

Windpark Moerdijk te Moerdijk
Onderzoek geluid en slagschaduw

Opdrachtgever

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1 Inleiding

In opdracht van Nuon Wind Development BV te Amsterdam, de heer J. Goldenbeld, is de geluidmissie van het nieuw te realiseren windpark in Moerdijk bepaald. Doel van het onderzoek is de geluidbelasting van het windpark bij de woningen in de omgeving te bepalen in het kader van de milieueffectrapportage.

Uit de rekenresultaten blijkt dat het windpark verenigbaar is met de woningen in de omgeving. Met de hier beoordeelde turbinetypes kan voor beide mogelijke lay-outs zonder geluidbeperkende maatregelen aan de geluidnormen worden voldaan.

Uit de cumulatieberekening blijkt dat nauwelijks sprake is van een toename van de gecumuleerde geluidbelasting van het windpark met andere bronsoorten. De toename is op de meeste punten verwaarloosbaar en op alle punten beperkt tot hooguit 2 dB.

Uit de slagschaduwberekening blijkt dat een stilstandvoorziening nodig is.

2 Uitgangspunten

2.1 Situatie

Het windpark is geprojecteerd op de rand van het industrieterrein te Moerdijk. De turbines worden gesitueerd langs de Westelijke Randweg en langs de Zuidelijke Randweg. In figuur I.1 is de situatie weergegeven. Voor het windpark zijn twee verschillende lay-outs onderzocht. Het gaat dan om een lay-out met acht windturbines met een rotordiameter van 117 meter of zeven windturbines met een rotordiameter van 132 meter.

Woningen zijn gesitueerd ten westen, ten zuiden, en ten oosten van het park. De dichtstbijzijnde woning betreft Gorsdijk 1 op circa 500 m afstand ten oosten van het park. Deze woning is opgekocht door de gemeente en zal worden wegbestemd. De woning wordt in dit onderzoek wel meegenomen. Overige woningen zijn gesitueerd op ten minste 500 m afstand. Op circa 500 m afstand van twee turbines is een brandweerkazerne gelegen waar ook overnacht wordt. Deze kazerne wordt ook in het onderzoek meegenomen.

2.2 Normstelling

Voor een windpark geldt de geluidnorm conform het Activiteitenbesluit milieubeheer. Conform dit besluit geldt voor geluid een jaargemiddelde norm van 47 dB L_{den} en 41 dB L_{night} ter plaatse van woningen van derden. Voor de slagschaduw geldt conform artikel 3.12 lid 1 van de Regeling een grenswaarde van maximaal 17 dagen per jaar met niet meer dan 20 minuten per dag slagschaduw. Deze norm geldt alleen voor gevoelige gebouwen. Een brandweerkazerne wordt niet als gevoelig aangemerkt conform het Activiteitenbesluit en de Wet Geluidhinder.

Voor de beoordeling van het windturbinegeluid gecumuleerd met andere geluidbronnen (wegverkeer en industrie) gelden geen normwaarden. Wel is in het Activiteitenbesluit een rekenmethode aangegeven waarmee de cumulatie dient te worden berekend. Op basis hiervan kan een vergelijking worden gemaakt in het gecumuleerd geluidniveau zonder en met het windpark.

2.3 De windturbine

Het uiteindelijk te plaatsen turbinetype zal afhangen van de gekozen layout. De volgende turbines worden onderzocht.

- Voor lay-out 1 de Gamesa G114 met een rotordiameter van 114 meter en een ashoogte van 125 meter.
- Voor lay-out 2 de Gamesa G132 met een rotordiameter van 132 meter en een ashoogte van 120 meter.

Van de mogelijke toe te passen turbinestypes zijn deze turbines conform opgave van de opdrachtgever worst-case voor de geluidemissie. Voor de slagschaduw is eveneens worst-case berekend door uit te gaan van turbines met een rotordiameter van 117 meter en ashoogte 130 meter (lay-out 1) en rotordiameter 132 meter en ashoogte 130 meter (lay-out 2).

3 Geluidoverdrachtberekeningen

De berekening van de geluidimmissie ter plaatse van de omliggende woningen is uitgevoerd conform het reken- en meetvoorschrift windturbines dat is opgenomen in de ministeriële regeling behorende bij het Activiteitenbesluit.

3.1 Modelling omgeving en geluidoverdracht

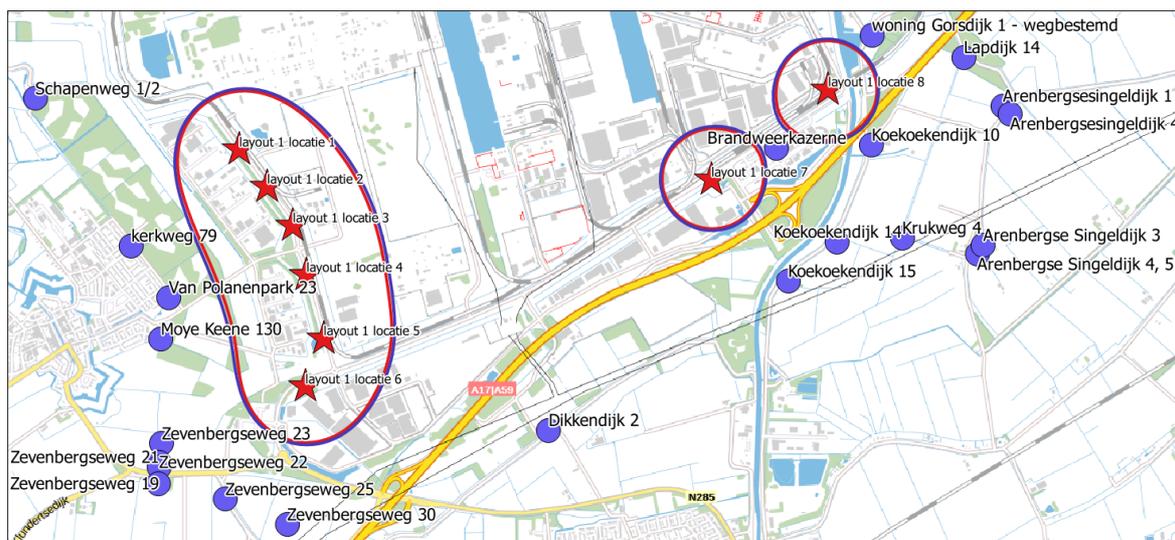
De geluidimmissie is berekend door een rekenmodel op te stellen waarbij de windturbines ingevoerd zijn als puntbron. Rekenpunten zijn gemodelleerd op een hoogte van 5 meter. Buiten de opgegeven bodemgebieden is gerekend met een halfzachte bodem. De invoergegevens zijn opgenomen in bijlage III.

Bij de berekening zijn de volgende uitgangspunten gehanteerd.

- Geluidvermogeniveau. Voor het geluidvermogeniveau van de turbines is uitgegaan van het document GD181659-en (d.d. 11 maart 2013) voor de Gamesa G114 en het document GD197900-en (d.d. 30 april 2014) voor de Gamesa G132. De relevante tabellen uit de documenten zijn opgenomen in bijlage II. In de documenten is het geluidvermogeniveau van de turbine gegeven als functie van de windsnelheid op 10 meter hoogte. Deze gegevens zijn omgerekend naar het geluidvermogen behorende bij de windsnelheid op ashoogte. De jaargemiddelde bronsterkte op deze locatie bedraagt (met het lokale windprofiel) 110 dB(A) voor beide turbintypes. In bijlage II zijn de berekeningen en opgenomen.
- Spectrum. Het spectrum voor de G114 is afkomstig uit het document GD187261 d.d. 22 april 2013. Voor de G132 is het spectrum afkomstig uit het document GD215843 d.d. 10 april 2014. Voor de G132 is gerekend met het gemiddelde spectrum voor windsnelheden op 10 meter hoogte van 6 m/s tot 10 m/s. De spectra zijn opgenomen in bijlage II.
- Ashoogte. Bij de bovenstaande bepaling van de windverdeling is een ashoogte van 120 meter gehanteerd. Voor lay-out 1 worden de turbines op een ashoogte van 125 meter geplaatst. Een dergelijk klein verschil (5 meter) heeft een verwaarloosbaar effect op het geluidvermogeniveau van de windturbine (< 0,1 dB). In het rekenmodel is voor de geluidoverdracht de turbine wel op de juiste ashoogte gemodelleerd.

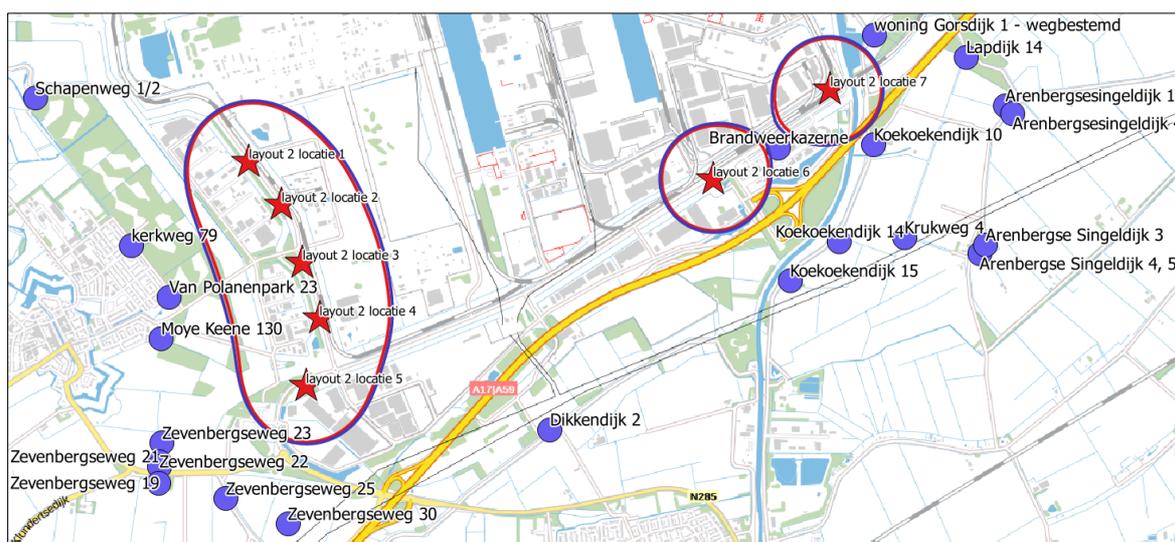
3.2 Resultaten

Met de genoemde uitgangspunten zijn de volgende geluidniveaus berekend. In figuur 3.1 en 3.2 zijn de L_{den} en L_{night} contouren weergegeven voor lay-out 1 (figuur 3.1) en lay-out 2 (figuur 3.2). In de bijbehorende tabellen zijn voor een aantal representatieve woningen de rekenresultaten opgenomen.



Figuur 3.1

Resultatencontouren lay-out 1 (acht windturbines). Weergegeven zijn de 47 dB L_{den} contour (blauw) en de 41 dB L_{night} contour (rood).



Figuur 3.2

Resultatencontouren lay-out 2 (zeven windturbines). Weergegeven zijn de 47 dB L_{den} contour (blauw) en de 41 dB L_{night} contour (rood).

Naam	Omschrijving	Hoogte	layout 1		layout 2	
			Nacht	Lden	Nacht	Lden
tp01_A	Schapenw eg 1/2	5	29	35	28	34
tp02_A	kerkw eg 79	5	36	42	36	42
tp03_A	Van Polanenpark 23	5	38	44	37	44
tp04_A	Moye Keene 130	5	36	42	36	42
tp05_A	Zevenbergsew eg 23	5	33	39	33	39
tp06_A	Zevenbergsew eg 22	5	32	38	32	38
tp07_A	Zevenbergsew eg 21	5	32	38	32	38
tp08_A	Zevenbergsew eg 19	5	31	37	31	37
tp09_A	Zevenbergsew eg 25	5	33	40	33	39
tp10_A	Zevenbergsew eg 30	5	33	39	33	39
tp11_A	Dikkendijk 2	5	29	35	29	35
tp12_A	Koekoekendijk 15	5	33	39	33	40
tp13_A	Koekoekendijk 14	5	33	40	34	40
tp14_A	Krukw eg 4	5	31	37	31	38
tp15_A	Arenbergse Singeldijk 4, 5	5	27	33	27	33
tp16_A	Arenbergse Singeldijk 3	5	27	33	27	33
tp18_A	Koekoekendijk 10	5	38	44	38	45
tp19_A	woning Gorsdijk 1 - wegbestemd	5	38	44	38	45
tp20_A	Lapdijk 14	5	31	38	32	38
tp21_A	Arenbergsesingeldijk 1	5	29	35	29	36
tp22_A	Arenbergsesingeldijk 4	5	29	35	29	35

Uit de resultaten blijkt dat bij alle woningen aan de geluidnorm wordt voldaan. De L_{night} -waarde bedraagt voor beide lay-outs ten hoogste 38 dB, 3 dB onder de normwaarde. De L_{den} -waarde bedraagt ten hoogste 44 dB voor lay-out 1 en 45 dB voor lay-out 2.

De geluidbelasting bij de brandweerkazerne is eveneens berekend. Hier geldt wettelijk geen norm. Er wordt wel aan de geluidnorm voor woningen voldaan. In onderstaande tabel zijn de resultaten opgenomen.

Naam	Omschrijving	Hoogte	layout 1		layout 2	
			Nacht	Lden	Nacht	Lden
tp17_A	Brandweerkazerne	5	40	46	40	47

3.3 Geluid nabij turbine

De turbines worden gesitueerd in een omgeving waar mensen verblijven (bedrijven). Ter plaatse van kantoren en bedrijven gelden geen geluidnormen. Om inzicht te krijgen in de geluidniveaus nabij de turbines, wordt het geluidniveau berekend voor een punt op korte afstand van een turbine.

Op 50 m afstand van een turbine kan het geluidniveau op normale hoogtes (1,5 of 5 meter) circa 57 à 58 dB(A) bedragen bij vol bedrijf van de turbine.

Een dergelijk geluidniveau is niet relevant voor personen die buiten aanwezig zijn. Een geluidniveau van 58 dB(A) is weliswaar duidelijk hoorbaar, maar komt overeen met het geluidniveau van een normaal gesprek. Een dergelijk niveau is lager dan een rustig voorbijrijdende personenauto op 10 meter afstand. Kans op gehoorschade - langdurig meer dan 80 dB(A) - is uitgesloten.

Indien zich op circa 50 meter een kantoor bevindt, zal het geluidniveau in het kantoor bij een geluidbelasting van 58 dB(A) hoogstens¹ 33 à 38 dB(A) bedragen. Voor buitengeluid werd in het Bouwbesluit 2003 een geluidniveau van 40 dB(A) in een kantoorruimte als acceptabel beschouwd. In het huidige Bouwbesluit worden geen eisen meer gesteld aan het binnenniveau in kantoren als gevolg van buitengeluid. Een geluidniveau van 38 dB(A) is in een rustige kantoorruimte hoorbaar, maar is vergelijkbaar met het geluid van een zoemende computer of een luchtbehandelings-systeem. In een kantoortuin met meerdere personen zal een geluidniveau van 38 dB(A) nauwelijks hoorbaar zijn.

1 Maar voor moderne kantoren zal het niveau waarschijnlijk 28 à 33 dB(A) bedragen door de betere geluidisolatie van de gevel.

4 Laagfrequent geluid

Geluid bestaat bijna nooit uit slechts een zuivere toon met één frequentie, maar is opgebouwd uit verschillende frequenties. Het geluid van wegverkeer is bijvoorbeeld opgebouwd uit laagfrequent geluid van de brommende motor, een middenfrequent geluid van de interactie tussen band en wegdek en vaak nog een hoogfrequent (aerodynamisch) geluid van de luchtstroming om de auto. Geluid met een frequentie lager dan 100 Hz wordt in het algemeen LFG genoemd. Echter, bij frequenties lager dan circa 20 Hz is al nauwelijks meer sprake van 'geluid'. Geluid is namelijk gedefinieerd als een hoorbare trilling van de lucht. Trillingen van de lucht met frequenties lager dan circa 20 Hz worden echter niet meer gehoord, maar kunnen nog wel worden waargenomen door de mens bijvoorbeeld in de vorm van een druk op de oren, een gevoel in de maag of in de borst. Voor deze frequenties wordt ook de term infrason geluid of infrageluid gehanteerd.

