07:17 16:36
27	05:49 20:17	06:18 19:38	06:48 18:47	07:19 17:01	06:55 16:33	07:18 16:36
28	05:49 20:16	06:19 19:36	06:49 18:45	07:20 17:00	06:56 16:32	07:18 16:37
29	05:50 20:15	06:20 19:34	06:50 18:44	07:21 16:58	06:57 16:32	07:18 16:38
30	05:51 20:14	06:21 19:33	06:51 18:42	07:22 16:57	06:58 16:31	07:19 16:39
31	05:52 20:13	06:22 19:31		07:23 16:56	06:58 16:31	07:19 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	0	26	0	56	85	252

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: Parco Eolico Val d'AgriWTG: AR04 - Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (9)  
Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 15:42-16:14/32 16:40	07:06 15:59-16:39/40 17:14 07:33-07:42/9	06:32 06:50-07:47/57 17:47	06:42 18:21-18:30/9 19:20 07:50-08:14/24	05:57 18:58-19:01/3 19:51	05:29 20:19
2	07:19 15:43-16:15/32 16:41	07:06 15:59-16:39/40 17:15	06:30 06:49-07:48/59 17:48	06:40 18:20-18:31/11 19:21 07:56-08:08/12	05:56 18:58-19:02/4 19:52	05:29 20:20
3	07:19 15:44-16:16/32 16:42	07:05 16:00-16:39/39 17:16	06:29 06:47-07:47/60 17:49	06:39 18:20-18:32/12 19:22	05:55 18:57-19:03/6 19:53	05:28 20:21
4	07:19 15:45-16:17/32 16:43	07:04 16:01-16:39/38 17:17	06:27 06:46-07:48/62 17:50	06:37 18:19-18:33/14 19:23	05:53 18:57-19:04/7 19:54	05:28 20:21
5	07:19 15:46-16:18/32 16:44	07:03 16:02-16:39/37 17:19	06:25 06:44-07:48/64 17:51	06:35 18:19-18:34/15 19:24	05:52 18:55-19:04/9 19:55	05:28 20:22
6	07:19 15:48-16:19/31 16:45	07:02 16:03-16:39/36 17:20	06:24 06:43-07:48/65 17:53	06:34 18:19-18:35/16 19:25	05:51 18:55-19:05/10 19:56	05:27 20:23
7	07:19 15:49-16:20/31 16:46	07:00 16:04-16:38/34 17:21	06:22 06:41-07:48/67 17:54	06:32 18:18-18:35/17 19:26	05:50 18:55-19:06/11 19:57	05:27 20:23
8	07:19 15:50-16:21/31 16:47	06:59 16:05-16:38/33 17:22	06:21 06:39-07:47/68 17:55	06:31 18:19-18:37/18 19:27	05:49 18:55-19:07/12 19:58	05:27 20:24
9	07:19 15:51-16:23/32 16:48	06:58 16:07-16:37/30 17:24	06:19 06:38-07:48/70 17:56	06:29 18:19-18:37/18 19:28	05:48 18:55-19:08/13 19:59	05:27 20:25
10	07:19 15:50-16:23/33 16:49	06:57 16:07-16:35/28 17:25	06:18 06:36-07:47/71 17:57	06:27 18:20-18:38/18 19:29	05:46 18:55-19:09/14 20:00	05:26 20:25
11	07:19 15:51-16:24/33 16:50	06:56 16:09-16:34/25 17:26	06:16 06:35-07:47/72 17:58	06:26 18:20-18:39/19 19:30	05:45 18:56-19:10/14 20:01	05:26 20:26
12	07:19 15:52-16:25/33 16:51	06:55 16:11-16:33/22 17:27	06:14 06:33-07:46/73 17:59	06:24 18:21-18:40/19 19:31	05:44 18:56-19:11/15 20:02	05:26 20:26
13	07:18 15:52-16:24/32 16:52	06:54 16:13-16:31/18 17:28	06:13 06:32-07:45/73 18:00	06:23 18:22-18:41/19 19:32	05:43 18:56-19:12/16 20:03	05:26 20:27
14	07:18 15:53-16:25/32 16:53	06:52 16:15-16:27/12 17:30	06:11 06:33-07:45/72 18:01	06:21 18:24-18:40/16 19:33	05:42 18:57-19:13/16 20:04	05:26 20:27
15	07:18 15:54-16:27/33 16:54	06:51 07:10-07:29/19 17:31	06:10 06:32-07:44/72 18:02	06:20 18:27-18:36/9 19:34	05:41 18:57-19:13/16 20:05	05:26 20:28
16	07:17 15:55-16:27/32 16:55	06:50 07:09-07:32/23 17:32	06:08 06:32-07:43/71 18:03	06:18 19:35	05:40 18:58-19:14/16 20:06	05:26 20:28
17	07:17 15:56-16:29/33 16:56	06:48 07:08-07:35/27 17:33	06:06 06:33-07:43/70 18:04	06:17 19:36	05:39 18:59-19:15/16 20:07	05:26 20:28
18	07:16 15:57-16:30/33 16:57	06:47 07:06-07:36/30 17:34	06:05 06:33-07:41/68 18:05	06:15 19:37	05:39 19:01-19:16/15 20:07	05:26 20:29
19	07:16 15:57-16:31/34 16:58	06:46 07:05-07:38/33 17:35	06:03 06:34-07:41/67 18:06	06:14 19:38	05:38 19:02-19:15/13 20:08	05:26 20:29
20	07:15 15:57-16:32/35 17:00	06:44 07:03-07:39/36 17:37	06:02 06:34-07:40/66 18:07	06:12 19:39	05:37 19:04-19:13/9 20:09	05:26 20:29
21	07:15 15:57-16:33/36 17:01	06:43 07:02-07:41/39 17:38	06:00 06:34-07:38/64 18:09	06:11 19:40	05:36 20:10	05:26 20:29
22	07:14 15:57-16:34/37 17:02	06:42 07:01-07:42/41 17:39	05:58 06:35-07:37/62 18:10	06:09 19:41	05:35 20:11	05:27 20:30
23	07:14 15:57-16:34/37 17:03	06:40 06:59-07:43/44 17:40	05:57 06:36-07:35/59 18:11	06:08 19:42	05:35 20:12	05:27 20:30
24	07:13 15:57-16:35/38 17:04	06:39 06:58-07:44/46 17:41	05:55 06:36-07:34/58 18:12	06:07 19:43	05:34 20:13	05:27 20:30
25	07:12 15:57-16:35/38 17:05	06:37 06:56-07:44/48 17:42	05:53 06:38-07:33/55 18:13	06:05 19:45	05:33 20:14	05:27 20:30
26	07:11 15:58-16:36/38 17:07	06:36 06:55-07:46/51 17:44	05:52 06:38-07:30/52 18:14	06:04 19:46	05:32 20:15	05:28 20:30
27	07:11 15:58-16:36/38 17:08	06:34 06:53-07:46/53 17:45	05:50 06:39-07:28/49 18:15	06:02 19:47	05:32 20:15	05:28 20:30
28	07:10 15:58-16:38/40 17:09	06:33 06:52-07:47/55 17:46	05:48 06:41-07:26/45 18:16	06:01 19:48	05:31 20:16	05:28 20:30
29	07:09 15:58-16:39/41 17:10		06:47 18:25-18:28/3 19:17	06:00 19:49	05:31 20:17	05:29 20:30
30	07:08 15:58-16:39/41 17:11		06:45 18:23-18:28/5 19:18	05:58 18:59-19:00/1 19:50	05:30 20:18	05:29 20:30
31	07:07 15:58-16:39/41 17:13		06:44 18:23-18:30/7 19:19		05:30 20:19	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	1301	1008	1915	267	235	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: Parco Eolico Val d'AgriWTG: AR04 - Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (9)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30 20:30	05:53 19:06-19:21/15 20:12	06:23 18:19-18:38/19 19:30	06:52 07:12-08:26/74 18:40	06:25 15:37-16:05/28 16:55	06:59 15:33-16:06/33 16:31 07:22-07:23/1
2	05:30 20:30	05:54 19:06-19:20/14 20:11	06:24 18:18-18:36/18 19:28	06:53 07:13-08:26/73 18:39	06:26 15:35-16:06/31 16:53	07:00 15:33-16:06/33 16:31
3	05:31 20:30	05:55 19:06-19:20/14 20:10	06:25 18:17-18:35/18 19:27	06:54 07:14-08:25/71 18:37	06:27 15:35-16:08/33 16:52	07:01 15:34-16:06/32 16:31
4	05:31 20:30	05:56 19:05-19:18/13 20:09	06:26 18:16-18:34/18 19:25	06:55 07:15-08:25/70 18:35	06:28 15:34-16:08/34 16:51	07:02 15:34-16:05/31 16:30
5	05:32 20:30	05:57 19:05-19:17/12 20:07	06:27 18:15-18:32/17 19:23	06:56 07:16-08:25/69 18:34	06:29 15:32-16:09/37 16:50	07:03 15:34-16:05/31 16:30
6	05:32 20:29	05:58 19:05-19:16/11 20:06	06:28 18:15-18:31/16 19:22	06:57 07:17-08:24/67 18:32	06:31 15:31-16:09/38 16:49	07:04 15:34-16:05/31 16:30
7	05:33 20:29	05:59 19:05-19:15/10 20:05	06:29 18:14-18:29/15 19:20	06:58 07:18-08:24/66 18:31	06:32 15:31-16:09/38 16:48	07:05 15:33-16:05/32 16:30
8	05:34 20:29	06:00 19:05-19:14/9 20:04	06:30 18:14-18:28/14 19:18	06:59 07:19-08:24/65 18:29	06:33 15:31-16:10/39 16:47	07:06 15:33-16:05/32 16:30
9	05:34 20:28	06:01 19:05-19:13/8 20:03	06:30 18:14-18:26/12 19:17	07:00 07:20-08:23/63 18:27	06:34 15:30-16:10/40 16:46	07:06 15:33-16:05/32 16:30
10	05:35 20:28	06:02 19:06-19:12/6 20:01	06:31 18:14-18:25/11 19:15	07:01 07:21-08:22/61 18:26	06:35 15:30-16:10/40 16:45	07:07 15:33-16:05/32 16:30
11	05:36 20:28	06:03 19:07-19:11/4 20:00	06:32 18:13-18:23/10 19:14	07:02 07:22-08:22/60 18:24	06:36 15:29-16:10/41 16:44	07:08 15:32-16:05/33 16:30
12	05:36 20:27	06:04 19:07-19:10/3 19:59	06:33 18:14-18:21/7 19:12	07:03 07:23-08:21/58 18:23	06:38 15:30-16:11/41 16:43	07:09 15:32-16:05/33 16:30
13	05:37 20:27	06:04 19:07-19:10/3 19:58	06:34 18:14-18:20/6 19:10	07:04 07:24-08:20/56 18:21	06:39 15:30-16:11/41 16:42	07:10 15:33-16:05/32 16:30
14	05:38 20:26	06:05 19:07-19:10/3 19:56	06:35 18:15-18:18/3 19:09	07:05 07:25-08:19/54 18:20	06:40 15:30-16:09/39 16:41	07:11 15:33-16:06/33 16:31
15	05:38 20:26	06:06 19:07-19:10/3 19:55	06:36 07:31-08:15/44 19:07	07:06 07:26-08:18/52 18:18	06:41 15:30-16:08/38 16:40	07:11 15:32-16:05/33 16:31
16	05:39 20:25	06:07 19:07-19:10/3 19:54	06:37 07:29-08:17/48 19:05	07:07 07:27-08:17/50 18:17	06:42 15:31-16:09/38 16:39	07:12 15:33-16:06/33 16:31
17	05:40 20:24	06:08 19:07-19:10/3 19:52	06:38 07:27-08:18/51 19:04	07:08 07:28-08:16/48 18:15	06:43 15:31-16:09/38 16:39	07:13 15:34-16:06/32 16:31
18	05:41 20:24	06:09 19:07-19:10/3 19:51	06:39 07:25-08:19/54 19:02	07:09 07:30-08:15/45 18:14	06:45 15:31-16:08/37 16:38	07:13 15:33-16:06/33 16:32
19	05:42 20:23	06:10 19:07-19:10/3 19:49	06:40 07:24-08:21/57 19:00	07:10 07:31-08:14/43 18:12	06:46 15:31-16:08/37 16:37	07:14 15:34-16:07/33 16:32
20	05:42 20:22	06:11 19:07-19:10/3 19:48	06:41 07:22-08:21/59 18:59	07:11 07:32-08:12/40 18:11	06:47 15:32-16:09/37 16:36	07:15 15:35-16:08/33 16:33
21	05:43 20:22	06:12 19:07-19:10/3 19:46	06:42 07:21-08:22/61 18:57	07:13 07:33-08:11/38 18:09	06:48 15:33-16:09/36 16:36	07:15 15:35-16:07/32 16:33
22	05:44 20:21	06:13 19:07-19:10/3 19:45	06:43 07:20-08:23/63 18:55	07:14 07:34-08:09/35 18:08	06:49 15:33-16:08/35 16:35	07:16 15:36-16:08/32 16:33
23	05:45 19:16-19:21/5 20:20	06:14 19:07-19:10/3 19:44	06:44 07:18-08:24/66 18:54	07:15 07:35-08:07/32 18:06	06:50 15:34-16:08/34 16:35	07:16 15:36-16:08/32 16:34
24	05:46 19:14-19:24/10 20:19	06:15 19:07-19:10/3 19:42	06:45 07:17-08:24/67 18:52	07:16 07:37-08:06/29 18:05	06:51 15:34-16:07/33 16:34	07:17 15:36-16:09/33 16:35
25	05:47 19:12-19:26/14 20:18	06:16 19:07-19:10/3 19:41	06:46 07:16-08:25/69 18:50	06:17 06:38-07:04/26 17:04	06:52 15:33-16:06/33 16:33	07:17 15:37-16:10/33 16:35
26	05:48 19:10-19:25/15 20:18	06:17 19:07-19:10/3 19:39	06:47 07:15-08:25/70 18:49	06:18 06:39-07:01/22 17:02	06:54 15:34-16:07/33 16:33	07:17 15:38-16:10/32 16:36
27	05:48 19:09-19:25/16 20:17	06:18 19:07-19:10/3 19:38	06:48 07:15-08:25/70 18:47	06:19 06:40-06:58/18 17:01	06:55 15:34-16:06/32 16:33	07:18 15:38-16:10/32 16:36
28	05:49 19:08-19:24/16 20:16	06:19 18:29-18:38/9 19:36	06:49 07:14-08:25/71 18:45	06:20 15:44-15:58/14 17:00	06:56 15:33-16:05/32 16:32	07:18 15:39-16:12/33 16:37
29	05:50 19:08-19:24/16 20:15	06:20 18:25-18:41/16 19:34	06:50 07:13-08:26/73 18:44	06:21 15:41-16:00/19 16:58	06:57 15:33-16:06/33 16:32	07:18 15:40-16:12/32 16:38
30	05:51 19:07-19:23/16 20:14	06:21 18:22-18:41/19 19:33	06:51 07:13-08:26/73 18:42	06:23 15:40-16:03/23 16:57	06:58 15:33-16:06/33 16:31	07:19 15:40-16:13/33 16:39
31	05:52 19:07-19:22/15 20:13	06:22 18:20-18:39/19 19:31	06:24 15:38-16:04/26 16:56		16:31 07:21-07:23/2 16:30	07:19 15:41-16:14/33 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	123	182	1318	1486	1317	1005