De normstelling alsmede de meet- en rekenmethode geldt voor 'gewoon' geluid. Voor laagfrequent geluid zijn geen aparte eisen gesteld. Bij berekeningen en metingen aan 'gewoon' geluid wordt impliciet ook het laagfrequent geluid meegenomen. Laagfrequent geluid wordt momenteel al meegenomen in de huidige regelgeving specifiek voor windturbines, die uitgaat van het hele geluidkarakter van windturbines. Sinds 2011 geldt voor de geluidemissie van windturbines de jaardosisnorm L_{den} . Met deze normsystematiek - die overigens al veel langer geldt voor weg-, rail- en vliegverkeer - wordt het gehele geluidkarakter van windturbinegeluid meegenomen, dus ook laagfrequent geluid. Bij het vaststellen van de hoogte van deze norm zijn onderzoeken naar hinderbeleving meegenomen. In dit belevingsonderzoek zijn specifieke kenmerken van windturbinegeluid (waaronder eventueel laagfrequent geluid) meegewogen in de beoordeling. Uit dit onderzoek werd duidelijk dat windturbines bij gelijke blootstelling hinderlijker zijn dan andere bronnen, en met die waardering is dus al rekening gehouden bij de vaststelling van de L_{den} -norm.

De huidige Nederlandse geluidnorm is bedoeld om geluidhinder en slaapverstoring te beperken. Uit recente (literatuur)studies² blijkt dat er geen aanwijzingen zijn dat windturbinegeluid tot andere gezondheidseffecten leidt. Er zijn geen aanwijzingen dat het aandeel laagfrequent geluid hier een bijzondere dan wel belangrijke rol in speelt.

Ook is door de Staatsecretaris van Infrastructuur en Milieu, mede namens de minister van Economische Zaken en de minister van Infrastructuur en Milieu over het onderwerp laagfrequent geluid van windturbines een brief aan de Tweede kamer gestuurd. Deze brief baseert zich onder andere op bovengenoemd onderzoek van het RIVM waarin het volgende wordt gesteld.

- Laagfrequent geluid bij windturbines in samenhang met hogere frequenties wordt gehoord en niet afzonderlijk hiervan.
- Dit impliceert tevens dat de effecten van laagfrequent geluid op mensen niet anders zullen zijn dan effecten van geluid met hogere frequenties zoals hinder, slaapverstoring, moeheid, concentratieproblemen en dergelijke.
- Voor beweringen dat laagfrequent geluid van windturbines allerlei klinische ziekten bij mensen kan veroorzaken is geen betrouwbare bewijsvoering aangetroffen, hetgeen in lijn is met de voorgaande inzichten.

2 Agentschap NL, Literatuuronderzoek laagfrequent geluid windturbines, DENB 138006, d.d. september 2013 en RIVM 2013, Windturbines: invloed op de beleving en gezondheid van omwonenden

- Het feitelijke aandeel laagfrequent geluid in het brongeluid van een windturbine gering is. Daarom is ook het aandeel in de geluidbelasting op een woninggevel gering.
- Bij het groter worden van turbines (tot 5 of 7,5 MW) zal dit aandeel met hooguit 1 à 2 dB toenemen. Het bij de Nederlandse norm voor windturbinegeluid voorgeschreven reken- en meetvoorschrift is goed in staat om hiermee rekening te houden zodat een correcte toetsing aan de norm mogelijk is.
- De Deense norm voor laagfrequent windturbinegeluid in het binnenmilieu van een woning biedt geen extra bescherming ten opzichte van de Nederlandse norm voor de gevelbelasting in geval van een standaard geïsoleerde woning.

Op grond van de brief van de staatssecretaris kan worden gesteld dat toetsing aan de standaard Nederlandse geluidnormen (zoals in dit rapport gebeurt) tevens voldoende bescherming biedt tegen laagfrequent geluid. Het is dan ook niet noodzakelijk onderzoek uit te voeren naar laagfrequent geluid voor windpark Moerdijk.

5 Cumulatie met wegverkeer en industrielawaai

5.1 Rekenmethode cumulatie

De cumulatieve geluidbelasting L_{cum} is bepaald conform de rekenmethode uit het Reken- en meetvoorschrift windturbines opgenomen in bijlage 4 bij de Regeling algemene regels voor inrichtingen milieubeheer. Daarbij wordt uitgegaan van formules:

- windturbines: $L^*_{wtb} = 1,65 L_{wtb} - 20$;
- industrielawaai: $L^*_{il} = 1,0 L_{il} + 1$;
- wegverkeerslawaai: $L^*_{vl} = 1,0 L_{vl} + 0$.

Bij de cumulatieve geluidbelasting wordt rekening gehouden met het volgende.

- Het wegverkeergeluid van de Rijksweg. De geluidbelasting ter plaatse van de woningen is ingeschat op basis van de geluidkaarten van het geluidregister van Rijkswaterstaat³.
- Het industrielawaai van het gezoneerde industrieterrein. De geluidbelasting ter plaatse van de woningen is bepaald op basis van de hogere grenswaarde die geldt voor bepaalde woningen (55 dB(A)) of de ligging nabij de zonegrens (50 dB(A)).
- Het wegverkeer van provinciale wegen conform de geluidcontour gegeven door Provincie Noord-Brabant⁴.
- De verkeersintensiteiten aangeleverd door de gemeente Moerdijk van de Niervaartweg⁵. Deze weg is relevant voor de woningen aan het Van Polanenpark.

Het railverkeer ter plaatse is niet relevant ten opzichte van de snelweg.

5.2 Resultaten cumulatie

Om de cumulatie te beoordelen wordt voor enkele maatgevende punten het gecumuleerde geluidniveau beoordeeld voor beide lay-outs. Hiervoor wordt de geluidbelasting van windturbines en van industrielawaai omgerekend naar een geluidniveau van wegverkeer met dezelfde hinderlijkheid (conform de in paragraaf 3.5 opgenomen methode). De resulterende niveaus kunnen bij elkaar worden opgeteld.

Tabel 5.1

Gecumuleerde geluidbelasting [dB] voor maatgevende punten

Omschrijving	Letm industrie	Lden wegverkeer	Lcum bestaand	Lden WTB	Lcum layout 1 (toename)	Lcum layout 2 (toename)
Gorsdijk 1	55	55	59	44 / 45	60 (+1)	60 (+1,4)
Koekoekendijk 10	55	59	61	44 / 45	61 (+0,6)	62 (+0,9)
Koekoekendijk 14	55	54	58	40 / 40	58 (+0,3)	58 (+0,3)
Koekoekendijk 15	55	53	58	39 / 40	58 (+0,2)	58 (+0,3)
Zevenbergseweg 30	50	54	56	39 / 39	56 (+0,3)	56 (+0,3)
Zevenbergseweg 23		53	53	39 / 39	54 (+0,6)	54 (+0,6)
Moye Keene 130		53	53	42 / 42	55 (+1,5)	55 (+1,5)
Van Polanenpark 23	50	53	55	44 / 44	57 (+1,9)	57 (+1,9)
Schapenweg 1	50		51	35 / 34	51 (+0,2)	51 (+0,1)

3 <http://www.rijkswaterstaat.nl/kaarten/geluidregister.aspx?>

4 <http://kaartbank.brabant.nl/viewer/app/Kaartbank>

5 Telling uit 2001 van 2171 mvt/etm en een modelwaarde voor 2020 van 2.600 mvt/etm. Uitgegaan is van 2.400 mvt/etm.

Uit de resultaten blijkt dat de toename van het gecumuleerde geluidniveau bij de woningen voor beide lay-outs hoogstens 2 dB is. Deze toename is beperkt. Een toename van 1 dB kan als verwaarloosbaar worden beschouwd, overeenkomstig bijvoorbeeld de methode van verwaarlozing bij de Handleiding rekenen en meten industrielawaai, het verwaarlozingscriterium voor reconstructie bij de Wet geluidhinder en de praktijk bij handhaving jurisprudentie industrielawaai. Een toename van 2 dB is alhoewel niet verwaarloosbaar wel beperkt te noemen.

6 Slagschaduw

De slagschaduw is bepaald met behulp van de software Windpro (zie bijlage IV), waarbij de gemiddelde (of verwachte) duur is afgeleid van de maximale (of potentiële) duur door rekening te houden met de gemiddelde zonuren per dag en de gemiddelde windrichtingverdeling voor het KNMI meetstation te Gilze-Rijen. Deze zijn als volgt.

Gemiddelde zonuren per dag

Maand	januari	februari	maart	april	mei	juni	juli	augustus	september	oktober	november	december
Daguren	1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

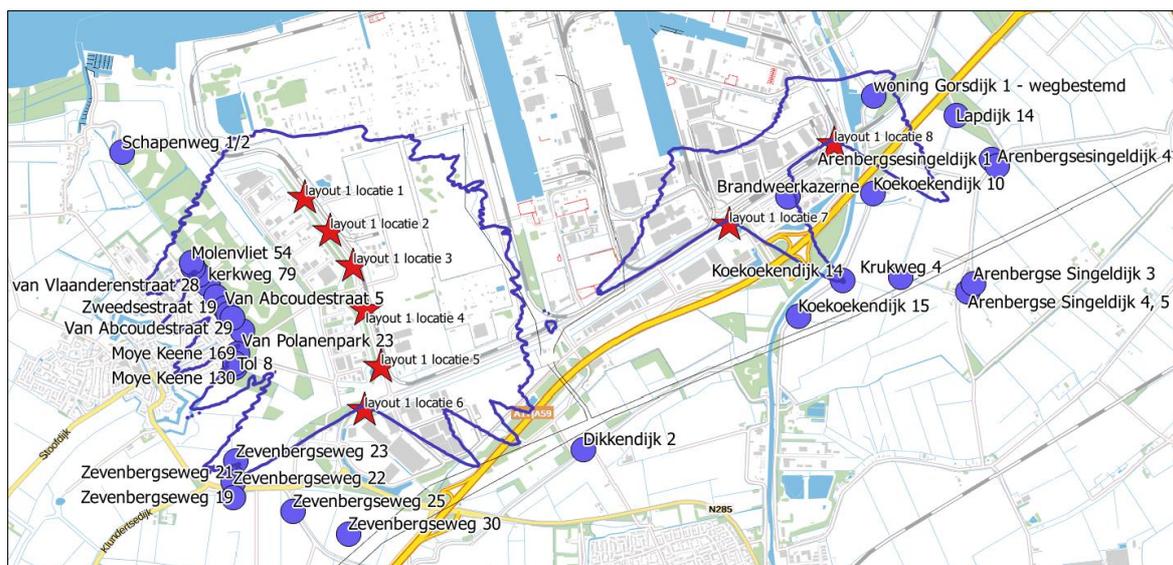
Windrichting in uren per jaar

Windrichting	N	NNO	ONO	O	OZO	ZZO	Z	ZZW	WZW	W	WNW	NNW
Uren per jaar	469	688	556	384	481	441	747	1491	1263	905	557	338

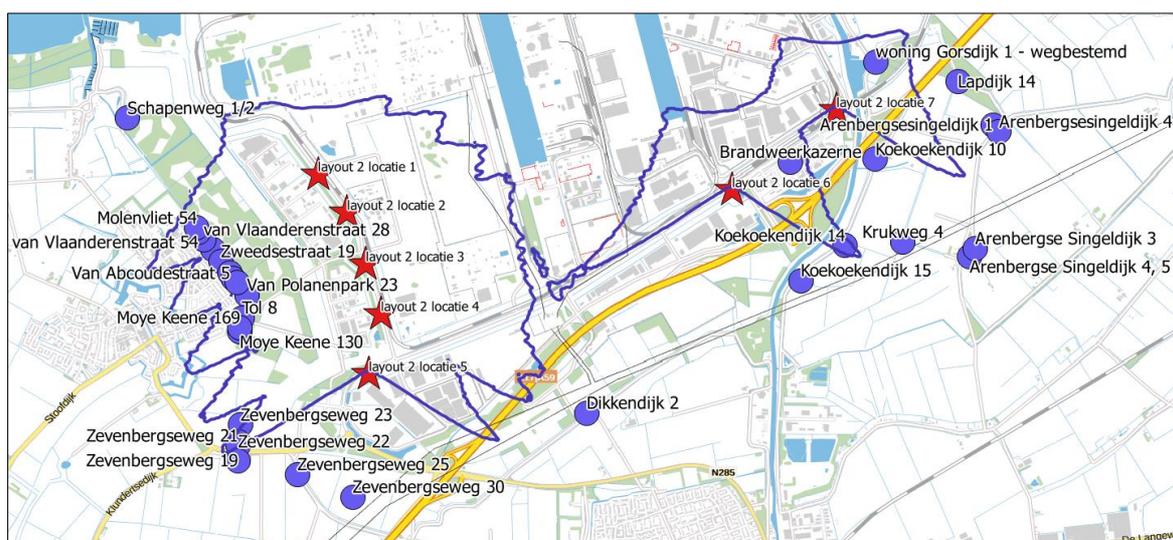
Tevens is rekening gehouden met een verwachte bedrijfsduur van de turbines van 95% gedurende het jaar. Dit komt overeen met 5% stilstand als gevolg van te weinig wind, onderhoud of te harde wind.

De berekeningen zijn uitgevoerd voor de turbines met een rotordiameter van 117 meter en ashoogte 130 meter (lay-out 1) en rotordiameter 132 meter en ashoogte 130 meter (lay-out 2). Voor lay-out 1 betekent dit dat wordt gerekend met een rotordiameter die 3 meter groter is dan die van de Gamesa G114. Het betreft hier dus een worst-case berekening (een grotere rotordiameter leidt altijd tot meer slagschaduwvorming).

In figuren 6.1 en 6.2 zijn de slagschaduwcontouren weergegeven van een verwachte zes uur per jaar slagschaduw voor respectievelijk lay-out 1 en lay-out 2. Buiten de zes uur-contour kan de grenswaarde van 17 dagen meer dan 20 minuten niet worden overschreden. Uit de contour blijkt dat enkele woningen binnen de zes uur-contour liggen. Voor een aantal woningen is het verwachte aantal dagen dat meer dan 20 minuten slagschaduw optreedt bepaald (zie tabellen 6.1 en 6.2 verderop). Hieruit blijkt dat voor beide lay-outs bij meerdere woningen gemiddeld meer dan 17 dagen per jaar meer dan 20 minuten per dag slagschaduw optreedt. Dit betekent dat de turbines van een automatische stilstandvoorziening dienen te worden voorzien. De stilstand kan eventueel worden ingeregeld met behulp van de in bijlage V opgenomen slagschaduwkalenders.