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: Parco Eolico Val d'AgriWTG: AR05 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (10) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations  
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January	February	March	April	May	June
1	07:19 16:40	07:06 15:30-16:16/46 17:14	06:32 17:47	06:42 17:36-18:11/35 19:20	05:57 17:48-18:30/42 19:51 06:25-06:50/25	05:29 17:40-19:12/92 20:19
2	07:19 16:41	07:06 15:30-16:16/46 17:15	06:30 17:48	06:40 17:36-18:10/34 19:21	05:56 17:47-18:32/45 19:52 06:25-06:50/25	05:29 17:41-19:13/92 20:20
3	07:19 16:42	07:05 15:30-16:16/46 17:16	06:28 17:49	06:39 17:37-18:09/32 19:22	05:55 17:46-18:33/47 19:53 06:24-06:50/26	05:28 17:40-19:13/93 20:21
4	07:19 16:43	07:04 15:30-16:17/47 17:17	06:27 17:50	06:37 17:38-18:08/30 19:23	05:53 17:45-18:34/49 19:54 06:23-06:50/27	05:28 17:41-19:14/93 20:21
5	07:19 16:44	07:03 15:31-16:17/46 17:19	06:25 17:51	06:35 17:39-18:07/28 19:24	05:52 17:43-18:34/51 19:55 06:21-06:48/27	05:28 17:41-19:14/93 20:22
6	07:19 16:45	07:02 15:31-16:17/46 17:20	06:24 17:52	06:34 17:40-18:05/25 19:25	05:51 17:42-18:35/53 19:56 06:21-06:48/27	05:27 17:42-19:15/93 20:23
7	07:19 16:46	07:00 15:31-16:17/46 17:21	06:22 17:54	06:32 17:41-18:02/21 19:26	05:50 17:42-18:36/54 19:57 06:20-06:47/27	05:27 17:42-19:15/93 20:23
8	07:19 16:47	06:59 15:32-16:17/45 17:22	06:21 17:55	06:31 17:44-18:00/16 19:27	05:49 17:41-18:37/56 19:58 06:19-06:47/28	05:27 17:42-19:15/93 20:24
9	07:19 16:48	06:58 15:33-16:17/44 17:24	06:19 17:56	06:29 17:48-17:55/7 19:28	05:48 17:40-18:38/58 19:59 18:42-18:45/3	06:18-06:46/28 05:26 17:43-19:16/93 20:25
10	07:19 16:49	06:57 15:32-16:16/44 17:25	06:18 17:57	06:27 19:29	05:46 17:40-18:50/70 20:00 06:18-06:45/27	05:26 17:43-19:16/93 20:25
11	07:19 16:50	06:56 15:33-16:16/43 17:26	06:16 17:58	06:26 19:30	05:45 17:40-18:53/73 20:01 06:17-06:44/27	05:26 17:43-19:16/93 20:26
12	07:19 16:51	06:55 15:34-16:15/41 17:27	06:14 17:59	06:24 19:31	05:44 17:39-18:55/76 20:02 06:16-06:43/27	05:26 17:44-19:17/93 20:26
13	07:18 15:42-15:52/10 16:52	06:53 15:35-16:15/40 17:28	06:13 18:00	06:23 19:32	05:43 17:39-18:56/77 20:03 06:17-06:42/25	05:26 17:44-19:17/93 20:27
14	07:18 15:41-15:56/15 16:53	06:52 15:36-16:13/37 17:30	06:11 18:01	06:21 19:33	05:42 17:38-18:57/79 20:04 06:18-06:41/23	05:26 17:45-19:17/92 20:27
15	07:18 15:39-15:58/19 16:54	06:51 15:37-16:13/36 17:31	06:10 18:02	06:20 19:34	05:41 17:38-18:58/80 20:05 06:20-06:39/19	05:26 17:45-19:18/93 20:28
16	07:17 15:38-16:00/22 16:55	06:50 15:39-16:12/33 17:32	06:08 18:03	06:18 06:40-06:41/1 19:35	05:40 17:38-18:59/81 20:06 06:22-06:37/15	05:26 17:45-19:18/93 20:28
17	07:17 15:37-16:02/25 16:56	06:48 15:39-16:10/31 17:33	06:06 16:50-17:05/15 18:04	06:17 06:39-06:43/4 19:36	05:39 17:38-19:00/82 20:07 06:25-06:35/10	05:26 17:45-19:18/93 20:28
18	07:16 15:36-16:03/27 16:57	06:47 15:42-16:09/27 17:34	06:05 16:47-17:08/21 18:05	06:15 06:38-06:46/8 19:37	05:39 17:38-19:01/83 20:07	05:26 17:45-19:18/93 20:29
19	07:16 15:35-16:05/30 16:58	06:46 15:44-16:07/23 17:35	06:03 16:44-17:09/25 18:06	06:14 06:37-06:46/9 19:38	05:38 17:38-19:02/84 20:08	05:26 17:45-19:18/93 20:29
20	07:15 15:34-16:06/32 16:59	06:44 15:47-16:03/16 17:37	06:01 16:43-17:11/28 18:07	06:12 06:36-06:48/12 19:39	05:37 17:38-19:02/84 20:09	05:26 17:46-19:18/92 20:29
21	07:15 15:33-16:07/34 17:01	06:43 15:53-15:58/5 17:38	06:00 16:41-17:12/31 18:08	06:11 06:35-06:48/13 19:40	05:36 17:38-19:03/85 20:10	05:26 17:46-19:18/92 20:29
22	07:14 15:33-16:09/36 17:02	06:42 17:39 17:39	05:58 16:39-17:12/33 18:10	06:09 06:35-06:49/14 19:41	05:35 17:38-19:05/87 20:11	05:27 17:47-19:19/92 20:30
23	07:14 15:33-16:10/37 17:03	06:40 17:40 17:40	05:57 16:39-17:13/34 18:11	06:08 06:34-06:50/16 19:42	05:34 17:38-19:06/88 20:12	05:27 17:46-19:19/93 20:30
24	07:13 15:32-16:10/38 17:04	06:39 17:41 17:41	05:55 16:38-17:13/35 18:12	06:06 06:32-06:50/18 19:43	05:34 17:38-19:07/89 20:13	05:27 17:46-19:19/93 20:30
25	07:12 15:31-16:11/40 17:05	06:37 17:42 17:42	05:53 16:38-17:14/36 18:13	06:05 06:32-06:51/19 19:45	05:33 17:39-19:08/89 20:14	05:27 17:47-19:20/93 20:30
26	07:11 15:32-16:13/41 17:07	06:36 17:44 17:44	05:52 16:37-17:14/37 18:14	06:04 18:02-18:17/15 19:46	05:32 17:39-19:09/90 20:15	05:28 17:47-19:20/93 20:30
27	07:11 15:31-16:13/42 17:08	06:34 17:45 17:45	05:50 16:36-17:13/37 18:15	06:02 17:58-18:22/24 19:47	05:32 17:39-19:10/91 20:15	05:28 17:47-19:20/93 20:30
28	07:10 15:31-16:14/43 17:09	06:33 17:46 17:46	05:48 16:36-17:14/38 18:16	06:01 17:55-18:25/30 19:48	05:31 17:39-19:10/91 20:16	05:28 17:48-19:21/93 20:30
29	07:09 15:31-16:14/43 17:10		06:47 17:36-18:13/37 19:17	06:00 17:53-18:27/34 19:49	05:31 17:39-19:10/91 20:17	05:29 17:47-19:20/93 20:30
30	07:08 15:30-16:15/45 17:11		06:45 17:35-18:12/37 19:18	05:58 17:50-18:28/38 19:50	05:30 17:40-19:11/91 20:18	05:29 17:47-19:20/93 20:30
31	07:07 15:30-16:15/45 17:13		06:43 17:36-18:12/36 19:19	06:26-06:50/24 19:50	05:30 17:40-19:12/92 20:19	20:30
Potential sun hours	299	298	370	398	446	450
Sum of minutes with flicker	624	788	480	594	2724	2784

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: Parco Eolico Val d'AgriWTG: AR05 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (10)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

Table with columns for months (July to December) and rows for days (1 to 31). Each cell contains a 2x2 grid of times (Sunrise/Sunset and First/Last time with flicker) and a final column for 'Potential sun hours'.

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

SHADOW - Calendar per WTG

Calculation: Parco Eolico Val d'AgriWTG: AR06 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (11)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

Table with columns for months (January to June) and rows for days (1 to 31). Each cell contains sun rise and set times (hh:mm) and minutes with flicker. Summary row at the bottom shows 'Potential sun hours' and 'Sum of minutes with flicker' for each month.

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: Parco Eolico Val d'AgriWTG: AR06 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (11) Sunshine probability S (Average daily sunshine hours) []

Assumptions for shadow calculations  
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	July	August	September	October	November	December
1	05:30 05:52-06:31/39 20:30 06:50-07:20/30	05:53 06:15-06:20/5 20:12 06:34-07:44/70	06:23 06:43-07:30/47 19:30	06:52 18:02-18:17/15 18:40	06:25 06:46-07:21/35 16:55	06:59 16:31
2	05:30 05:52-06:31/39 20:30 06:49-07:20/31	05:54 06:16-06:17/1 20:11 06:34-07:44/70	06:24 06:44-07:28/44 19:28	06:53 18:01-18:16/15 18:39	06:26 06:47-07:21/34 16:53	07:00 16:31
3	05:31 05:53-06:32/39 20:30 06:49-07:22/33	05:55 06:33-07:45/72 20:10	06:25 06:45-07:26/41 19:26	06:54 18:00-18:14/14 18:37	06:27 06:49-07:21/32 16:52	07:01 16:31
4	05:32 05:54-06:32/38 20:30 06:48-07:22/34	05:56 06:32-07:44/72 20:08	06:26 06:46-07:24/38 19:25	06:55 17:59-18:12/13 18:35	06:28 06:50-07:21/31 16:51	07:02 16:30
5	05:32 05:54-06:32/38 20:29 06:48-07:23/35	05:57 06:32-07:44/72 20:07	06:27 06:47-07:21/34 19:23	06:56 17:58-18:11/13 18:34	06:29 06:51-07:20/29 16:50	07:03 16:30
6	05:32 05:55-06:33/38 20:29 06:48-07:25/37	05:58 06:32-07:45/73 20:06	06:28 06:48-07:18/30 19:22	06:57 17:58-18:09/11 18:32	06:31 06:52-07:19/27 16:49	07:04 16:30
7	05:33 05:55-06:32/37 20:29 06:47-07:25/38	05:59 06:31-07:45/74 20:05	06:28 06:50-07:13/23 19:20	06:58 17:58-18:07/9 18:30	06:32 06:53-07:18/25 16:48	07:05 16:30
8	05:34 05:56-06:33/37 20:29 06:47-07:26/39	06:00 06:22-06:28/6 20:04 06:31-07:45/74	06:29 06:56-07:06/10 19:18	06:59 17:59-18:06/7 18:29	06:33 06:55-07:18/23 16:47	07:06 16:30
9	05:34 05:56-06:32/36 20:28 06:45-07:27/42	06:01 06:22-07:45/83 20:03	06:30 06:30 19:17	07:00 18:00-18:05/5 18:27	06:34 06:56-07:17/21 16:46	07:06 16:30
10	05:35 05:57-06:32/35 20:28 06:45-07:28/43	06:02 06:23-07:46/83 20:01	06:31 06:31 19:15	07:01 18:01-18:03/2 18:26	06:35 06:57-07:16/19 16:45	07:07 16:30
11	05:36 05:58-06:33/35 20:27 06:45-07:29/44	06:02 06:24-07:46/82 20:00	06:32 06:32 19:13	07:02 07:54-08:05/11 18:24	06:36 06:58-07:15/17 16:44	07:08 16:30
12	05:36 05:58-06:32/34 20:27 06:44-07:29/45	06:03 06:25-07:46/81 19:59	06:33 06:33 19:12	07:03 07:49-08:09/20 18:23	06:37 07:00-07:14/14 16:43	07:09 16:30
13	05:37 05:59-06:32/33 20:27 06:43-07:30/47	06:04 06:26-07:46/80 19:57	06:34 06:34 19:10	07:04 07:46-08:12/26 18:21	06:39 07:01-07:13/12 16:42	07:10 16:30
14	05:38 06:00-06:33/33 20:26 06:43-07:32/49	06:05 06:27-07:46/79 19:56	06:35 06:35 19:08	07:05 07:44-08:14/30 18:19	06:40 07:02-07:11/9 16:41	07:10 16:31
15	05:38 06:01-06:33/32 20:25 06:43-07:33/50	06:06 06:28-07:45/77 19:55	06:36 06:36 19:07	07:06 07:42-08:15/33 18:18	06:41 07:03-07:09/6 16:40	07:11 16:31
16	05:39 06:01-06:32/31 20:25 06:41-07:33/52	06:07 06:29-07:45/76 19:53	06:37 06:37 19:05	07:07 07:40-08:16/36 18:16	06:42 07:05-07:08/3 16:39	07:12 16:31
17	05:40 06:02-06:32/30 20:24 06:41-07:34/53	06:08 06:30-07:44/74 19:52	06:38 06:38 19:03	07:08 07:38-08:17/39 18:15	06:43 06:39 16:39	07:13 16:31
18	05:41 06:03-06:32/29 20:24 06:41-07:35/54	06:09 06:30-07:44/74 19:51	06:39 06:39 19:02	07:09 07:38-08:19/41 18:13	06:44 06:38 16:38	07:13 16:32
19	05:42 06:04-06:32/28 20:23 06:40-07:36/56	06:10 06:31-07:43/72 19:49	06:40 06:40 19:00	07:10 07:37-08:20/43 18:12	06:46 06:37 16:37	07:14 16:32
20	05:42 06:04-06:31/27 20:22 06:39-07:36/57	06:11 06:32-07:43/71 19:48	06:41 06:41 18:58	07:11 07:35-08:20/45 18:11	06:47 06:36 16:36	07:14 16:32
21	05:43 06:05-06:31/26 20:22 06:39-07:37/58	06:12 06:33-07:42/69 19:46	06:42 06:42 18:57	07:12 07:35-08:21/46 18:09	06:48 06:36 16:36	07:15 16:33
22	05:44 06:06-06:30/24 20:21 06:38-07:38/60	06:13 06:34-07:42/68 19:45	06:43 06:43 18:55	07:14 07:34-08:21/47 18:08	06:49 06:35 16:35	07:16 16:33
23	05:45 06:07-06:30/23 20:20 06:38-07:39/61	06:14 06:35-07:41/66 19:43	06:44 06:44 18:53	07:15 07:35-08:21/46 18:06	06:50 06:34 16:34	07:16 16:34
24	05:46 06:08-06:30/22 20:19 06:38-07:39/61	06:15 06:36-07:40/64 19:42	06:45 06:45 18:52	07:16 07:36-08:21/45 18:05	06:51 06:34 16:34	07:16 16:34
25	05:47 06:09-06:29/20 20:18 06:37-07:40/63	06:16 06:37-07:40/63 19:40	06:46 06:46 18:50	06:17 06:38-07:22/44 17:04	06:52 06:33 16:33	07:17 16:35
26	05:47 06:10-06:28/18 20:18 06:36-07:40/64	06:17 06:38-07:39/61 19:39	06:47 06:47 18:48	06:18 06:39-07:22/43 17:02	06:53 06:33 16:33	07:17 16:36
27	05:48 06:10-06:27/17 20:17 06:36-07:41/65	06:18 06:39-07:38/59 19:37	06:48 06:48 18:47	06:19 06:40-07:22/42 17:01	06:55 06:32 16:32	07:18 16:36
28	05:49 06:11-06:26/15 20:16 06:35-07:41/66	06:19 06:40-07:37/57 19:36	06:49 06:49 18:45	06:20 06:41-07:22/41 17:00	06:56 06:32 16:32	07:18 16:37
29	05:50 06:12-06:25/13 20:15 06:35-07:42/67	06:20 06:41-07:35/54 19:34	06:50 06:50 18:43	06:21 06:42-07:22/40 16:58	06:57 06:32 16:32	07:18 16:38
30	05:51 06:13-06:23/10 20:14 06:35-07:43/68	06:21 06:41-07:33/52 19:33	06:51 06:51 18:42	06:22 06:44-07:22/38 16:57	06:58 06:31 16:31	07:19 16:38
31	05:52 06:14-06:22/8 20:13 06:34-07:43/69	06:22 06:42-07:31/49 19:31	06:52 06:52 16:56	06:24 06:45-07:22/37 16:56	06:59 06:30 16:30	07:19 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	2455	2183	322	897	337	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 Val d'Agri

Licensed user:

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

Gaetano D'Oronzio / info@gecodor.it

Calculated:

06/12/2022 16:14/3.5.587

SHADOW - Calendar per WTG

Calculation: Parco Eolico Val d'AgriWTG: AR07 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (12)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

Table with columns for months (January to December) and rows for days (1 to 31). Each cell contains a time range (hh:mm) and a sum of minutes with flicker at the bottom.

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: Parco Eolico Val d'AgriWTG: AR08 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (13)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Table with 12 columns: Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec. Values range from 7,40 to 7,40.

Operational time

Table with 13 columns: N, NNE, ENE, E, ESE, SSE, S, SSW, WSW, W, WNW, NNW, Sum. Values range from 391 to 7.057.

Main shadow calculation table with 12 columns for months and 31 rows for days. Includes columns for sun rise, sun set, and shadow start/end times. Includes summary rows for potential sun hours and minutes with flicker.