Figuur 6.1
Contourkaart 6 uur slagschaduw voor lay-out 1



Figuur 6.2
Contourkaart 6 uur slagschaduw voor lay-out 2

Tabel 6.1

Maximale en verwachte slagschaduw per woning, lay-out 1

Beoordelings- punt	Max uren per jaar [u:m]	Verw acht uren per jaar [u:m]	Max dagen per jaar [#]	Verw acht dagen per jaar [#]	Maximale stilstand per jaar [%]
a. Dikkendijk 2	0:00	0:00	0	--	0,0
b. Schapenweg 1/2	5:23	0:45	24	--	0,1
c. Koekoekendijk 14	34:36	6:38	83	14	0,4
d. Kruweg 4	7:39	1:28	31	--	0,1
e. Koekoekendijk 15	0:00	0:00	0	--	0,0
f. Arenbergse Singeldijk 4, 5	0:00	0:00	0	--	0,0
g. Arenbergse Singeldijk 3	0:00	0:00	0	--	0,0
h. Arenbergsesingeldijk 1	8:29	1:38	30	2	0,1
i. Koekoekendijk 10	9:19	1:35	30	3	0,1
j. Lapdijk 14	12:51	2:12	36	1	0,1
k. Arenbergsesingeldijk 4	7:57	1:34	30	2	0,1
l. woning Gorsdijk 1 - wegbestemd	87:04	13:15	112	16	1,0
m. Brandweerkazerne	45:30	8:25	67	12	0,5
n. Van Polanenpark 23	58:58	11:37	166	21	0,7
o. Kerkweg 79	58:03	11:31	201	15	0,7
p. Moye Keene 130	41:47	8:31	128	14	0,5
q. Zevenbergseweg 23	30:03	7:24	98	9	0,3
r. Zevenbergseweg 22	27:02	6:34	73	15	0,3
s. Zevenbergseweg 21	24:36	5:57	66	12	0,3
t. Zevenbergseweg 19	8:24	1:59	34	--	0,1
u. Zevenbergseweg 25	0:00	0:00	0	--	0,0
v. Zevenbergseweg 30	0:00	0:00	0	--	0,0
w. van Vlaanderenstraat 28	36:11	7:19	129	10	0,4
x. van Vlaanderenstraat 54	43:20	9:14	139	14	0,5
y. Molenvliet 54	50:09	10:46	150	18	0,6
z. Zw eedsestraat 19	59:52	11:43	187	18	0,7
aa. Van Abcoudestraat 5	43:56	8:05	142	12	0,5
ab. Van Abcoudestraat 19	48:51	9:19	155	15	0,6
ac. Van Abcoudestraat 29	56:33	11:11	177	19	0,6
ad. Tol 8	37:22	7:13	113	13	0,4
ae. Moye Keene 169	39:09	7:51	121	14	0,4

Tabel 6.2

Maximale en verwachte slagschaduw per woning, lay-out 2

Beoordelings- punt	Max uren per jaar [u:m]	Verw acht uren per jaar [u:m]	Max dagen per jaar [#]	Verw acht dagen per jaar [#]	Maximale stilstand per jaar [%]
a. Dikkendijk 2	0:00	0:00	0	--	0,0
b. Schapenweg 1/2	5:36	0:46	25	--	0,1
c. Koekoekendijk 14	41:01	7:53	86	15	0,5
d. Krukweg 4	9:19	1:47	35	2	0,1
e. Koekoekendijk 15	0:00	0:00	0	--	0,0
f. Arenbergse Singeldijk 4, 5	0:00	0:00	0	--	0,0
g. Arenbergse Singeldijk 3	0:00	0:00	0	--	0,0
h. Arenbergsesingeldijk 1	10:21	2:01	33	3	0,1
i. Koekoekendijk 10	11:20	1:55	34	3	0,1
j. Lapdijk 14	16:04	2:45	40	5	0,2
k. Arenbergsesingeldijk 4	9:38	1:54	34	3	0,1
l. woning Gorsdijk 1 - wegbestemd	115:14	17:10	130	19	1,3
m. Brandweerkazerne	57:26	10:39	76	13	0,7
n. Van Polanenpark 23	50:53	9:25	131	17	0,6
o. Kerkweg 79	44:31	7:47	146	11	0,5
p. Mbye Keene 130	58:44	12:22	148	23	0,7
q. Zevenbergseweg 23	24:47	6:13	65	11	0,3
r. Zevenbergseweg 22	31:50	7:44	76	16	0,4
s. Zevenbergseweg 21	28:42	6:58	69	14	0,3
t. Zevenbergseweg 19	10:53	2:34	39	3	0,1
u. Zevenbergseweg 25	0:00	0:00	0	--	0,0
v. Zevenbergseweg 30	0:00	0:00	0	--	0,0
w. van Vlaanderenstraat 28	57:04	12:07	158	20	0,7
x. van Vlaanderenstraat 54	63:38	13:45	175	24	0,7
y. Molenvliet 54	61:46	13:18	182	21	0,7
z. Zw eedsestraat 19	55:15	10:30	166	18	0,6
aa. Van Abcoudestraat 5	71:51	14:17	186	26	0,8
ab. Van Abcoudestraat 19	66:07	12:55	176	23	0,8
ac. Van Abcoudestraat 29	57:49	10:55	163	20	0,7
ad. Tol 8	60:24	12:39	170	22	0,7
ae. Mbye Keene 169	61:28	13:00	154	27	0,7

7 Conclusie

Uit de rekenresultaten blijkt dat het windpark verenigbaar is met de woningen in de omgeving. Met de hier beoordeelde turbinetypes kan voor beide mogelijke lay-outs zonder geluidbeperkende maatregelen aan de geluidnormen worden voldaan.

Uit de cumulatieberekening blijkt dat nauwelijks sprake is van een toename van de gecumuleerde geluidbelasting van het windpark met andere bronsoorten. De toename is op de meeste punten verwaarloosbaar en op alle punten beperkt tot hooguit 2 dB.

Uit de slagschaduwberekening blijkt dat een stilstandvoorziening nodig is.

LBP|SIGHT BV



T.E. (Thom) de Rijk MSc.

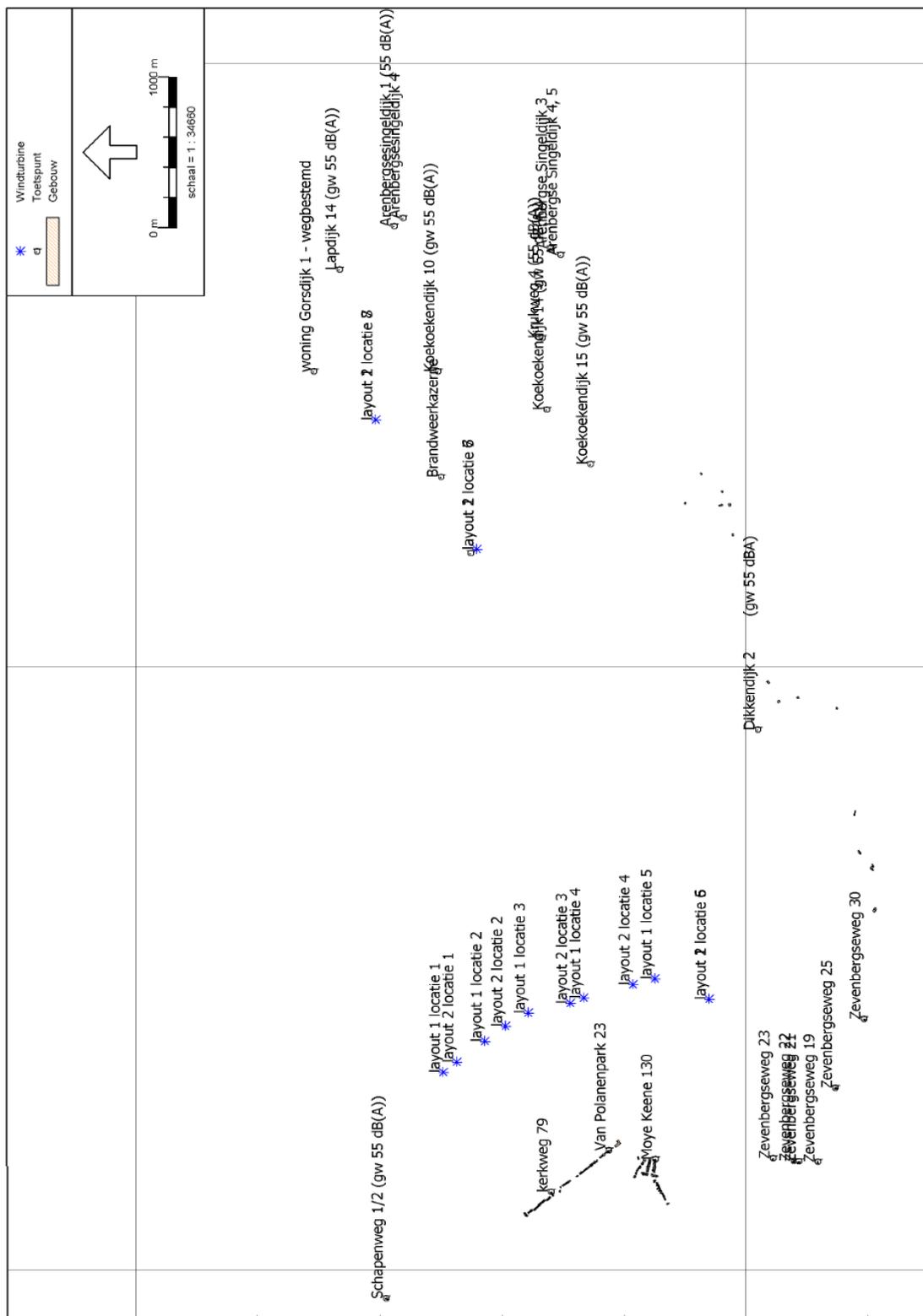


ir. M.T. (Mike) Dijkstra

Bijlage I

Figuren

Figuren



Figuur I.1
 De gemodelleerde situatie (beide lay-outs).

Bijlage II

Berekening geluidemissie

Berekening geluidemissie

RD coords:	99556	408861						
ellips coords:	4,585786	51,66582						
ashoogte:	125 m							
verdeling	percentages			Lw+Cb				
wind (ashoogte)	dag	avond	nacht	Lw as	dag	avond	nacht	
1	2,27	1,13	0,93	95,8	79,4	76,3	75,5	
2	4,68	3,77	2,66	95,8	82,5	81,6	80,1	
3	7,02	6,07	4,95	95,8	84,3	83,6	82,7	
4	9,88	9,38	6,46	95,8	85,7	85,5	83,9	
5	11,67	11,53	9,97	96,7	87,4	87,3	86,7	
6	12,51	13,04	14,09	98,7	89,7	89,8	90,2	
7	11,67	12,83	15,15	102,4	93,1	93,5	94,2	
8	10,46	10,80	12,93	104,8	95,0	95,2	95,9	
9	7,79	9,19	9,96	106,0	94,9	95,6	96,0	
10	6,45	6,50	7,12	106,0	94,1	94,1	94,5	
11	4,77	5,29	5,10	106,0	92,8	93,2	93,1	
12	3,44	3,98	3,76	106,0	91,4	92,0	91,7	
13	2,22	2,47	2,43	106,0	89,5	89,9	89,8	
14	1,58	1,43	1,77	106,0	88,0	87,6	88,5	
15	1,36	0,94	1,17	106,0	87,4	85,8	86,7	
16	0,98	0,64	0,78	106,0	85,9	84,0	84,9	
17	0,48	0,50	0,47	106,0	82,8	83,0	82,7	
18	0,27	0,11	0,20	106,0	80,4	76,5	79,1	
19	0,14	0,10	0,04	106,0	77,4	76,1	71,8	
20	0,10	0,10	0,10	106,0	76,0	76,0	75,9	
21	0,10	0,00	0,00	106,0	76,0	-99,0	-99,0	
22	0,00	0,07	0,00	106,0	59,7	74,3	-99,0	
23	0,07	0,00	0,00	106,0	74,3	-99,0	-99,0	
24	0,00	0,00	0,00	106,0	59,7	-99,0	-99,0	
25	0,00	0,00	0,00	106,0	59,7	-99,0	-99,0	
				Lden	109,7	102,9	103,1	103,4

Figuur II.1

Berekening van de geluidemissie van de Gamesa G114 windturbine (lay-out 1).

H = 93m		
W_{10}	W_s	SPL
[m/s]	[m/s]	[dB(A)]
3.0	4.3	95.8
3.5	5.0	95.8
4.0	5.7	97.5
4.5	6.4	100.3
5.0	7.1	102.8
5.5	7.9	104.9
6.0	8.6	106.0
6.5	9.3	106.0
7.0	10.0	106.0
7.5	10.7	106.0
8.0	11.4	106.0
8.5	12.1	106.0
9.0	12.9	106.0
9.5	13.6	106.0
10.0	14.3	106.0

f_i [Hz]	$L_{w,i, norm}$ [dB(A)]
10	50.0
13	54.0
16	57.0
20	60.0
25	63.0
32	66.4
40	69.0
50	71.4
63	73.9
80	76.4
100	78.9
125	81.1
160	83.3
200	85.3
250	87.0
315	88.3
400	89.5
500	90.1
630	90.7
800	90.7
1000	90.2
1250	89.2
1600	87.7
2000	86.2
2500	84.6
3150	82.7
4000	80.1
5000	77.1
6300	73.0
8000	67.9
10000	61.7
12500	54.4
16000	44.8
20000	35.0

Figuur II.2

Geluidspecificaties van de Gamesa G114 windturbine (lay-out 1).

RD coords:	99556	408861						
ellips coords:	4,585786	51,66582						
ashoogte:	120 m							
verdeling	percentages			Lw+Cb				
wind (ashoogte)	dag	avond	nacht	Lw as	dag	avond	nacht	
1	2,27	1,13	0,93	83,5	67,1	64,0	63,2	
2	4,68	3,77	2,66	83,5	70,2	69,3	67,8	
3	7,02	6,07	4,95	83,8	72,3	71,7	70,8	
4	9,88	9,38	6,46	89,2	79,2	78,9	77,3	
5	11,67	11,53	9,97	93,8	84,5	84,4	83,8	
6	12,51	13,04	14,09	97,8	88,8	89,0	89,3	
7	11,67	12,83	15,15	101,5	92,1	92,5	93,3	
8	10,46	10,80	12,93	104,6	94,8	95,0	95,7	
9	7,79	9,19	9,96	107,1	96,0	96,7	97,0	
10	6,45	6,50	7,12	107,4	95,5	95,5	95,9	
11	4,77	5,29	5,10	107,4	94,1	94,6	94,4	
12	3,44	3,98	3,76	107,2	92,6	93,2	92,9	
13	2,22	2,47	2,43	107,1	90,6	91,0	91,0	
14	1,58	1,43	1,77	107,1	89,1	88,7	89,6	
15	1,36	0,94	1,17	107,1	88,5	86,9	87,8	
16	0,98	0,64	0,78	107,1	87,0	85,1	86,0	
17	0,48	0,50	0,47	107,1	83,9	84,1	83,8	
18	0,27	0,11	0,20	107,1	81,5	77,6	80,2	
19	0,14	0,10	0,04	107,1	78,5	77,2	72,9	
20	0,10	0,10	0,10	107,1	77,1	77,1	77,0	
21	0,10	0,00	0,00	107,1	77,1	-99,0	-99,0	
22	0,00	0,07	0,00	107,1	60,8	75,4	-99,0	
23	0,07	0,00	0,00	107,1	75,4	-99,0	-99,0	
24	0,00	0,00	0,00	107,1	60,8	-99,0	-99,0	
25	0,00	0,00	0,00	107,1	60,8	-99,0	-99,0	
				Lden	110,2	103,3	103,5	103,9

Figuur II.3

Berekening van de geluidemissie van de Gamesa G132 windturbine (lay-out 2).

W10 [m/s]	STD FULL POWER - Zhub=120m	
	Ws [m/s]	LW [dB(A)]
2	3.0	83.5
3	4.4	91.4
4	5.9	97.4
5	7.3	102.7
6	8.9	107.0
7	10.3	107.5
8	11.7	107.2
9	13.3	107.1
10	14.7	107.1

Frequency (Hz) \ LW (dBA)	uWind = 6 m/s at h = 10 m	uWind = 7 m/s at h = 10 m	uWind = 8 m/s at h = 10 m	uWind = 9 m/s at h = 10 m	uWind = 10 m/s at h = 10 m
20.00	66.4	66.9	69.4	66.4	68.2
25.00	67.7	68.2	70.4	67.6	69.3
31.50	69.4	69.9	71.7	69.2	70.7
40.00	71.6	72.2	73.3	71.3	72.5
50.12	74.2	74.8	75.3	73.8	74.7
63.10	77.6	78.2	77.9	76.9	77.5
79.43	80.7	81.3	80.7	79.9	79.8
100.00	84.0	84.5	83.6	82.7	82.5
125.89	87.0	87.8	86.4	85.5	85.2
158.49	90.0	90.6	89.1	88.3	87.9
199.53	92.7	93.3	91.8	91.1	90.7
251.19	94.9	95.4	94.1	93.4	92.9
316.23	96.6	97.0	96.0	95.3	94.9
398.11	97.6	98.0	97.2	96.7	96.4
501.19	98.0	98.4	97.9	97.6	97.4
630.96	97.9	98.3	98.1	97.9	97.8
794.33	97.3	97.7	97.8	97.7	97.7
1000.00	96.2	96.6	97.0	97.1	97.2
1258.93	94.8	95.2	95.8	96.0	96.2
1584.89	93.2	93.7	94.3	94.7	95.0
1995.26	91.7	92.1	92.7	93.2	93.6
2511.89	90.3	90.7	91.4	91.9	92.4
3162.28	88.9	89.3	90.2	90.8	91.4
3981.07	87.6	88.0	89.1	89.8	90.5
5011.87	86.4	86.8	88.0	88.8	89.6
6309.57	85.6	85.9	86.5	87.0	87.8
7943.28	85.4	85.7	85.7	85.8	85.9
10000.00	85.0	85.3	85.2	85.1	85.1
12589.25	84.1	84.3	84.1	83.7	83.5
15848.93	82.5	82.8	82.4	81.8	81.4
19952.62	80.3	80.7	80.1	79.3	78.8
LW total (dBA)	107.0	107.5	107.2	107.1	107.1

Figuur II.4

Berekening van de geluidemissie van de Gamesa G132 windturbine (lay-out 2).

Bijlage III

Invoergegevens geluid

Invoergegevens

Windpark Moerdijk

Model: layout 1 en 2 met G114 en G132
 r068402aa.0002 - Windpark Moerdijk
 Groep: (hoofdgroep)
 Lijst van Windturbines, voor rekenmethode Industrielawaai - IL-WT

Naam	Omschr.	X	Y	Maaiveld	Hoogte	LE (D) Totaal	LE (A) Totaal	LE (N) Totaal
WT 1-1	layout 1 locatie 1	97306,34	409986,62	0,00	125,00	102,90	103,06	103,37
WT 1-2	layout 1 locatie 2	97511,55	409714,03	0,00	125,00	102,90	103,06	103,37
WT 1-3	layout 1 locatie 3	97700,22	409428,62	0,00	125,00	102,90	103,06	103,37
WT 1-4	layout 1 locatie 4	97800,30	409063,68	0,00	125,00	102,90	103,06	103,37
WT 1-5	layout 1 locatie 5	97926,38	408596,06	0,00	125,00	102,90	103,06	103,37
WT 1-6	layout 1 locatie 6	97792,20	408240,18	0,00	125,00	102,90	103,06	103,37
WT 1-7	layout 1 locatie 7	100774,91	409765,50	0,00	125,00	102,90	103,06	103,37
WT 1-8	layout 1 locatie 8	101633,09	410430,31	0,00	125,00	102,90	103,06	103,37
WT 2-6	layout 2 locatie 6	100774,91	409765,50	0,00	120,00	103,30	103,54	103,85
WT 2-5	layout 2 locatie 5	97792,10	408240,43	0,00	120,00	103,30	103,54	103,85
WT 2-4	layout 2 locatie 4	97890,27	408738,84	0,00	120,00	103,30	103,54	103,85
WT 2-3	layout 2 locatie 3	97766,96	409151,81	0,00	120,00	103,30	103,54	103,85
WT 2-7	layout 2 locatie 7	101633,09	410430,31	0,00	120,00	103,30	103,54	103,85
WT 2-1	layout 2 locatie 1	97373,47	409897,15	0,00	120,00	103,30	103,54	103,85
WT 2-2	layout 2 locatie 2	97612,96	409577,50	0,00	120,00	103,30	103,54	103,85

Invoergegevens

Windpark Moerdijk

Model: layout 1 en 2 met G114 en G132
 r068402aa.0002 - Windpark Moerdijk
 Groep: (hoofdgroep)
 Lijst van Rekenpunten, voor rekenmethode Industrielawaai - IL-WT

Naam	Omschr.	X	Y	Maaiveld	Hoogte A	Hoogte B	Hoogte C	Hoogte D	Hoogte E	Hoogte F	Gevel
tp11	Dikkendijk 2 (gw 55 dBA)	99580,00	407920,00	3,00	5,00	--	--	--	--	--	Nee
tp01	Schapenweg 1/2 (gw 55 dB(A))	95808,87	410364,02	0,00	5,00	--	--	--	--	--	Nee
tp13	Koekoekendijk 14 (gw 55 dB(A))	101701,30	409307,80	0,60	5,00	--	--	--	--	--	Nee
tp14	Krukweg 4 (55 dB(A))	102176,85	409336,86	0,00	5,00	--	--	--	--	--	Nee
tp12	Koekoekendijk 15 (gw 55 dB(A))	101338,90	409018,10	0,60	5,00	--	--	--	--	--	Nee
tp15	Arenbergse Singeldijk 4, 5	102728,07	409216,42	0,00	5,00	--	--	--	--	--	Nee
tp16	Arenbergse Singeldijk 3	102772,48	409282,90	0,00	5,00	--	--	--	--	--	Nee
tp21	Arenbergsesingeldijk 1 (55 dB(A))	102917,14	410309,82	0,00	5,00	--	--	--	--	--	Nee
tp18	Koekoekendijk 10 (gw 55 dB(A))	101953,15	410022,58	0,60	5,00	--	--	--	--	--	Nee
tp20	Lapdijk 14 (gw 55 dB(A))	102629,52	410667,33	0,00	5,00	--	--	--	--	--	Nee
tp22	Arenbergsesingeldijk 4	102970,22	410250,41	0,00	5,00	--	--	--	--	--	Nee
tp19	woning Gorsdijk 1 - wegbestemd	101954,91	410831,39	1,00	5,00	--	--	--	--	--	Nee
tp17	Brandweerkazerne	101255,33	410000,26	0,00	5,00	--	--	--	--	--	Ja
tp03	Van Polanenpark 23	96790,21	408898,29	0,00	5,00	--	--	--	--	--	Ja
tp02	kerkweg 79	96513,45	409279,08	0,00	5,00	--	--	--	--	--	Ja
tp04	Moye Keene 130	96731,25	408591,75	0,00	5,00	--	--	--	--	--	Ja
tp05	Zevenbergseweg 23	96738,25	407821,11	0,00	5,00	--	--	--	--	--	Ja
tp06	Zevenbergseweg 22	96717,97	407683,98	0,00	5,00	--	--	--	--	--	Ja
tp07	Zevenbergseweg 21	96716,61	407648,35	0,00	5,00	--	--	--	--	--	Ja
tp08	Zevenbergseweg 19	96714,30	407526,59	0,00	5,00	--	--	--	--	--	Ja
tp09	Zevenbergseweg 25	97205,26	407410,93	0,00	5,00	--	--	--	--	--	Ja
tp10	Zevenbergseweg 30	97659,05	407224,45	0,00	5,00	--	--	--	--	--	Ja
50mtp		100747,88	409806,42	0,00	5,00	--	--	--	--	--	Ja

Invoergegevens

Windpark Moerdijk

Model: layout 1 en 2 met G114 en G132
 r068402aa.0002 - Windpark Moerdijk
 Groep: (hoofdgroep)
 Lijst van Gebouwen, voor rekenmethode Industrielawaai - IL-WT

Naam	Omschr.	Hoogte	Maaiveld	Hdef.	Cp	Refl. 31	Refl. 63	Refl. 125	Refl. 250	Refl. 500	Refl. 1k	Refl. 2k	Refl. 4k	Refl. 8k
71	Kerkweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
114	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
1	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
110	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
27	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
34	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
6	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
2	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
141	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
18	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
58	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
75	Kerkweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
46	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
56	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
23	van Polanenpark	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
5	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
44	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
28	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
46	Molenvliet	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
50	Molenvliet	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
7	't Noorse Plein	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
52	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
50	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
56	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
169	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
7	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
126	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
165	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
6	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
33	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
5	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
143	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
145	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
149	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
147	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
31	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
19	Zevenbergseweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
42	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
38	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
35	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
22	Zevenbergseweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
167	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
128	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80

Invoergegevens

Windpark Moerdijk

Model: layout 1 en 2 met G114 en G132
 r068402aa.0002 - Windpark Moerdijk
 Groep: (hoofdgroep)
 Lijst van Gebouwen, voor rekenmethode Industrielawaai - IL-WT

Naam	Omschr.	Hoogte	Maaiveld	Hdef.	Cp	Refl. 31	Refl. 63	Refl. 125	Refl. 250	Refl. 500	Refl. 1k	Refl. 2k	Refl. 4k	Refl. 8k
157	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
120	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
4	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
15	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
22	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
24	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
9	't Noorse Plein	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
52	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
118	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
13	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
5	Schansdijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
4	Koekoeksedijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
77	Kerkweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
40	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
16	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
10	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
48	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
4	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
8	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
50	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
79	Kerkweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
12	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
2	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
73	Kerkweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
26	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
14	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
44	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
48	Molenvliet	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
48	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
54	Molenvliet	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
20	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
36	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
52	Molenvliet	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
30	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
32	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
40	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
16	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
42	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
54	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
58	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
38	Van Vlaanderenstraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
2	Buitendijk Oost	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
21	Zweedsestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80

Invoergegevens

Windpark Moerdijk

Model: layout 1 en 2 met G114 en G132
 r068402aa.0002 - Windpark Moerdijk
 Groep: (hoofdgroep)
 Lijst van Gebouwen, voor rekenmethode Industrielawaai - IL-WT

Naam	Omschr.	Hoogte	Maaiveld	Hdef.	Cp	Refl. 31	Refl. 63	Refl. 125	Refl. 250	Refl. 500	Refl. 1k	Refl. 2k	Refl. 4k	Refl. 8k
151	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
29	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
25	Zweedsestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
1	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
19	Zweedsestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
153	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
159	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
155	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
60	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
23	Zweedsestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
11	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
54	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
119	Ambachtsherenweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
3	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
17	Zweedsestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
64	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
8	Tol	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
21	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
106	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
130	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
27	Zweedsestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
3	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
7	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
19	van Polanenpark	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
23	Zevenbergseweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
25	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
116	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
5	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
121	Ambachtsherenweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
21	van Polanenpark	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
17	van Polanenpark	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
21	Zevenbergseweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
108	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
7	't Noorse Plein	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
161	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
104	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
62	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
163	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
112	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
23	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
9	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
124	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
8	't Noorse Plein	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80

Invoergegevens

Windpark Moerdijk

Model: layout 1 en 2 met G114 en G132
 r068402aa.0002 - Windpark Moerdijk
 Groep: (hoofdgroep)
 Lijst van Gebouwen, voor rekenmethode Industrielawaai - IL-WT

Naam	Omschr.	Hoogte	Maaiveld	Hdef.	Cp	Refl. 31	Refl. 63	Refl. 125	Refl. 250	Refl. 500	Refl. 1k	Refl. 2k	Refl. 4k	Refl. 8k
17	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
122	Moye Keene	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
2	Dikkendijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
17	Koekoeksedijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
7	Schansdijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
26	Schansdijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
3	Havendijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
68	Galgenweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
113	Galgenweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
115	Galgenweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
26	Zevenbergseweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
5	Pelikaan	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
25	Zevenbergseweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
19	van Abcoudestraat	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
66	Galgenweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
3	Dikkendijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
30	Zevenbergseweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
8	Dikkendijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
4	Dikkendijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
5	Pelikaan	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
1	Dikkendijk	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80
1	Niervaartweg	0,00	0,00	Relatief	0 dB	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80	0,80

Bijlage IV

Invoergegevens slagschaduw

SHADOW - Main Result

Calculation: Receptors layout 1

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

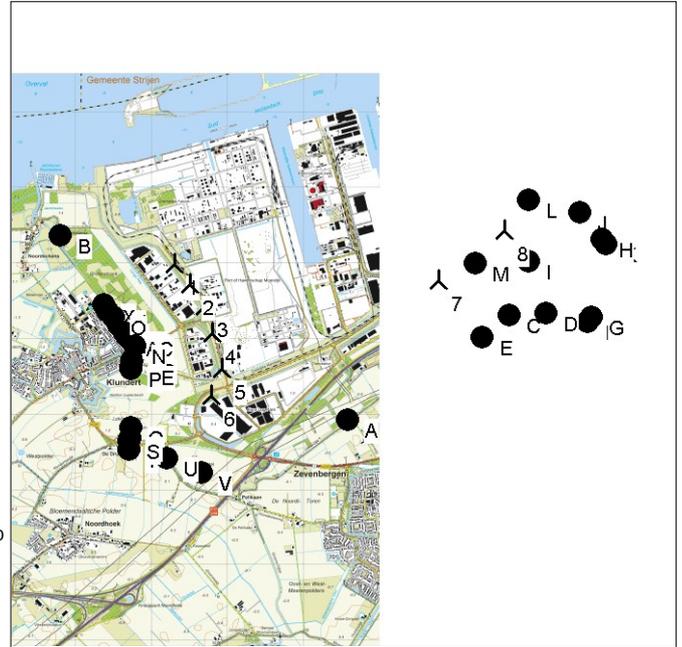
Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

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: Height Contours: CONTOURLINE_ONLINEDATA_0.wpo
Obstacles used in calculation
Eye height: 1,5 m
Grid resolution: 10,0 m

All coordinates are in
Netherlands RD Amersfoort



Person icon New WTG

House icon Scale 1:100.000
Shadow receptor

WTGs

Row	X(East)	Y(North)	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM [RPM]
1	97.306	409.987	0,0	Layout 1 WT1	Yes	VESTAS	V117-3.3 GridStreame-3.300	3.300	117,0	130,0	1.712	13,1
2	97.512	409.714	0,0	Layout 1 WT2	Yes	VESTAS	V117-3.3 GridStreame-3.300	3.300	117,0	130,0	1.712	13,1
3	97.700	409.429	0,0	Layout 1 WT3	Yes	VESTAS	V117-3.3 GridStreame-3.300	3.300	117,0	130,0	1.712	13,1
4	97.800	409.064	0,0	Layout 1 WT4	Yes	VESTAS	V117-3.3 GridStreame-3.300	3.300	117,0	130,0	1.712	13,1
5	97.926	408.596	0,0	Layout 1 WT5	Yes	VESTAS	V117-3.3 GridStreame-3.300	3.300	117,0	130,0	1.712	13,1
6	97.792	408.240	4,2	Layout 1 WT6	Yes	VESTAS	V117-3.3 GridStreame-3.300	3.300	117,0	130,0	1.712	13,1
7	100.775	409.766	0,0	Layout 1 WT7	Yes	VESTAS	V117-3.3 GridStreame-3.300	3.300	117,0	130,0	1.712	13,1
8	101.633	410.430	0,0	Layout 1 WT8	Yes	VESTAS	V117-3.3 GridStreame-3.300	3.300	117,0	130,0	1.712	13,1

Shadow receptor-Input

No.	Name	X(East)	Y(North)	Z	Width [m]	Height [m]	Height a.g.l. [m]	Degrees from south cw [°]	Slope of window [°]	Direction mode
A	Dikkendijk 2	99.580	407.920	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
B	Schapenweg 1/2	95.809	410.364	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
C	Koekoekendijk 14	101.701	409.308	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
D	Krukweg 4	102.177	409.337	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
E	Koekoekendijk 15	101.339	409.018	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
F	Arenbergse Singeldijk 4, 5	102.728	409.216	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
G	Arenbergse Singeldijk 3	102.772	409.283	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
H	Arenbergsesingeldijk 1	102.917	410.310	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
I	Koekoekendijk 10	101.953	410.023	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
J	Lapdijk 14	102.630	410.667	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
K	Arenbergsesingeldijk 4	102.970	410.250	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
L	woning Gorsdijk 1 - wegbestemd	101.955	410.831	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
M	Brandweerkazerne	101.255	410.000	3,6	8,0	4,0	1,0	0,0	90,0	"Green house mode"
N	Van Polanenpark 23	96.790	408.898	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
O	Kerkweg 79	96.513	409.279	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
P	Moye Keene 130	96.731	408.592	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
Q	Zevenbergseweg 23	96.738	407.821	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
R	Zevenbergseweg 22	96.718	407.684	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
S	Zevenbergseweg 21	96.717	407.648	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"

To be continued on next page...