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

## SHADOW - Calendar per WTG

Calculation: Parco Eolico Val d'AgriWTG: AR09 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)  
Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January	February	March	April	May	June
1	07:19 16:40	07:06 07:33-08:08/35 17:14	06:31 07:04-07:30/26 17:47 07:31-07:50/19	06:42 19:20	05:57 19:50	05:29 20:19
2	07:19 16:41	07:05 07:33-08:08/35 17:15	06:30 07:05-07:29/24 07:35-07:47/12 17:48 17:24-17:26/2	06:40 19:21	05:56 19:51	05:28 20:20
3	07:19 16:42	07:04 07:33-08:07/34 17:16	06:28 07:06-07:27/21 17:49 17:23-17:28/5	06:38 19:22	05:54 19:52	05:28 20:21
4	07:19 16:43	07:03 07:33-08:07/34 17:17	06:27 07:07-07:25/18 17:21-17:29/8 17:50 16:58-16:59/1	06:37 19:23	05:53 19:53	05:28 20:21
5	07:19 16:44	07:02 07:31-08:06/35 17:18	06:25 07:09-07:23/14 17:21-17:30/9 17:51 16:59-17:01/2	06:35 19:24	05:52 19:54	05:27 20:22
6	07:19 16:44	07:01 07:30-08:06/36 17:20	06:24 07:13-07:18/5 17:19-17:31/12 17:52 16:59-17:02/3	06:34 19:25	05:51 19:56	05:27 20:23
7	07:19 16:45	07:00 07:28-08:05/37 17:21	06:22 17:11-17:12/1 17:19-17:33/14 17:53 17:01-17:04/3	06:32 19:26	05:50 19:57	05:27 20:23
8	07:19 16:46	06:59 07:27-08:03/36 17:22	06:21 17:11-17:12/1 17:18-17:33/15 17:54 17:02-17:05/3	06:30 19:27	05:48 19:58	05:27 20:24
9	07:19 16:47	06:58 07:26-08:01/35 17:23	06:19 17:12-17:13/1 17:17-17:34/17 17:56 17:03-17:06/3	06:29 19:28	05:47 19:59	05:26 20:24
10	07:19 16:48	06:57 07:25-08:00/35 17:25	06:17 17:14-17:15/1 17:17-17:36/19 17:57 17:06-17:09/3	06:27 19:29	05:46 20:00	05:26 20:25
11	07:19 16:49	06:56 07:25-08:01/36 17:26	06:16 17:16-17:37/21 17:58	06:26 19:30	05:45 20:01	05:26 20:25
12	07:18 16:50	06:54 07:19-08:01/42 17:27	06:14 17:16-17:38/22 17:59	06:24 19:31	05:44 20:01	05:26 20:26
13	07:18 16:51	06:53 07:15-08:02/47 17:28	06:13 17:15-17:39/24 18:00	06:23 19:32	05:43 20:02	05:26 20:26
14	07:18 07:47-07:51/4 16:53	06:52 07:13-08:02/49 17:29	06:11 17:15-17:40/25 18:01	06:21 19:33	05:42 20:03	05:26 20:27
15	07:17 07:43-07:54/11 16:54	06:51 07:11-08:02/51 17:31	06:09 17:15-17:41/26 18:02	06:20 19:34	05:41 20:04	05:26 20:27
16	07:17 07:42-07:56/14 16:55	06:49 07:11-08:03/52 17:32	06:08 17:15-17:42/27 18:03	06:18 19:35	05:40 20:05	05:26 20:28
17	07:17 07:41-07:57/16 16:56	06:48 07:09-08:02/53 17:33	06:06 17:15-17:44/29 18:04	06:16 19:36	05:39 20:06	05:26 20:28
18	07:16 07:41-07:59/18 16:57	06:47 07:08-08:02/54 17:34	06:05 17:15-17:44/29 18:05	06:15 19:37	05:38 20:07	05:26 20:28
19	07:16 07:40-08:00/20 16:58	06:46 07:07-08:02/55 17:35	06:03 17:15-17:45/30 18:06	06:14 19:38	05:37 20:08	05:26 20:29
20	07:15 07:40-08:02/22 16:59	06:44 07:06-08:02/56 17:36	06:01 17:16-17:47/31 18:07	06:12 19:39	05:37 20:09	05:26 20:29
21	07:15 07:40-08:03/23 17:00	06:43 07:05-08:01/56 17:38	06:00 17:16-17:48/32 18:08	06:11 19:40	05:36 20:10	05:26 20:29
22	07:14 07:39-08:03/24 17:02	06:41 07:04-08:00/56 17:39	05:58 17:16-17:48/32 18:09	06:09 19:41	05:35 20:11	05:26 20:29
23	07:13 07:39-08:05/26 17:03	06:40 07:04-08:00/56 17:40	05:56 17:17-17:50/33 18:10	06:08 19:42	05:34 20:12	05:27 20:30
24	07:13 07:37-08:05/28 17:04	06:39 07:04-07:59/55 17:41	05:55 17:18-17:51/33 18:11	06:06 19:43	05:34 20:13	05:27 20:30
25	07:12 07:36-08:06/30 17:05	06:37 07:03-07:58/55 17:42	05:53 17:19-17:51/32 18:12	06:05 19:44	05:33 20:13	05:27 20:30
26	07:11 07:35-08:06/31 17:06	06:36 07:03-07:57/54 17:43	05:51 17:20-17:53/33 18:13	06:04 19:45	05:32 20:14	05:28 20:30
27	07:10 07:35-08:07/32 17:08	06:34 07:03-07:55/52 17:44	05:50 17:21-17:54/33 18:14	06:02 19:46	05:32 20:15	05:28 20:30
28	07:10 07:34-08:08/34 17:09	06:33 07:04-07:53/49 17:46	05:48 17:22-17:54/32 18:16	06:01 19:47	05:31 20:16	05:28 20:30
29	07:09 07:34-08:08/34 17:10		06:47 18:25-18:54/29 19:17	06:00 19:48	05:30 20:17	05:29 20:30
30	07:08 07:33-08:08/35 17:11		06:45 18:27-18:50/23 19:18	05:58 19:49	05:30 20:18	05:29 20:30
31	07:07 07:33-08:08/35 17:12		06:43 18:31-18:45/14 19:19		05:29 20:18	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	437	1280	852	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: Parco Eolico Val d'AgriWTG: AR09 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (14)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30 20:30	05:53 20:12	06:23 19:29	06:51 17:55-18:17/22 18:40	06:25 06:55-07:30/35 16:54	06:59 16:31
2	05:30 20:30	05:54 20:11	06:24 19:28	06:52 17:54-18:16/22 18:38	06:26 06:56-07:31/35 16:53	07:00 16:31
3	05:31 20:30	05:55 20:09	06:24 19:26	06:53 17:46-17:47/1 18:37 17:54-18:14/20	06:27 06:56-07:32/36 16:52	07:01 16:30
4	05:31 20:29	05:56 20:08	06:25 19:25	06:54 17:50-17:51/1 17:54-18:12/18 18:35 17:42-17:45/3	06:28 06:58-07:35/37 16:51	07:02 16:30
5	05:32 20:29	05:57 20:07	06:26 19:23	06:55 17:48-17:50/2 17:54-18:11/17 18:33 17:39-17:43/4	06:29 07:00-07:36/36 16:50	07:03 16:30
6	05:32 20:29	05:58 20:06	06:27 19:21	06:57 17:47-17:48/1 17:54-18:09/15 18:32 17:37-17:41/4	06:30 07:01-07:36/35 16:49	07:04 16:30
7	05:33 20:29	05:58 20:05	06:28 19:20	06:58 17:35-17:38/3 18:30 17:55-18:07/12	06:32 07:03-07:37/34 16:48	07:04 16:30
8	05:33 20:28	05:59 20:04	06:29 19:18	06:59 07:45-07:56/11 17:55-18:06/11 18:29 17:34-17:36/2	06:33 07:04-07:38/34 16:47	07:05 16:30
9	05:34 20:28	06:00 20:02	06:30 19:17	07:00 07:43-08:00/17 17:55-18:04/9 18:27 17:33-17:34/1	06:34 07:04-07:38/34 16:46	07:06 16:30
10	05:35 20:28	06:01 20:01	06:31 19:15	07:01 07:41-08:01/20 18:26 17:57-18:03/6	06:35 07:04-07:39/35 16:45	07:07 16:30
11	05:35 20:27	06:02 20:00	06:32 19:13	07:02 07:39-08:02/23 18:24 17:58-18:02/4	06:36 07:04-07:39/35 16:44	07:08 16:30
12	05:36 20:27	06:03 19:59	06:33 18:24-18:36/12 19:12	07:03 07:38-08:03/25 08:07-08:22/15 18:22 17:59-18:00/1	06:37 07:05-07:40/35 16:43	07:09 16:30
13	05:37 20:26	06:04 19:57	06:34 18:19-18:41/22 19:10	07:04 07:37-08:24/47 18:21	06:39 07:06-07:40/34 16:42	07:10 16:30
14	05:37 20:26	06:05 19:56	06:35 18:16-18:44/28 19:08	07:05 07:36-08:26/50 18:19	06:40 07:06-07:40/34 16:41	07:10 16:30
15	05:38 20:25	06:06 19:55	06:36 18:13-18:45/32 19:07	07:06 07:35-08:28/53 18:18	06:41 07:07-07:39/32 16:40	07:11 16:31
16	05:39 20:25	06:07 19:53	06:37 18:11-18:43/32 19:05	07:07 07:35-08:29/54 18:16	06:42 07:09-07:40/31 16:39	07:12 16:31
17	05:40 20:24	06:08 19:52	06:38 18:09-18:41/32 19:03	07:08 07:34-08:30/56 18:15	06:43 07:10-07:40/30 16:38	07:12 16:31
18	05:41 20:24	06:09 19:51	06:39 18:07-18:40/33 19:02	07:09 07:34-08:30/56 18:13	06:44 07:11-07:39/28 16:38	07:13 16:32
19	05:41 20:23	06:10 19:49	06:40 18:06-18:38/32 19:00	07:10 07:35-08:31/56 18:12	06:45 07:13-07:39/26 16:37	07:14 16:32
20	05:42 20:22	06:11 19:48	06:41 18:04-18:37/33 18:58	07:11 07:36-08:32/56 18:10	06:47 07:14-07:38/24 16:36	07:14 16:32
21	05:43 20:21	06:12 19:46	06:42 18:03-18:35/32 18:57	07:12 07:36-08:32/56 18:09	06:48 07:16-07:39/23 16:36	07:15 16:33
22	05:44 20:21	06:13 19:45	06:43 18:01-18:32/31 18:55	07:13 07:37-08:32/55 18:08	06:49 07:16-07:38/22 16:35	07:15 16:33
23	05:45 20:20	06:14 19:43	06:44 18:00-18:31/31 18:53	07:14 07:37-08:32/55 18:06	06:50 07:17-07:37/20 16:34	07:16 16:34
24	05:46 20:19	06:15 19:42	06:45 17:59-18:29/30 18:52	07:16 07:38-08:32/54 18:05	06:51 07:18-07:37/19 16:34	07:16 16:34
25	05:46 20:18	06:16 19:40	06:46 17:58-18:27/29 18:50	06:17 06:39-07:32/53 17:03	06:52 07:19-07:36/17 16:33	07:17 16:35
26	05:47 20:17	06:17 19:39	06:47 17:57-18:26/29 18:48	06:18 06:41-07:32/51 17:02	06:53 07:20-07:34/14 16:33	07:17 16:36
27	05:48 20:16	06:18 19:37	06:48 17:56-18:24/28 18:47	06:19 06:41-07:32/51 17:01	06:54 07:23-07:34/11 16:32	07:18 16:36
28	05:49 20:16	06:19 19:36	06:49 17:56-18:22/26 18:45	06:20 06:43-07:31/48 16:59	06:55 07:26-07:31/5 16:32	07:18 16:37
29	05:50 20:15	06:20 19:34	06:49 17:55-18:21/26 18:43	06:21 06:45-07:31/46 16:58	06:57 16:32	07:18 16:38
30	05:51 20:14	06:21 19:33	06:50 17:55-18:19/24 18:42	06:22 06:49-06:52/3 16:57 06:53-07:30/37	06:58 16:31	07:18 16:38
31	05:52 20:13	06:22 19:31		06:23 06:54-07:30/36 16:56		07:19 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	0	0	542	1263	791	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: Parco Eolico Val d'AgriWTG: AR10 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (15)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	January	February	March	April	May	June
1	07:19 15:33-15:57/24 16:40	07:06 07:26-08:02/36 17:14	06:31 17:47	06:42 19:20	05:57 19:50	05:29 19:23-19:45/22 20:19
2	07:19 15:34-15:58/24 16:41	07:05 07:25-08:01/36 17:15	06:30 17:48	06:40 19:21	05:56 19:51	05:28 19:24-19:46/22 20:20
3	07:19 15:35-15:59/24 16:42	07:04 07:24-07:43/19 17:16	06:28 17:49	06:38 19:22	05:54 19:52	05:28 19:23-19:46/23 20:20
4	07:19 15:35-16:00/25 16:43	07:03 07:24-07:44/20 17:17	06:27 17:50	06:37 19:23	05:53 19:53	05:28 19:24-19:46/22 20:21
5	07:19 15:36-16:01/25 16:44	07:02 07:24-07:44/20 17:18	06:25 17:51	06:35 19:24	05:52 19:54	05:27 19:24-19:47/23 20:22
6	07:19 15:37-16:02/25 16:44	07:01 07:24-07:44/20 17:20	06:24 17:52	06:34 19:25	05:51 19:55	05:27 19:23-19:47/24 20:22
7	07:19 15:38-16:03/25 16:45	07:00 07:24-07:44/20 17:21	06:22 17:53	06:32 19:26	05:50 19:56	05:27 19:24-19:48/24 20:23
8	07:19 15:39-16:04/25 16:46	06:59 07:25-07:44/19 17:22	06:21 17:54	06:30 19:27	05:48 19:57	05:26 19:24-19:49/25 20:24
9	07:19 15:39-16:05/26 16:47	06:58 07:25-07:42/17 17:23	06:19 17:56	06:29 19:28	05:47 19:58	05:26 19:25-19:49/24 20:24
10	07:19 15:40-16:06/26 16:48	06:57 07:26-07:42/16 17:25	06:17 17:57	06:27 19:29	05:46 19:59	05:26 19:25-19:50/25 20:25
11	07:19 15:42-16:06/24 16:49	06:56 07:28-07:41/13 17:26	06:16 17:58	06:26 19:30	05:45 20:00	05:26 19:25-19:51/26 20:25
12	07:18 15:42-16:05/23 16:50	06:54 07:30-07:39/9 17:27	06:14 17:59	06:24 19:31	05:44 20:01	05:26 19:26-19:51/25 20:26
13	07:18 15:44-16:04/20 16:51	06:53 07:42-07:52/10 17:28	06:13 18:00	06:23 19:32	05:43 20:02	05:26 19:25-19:51/26 20:26
14	07:18 15:46-16:04/18 16:53	06:52 07:42-07:54/12 17:29	06:11 18:01	06:21 19:33	05:42 20:03	05:26 19:25-19:51/26 20:27
15	07:17 15:47-16:03/16 16:54	06:51 07:41-07:55/14 17:31	06:09 18:02	06:19 19:34	05:41 20:04	05:26 19:25-19:52/27 20:27
16	07:17 15:50-16:02/12 16:55	06:49 07:42-07:57/15 17:32	06:08 18:03	06:18 19:35	05:40 20:05	05:26 19:26-19:53/27 20:28
17	07:17 15:53-15:58/5 16:56	06:48 07:41-07:57/16 17:33	06:06 18:04	06:16 19:36	05:39 20:06	05:26 19:27-19:53/26 20:28
18	07:16 07:41-07:59/18 16:57	06:47 17:34	06:04 18:05	06:15 19:37	05:38 20:07	05:26 19:27-19:53/26 20:28
19	07:16 07:41-07:59/18 16:58	06:46 17:35	06:03 18:06	06:13 19:38	05:37 20:08	05:26 19:27-19:54/27 20:29
20	07:15 07:41-08:01/20 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 20:09	05:26 19:27-19:54/27 20:29
21	07:15 07:40-08:01/21 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 19:27-19:28/1 20:10	05:26 19:27-19:54/27 20:29
22	07:14 07:39-08:01/22 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 19:26-19:28/2 20:11	05:26 19:27-19:54/27 20:29
23	07:13 07:39-08:03/24 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 19:26-19:30/4 20:12	05:27 19:28-19:55/27 20:30
24	07:13 07:39-08:03/24 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 19:25-19:30/5 20:13	05:27 19:28-19:54/26 20:30
25	07:12 07:38-08:03/25 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 19:24-19:31/7 20:13	05:27 19:28-19:54/26 20:30
26	07:11 07:38-08:03/25 17:06	06:36 17:43	05:51 18:13	06:04 19:45	05:32 19:24-19:32/8 20:14	05:28 19:29-19:55/26 20:30
27	07:10 07:39-08:04/25 17:08	06:34 17:44	05:50 18:14	06:02 19:46	05:32 19:24-19:32/8 20:15	05:28 19:28-19:55/27 20:30
28	07:10 07:31-07:35/4 17:09	06:33 17:46	05:48 18:15	06:01 19:47	05:31 19:24-19:34/10 20:16	05:28 19:28-19:54/26 20:30
29	07:09 07:29-07:38/9 17:10		06:47 19:17	05:59 19:48	05:30 19:23-19:34/11 20:17	05:29 19:29-19:55/26 20:30
30	07:08 07:28-07:40/12 17:11		06:45 19:18	05:58 19:49	05:30 19:24-19:44/20 20:18	05:29 19:29-19:54/25 20:30
31	07:07 07:27-08:03/36 17:12		06:43 19:19		05:29 19:23-19:44/21 20:18	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	794	271	0	0	124	760

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: Parco Eolico Val d'AgriWTG: AR10 - Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (15)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40 7,40

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum  
391 238 271 662 225 71 178 313 1.370 1.816 503 1.019 7.057

	July	August	September	October	November	December
1	05:30 19:29-19:55/26 20:30	05:53 20:12	06:23 19:29	06:51 18:40	06:25 06:56-07:12/16 16:54	06:59 15:24-15:48/24 16:31 07:28-07:29/1
2	05:30 19:29-19:54/25 20:30	05:54 20:10	06:24 19:28	06:52 18:38	06:26 06:55-07:12/17 16:53	07:00 15:24-15:49/25 16:31
3	05:31 19:30-19:55/25 20:30	05:55 20:09	06:24 19:26	06:53 18:37	06:27 06:54-07:13/19 16:52	07:01 15:23-15:49/26 16:30
4	05:31 19:29-19:54/25 20:29	05:56 20:08	06:25 19:25	06:54 18:35	06:28 06:54-07:14/20 16:51	07:02 15:23-15:48/25 16:30
5	05:32 19:30-19:54/24 20:29	05:57 20:07	06:26 19:23	06:55 18:33	06:29 06:54-07:14/20 16:50	07:03 15:23-15:48/25 16:30
6	05:32 19:30-19:54/24 20:29	05:58 20:06	06:27 19:21	06:56 18:32	06:30 06:54-07:14/20 16:49 07:21-07:24/3	07:03 15:23-15:48/25 16:30
7	05:33 19:30-19:54/24 20:29	05:58 20:05	06:28 19:20	06:57 18:30	06:31 06:54-07:13/19 16:48 07:17-07:28/11	07:04 15:23-15:48/25 16:30
8	05:33 19:31-19:54/23 20:28	05:59 20:04	06:29 19:18	06:59 18:29	06:33 06:55-07:14/19 16:47 07:16-07:31/15	07:05 15:24-15:48/24 16:30
9	05:34 19:30-19:53/23 20:28	06:00 20:02	06:30 19:17	07:00 18:27	06:34 06:56-07:13/17 16:46 07:14-07:32/18	07:06 15:24-15:48/24 16:30
10	05:35 19:31-19:53/22 20:28	06:01 20:01	06:31 19:15	07:01 18:26	06:35 06:57-07:33/36 16:45	07:07 15:23-15:47/24 16:30
11	05:35 19:32-19:53/21 20:27	06:02 20:00	06:32 19:13	07:02 18:24	06:36 06:58-07:34/36 16:44	07:08 15:24-15:47/23 16:30
12	05:36 19:31-19:52/21 20:27	06:03 19:59	06:33 19:12	07:03 18:22	06:37 07:00-07:11/11 16:43 07:12-07:35/23	07:09 15:24-15:48/24 16:30
13	05:37 19:32-19:52/20 20:26	06:04 19:57	06:34 19:10	07:04 18:21	06:38 07:01-07:10/9 16:42 07:12-07:35/23	07:10 15:25-15:48/23 16:30
14	05:37 19:32-19:43/11 20:26	06:05 19:56	06:35 19:08	07:05 18:19	06:40 07:03-07:07/4 16:41 07:12-07:36/24	07:10 15:24-15:47/23 16:30
15	05:38 19:32-19:42/10 20:25	06:06 19:55	06:36 19:07	07:06 18:18	06:41 07:11-07:36/25 16:40	07:11 15:25-15:48/23 16:31
16	05:39 19:33-19:42/9 20:25	06:07 19:53	06:37 19:05	07:07 18:16	06:42 07:12-07:37/25 16:39	07:12 15:25-15:48/23 16:31
17	05:40 19:33-19:42/9 20:24	06:08 19:52	06:38 19:03	07:08 18:15	06:43 07:12-07:37/25 16:38	07:12 15:26-15:49/23 16:31
18	05:41 19:34-19:41/7 20:23	06:09 19:50	06:39 19:02	07:09 18:13	06:44 07:13-07:37/24 16:38	07:13 15:26-15:48/22 16:32
19	05:41 19:34-19:40/6 20:23	06:10 19:49	06:40 19:00	07:10 18:12	06:45 07:13-07:37/24 16:37	07:14 15:27-15:49/22 16:32
20	05:42 19:35-19:39/4 20:22	06:11 19:48	06:41 18:58	07:11 18:10	06:47 07:14-07:36/22 16:36	07:14 15:27-15:49/22 16:32
21	05:43 19:36-19:39/3 20:21	06:12 19:46	06:42 18:57	07:12 18:09	06:48 07:16-07:37/21 16:36	07:15 15:28-15:50/22 16:33
22	05:44 19:37-19:38/1 20:21	06:13 19:45	06:43 18:55	07:13 18:08	06:49 07:17-07:37/20 16:35	07:15 15:28-15:50/22 16:33
23	05:45 20:20	06:14 19:43	06:44 18:53	07:14 18:06	06:50 07:18-07:37/19 16:34	07:16 15:29-15:51/22 16:34
24	05:46 20:19	06:15 19:42	06:45 18:52	07:16 18:05	06:51 07:18-07:36/18 16:34	07:16 15:29-15:51/22 16:34
25	05:46 20:18	06:16 19:40	06:46 18:50	07:17 17:03	06:52 15:31-15:36/5 16:33 07:19-07:36/17	07:17 15:29-15:51/22 16:35
26	05:47 20:17	06:17 19:39	06:47 18:48	07:18 17:02	06:53 15:28-15:40/12 16:33 07:20-07:35/15	07:17 15:30-15:53/23 16:36
27	05:48 20:16	06:18 19:37	06:48 18:47	07:19 17:01	06:54 15:26-15:42/16 16:32 07:21-07:35/14	07:17 15:30-15:53/23 16:36
28	05:49 20:15	06:19 19:36	06:48 18:45	07:20 16:59	06:55 15:26-15:44/18 16:32 07:22-07:35/13	07:18 15:31-15:53/22 16:37
29	05:50 20:15	06:20 19:34	06:49 18:43	07:21 07:02-07:04/2 16:58	06:56 15:25-15:45/20 16:32 07:23-07:34/11	07:18 15:32-15:55/23 16:38
30	05:51 20:14	06:21 19:33	06:50 18:42	07:22 06:58-07:08/10 16:57	06:58 15:24-15:47/23 16:31 07:24-07:32/8	07:18 15:32-15:56/24 16:38
31	05:52 20:13	06:22 19:31		06:23 06:57-07:11/14 16:56		07:19 15:33-15:56/23 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	393	0	0	26	775	724