SHADOW - Main Result

Calculation: Receptors layout 1

...continued from previous page

No.	Name	X(East)	Y(North)	Z	Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
				[m]	[m]	[m]	[m]	[°]	[°]	
T	Zevenbergseweg 19	96.714	407.527	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
U	Zevenbergseweg 25	97.205	407.411	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
V	Zevenbergseweg 30	97.659	407.224	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
W	van Vlaanderenstraat 28	96.435	409.356	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
X	van Vlaanderenstraat 54	96.387	409.419	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
Y	Molenvliet 54	96.376	409.454	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
Z	Zweedsestraat 19	96.577	409.176	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AA	Van Abcoudestraat 5	96.649	409.080	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AB	Van Abcoudestraat 19	96.678	409.037	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AC	Van Abcoudestraat 29	96.708	409.002	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AD	Tol 8	96.748	408.709	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AE	Moye Keene 169	96.732	408.628	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case			Shadow, expected values
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
A	Dikkendijk 2	0:00	0	0:00	0:00
B	Schapenweg 1/2	5:23	24	0:19	0:45
C	Koekoekendijk 14	34:36	83	0:30	6:38
D	Krukgweg 4	7:39	31	0:21	1:28
E	Koekoekendijk 15	0:00	0	0:00	0:00
F	Arenbergse Singeldijk 4, 5	0:00	0	0:00	0:00
G	Arenbergse Singeldijk 3	0:00	0	0:00	0:00
H	Arenbergsesingeldijk 1	8:29	30	0:22	1:38
I	Koekoekendijk 10	9:19	30	0:24	1:35
J	Lapdijk 14	12:51	36	0:28	2:12
K	Arenbergsesingeldijk 4	7:57	30	0:21	1:34
L	woning Gorsdijk 1 - wegbestemd	87:04	112	1:07	13:15
M	Brandweerkazerne	45:30	67	0:53	8:25
N	Van Polanenpark 23	58:58	166	0:29	11:37
O	Kerkweg 79	58:03	201	0:28	11:31
P	Moye Keene 130	41:47	128	0:26	8:31
Q	Zevenbergseweg 23	30:03	98	0:27	7:24
R	Zevenbergseweg 22	27:02	73	0:26	6:34
S	Zevenbergseweg 21	24:36	66	0:26	5:57
T	Zevenbergseweg 19	8:24	34	0:19	1:59
U	Zevenbergseweg 25	0:00	0	0:00	0:00
V	Zevenbergseweg 30	0:00	0	0:00	0:00
W	van Vlaanderenstraat 28	36:11	129	0:27	7:19
X	van Vlaanderenstraat 54	43:20	139	0:26	9:14
Y	Molenvliet 54	50:09	150	0:29	10:46
Z	Zweedsestraat 19	59:52	187	0:29	11:43
AA	Van Abcoudestraat 5	43:56	142	0:27	8:05
AB	Van Abcoudestraat 19	48:51	155	0:28	9:19
AC	Van Abcoudestraat 29	56:33	177	0:28	11:11
AD	Tol 8	37:22	113	0:27	7:13
AE	Moye Keene 169	39:09	121	0:26	7:51

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

No.	Name	Worst case [h/year]	Expected [h/year]
1	Layout 1 WT1	32:09	7:12
2	Layout 1 WT2	76:15	18:30
3	Layout 1 WT3	99:28	23:09
4	Layout 1 WT4	94:47	20:08
5	Layout 1 WT5	58:58	10:07
6	Layout 1 WT6	104:16	20:19
7	Layout 1 WT7	108:00	19:35
8	Layout 1 WT8	101:23	16:26

SHADOW - Main Result

Calculation: Receptors layout 2

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

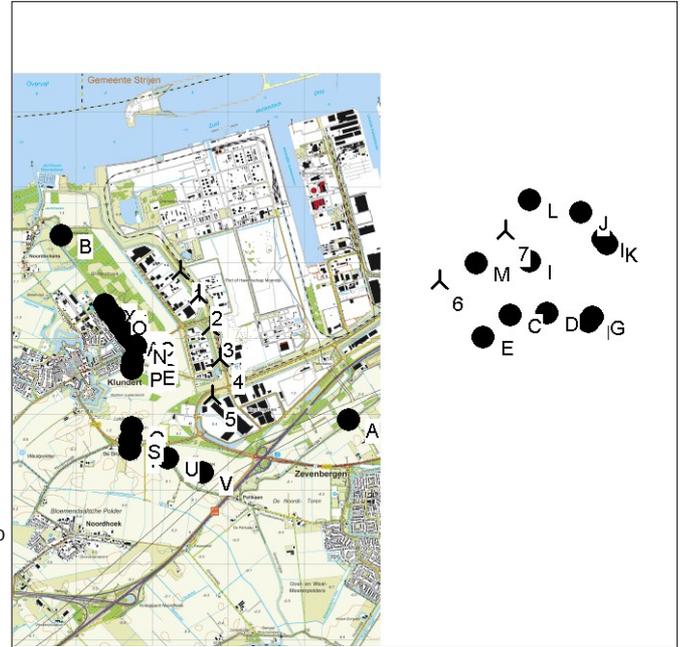
Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

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: Height Contours: CONTOURLINE_ONLINEDATA_0.wpo
Obstacles used in calculation
Eye height: 1,5 m
Grid resolution: 10,0 m

All coordinates are in
Netherlands RD Amersfoort



WTGs

	X(East)	Y(North)	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]
1	97.373	409.897	0,0	layout 2 WT1	Yes	Acciona Windpower	AW132/3000-3.000	3.000	132,0	130,0	1.712	12,5
2	97.613	409.578	0,0	layout 2 WT2	Yes	Acciona Windpower	AW132/3000-3.000	3.000	132,0	130,0	1.712	12,5
3	97.767	409.152	0,0	layout 2 WT3	Yes	Acciona Windpower	AW132/3000-3.000	3.000	132,0	130,0	1.712	12,5
4	97.890	408.739	0,0	layout 2 WT4	Yes	Acciona Windpower	AW132/3000-3.000	3.000	132,0	130,0	1.712	12,5
5	97.792	408.240	4,2	layout 2 WT5	Yes	Acciona Windpower	AW132/3000-3.000	3.000	132,0	130,0	1.712	12,5
6	100.775	409.766	0,0	layout 2 WT6	Yes	Acciona Windpower	AW132/3000-3.000	3.000	132,0	130,0	1.712	12,5
7	101.633	410.430	0,0	layout 2 WT7	Yes	Acciona Windpower	AW132/3000-3.000	3.000	132,0	130,0	1.712	12,5

Shadow receptor-Input

No.	Name	X(East)	Y(North)	Z	Width [m]	Height [m]	Height a.g.l. [m]	Degrees from south cw [°]	Slope of window [°]	Direction mode
A	Dikkendijk 2	99.580	407.920	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
B	Schapenweg 1/2	95.809	410.364	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
C	Koekoekendijk 14	101.701	409.308	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
D	Krukweg 4	102.177	409.337	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
E	Koekoekendijk 15	101.339	409.018	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
F	Arenbergse Singeldijk 4, 5	102.728	409.216	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
G	Arenbergse Singeldijk 3	102.772	409.283	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
H	Arenbergsesingeldijk 1	102.917	410.310	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
I	Koekoekendijk 10	101.953	410.023	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
J	Lapdijk 14	102.630	410.667	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
K	Arenbergsesingeldijk 4	102.970	410.250	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
L	woning Gorsdijk 1 - wegbestemd	101.955	410.831	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
M	Brandweerkazerne	101.255	410.000	3,6	8,0	4,0	1,0	0,0	90,0	"Green house mode"
N	Van Polanenpark 23	96.790	408.898	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
O	Kerkweg 79	96.513	409.279	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
P	Moye Keene 130	96.731	408.592	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
Q	Zevenbergseweg 23	96.738	407.821	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
R	Zevenbergseweg 22	96.718	407.684	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
S	Zevenbergseweg 21	96.717	407.648	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
T	Zevenbergseweg 19	96.714	407.527	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"

To be continued on next page...

SHADOW - Main Result

Calculation: Receptors layout 2

...continued from previous page

No.	Name	X(East)	Y(North)	Z	Width	Height	Height a.g.l.	Degrees from south cw	Slope of window	Direction mode
				[m]	[m]	[m]	[m]	[°]	[°]	
U	Zevenbergseweg 25	97.205	407.411	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
V	Zevenbergseweg 30	97.659	407.224	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
W	van Vlaanderenstraat 28	96.435	409.356	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
X	van Vlaanderenstraat 54	96.387	409.419	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
Y	Molenvliet 54	96.376	409.454	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
Z	Zweedsestraat 19	96.577	409.176	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AA	Van Abcoudestraat 5	96.649	409.080	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AB	Van Abcoudestraat 19	96.678	409.037	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AC	Van Abcoudestraat 29	96.708	409.002	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AD	Tol 8	96.748	408.709	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"
AE	Moye Keene 169	96.732	408.628	0,0	8,0	4,0	1,0	0,0	90,0	"Green house mode"

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case			Shadow, expected values	
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]	Shadow hours per year [h/year]
A	Dikkendijk 2	0:00	0	0:00	0:00	0:00
B	Schapenweg 1/2	5:36	25	0:20	0:46	0:46
C	Koekoekendijk 14	41:01	86	0:34	7:53	7:53
D	Krukgweg 4	9:19	35	0:23	1:47	1:47
E	Koekoekendijk 15	0:00	0	0:00	0:00	0:00
F	Arenbergse Singeldijk 4, 5	0:00	0	0:00	0:00	0:00
G	Arenbergse Singeldijk 3	0:00	0	0:00	0:00	0:00
H	Arenbergsesingeldijk 1	10:21	33	0:25	2:01	2:01
I	Koekoekendijk 10	11:20	34	0:26	1:55	1:55
J	Lapdijk 14	16:04	40	0:32	2:45	2:45
K	Arenbergsesingeldijk 4	9:38	34	0:24	1:54	1:54
L	woning Gorsdijk 1 - wegbestemd	115:14	130	1:18	17:10	17:10
M	Brandweerkazerne	57:26	76	0:59	10:39	10:39
N	Van Polanenpark 23	50:53	131	0:33	9:25	9:25
O	Kerkweg 79	44:31	146	0:29	7:47	7:47
P	Moye Keene 130	58:44	148	0:30	12:22	12:22
Q	Zevenbergseweg 23	24:47	65	0:30	6:13	6:13
R	Zevenbergseweg 22	31:50	76	0:29	7:44	7:44
S	Zevenbergseweg 21	28:42	69	0:29	6:58	6:58
T	Zevenbergseweg 19	10:53	39	0:22	2:34	2:34
U	Zevenbergseweg 25	0:00	0	0:00	0:00	0:00
V	Zevenbergseweg 30	0:00	0	0:00	0:00	0:00
W	van Vlaanderenstraat 28	57:04	158	0:32	12:07	12:07
X	van Vlaanderenstraat 54	63:38	175	0:32	13:45	13:45
Y	Molenvliet 54	61:46	182	0:32	13:18	13:18
Z	Zweedsestraat 19	55:15	166	0:31	10:30	10:30
AA	Van Abcoudestraat 5	71:51	186	0:32	14:17	14:17
AB	Van Abcoudestraat 19	66:07	176	0:32	12:55	12:55
AC	Van Abcoudestraat 29	57:49	163	0:31	10:55	10:55
AD	Tol 8	60:24	170	0:31	12:39	12:39
AE	Moye Keene 169	61:28	154	0:30	13:00	13:00

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

No.	Name	Worst case [h/year]	Expected [h/year]
1	layout 2 WT1	65:45	15:28
2	layout 2 WT2	105:31	25:16
3	layout 2 WT3	133:35	29:34
4	layout 2 WT4	68:03	11:44
5	layout 2 WT5	120:46	23:34
6	layout 2 WT6	132:11	24:01
7	layout 2 WT7	132:43	21:02