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

## SHADOW - Calendar per WTG

Calculation: Parco Eolico Val d'AgriWTG: AR11 - Siemens Gamesa SG 6.6-170 6600 170.0 IO! hub: 115,0 m (TOT: 200,0 m) (16)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	January	February	March	April	May	June
1	07:19 07:41-07:56/15 16:40	07:06 07:46-07:50/4 17:14	06:31 17:47	06:42 19:20	05:57 06:35-06:44/9 19:50	05:29 05:50-06:29/39 20:19
2	07:19 07:41-07:57/16 16:41	07:05 17:15	06:30 17:48	06:40 19:21	05:56 06:34-06:44/10 19:51	05:28 05:50-06:29/39 20:20
3	07:19 07:41-07:57/16 16:42	07:04 17:16	06:28 17:49	06:38 19:22	05:54 06:32-06:45/13 19:52	05:28 05:49-06:29/40 20:20
4	07:19 07:41-07:58/17 16:43	07:03 17:17	06:27 17:50	06:37 19:23	05:53 06:30-06:44/14 19:53	05:28 05:49-06:29/40 20:21
5	07:19 07:41-07:59/18 16:43	07:02 17:18	06:25 17:51	06:35 19:24	05:52 06:28-06:44/16 19:54	05:27 05:49-06:30/41 20:22
6	07:19 07:41-07:59/18 16:44	07:01 17:20	06:24 17:52	06:34 19:25	05:51 06:28-06:44/16 19:55	05:27 05:48-06:29/41 20:22
7	07:19 07:41-08:00/19 16:45	07:00 17:21	06:22 17:53	06:32 19:26	05:50 06:27-06:44/17 19:56	05:27 05:48-06:29/41 20:23
8	07:19 07:41-08:01/20 16:46	06:59 17:22	06:20 17:54	06:30 19:27	05:48 06:27-06:44/17 19:57	05:26 05:48-06:30/42 20:24
9	07:19 07:40-08:00/20 16:47	06:58 17:23	06:19 17:55	06:29 19:28	05:47 06:26-06:44/18 19:58	05:26 05:48-06:30/42 20:24
10	07:19 07:40-08:01/21 16:48	06:57 17:24	06:17 17:57	06:27 19:29	05:46 06:26-06:43/17 19:59	05:26 05:48-06:30/42 20:25
11	07:18 07:40-08:02/22 16:49	06:56 17:26	06:16 17:58	06:26 19:30	05:45 06:25-06:43/18 20:00	05:26 05:48-06:30/42 20:25
12	07:18 07:39-08:01/22 16:50	06:54 17:27	06:14 17:59	06:24 19:31	05:44 06:24-06:42/18 20:01	05:26 05:48-06:31/43 20:26
13	07:18 07:39-08:02/23 16:51	06:53 17:28	06:13 18:00	06:23 19:32	05:43 06:24-06:41/17 20:02	05:26 05:48-06:31/43 20:26
14	07:18 07:39-08:03/24 16:53	06:52 17:29	06:11 18:01	06:21 19:33	05:42 06:24-06:40/16 20:03	05:26 05:48-06:31/43 20:27
15	07:17 07:38-08:02/24 16:54	06:51 17:30	06:09 18:02	06:19 19:34	05:41 06:25-06:39/14 20:04	05:26 05:48-06:31/43 20:27
16	07:17 07:38-08:03/25 16:55	06:49 17:32	06:08 18:03	06:18 19:35	05:40 06:27-06:37/10 20:05	05:26 05:48-06:32/44 20:28
17	07:16 07:37-08:03/26 16:56	06:48 17:33	06:06 18:04	06:16 19:36	05:39 06:30-06:34/4 20:06	05:26 05:48-06:32/44 20:28
18	07:16 07:37-08:04/27 16:57	06:47 17:34	06:04 18:05	06:15 19:37	05:38 05:58-06:12/14 20:07	05:26 05:48-06:32/44 20:28
19	07:16 07:36-08:03/27 16:58	06:45 17:35	06:03 18:06	06:13 19:38	05:37 05:58-06:15/17 20:08	05:26 05:48-06:32/44 20:29
20	07:15 07:36-08:04/28 16:59	06:44 17:36	06:01 18:07	06:12 19:39	05:37 05:57-06:17/20 20:09	05:26 05:48-06:32/44 20:29
21	07:14 07:35-08:03/28 17:00	06:43 17:38	06:00 18:08	06:11 19:40	05:36 05:56-06:18/22 20:10	05:26 05:48-06:32/44 20:29
22	07:14 07:34-08:03/29 17:02	06:41 17:39	05:58 18:09	06:09 19:41	05:35 06:22-06:24/2 20:11	05:26 05:49-06:33/44 20:29
23	07:13 07:34-08:03/29 17:03	06:40 17:40	05:56 18:10	06:08 19:42	05:34 06:22-06:25/3 20:12	05:27 05:49-06:33/44 20:29
24	07:13 07:33-08:03/30 17:04	06:39 17:41	05:55 18:11	06:06 19:43	05:34 05:54-06:26/32 20:13	05:27 05:49-06:33/44 20:30
25	07:12 07:32-08:02/30 17:05	06:37 17:42	05:53 18:12	06:05 19:44	05:33 05:54-06:27/33 20:13	05:27 05:49-06:33/44 20:30
26	07:11 07:32-08:01/29 17:06	06:36 17:43	05:51 18:13	06:03 19:45	05:32 05:53-06:27/34 20:14	05:27 05:50-06:34/44 20:30
27	07:10 07:34-08:01/27 17:07	06:34 17:44	05:50 18:14	06:02 19:46	05:32 05:52-06:27/35 20:15	05:28 05:50-06:34/44 20:30
28	07:10 07:35-08:00/25 17:09	06:33 17:46	05:48 18:15	06:01 19:47	05:31 05:52-06:28/36 20:16	05:28 05:50-06:33/43 20:30
29	07:09 07:37-07:59/22 17:10		06:46 19:16	05:59 19:48	06:37-06:41/4 20:17	05:29 05:51-06:34/43 20:30
30	07:08 07:39-07:57/18 17:11		06:45 19:17	05:58 19:49	06:36-06:43/7 20:17	05:29 05:51-06:34/43 20:30
31	07:07 07:41-07:55/14 17:12		06:43 19:19		05:29 05:50-06:28/38 20:18	
Potential sun hours	300	298	370	398	446	450
Sum of minutes with flicker	709	4	0	13	659	1278

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: Parco Eolico Val d'AgriWTG: AR11 - Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (16) Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40	7,40

#### Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
391	238	271	662	225	71	178	313	1.370	1.816	503	1.019	7.057

	July	August	September	October	November	December
1	05:29 05:52-06:35/43 20:30	05:53 06:35-06:53/18 20:11	06:22 06:51 19:29	06:51 18:40 16:54	06:25 16:54 16:54	06:59 07:22-07:44/22 16:31
2	05:30 05:52-06:34/42 20:30	05:54 06:36-06:54/18 20:10	06:23 06:52 19:28	06:52 18:38 16:53	06:26 16:53 16:53	07:00 07:23-07:44/21 16:31
3	05:30 05:53-06:35/42 20:30	05:55 06:35-06:53/18 20:09	06:24 06:53 19:26	06:53 18:37 16:52	06:27 16:52 16:52	07:01 07:24-07:44/20 16:30
4	05:31 05:53-06:35/42 20:29	05:56 06:36-06:54/18 20:08	06:25 06:54 19:25	06:54 18:35 16:51	06:28 16:51 16:51	07:02 07:25-07:45/20 16:30
5	05:32 05:54-06:36/42 20:29	05:57 06:36-06:54/18 20:07	06:26 06:55 19:23	06:55 18:33 16:50	06:29 16:50 16:50	07:02 07:26-07:45/19 16:30
6	05:32 05:54-06:35/41 20:29	05:57 06:37-06:54/17 20:06	06:27 06:56 19:21	06:56 18:32 16:49	06:30 16:49 16:49	07:03 07:27-07:45/18 16:30
7	05:33 05:55-06:36/41 20:29	05:58 06:37-06:54/17 20:05	06:28 06:57 19:20	06:57 18:30 16:48	06:31 16:48 16:48	07:04 07:28-07:46/18 16:30
8	05:33 05:56-06:36/40 20:28	05:59 06:39-06:54/15 20:04	06:29 06:58 19:18	06:58 18:29 16:46	06:33 16:46 16:46	07:05 07:29-07:46/17 16:30
9	05:34 05:56-06:36/40 20:28	06:00 06:40-06:54/14 20:02	06:30 06:59 19:16	06:59 18:27 16:45	06:34 16:45 16:45	07:06 07:30-07:46/16 16:30
10	05:35 05:57-06:36/39 20:28	06:01 06:41-06:53/12 20:01	06:31 07:01 19:15	07:01 18:25 16:44	06:35 07:16-07:21/5 16:44	07:07 07:30-07:46/16 16:30
11	05:35 05:58-06:37/39 20:27	06:02 06:43-06:53/10 20:00	06:32 07:02 19:13	07:02 18:24 16:43	06:36 07:12-07:26/14 16:43	07:08 07:31-07:46/15 16:30
12	05:36 05:58-06:36/38 20:27	06:03 06:44-06:52/8 19:59	06:33 07:03 19:12	07:03 18:22 16:43	06:37 07:09-07:28/19 16:43	07:09 07:32-07:47/15 16:30
13	05:37 05:59-06:37/38 20:26	06:04 06:45-06:51/6 19:57	06:34 07:04 19:10	07:04 18:21 16:42	06:38 07:08-07:31/23 16:42	07:09 07:33-07:47/14 16:30
14	05:37 06:00-06:37/37 20:26	06:05 06:46-06:50/4 19:56	06:35 07:05 19:08	07:05 18:19 16:41	06:40 07:07-07:32/25 16:41	07:10 07:34-07:48/14 16:30
15	05:38 06:00-06:36/36 20:25	06:06 06:46-06:47/1 19:55	06:36 07:06 19:07	07:06 18:18 16:40	06:41 07:06-07:33/27 16:40	07:11 07:34-07:48/14 16:31
16	05:39 06:01-06:36/35 20:25	06:07 06:47-06:48/1 19:53	06:37 07:07 19:05	07:07 18:16 16:39	06:42 07:05-07:34/29 16:39	07:12 07:35-07:48/13 16:31
17	05:40 06:02-06:36/34 20:24	06:08 06:48-06:49/1 19:52	06:38 07:08 19:03	07:08 18:15 16:38	06:43 07:06-07:36/30 16:38	07:12 07:36-07:49/13 16:31
18	05:41 06:03-06:36/33 20:23	06:09 06:49-06:50/1 19:50	06:39 07:09 19:02	07:09 18:13 16:38	06:44 07:07-07:37/30 16:38	07:13 07:36-07:49/13 16:31
19	05:41 06:32-06:36/4 20:23	06:10 06:50-06:51/1 19:49	06:40 07:10 19:00	07:10 18:12 16:37	06:45 07:08-07:37/29 16:37	07:14 07:37-07:50/13 16:32
20	05:42 06:31-06:35/4 20:22	06:11 06:51-06:52/1 19:48	06:41 07:11 18:58	07:11 18:10 16:36	06:46 07:09-07:38/29 16:36	07:14 07:37-07:50/13 16:32
21	05:43 06:32-06:35/3 20:21	06:12 06:52-06:53/1 19:46	06:42 07:12 18:57	07:12 18:09 16:35	06:48 07:10-07:38/28 16:35	07:15 07:38-07:51/13 16:33
22	05:44 06:33-06:34/1 20:21	06:13 06:53-06:54/1 19:45	06:43 07:13 18:55	07:13 18:07 16:35	06:49 07:12-07:40/28 16:35	07:15 07:38-07:51/13 16:33
23	05:45 06:07-06:28/21 20:20	06:14 06:54-06:55/1 19:43	06:44 07:14 18:53	07:14 18:06 16:34	06:50 07:13-07:40/27 16:34	07:16 07:39-07:52/13 16:34
24	05:46 06:08-06:26/18 20:19	06:15 06:55-06:56/1 19:42	06:45 07:15 18:52	07:15 18:05 16:34	06:51 07:14-07:41/27 16:34	07:16 07:39-07:52/13 16:34
25	05:46 06:08-06:24/16 20:18	06:16 06:56-06:57/1 19:40	06:45 07:16 18:50	07:16 17:03 16:33	06:52 07:15-07:41/26 16:33	07:17 07:39-07:52/13 16:35
26	05:47 06:10-06:21/11 20:17	06:17 06:57-06:58/1 19:39	06:46 07:17 18:48	07:17 17:02 16:33	06:53 07:16-07:41/25 16:33	07:17 07:40-07:53/13 16:35
27	05:48 06:39-06:46/7 20:16	06:18 06:58-06:59/1 19:37	06:47 07:18 18:47	07:18 17:01 16:32	06:54 07:17-07:42/25 16:32	07:17 07:40-07:53/13 16:36
28	05:49 06:37-06:48/11 20:15	06:19 06:59-07:00/1 19:36	06:48 07:19 18:45	07:19 16:59 16:32	06:55 07:19-07:43/24 16:32	07:18 07:40-07:54/14 16:37
29	05:50 06:35-06:50/15 20:14	06:20 07:00-07:01/1 19:34	06:49 07:20 18:43	07:20 16:58 16:31	06:56 07:20-07:43/23 16:31	07:18 07:41-07:55/14 16:37
30	05:51 06:34-06:51/17 20:14	06:21 07:01-07:02/1 19:33	06:50 07:21 18:42	07:21 16:57 16:31	06:57 07:21-07:43/22 16:31	07:18 07:41-07:55/14 16:38
31	05:52 06:35-06:52/17 20:13	06:22 07:02-07:03/1 19:31	06:51 07:22 18:41	07:22 16:56 16:30	06:58 07:22-07:44/21 16:30	07:19 07:41-07:56/15 16:39
Potential sun hours	457	426	375	346	300	290
Sum of minutes with flicker	949	194	0	0	515	472

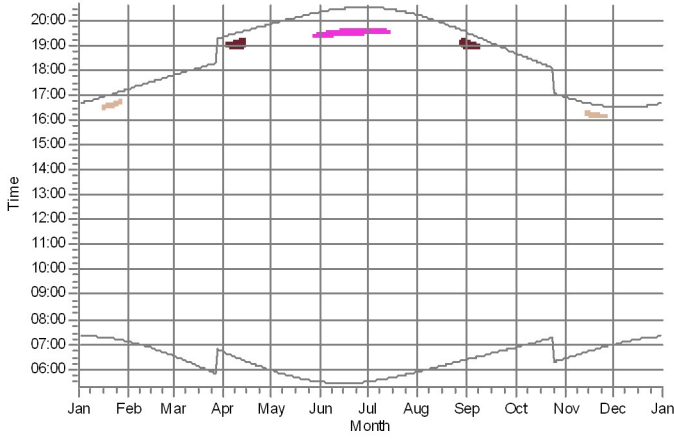
Table layout: For each day in each month the following matrix apply

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

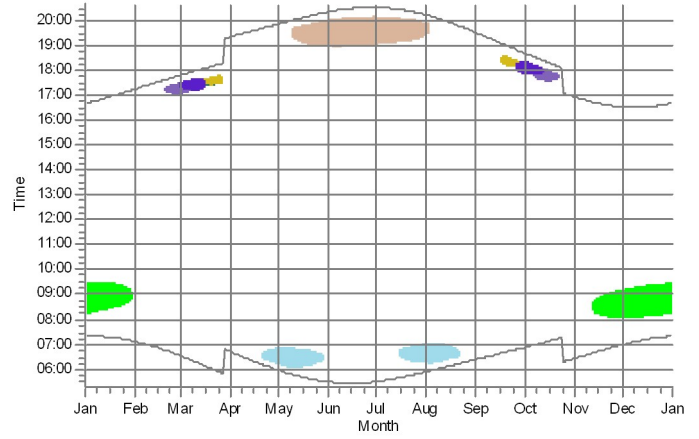
## SHADOW - Calendar per WTG, graphical

Calculation: Parco Eolico Val d'Agri

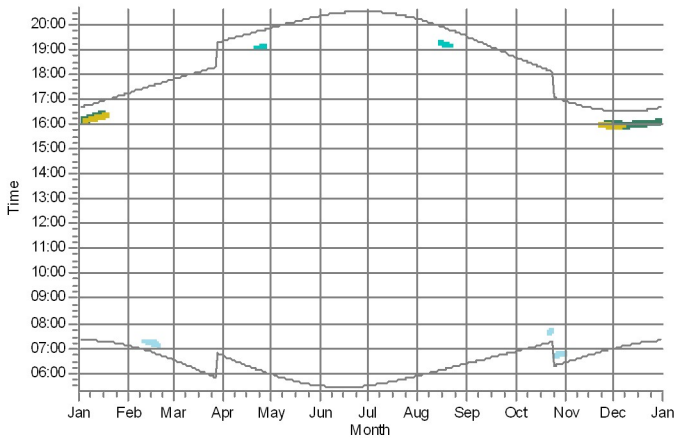
AR01: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



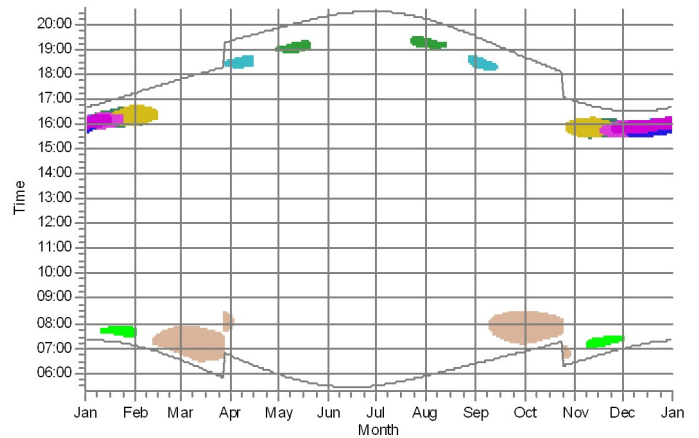
AR02: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



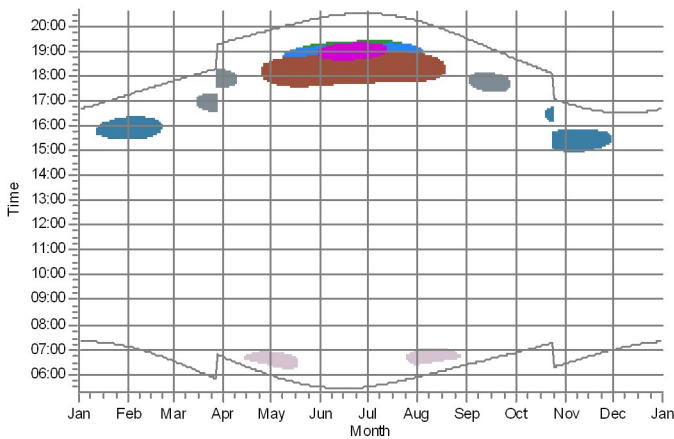
AR03: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