Bijlage V
Slagschaduwkalender

SHADOW - Calendar

Calculation: Receptors layout 1Shadow receptor: A - Dikkendijk 2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:22	07:30	07:20	06:15	05:31	05:28	06:04	06:53	07:41	07:35	08:25
	16:42	17:30	18:21	20:14	21:05	21:50	22:04	21:32	20:31	19:22	17:16	16:37
2	08:49	08:21	07:27	07:17	06:13	05:30	05:28	06:05	06:55	07:43	07:36	08:26
	16:43	17:32	18:23	20:16	21:06	21:51	22:03	21:31	20:29	19:20	17:15	16:36
3	08:49	08:19	07:25	07:15	06:12	05:29	05:29	06:07	06:56	07:45	07:38	08:28
	16:45	17:33	18:24	20:18	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
4	08:48	08:18	07:23	07:13	06:10	05:28	05:30	06:08	06:58	07:46	07:40	08:29
	16:46	17:35	18:26	20:19	21:09	21:53	22:03	21:27	20:24	19:15	17:11	16:35
5	08:48	08:16	07:21	07:10	06:08	05:28	05:31	06:10	06:59	07:48	07:42	08:30
	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:26	20:22	19:13	17:09	16:34
6	08:48	08:14	07:19	07:08	06:06	05:27	05:32	06:11	07:01	07:50	07:43	08:32
	16:48	17:39	18:30	20:23	21:13	21:55	22:02	21:24	20:20	19:11	17:08	16:34
7	08:47	08:13	07:16	07:06	06:04	05:26	05:32	06:13	07:03	07:51	07:45	08:33
	16:49	17:41	18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:33
8	08:47	08:11	07:14	07:04	06:03	05:26	05:33	06:15	07:04	07:53	07:47	08:34
	16:51	17:43	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
9	08:47	08:09	07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:55	07:49	08:35
	16:52	17:44	18:35	20:28	21:18	21:58	22:00	21:18	20:13	19:04	17:03	16:33
10	08:46	08:07	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:51	08:36
	16:53	17:46	18:37	20:29	21:19	21:58	21:59	21:16	20:10	19:02	17:01	16:33
11	08:45	08:06	07:07	06:57	05:57	05:25	05:36	06:19	07:09	07:58	07:52	08:38
	16:55	17:48	18:38	20:31	21:21	21:59	21:58	21:15	20:08	18:59	16:59	16:32
12	08:45	08:04	07:05	06:55	05:56	05:24	05:37	06:21	07:11	08:00	07:54	08:39
	16:56	17:50	18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:53	05:54	05:24	05:38	06:22	07:12	08:01	07:56	08:40
	16:58	17:52	18:42	20:34	21:24	22:00	21:57	21:11	20:04	18:55	16:56	16:32
14	08:43	08:00	07:01	06:50	05:53	05:24	05:40	06:24	07:14	08:03	07:58	08:41
	16:59	17:54	18:44	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:43	07:58	06:58	06:48	05:51	05:24	05:41	06:26	07:15	08:05	07:59	08:41
	17:01	17:55	18:45	20:38	21:27	22:02	21:55	21:07	19:59	18:51	16:53	16:32
16	08:42	07:56	06:56	06:46	05:50	05:23	05:42	06:27	07:17	08:07	08:01	08:42
	17:02	17:57	18:47	20:39	21:28	22:02	21:54	21:05	19:57	18:48	16:52	16:32
17	08:41	07:54	06:54	06:44	05:48	05:23	05:43	06:29	07:19	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:03	21:53	21:03	19:54	18:46	16:51	16:33
18	08:40	07:52	06:52	06:42	05:47	05:23	05:44	06:30	07:20	08:10	08:04	08:44
	17:05	18:01	18:50	20:43	21:31	22:03	21:52	21:01	19:52	18:44	16:49	16:33
19	08:39	07:50	06:49	06:40	05:45	05:23	05:46	06:32	07:22	08:12	08:06	08:45
	17:07	18:03	18:52	20:44	21:33	22:03	21:50	20:59	19:50	18:42	16:48	16:33
20	08:38	07:48	06:47	06:38	05:44	05:24	05:47	06:34	07:23	08:13	08:08	08:45
	17:09	18:05	18:54	20:46	21:34	22:04	21:49	20:57	19:47	18:40	16:47	16:34
21	08:37	07:46	06:45	06:35	05:43	05:24	05:48	06:35	07:25	08:15	08:09	08:46
	17:10	18:06	18:56	20:48	21:36	22:04	21:48	20:55	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	05:41	05:24	05:49	06:37	07:27	08:17	08:11	08:46
	17:12	18:08	18:57	20:50	21:37	22:04	21:47	20:53	19:43	18:36	16:45	16:34
23	08:35	07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:19	08:13	08:47
	17:14	18:10	18:59	20:51	21:39	22:04	21:45	20:50	19:40	18:34	16:44	16:35
24	08:33	07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	08:14	08:47
	17:15	18:12	19:01	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:43	16:36
25	08:32	07:38	06:36	06:27	05:38	05:25	05:54	06:42	07:32	08:22	08:16	08:48
	17:17	18:14	19:02	20:55	21:41	22:04	21:43	20:46	19:36	17:30	16:42	16:36
26	08:31	07:36	06:33	06:25	05:37	05:25	05:55	06:43	07:33	08:24	08:17	08:48
	17:19	18:15	19:04	20:56	21:43	22:04	21:41	20:44	19:33	17:28	16:41	16:37
27	08:30	07:34	06:31	06:23	05:35	05:26	05:56	06:45	07:35	08:26	08:19	08:48
	17:21	18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	17:26	16:40	16:38
28	08:28	07:32	06:29	06:21	05:34	05:26	05:58	06:47	07:36	08:27	08:21	08:48
	17:23	18:19	19:07	21:00	21:45	22:04	21:38	20:40	19:29	17:24	16:39	16:38
29	08:27	07:26	06:19	06:11	05:33	05:27	05:59	06:48	07:38	08:29	08:22	08:49
	17:24	18:19	19:07	21:01	21:46	22:04	21:37	20:37	19:26	17:22	16:38	16:39
30	08:25	07:24	06:17	06:10	05:32	05:27	06:01	06:50	07:40	08:31	08:24	08:49
	17:26	18:19	19:06	21:03	21:47	22:04	21:35	20:35	19:24	17:20	16:37	16:40
31	08:24	07:22	06:15	06:08	05:31	05:26	06:02	06:51	07:41	08:32	08:25	08:49
	17:28	18:19	19:06	21:05	21:49	22:04	21:34	20:33	19:22	17:18	16:34	16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
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: Receptors layout 1Shadow receptor: B - Schapenweg 1/2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49 16:42	08:23 17:30	07:30 18:21	07:20 20:14	06:15 21:05	05:31 21:50	05:28 22:04	06:04 21:33	06:53 20:31	07:42 19:22	08:18 (1) 15 08:33 (1)	07:35 17:17	08:25 16:37
2	08:49 16:44	08:21 17:32	07:28 18:23	07:17 20:16	06:14 21:06	05:30 21:51	05:29 22:04	06:05 21:31	06:55 20:29	07:43 19:20	08:16 (1) 17 08:33 (1)	07:37 17:15	08:27 16:36
3	08:49 16:45	08:20 17:34	07:25 18:25	07:15 20:18	06:12 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:27	07:45 19:18	08:15 (1) 18 08:33 (1)	07:38 17:13	08:28 16:35
4	08:49 16:46	08:18 17:35	07:23 18:26	07:13 20:19	06:10 21:10	05:28 21:53	05:30 22:03	06:09 21:28	06:58 20:24	07:47 19:15	08:15 (1) 19 08:34 (1)	07:40 17:11	08:29 16:35
5	08:48 16:47	08:16 17:37	07:21 18:28	07:11 20:21	06:08 21:11	05:28 21:54	05:31 22:02	06:10 21:26	07:00 20:22	07:48 19:13	08:14 (1) 19 08:33 (1)	07:42 17:09	08:31 16:34
6	08:48 16:48	08:15 17:39	07:19 18:30	07:08 20:23	06:06 21:13	05:27 21:55	05:32 22:02	06:12 21:24	07:01 20:20	07:50 19:11	08:15 (1) 18 08:33 (1)	07:44 17:08	08:32 16:34
7	08:48 16:49	08:13 17:41	07:17 18:32	07:06 20:25	06:04 21:15	05:27 21:56	05:32 22:01	06:13 21:22	07:03 20:18	07:52 19:08	08:17 (1) 15 08:32 (1)	07:45 17:06	08:33 16:34
8	08:47 16:51	08:11 17:43	07:14 18:33	07:04 20:26	06:03 21:16	05:26 21:57	05:33 22:01	06:15 21:20	07:04 20:15	07:53 19:06	08:18 (1) 12 08:30 (1)	07:47 17:04	08:35 16:33
9	08:47 16:52	08:10 17:45	07:12 18:35	07:02 20:28	06:01 21:18	05:26 21:58	05:34 22:00	06:16 21:19	07:06 20:13	07:55 19:04	08:20 (1) 9 08:29 (1)	07:49 17:03	08:36 16:33
10	08:46 16:53	08:08 17:46	07:10 18:37	07:07 (1) 20:30	06:59 21:19	05:25 21:59	05:35 21:59	06:18 21:17	07:08 20:11	07:57 19:02	08:22 (1) 5 08:27 (1)	07:51 17:01	08:37 16:33
11	08:46 16:55	08:06 17:48	07:08 18:39	07:38 (1) 20:31	06:57 21:21	05:58 21:59	05:36 21:59	06:19 21:15	07:09 20:08	07:58 19:00	07:53 18:57	08:38 17:00	08:38 16:33
12	08:45 16:56	08:04 17:50	07:05 18:40	07:38 (1) 20:33	06:55 21:23	05:56 22:00	05:37 21:58	06:21 21:13	07:11 20:06	08:00 18:57	07:54 18:58	08:39 16:58	08:39 16:32
13	08:44 16:58	08:02 17:52	07:03 18:42	07:39 (1) 20:35	06:53 21:24	05:54 22:01	05:39 21:57	06:23 21:11	07:12 20:04	08:02 18:55	07:56 18:57	08:40 16:57	08:40 16:32
14	08:44 16:59	08:00 17:54	07:01 18:44	07:41 (1) 20:36	06:51 21:26	05:53 22:01	05:40 21:56	06:24 21:09	07:14 20:01	08:03 18:53	08:20 (1) 15 08:33 (1)	07:58 16:55	08:41 16:32
15	08:43 17:01	07:58 17:56	06:59 18:46	06:48 20:38	05:51 21:27	05:24 22:02	05:41 21:55	06:26 21:07	07:16 19:59	08:05 18:51	08:00 18:49	08:42 16:54	08:42 16:32
16	08:42 17:02	07:57 17:57	06:56 18:47	06:46 20:40	05:50 21:29	05:24 22:02	05:42 21:54	06:27 21:05	07:17 19:57	08:07 18:49	08:01 18:47	08:43 16:51	08:43 16:33
17	08:41 17:04	07:55 17:59	06:54 18:49	06:44 20:41	05:48 21:30	05:24 22:03	05:43 21:53	06:29 21:03	07:19 19:54	08:08 18:47	08:03 18:47	08:43 16:51	08:43 16:33
18	08:40 17:06	07:53 18:01	06:52 18:51	06:42 20:43	05:47 21:32	05:23 22:03	05:44 21:52	06:31 21:01	07:20 19:52	08:10 18:44	08:05 18:42	08:44 16:50	08:44 16:33
19	08:39 17:07	07:51 18:03	06:50 18:52	06:40 20:45	05:45 21:33	05:24 22:04	05:46 21:51	06:32 20:59	07:22 19:50	08:12 18:42	08:06 18:42	08:45 16:48	08:45 16:33
20	08:38 17:09	07:49 18:05	06:47 18:54	06:38 20:46	05:44 21:35	05:24 22:04	05:47 21:50	06:34 20:57	07:24 19:48	08:14 18:40	08:08 18:38	08:46 16:47	08:46 16:34
21	08:37 17:10	07:47 18:07	06:45 18:56	06:36 20:48	05:43 21:36	05:24 22:04	05:48 21:48	06:35 20:55	07:25 19:45	08:15 18:38	08:10 18:36	08:46 16:46	08:46 16:34
22	08:36 17:12	07:45 18:08	06:43 18:57	06:33 20:50	05:41 21:37	05:24 22:04	05:50 21:47	06:37 20:53	07:27 19:43	08:17 18:36	08:11 18:34	08:47 16:45	08:47 16:35
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:39	05:24 22:05	05:51 21:46	06:39 20:51	07:29 19:41	08:19 18:34	08:13 18:31	08:47 16:44	08:47 16:35
24	08:34 17:16	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	05:24 22:05	05:52 21:44	06:40 20:49	07:30 19:38	08:21 18:32	08:15 18:29	08:48 16:43	08:48 16:36
25	08:32 17:17	07:38 18:14	06:36 19:03	06:27 20:55	05:38 21:42	05:25 22:05	05:54 21:43	06:42 20:46	07:32 19:33	07:22 18:30	08:16 18:27	08:48 16:42	08:48 16:36
26	08:31 17:19	07:36 18:16	06:33 19:04	06:25 20:56	05:37 21:43	05:25 22:05	05:55 21:42	06:43 20:44	07:33 19:34	07:24 18:28	08:18 18:25	08:48 16:41	08:48 16:37
27	08:30 17:21	07:34 18:17	06:31 19:06	06:23 20:58	05:36 21:44	05:26 22:05	05:57 21:40	06:45 20:42	07:35 19:31	07:26 18:26	08:19 18:23	08:49 16:40	08:49 16:38
28	08:29 17:23	07:32 18:19	06:29 19:08	06:21 21:00	05:34 21:45	05:26 22:05	05:58 21:39	06:47 20:40	07:37 19:29	07:28 18:24	08:21 18:21	08:49 16:39	08:49 16:38
29	08:27 17:24	07:27 20:09	07:27 19:09	06:19 21:01	05:33 21:47	05:27 22:04	05:59 21:37	06:48 20:38	07:38 19:27	07:29 18:22	08:22 (1) 6 08:28 (1)	08:49 16:38	08:49 16:39
30	08:26 17:26	07:24 20:11	07:24 19:11	06:17 21:03	05:33 21:48	05:27 22:04	06:01 21:36	06:50 20:35	07:40 19:24	07:31 18:20	08:20 (1) 11 08:31 (1)	08:49 16:37	08:49 16:40
31	08:24 17:28	07:22 20:13	07:22 19:11	06:15 21:01	05:32 21:49	05:27 22:04	06:02 21:34	06:52 20:33	07:39 19:24	07:33 18:18	08:20 (1) 11 08:31 (1)	08:49 16:37	08:49 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245	
Total, worst case			159							17			
Sun reduction			0,26							0,33		147	
Oper. time red.			0,95							0,29			
Wind dir. red.			0,54							0,95			
Total reduction			0,13							0,54			
Total, real			21							0,17			
										3		22	

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: Receptors layout 1Shadow receptor: C - Koekoekendijk 14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum

469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December			
1	08:49 16:42	08:22 17:30	07:29 18:21	07:19 18:14	06:15 21:04	05:30 21:50	20:30 (7) 20:58 (7)	05:28 22:04	20:38 (7) 21:02 (7)	06:04 21:32	20:47 (7) 20:57 (7)	06:53 19:22	07:41 17:16	07:34 16:36	08:25 16:36
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 18:16	06:13 21:06	05:30 21:51	20:30 (7) 20:58 (7)	05:28 22:03	20:38 (7) 21:03 (7)	06:05 21:31	20:58 (7) 21:03 (7)	06:54 19:19	07:43 17:14	07:36 16:36	08:26 16:36
3	08:49 16:44	08:19 17:33	07:25 18:24	07:15 18:17	06:11 21:08	05:29 21:52	20:30 (7) 20:58 (7)	05:29 22:03	20:37 (7) 21:03 (7)	06:07 21:29	20:58 (7) 21:03 (7)	06:56 19:17	07:45 17:13	07:38 16:35	08:28 16:35
4	08:48 16:45	08:18 17:35	07:23 18:26	07:13 18:19	06:10 21:09	05:28 21:53	20:31 (7) 20:58 (7)	05:30 22:02	20:38 (7) 21:03 (7)	06:08 21:27	20:58 (7) 21:03 (7)	06:58 19:15	07:46 17:11	07:40 16:35	08:29 16:35
5	08:48 16:47	08:16 17:37	07:21 18:28	07:10 18:21	06:08 21:11	05:27 21:54	20:31 (7) 20:58 (7)	05:30 22:02	20:38 (7) 21:04 (7)	06:10 21:25	20:58 (7) 21:04 (7)	06:59 19:13	07:48 17:09	07:42 16:34	08:30 16:34
6	08:48 16:48	08:14 17:39	07:19 18:30	07:08 18:23	06:06 21:13	05:27 21:55	20:31 (7) 20:58 (7)	05:31 22:02	20:38 (7) 21:05 (7)	06:11 21:24	20:58 (7) 21:05 (7)	07:01 19:10	07:50 17:07	07:43 16:34	08:32 16:34
7	08:47 16:49	08:13 17:41	07:16 18:31	07:06 18:24	06:04 21:14	05:26 21:56	20:31 (7) 20:58 (7)	05:32 22:01	20:37 (7) 21:04 (7)	06:13 21:22	20:58 (7) 21:04 (7)	07:02 19:01	07:51 17:06	07:45 16:33	08:33 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	07:04 18:26	06:02 21:16	05:26 21:57	20:32 (7) 20:58 (7)	05:33 22:00	20:37 (7) 21:05 (7)	06:14 21:20	20:58 (7) 21:05 (7)	07:04 19:06	07:53 17:04	07:47 16:33	08:34 16:33
9	08:46 16:52	08:09 17:44	07:12 18:35	07:01 18:28	06:01 21:17	05:25 21:57	20:33 (7) 20:59 (7)	05:34 22:00	20:37 (7) 21:05 (7)	06:16 21:18	20:58 (7) 21:05 (7)	07:06 19:04	07:55 17:02	07:49 16:33	08:35 16:33
10	08:46 16:53	08:07 17:46	07:10 18:37	06:59 18:29	05:59 21:19	05:25 21:58	20:33 (7) 20:58 (7)	05:35 21:59	20:37 (7) 21:05 (7)	06:18 21:16	20:58 (7) 21:05 (7)	07:07 19:01	07:56 17:01	07:50 16:32	08:36 16:32
11	08:45 16:55	08:06 17:48	07:07 18:38	06:57 18:31	05:57 21:21	20:40 (7) 20:45 (7)	05:24 21:59	05:36 21:58	20:37 (7) 21:06 (7)	06:19 21:15	20:58 (7) 21:06 (7)	07:09 19:08	07:58 16:59	07:52 16:32	08:38 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 18:33	05:56 21:22	20:36 (7) 20:48 (7)	05:24 22:00	05:37 21:57	20:37 (7) 21:06 (7)	06:21 21:13	20:58 (7) 21:06 (7)	07:10 19:00	08:00 16:58	07:54 16:32	08:39 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	06:52 18:34	05:54 21:24	20:34 (7) 20:50 (7)	05:24 22:00	05:38 21:56	20:37 (7) 21:06 (7)	06:22 21:11	20:58 (7) 21:06 (7)	07:12 19:00	08:01 16:56	07:56 16:32	08:40 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	06:50 18:36	05:52 21:25	20:33 (7) 20:51 (7)	05:24 22:01	05:39 21:56	20:37 (7) 21:06 (7)	06:24 21:09	20:58 (7) 21:06 (7)	07:14 19:03	08:03 16:55	07:57 16:32	08:40 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	06:48 18:38	05:51 21:27	20:32 (7) 20:52 (7)	05:23 22:02	05:40 21:55	20:37 (7) 21:06 (7)	06:26 21:07	20:58 (7) 21:06 (7)	07:15 19:05	08:05 16:53	07:59 16:32	08:41 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 18:39	05:49 21:28	20:31 (7) 20:54 (7)	05:23 22:02	05:42 21:54	20:38 (7) 21:08 (7)	06:27 21:05	20:58 (7) 21:08 (7)	07:17 19:06	08:06 16:52	08:01 16:32	08:42 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 18:41	05:48 21:30	20:30 (7) 20:54 (7)	05:23 22:02	05:43 21:53	20:38 (7) 21:07 (7)	06:29 21:03	20:58 (7) 21:07 (7)	07:18 19:04	08:08 16:51	08:03 16:32	08:43 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	06:42 18:43	05:47 21:31	20:30 (7) 20:55 (7)	05:23 22:03	05:44 21:51	20:38 (7) 21:07 (7)	06:30 21:01	20:58 (7) 21:07 (7)	07:20 19:02	08:10 16:49	08:04 16:33	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	06:39 18:44	05:45 21:33	20:29 (7) 20:56 (7)	05:23 22:03	05:45 21:50	20:38 (7) 21:07 (7)	06:32 20:59	20:58 (7) 21:07 (7)	07:22 19:02	08:12 16:48	08:06 16:33	08:44 16:33
20	08:38 17:09	07:48 18:04	06:47 18:54	06:37 18:46	05:44 21:34	20:28 (7) 20:56 (7)	05:23 22:04	05:47 21:49	20:38 (7) 21:07 (7)	06:34 20:57	20:58 (7) 21:07 (7)	07:23 19:01	08:13 16:47	08:08 16:33	08:45 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	06:35 18:48	05:42 21:36	20:28 (7) 20:56 (7)	05:23 22:04	05:48 21:48	20:38 (7) 21:07 (7)	06:35 20:55	20:58 (7) 21:07 (7)	07:25 19:01	08:15 16:46	08:09 16:34	08:46 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	06:33 18:49	05:41 21:37	20:28 (7) 20:57 (7)	05:24 22:04	05:49 21:47	20:39 (7) 21:07 (7)	06:37 20:52	20:58 (7) 21:07 (7)	07:27 19:00	08:17 16:44	08:11 16:34	08:46 16:34
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 18:51	05:40 21:38	20:28 (7) 20:57 (7)	05:24 22:04	05:51 21:45	20:39 (7) 21:07 (7)	06:38 20:50	20:58 (7) 21:07 (7)	07:28 19:00	08:19 16:43	08:13 16:35	08:47 16:35
24	08:33 17:15	07:40 18:12	06:38 19:01	06:29 18:53	05:39 21:40	20:28 (7) 20:58 (7)	05:24 22:04	05:52 21:44	20:39 (7) 21:06 (7)	06:40 20:48	20:58 (7) 21:06 (7)	07:30 19:38	08:20 16:42	08:14 16:35	08:47 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 18:54	05:37 21:41	20:28 (7) 20:58 (7)	05:25 22:04	05:53 21:43	20:40 (7) 21:06 (7)	06:42 20:46	20:58 (7) 21:06 (7)	07:31 19:36	08:22 16:41	08:16 16:36	08:48 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 18:56	05:36 21:42	20:28 (7) 20:58 (7)	05:25 22:04	05:55 21:41	20:40 (7) 21:05 (7)	06:43 20:44	20:58 (7) 21:05 (7)	07:33 19:33	08:24 16:40	08:17 16:37	08:48 16:37
27	08:29 17:21	07:34 18:17	06:31 19:06	06:23 18:58	05:35 21:44	20:28 (7) 20:58 (7)	05:25 22:04	05:56 21:40	20:41 (7) 21:04 (7)	06:45 20:42	20:58 (7) 21:04 (7)	07:35 19:31	08:26 16:39	08:19 16:37	08:48 16:37
28	08:28 17:22	07:32 18:19	06:29 19:07	06:21 18:59	05:34 21:45	20:28 (7) 20:58 (7)	05:26 22:04	05:58 21:38	20:42 (7) 21:04 (7)	06:46 20:40	20:58 (7) 21:04 (7)	07:36 19:29	08:27 16:39	08:21 16:38	08:48 16:38
29	08:27 17:24	07:26 18:09	06:19 19:09	05:33 19:01	05:33 21:46	20:28 (7) 20:58 (7)	05:26 22:04	05:59 21:37	20:43 (7) 21:02 (7)	06:48 20:37	20:58 (7) 21:02 (7)	07:38 19:26	08:29 16:38	08:22 16:39	08:49 16:39
30	08:25 17:26	07:24 18:11	06:17 19:11	05:32 19:03	05:32 21:47	20:29 (7) 20:58 (7)	05:27 22:04	06:01 21:37	20:43 (7) 21:02 (7)	06:50 20:35	20:58 (7) 21:02 (7)	07:40 19:24	08:31 16:37	08:23 16:40	08:49 16:40
31	08:24 17:28	07:22 18:12	06:17 19:12	05:32 19:04	05:31 21:49	20:30 (7) 20:59 (7)	05:27 22:04	06:02 21:34	20:46 (7) 21:00 (7)	06:51 20:33	20:58 (7) 21:00 (7)	07:42 19:24	08:32 16:37	08:24 16:41	08:49 16:41
Potential sun hours	260	278	367	416	484	497	730	814	453	381	332	267	245	245	245
Total, worst case							522	730							
Sun reduction							0,40	0,35							
Oper. time red.							0,95	0,95							
Wind dir. red.							0,54	0,54							
Total reduction							0,21	0,18							
Total, real							107	130							

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

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

Calculation: Receptors layout 1Shadow receptor: D - Krukweg 4

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December				
1	08:49	08:22	07:29	07:19	06:15	20:08 (7)	05:30	05:28	06:04	06:53	07:41	07:34	08:25			
	16:42	17:30	18:21	20:14	21:04	20:26 (7)	21:50	22:04	21:32	20:31	19:22	17:16	16:36			
2	08:49	08:21	07:27	07:17	06:13	20:10 (7)	05:30	05:28	06:05	06:54	07:43	07:36	08:26			
	16:43	17:31	18:22	20:16	21:06	20:26 (7)	21:51	22:03	21:30	20:28	19:19	17:14	16:36			
3	08:48	08:19	07:25	07:15	06:11	20:11 (7)	05:29	05:29	06:07	06:56	07:45	07:38	08:28			
	16:44	17:33	18:24	20:17	21:08	20:25 (7)	21:52	22:03	21:29	20:26	19:17	17:13	16:35			
4	08:48	08:18	07:23	07:13	06:10	20:12 (7)	05:28	05:30	06:08	06:58	07:46	07:40	08:29			
	16:45	17:35	18:26	20:19	21:09	20:23 (7)	21:53	22:02	21:27	20:24	19:15	17:11	16:35			
5	08:48	08:16	07:21	07:10	06:08	20:13 (7)	05:27	05:30	06:10	06:59	07:48	07:42	08:30			
	16:47	17:37	18:28	20:21	21:11	20:21 (7)	21:54	22:02	21:25	20:22	19:13	17:09	16:34			
6	08:48	08:14	07:19	07:08	06:06		05:27	05:31	06:11	07:01	07:49	07:43	08:32			
	16:48	17:39	18:29	20:22	21:13		21:55	22:01	21:24	20:19	19:10	17:07	16:34			
7	08:47	08:13	07:16	07:06	06:04		05:26	05:32	06:13	20:27 (7)	07:02	07:51	07:45	08:33		
	16:49	17:41	18:31	20:24	21:14		21:56	22:01	21:22	1	20:28 (7)	20:17	19:08	17:06	16:33	
8	08:47	08:11	07:14	07:04	06:02		05:26	05:33	06:14	20:22 (7)	07:04	07:53	07:47	08:34		
	16:50	17:42	18:33	20:26	21:16		21:57	22:00	21:20	9	20:31 (7)	20:15	19:06	17:04	16:33	
9	08:46	08:09	07:12	07:01	06:01		05:25	05:34	06:16	20:21 (7)	07:06	07:55	07:49	08:35		
	16:52	17:44	18:35	20:28	21:17		21:57	22:00	21:18	12	20:33 (7)	20:13	19:04	17:02	16:33	
10	08:46	08:07	07:10	06:59	05:59		05:25	05:35	06:18	20:19 (7)	07:07	07:56	07:50	08:36		
	16:53	17:46	18:36	20:29	21:19		21:58	21:59	21:16	15	20:34 (7)	20:10	19:01	17:01	16:32	
11	08:45	08:06	07:07	06:57	05:57		05:24	05:36	06:19	20:18 (7)	07:09	07:58	07:52	08:37		
	16:55	17:48	18:38	20:31	21:21		21:59	21:58	21:14	17	20:35 (7)	20:08	18:59	16:59	16:32	
12	08:45	08:04	07:05	06:55	05:56		05:24	05:37	06:21	20:17 (7)	07:10	08:00	07:54	08:39		
	16:56	17:50	18:40	20:33	21:22		22:00	21:57	21:13	18	20:35 (7)	20:06	18:57	16:58	16:32	
13	08:44	08:02	07:03	06:52	05:54		05:24	05:38	06:22	20:17 (7)	07:12	08:01	07:56	08:40		
	16:57	17:52	18:42	20:34	21:24		22:00	21:56	21:11	19	20:36 (7)	20:03	18:55	16:56	16:32	
14	08:43	08:00	07:01	06:50	05:52		05:24	05:39	06:24	20:16 (7)	07:14	08:03	07:57	08:40		
	16:59	17:53	18:43	20:36	21:25		22:01	21:56	21:09	20	20:36 (7)	20:01	18:53	16:55	16:32	
15	08:43	07:58	06:58	06:48	05:51		05:23	05:40	06:25	20:16 (7)	07:15	08:05	07:59	08:41		
	17:00	17:55	18:45	20:38	21:27		22:01	21:55	21:07	20	20:36 (7)	19:59	18:50	16:53	16:32	
16	08:42	07:56	06:56	06:46	05:49		05:23	05:42	06:27	20:15 (7)	07:17	08:06	08:01	08:42		
	17:02	17:57	18:47	20:39	21:28		22:02	21:54	21:05	20	20:35 (7)	19:56	18:48	16:52	16:32	
17	08:41	07:54	06:54	06:44	05:48		05:23	05:43	06:29	20:16 (7)	07:18	08:08	08:03	08:43		
	17:04	17:59	18:49	20:41	21:30		22:02	21:53	21:03	19	20:35 (7)	19:54	18:46	16:51	16:32	
18	08:40	07:52	06:51	06:42	05:46		05:23	05:44	06:30	20:15 (7)	07:20	08:10	08:04	08:44		
	17:05	18:01	18:50	20:43	21:31		22:03	21:51	21:01	18	20:33 (7)	19:52	18:44	16:49	16:33	
19	08:39	07:50	06:49	06:39	05:45		05:23	05:45	06:32	20:16 (7)	07:22	08:12	08:06	08:44		
	17:07	18:03	18:52	20:44	21:33		22:03	21:50	20:59	15	20:31 (7)	19:49	18:42	16:48	16:33	
20	08:38	07:48	06:47	06:37	05:44		05:23	05:47	06:33	20:16 (7)	07:23	08:13	08:08	08:45		
	17:08	18:04	18:54	20:46	21:34		22:04	21:49	20:57	13	20:29 (7)	19:47	18:40	16:47	16:33	
21	08:37	07:46	06:45	06:35	20:15 (7)	05:42	05:23	05:48	06:35	20:18 (7)	07:25	08:15	08:09	08:46		
	17:10	18:06	18:55	20:48	6	20:21 (7)	21:36	22:04	21:48	20:54	9	20:27 (7)	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	20:13 (7)	05:41	05:24	05:49	06:37	20:19 (7)	07:27	08:17	08:11	08:46		
	17:12	18:08	18:57	20:49	10	20:23 (7)	21:37	22:04	21:47	20:52	6	20:25 (7)	19:43	18:36	16:44	16:34
23	08:35	07:42	06:40	06:31	20:12 (7)	05:40	05:24	05:51	06:38	20:18 (7)	07:28	08:19	08:13	08:47		
	17:14	18:10	18:59	20:51	12	20:24 (7)	21:38	22:04	21:45	20:50	19:40	18:34	16:43	16:35		
24	08:33	07:40	06:38	06:29	20:10 (7)	05:39	05:24	05:52	06:40	20:17 (7)	07:30	08:20	08:14	08:47		
	17:15	18:12	19:01	20:53	16	20:26 (7)	21:40	22:04	21:44	20:48	19:38	18:32	16:42	16:35		
25	08:32	07:38	06:35	06:27	20:10 (7)	05:37	05:24	05:53	06:42	20:16 (7)	07:31	07:22	08:16	08:48		
	17:17	18:13	19:02	20:54	17	20:27 (7)	21:41	22:04	21:43	20:46	19:36	17:30	16:41	16:36		
26	08:31	07:36	06:33	06:25	20:09 (7)	05:36	05:25	05:55	06:43	20:15 (7)	07:33	07:24	08:17	08:48		
	17:19	18:15	19:04	20:56	20	20:29 (7)	21:42	22:04	21:41	20:44	19:33	17:28	16:40	16:37		
27	08:29	07:34	06:31	06:23	20:08 (7)	05:35	05:25	05:56	06:45	20:14 (7)	07:35	07:26	08:19	08:48		
	17:21	18:17	19:06	20:58	21	20:29 (7)	21:44	22:04	21:40	20:42	19:31	17:26	16:39	16:37		
28	08:28	07:32	06:29	06:21	20:08 (7)	05:34	05:26	05:58	06:46	20:13 (7)	07:36	07:27	08:20	08:48		
	17:22	18:19	19:07	20:59	20	20:28 (7)	21:45	22:04	21:38	20:40	19:29	17:24	16:39	16:38		
29	08:27	07:30	06:27	06:19	20:08 (7)	05:33	05:26	05:59	06:48	20:12 (7)	07:38	07:29	08:22	08:49		
	17:24	18:20	19:09	21:01	20	20:28 (7)	21:46	22:04	21:37	20:37	19:26	17:22	16:38	16:39		
30	08:25	07:24	06:17	06:10	20:08 (7)	05:32	05:27	06:01	06:50	20:11 (7)	07:40	07:31	08:23	08:49		
	17:26	18:21	19:10	21:03	19	20:27 (7)	21:47	22:04	21:35	20:35	19:24	17:20	16:37	16:40		
31	08:24	07:22	06:15	06:08	20:07 (7)	05:31	05:27	06:02	06:51	20:10 (7)	07:41	07:32	08:24	08:49		
	17:28	18:22	19:11	21:04	18	20:26 (7)	21:48	22:04	21:34	20:33	19:23	17:18	16:37	16:41		
Potential sun hours	260	278	367	416	484		497	501	453	381	332	267	245			
Total, worst case				161	67				231							
Sun reduction				0,35	0,40				0,41							
Oper. time red.				0,95	0,95				0,95							
Wind dir. red.				0,52	0,52				0,52							
Total reduction				0,17	0,20				0,20							
Total, real				28	13				47							