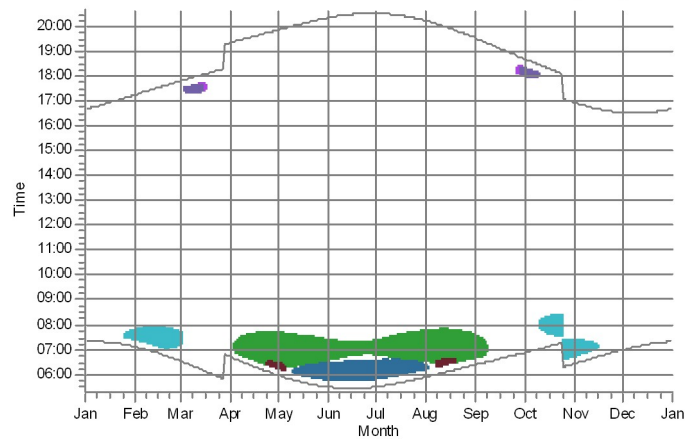
AR04: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



AR05: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



AR06: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



Shadow receptors

- R2: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (59)
- R4: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (60)
- R43: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (74)
- R44: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (75)
- R45: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (76)
- R46: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (77)
- R51: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (80)
- R56: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (96)

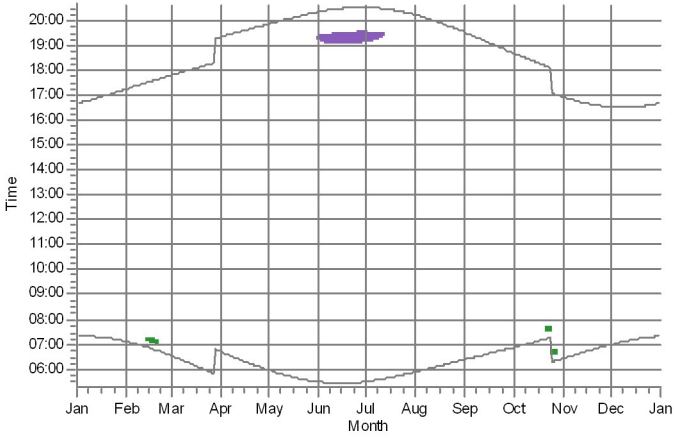
- R58: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (84)
- R59: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (85)
- R62: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (86)
- R64: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (87)
- R67: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (88)
- R78: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (89)
- R79: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (90)
- R82: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (91)

- R84: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (92)
- R86: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (93)
- R88: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (94)
- R9: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (61)
- R90: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (95)
- R91: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (82)
- R94: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (97)
- R95: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (98)

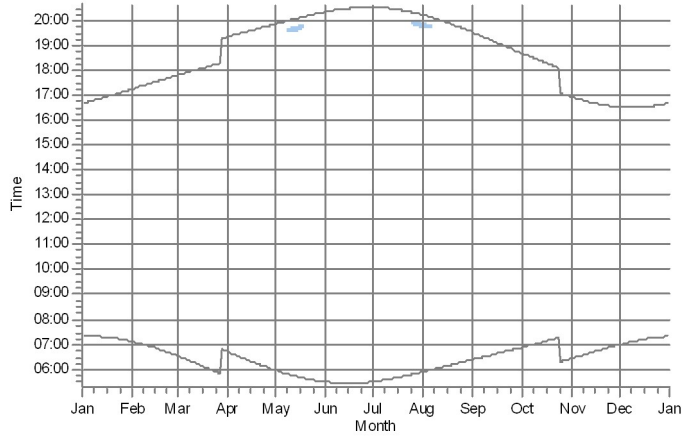
## SHADOW - Calendar per WTG, graphical

Calculation: Parco Eolico Val d'Agri

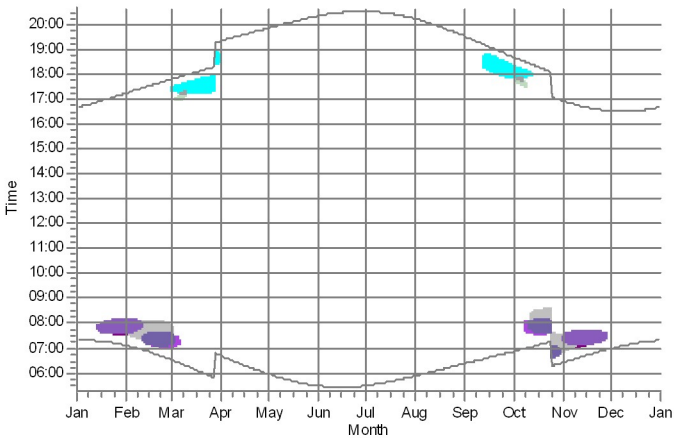
AR07: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



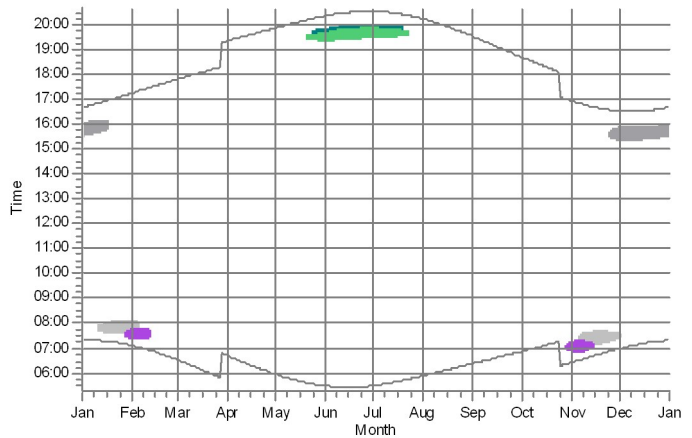
AR08: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



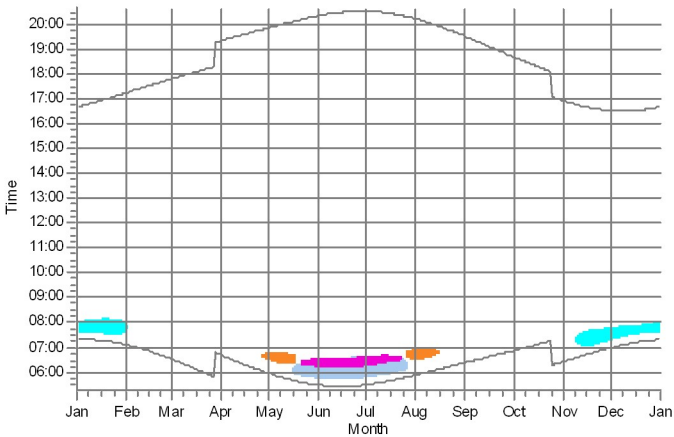
AR09: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



AR10: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



AR11: Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 115,0 m (TOT: 21



Shadow receptors

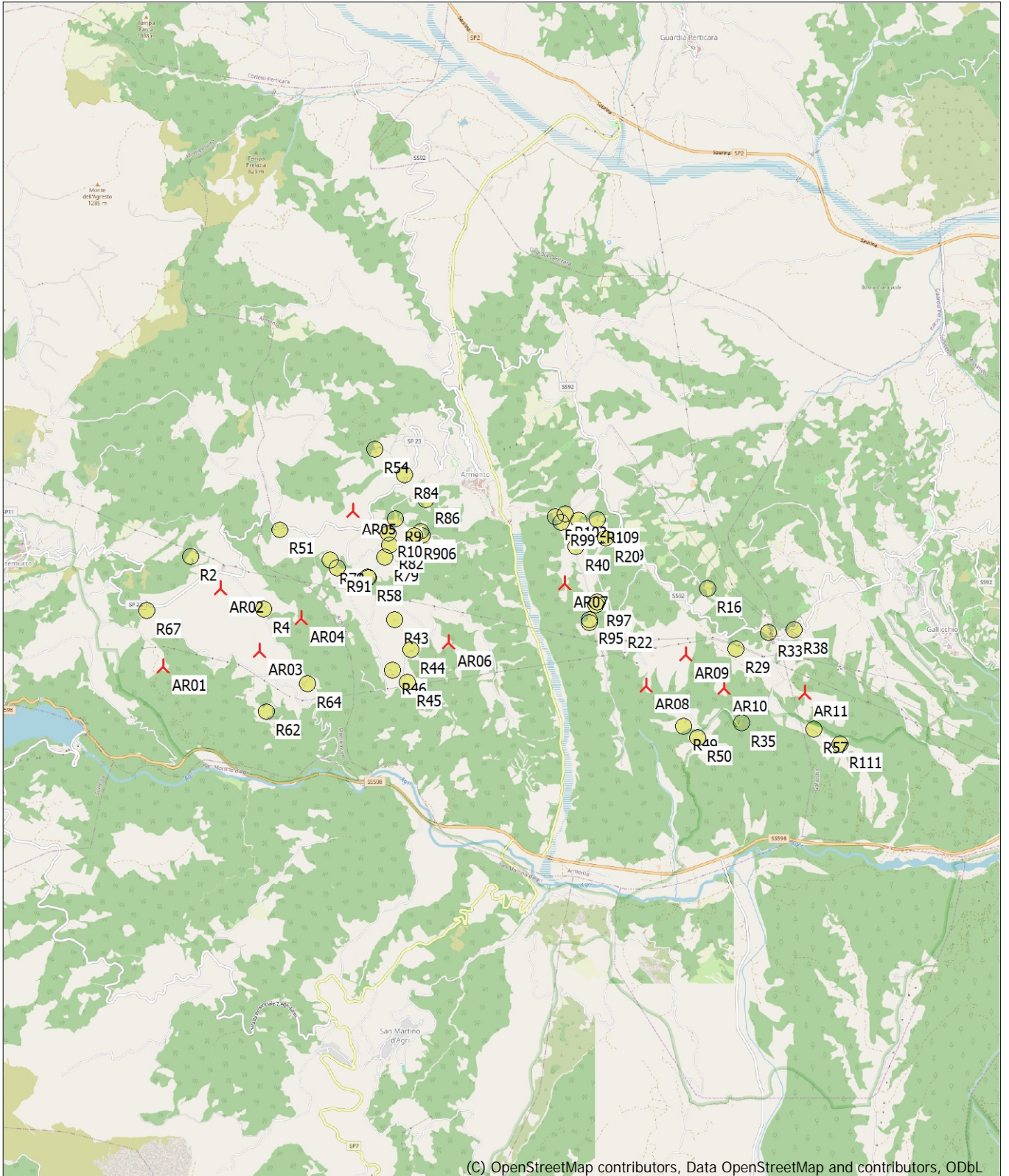
- R111: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (105)
- R21: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (67)
- R22: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (68)
- R29: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (69)
- R33: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (70)

- R35: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (71)
- R38: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (72)
- R49: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (78)
- R50: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (79)
- R56: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (96)

- R57: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (83)
- R94: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (97)
- R95: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (98)
- R97: Shadow Receptor: 1.0 x 1.0 Azimuth: 0.0° Slope: 90.0° (99)

## SHADOW - Map

Calculation: Parco Eolico Val d'Agri



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



Map: EMD OpenStreetMap , Print scale 1:75.000, Map center Geo WGS84 East: 16,067867° E North: 40,292719° N

New WTG

Shadow receptor

Flicker map level: Elevation Grid Data Object: WF Val d'Agri\_EMDGrid\_0.wpg (14)