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: Receptors layout 1Shadow receptor: E - Koekoekendijk 15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:22	07:29	07:19	06:15	05:30	05:28	06:04	06:53	07:41	07:34	08:25
	16:42	17:30	18:21	20:14	21:04	21:50	22:04	21:32	20:31	19:22	17:16	16:36
2	08:49	08:21	07:27	07:17	06:13	05:30	05:28	06:05	06:54	07:43	07:36	08:26
	16:43	17:31	18:22	20:16	21:06	21:51	22:03	21:31	20:28	19:20	17:14	16:36
3	08:49	08:19	07:25	07:15	06:11	05:29	05:29	06:07	06:56	07:45	07:38	08:28
	16:44	17:33	18:24	20:17	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
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	16:45	17:35	18:26	20:19	21:09	21:53	22:02	21:27	20:24	19:15	17:11	16:35
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	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:25	20:22	19:13	17:09	16:34
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	16:48	17:39	18:30	20:23	21:13	21:55	22:02	21:24	20:19	19:10	17:07	16:34
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	16:49	17:41	18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:33
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	16:50	17:42	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
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	16:52	17:44	18:35	20:28	21:17	21:57	22:00	21:18	20:13	19:04	17:02	16:33
10	08:46	08:07	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:50	08:36
	16:53	17:46	18:37	20:29	21:19	21:58	21:59	21:16	20:10	19:01	17:01	16:32
11	08:45	08:06	07:07	06:57	05:57	05:24	05:36	06:19	07:09	07:58	07:52	08:38
	16:55	17:48	18:38	20:31	21:21	21:59	21:58	21:15	20:08	18:59	16:59	16:32
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	16:56	17:50	18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:52	05:54	05:24	05:38	06:22	07:12	08:01	07:56	08:40
	16:57	17:52	18:42	20:34	21:24	22:00	21:56	21:11	20:03	18:55	16:56	16:32
14	08:43	08:00	07:01	06:50	05:53	05:24	05:39	06:24	07:14	08:03	07:57	08:40
	16:59	17:53	18:43	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:43	07:58	06:58	06:48	05:51	05:23	05:41	06:26	07:15	08:05	07:59	08:41
	17:01	17:55	18:45	20:38	21:27	22:02	21:55	21:07	19:59	18:51	16:53	16:32
16	08:42	07:56	06:56	06:46	05:49	05:23	05:42	06:27	07:17	08:06	08:01	08:42
	17:02	17:57	18:47	20:39	21:28	22:02	21:54	21:05	19:56	18:48	16:52	16:32
17	08:41	07:54	06:54	06:44	05:48	05:23	05:43	06:29	07:19	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:02	21:53	21:03	19:54	18:46	16:51	16:33
18	08:40	07:52	06:52	06:42	05:47	05:23	05:44	06:30	07:20	08:10	08:04	08:44
	17:05	18:01	18:50	20:43	21:31	22:03	21:51	21:01	19:52	18:44	16:49	16:33
19	08:39	07:50	06:49	06:40	05:45	05:23	05:45	06:32	07:22	08:12	08:06	08:44
	17:07	18:03	18:52	20:44	21:33	22:03	21:50	20:59	19:50	18:42	16:48	16:33
20	08:38	07:48	06:47	06:37	05:44	05:23	05:47	06:34	07:23	08:13	08:08	08:45
	17:09	18:04	18:54	20:46	21:34	22:04	21:49	20:57	19:47	18:40	16:47	16:33
21	08:37	07:46	06:45	06:35	05:42	05:23	05:48	06:35	07:25	08:15	08:09	08:46
	17:10	18:06	18:55	20:48	21:36	22:04	21:48	20:55	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	05:41	05:24	05:49	06:37	07:27	08:17	08:11	08:46
	17:12	18:08	18:57	20:49	21:37	22:04	21:47	20:52	19:43	18:36	16:45	16:34
23	08:35	07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:19	08:13	08:47
	17:14	18:10	18:59	20:51	21:38	22:04	21:45	20:50	19:40	18:34	16:43	16:35
24	08:33	07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	08:14	08:47
	17:15	18:12	19:01	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:42	16:35
25	08:32	07:38	06:35	06:27	05:37	05:25	05:53	06:42	07:31	08:22	08:16	08:48
	17:17	18:14	19:02	20:54	21:41	22:04	21:43	20:46	19:36	18:30	16:41	16:36
26	08:31	07:36	06:33	06:25	05:36	05:25	05:55	06:43	07:33	08:24	08:17	08:48
	17:19	18:15	19:04	20:56	21:42	22:04	21:41	20:44	19:33	18:28	16:40	16:37
27	08:30	07:34	06:31	06:23	05:35	05:25	05:56	06:45	07:35	08:26	08:19	08:48
	17:21	18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	18:26	16:40	16:37
28	08:28	07:32	06:29	06:21	05:34	05:26	05:58	06:46	07:36	08:27	08:21	08:48
	17:22	18:19	19:07	20:59	21:45	22:04	21:38	20:40	19:29	18:24	16:39	16:38
29	08:27	07:26	06:19	06:19	05:33	05:26	05:59	06:48	07:38	08:29	08:22	08:49
	17:24	18:21	19:09	21:01	21:46	22:04	21:37	20:37	19:26	18:22	16:38	16:39
30	08:25	07:24	06:17	06:17	05:32	05:27	06:01	06:50	07:40	08:31	08:23	08:49
	17:26	18:23	19:11	21:03	21:47	22:04	21:35	20:35	19:24	18:20	16:37	16:40
31	08:24	07:22	06:15	06:15	05:31	05:26	06:02	06:51	07:41	08:32	08:24	08:49
	17:28	18:25	19:12	21:05	21:49	22:04	21:34	20:33	19:22	18:18	16:36	16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
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: Receptors layout 1Shadow receptor: F - Arenbergse Singeldijk 4, 5

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:22	07:29	07:19	06:15	05:30	05:28	06:04	06:53	07:41	07:34	08:25
	16:42	17:29	18:21	20:14	21:04	21:50	22:04	21:32	20:31	19:22	17:16	16:36
2	08:49	08:21	07:27	07:17	06:13	05:30	05:28	06:05	06:54	07:43	07:36	08:26
	16:43	17:31	18:22	20:16	21:06	21:51	22:03	21:30	20:28	19:19	17:14	16:36
3	08:48	08:19	07:25	07:15	06:11	05:29	05:29	06:07	06:56	07:44	07:38	08:28
	16:44	17:33	18:24	20:17	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
4	08:48	08:18	07:23	07:13	06:09	05:28	05:30	06:08	06:58	07:46	07:40	08:29
	16:45	17:35	18:26	20:19	21:09	21:53	22:02	21:27	20:24	19:15	17:11	16:34
5	08:48	08:16	07:21	07:10	06:08	05:27	05:30	06:10	06:59	07:48	07:42	08:30
	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:25	20:22	19:13	17:09	16:34
6	08:48	08:14	07:18	07:08	06:06	05:27	05:31	06:11	07:01	07:49	07:43	08:32
	16:48	17:39	18:29	20:22	21:13	21:55	22:01	21:24	20:19	19:10	17:07	16:34
7	08:47	08:13	07:16	07:06	06:04	05:26	05:32	06:13	07:02	07:51	07:45	08:33
	16:49	17:40	18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:33
8	08:47	08:11	07:14	07:04	06:02	05:26	05:33	06:14	07:04	07:53	07:47	08:34
	16:50	17:42	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
9	08:46	08:09	07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:54	07:49	08:35
	16:52	17:44	18:35	20:28	21:17	21:57	22:00	21:18	20:13	19:04	17:02	16:33
10	08:46	08:07	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:50	08:36
	16:53	17:46	18:36	20:29	21:19	21:58	21:59	21:16	20:10	19:01	17:01	16:32
11	08:45	08:05	07:07	06:57	05:57	05:24	05:36	06:19	07:09	07:58	07:52	08:37
	16:54	17:48	18:38	20:31	21:21	21:59	21:58	21:14	20:08	18:59	16:59	16:32
12	08:45	08:04	07:05	06:55	05:56	05:24	05:37	06:21	07:10	08:00	07:54	08:38
	16:56	17:50	18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:52	05:54	05:24	05:38	06:22	07:12	08:01	07:56	08:39
	16:57	17:52	18:42	20:34	21:24	22:00	21:56	21:11	20:03	18:55	16:56	16:32
14	08:43	08:00	07:01	06:50	05:52	05:24	05:39	06:24	07:14	08:03	07:57	08:40
	16:59	17:53	18:43	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:42	07:58	06:58	06:48	05:51	05:23	05:40	06:25	07:15	08:05	07:59	08:41
	17:00	17:55	18:45	20:38	21:27	22:01	21:55	21:07	19:59	18:50	16:53	16:32
16	08:42	07:56	06:56	06:46	05:49	05:23	05:42	06:27	07:17	08:06	08:01	08:42
	17:02	17:57	18:47	20:39	21:28	22:02	21:54	21:05	19:56	18:48	16:52	16:32
17	08:41	07:54	06:54	06:44	05:48	05:23	05:43	06:29	07:18	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:02	21:53	21:03	19:54	18:46	16:51	16:32
18	08:40	07:52	06:51	06:42	05:46	05:23	05:44	06:30	07:20	08:10	08:04	08:44
	17:05	18:01	18:50	20:43	21:31	22:03	21:51	21:01	19:52	18:44	16:49	16:33
19	08:39	07:50	06:49	06:39	05:45	05:23	05:45	06:32	07:22	08:12	08:06	08:44
	17:07	18:03	18:52	20:44	21:33	22:03	21:50	20:59	19:49	18:42	16:48	16:33
20	08:38	07:48	06:47	06:37	05:44	05:23	05:47	06:33	07:23	08:13	08:08	08:45
	17:08	18:04	18:54	20:46	21:34	22:03	21:49	20:57	19:47	18:40	16:47	16:33
21	08:37	07:46	06:45	06:35	05:42	05:23	05:48	06:35	07:25	08:15	08:09	08:46
	17:10	18:06	18:55	20:48	21:36	22:04	21:48	20:54	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	05:41	05:24	05:49	06:37	07:26	08:17	08:11	08:46
	17:12	18:08	18:57	20:49	21:37	22:04	21:47	20:52	19:42	18:36	16:44	16:34
23	08:34	07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:18	08:13	08:47
	17:14	18:10	18:59	20:51	21:38	22:04	21:45	20:50	19:40	18:34	16:43	16:35
24	08:33	07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	08:14	08:47
	17:15	18:12	19:00	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:42	16:35
25	08:32	07:38	06:35	06:27	05:37	05:24	05:53	06:41	07:31	08:22	08:16	08:48
	17:17	18:13	19:02	20:54	21:41	22:04	21:43	20:46	19:36	17:30	16:41	16:36
26	08:31	07:36	06:33	06:25	05:36	05:25	05:55	06:43	07:33	08:24	08:17	08:48
	17:19	18:15	19:04	20:56	21:42	22:04	21:41	20:44	19:33	17:28	16:40	16:37
27	08:29	07:34	06:31	06:23	05:35	05:25	05:56	06:45	07:35	08:26	08:19	08:48
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28	08:28	07:32	06:28	06:21	05:34	05:26	05:58	06:46	07:36	08:27	08:20	08:48
	17:22	18:19	19:07	20:59	21:45	22:04	21:38	20:39	19:29	17:24	16:39	16:38
29	08:27	07:26	06:19	06:19	05:33	05:26	05:59	06:48	07:38	08:29	08:22	08:49
	17:24	18:21	19:09	21:01	21:46	22:04	21:37	20:37	19:26	17:22	16:38	16:39
30	08:25	07:24	06:17	06:17	05:32	05:27	06:01	06:50	07:40	08:31	08:23	08:49
	17:26	18:23	19:11	21:03	21:47	22:04	21:35	20:35	19:24	17:20	16:37	16:40
31	08:24	07:22	06:15	06:15	05:31	05:26	06:02	06:51	07:41	08:32	08:24	08:49
	17:28	18:25	19:12	21:05	21:49	22:04	21:34	20:33	19:22	17:18	16:35	16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
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: Receptors layout 1Shadow receptor: G - Arenbergse Singeldijk 3

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:22	07:29	07:19	06:15	05:30	05:27	06:04	06:53	07:41	07:34	08:25
	16:42	17:29	18:21	20:14	21:04	21:50	22:04	21:32	20:31	19:22	17:16	16:36
2	08:49	08:21	07:27	07:17	06:13	05:30	05:28	06:05	06:54	07:43	07:36	08:26
	16:43	17:31	18:22	20:16	21:06	21:51	22:03	21:30	20:28	19:19	17:14	16:36
3	08:48	08:19	07:25	07:15	06:11	05:29	05:29	06:07	06:56	07:44	07:38	08:28
	16:44	17:33	18:24	20:17	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
4	08:48	08:18	07:23	07:13	06:09	05:28	05:30	06:08	06:58	07:46	07:40	08:29
	16:45	17:35	18:26	20:19	21:09	21:53	22:02	21:27	20:24	19:15	17:11	16:34
5	08:48	08:16	07:21	07:10	06:08	05:27	05:30	06:10	06:59	07:48	07:42	08:30
	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:25	20:22	19:13	17:09	16:34
6	08:48	08:14	07:18	07:08	06:06	05:27	05:31	06:11	07:01	07:49	07:43	08:32
	16:48	17:39	18:29	20:22	21:13	21:55	22:01	21:24	20:19	19:10	17:07	16:34
7	08:47	08:13	07:16	07:06	06:04	05:26	05:32	06:13	07:02	07:51	07:45	08:33
	16:49	17:40	18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:33
8	08:47	08:11	07:14	07:04	06:02	05:26	05:33	06:14	07:04	07:53	07:47	08:34
	16:50	17:42	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
9	08:46	08:09	07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:54	07:49	08:35
	16:52	17:44	18:35	20:28	21:17	21:57	22:00	21:18	20:13	19:04	17:02	16:33
10	08:46	08:07	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:50	08:36
	16:53	17:46	18:36	20:29	21:19	21:58	21:59	21:16	20:10	19:01	17:01	16:32
11	08:45	08:05	07:07	06:57	05:57	05:24	05:36	06:19	07:09	07:58	07:52	08:37
	16:54	17:48	18:38	20:31	21:21	21:59	21:58	21:14	20:08	18:59	16:59	16:32
12	08:45	08:04	07:05	06:55	05:56	05:24	05:37	06:21	07:10	08:00	07:54	08:38
	16:56	17:50	18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:52	05:54	05:24	05:38	06:22	07:12	08:01	07:56	08:39
	16:57	17:52	18:42	20:34	21:24	22:00	21:56	21:11	20:03	18:55	16:56	16:32
14	08:43	08:00	07:01	06:50	05:52	05:24	05:39	06:24	07:14	08:03	07:57	08:40
	16:59	17:53	18:43	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:42	07:58	06:58	06:48	05:51	05:23	05:40	06:25	07:15	08:05	07:59	08:41
	17:00	17:55	18:45	20:38	21:27	22:01	21:55	21:07	19:59	18:50	16:53	16:32
16	08:42	07:56	06:56	06:46	05:49	05:23	05:42	06:27	07:17	08:06	08:01	08:42
	17:02	17:57	18:47	20:39	21:28	22:02	21:54	21:05	19:56	18:48	16:52	16:32
17	08:41	07:54	06:54	06:44	05:48	05:23	05:43	06:29	07:18	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:02	21:53	21:03	19:54	18:46	16:51	16:32
18	08:40	07:52	06:51	06:42	05:46	05:23	05:44	06:30	07:20	08:10	08:04	08:44
	17:05	18:01	18:50	20:43	21:31	22:03	21:51	21:01	19:52	18:44	16:49	16:33
19	08:39	07:50	06:49	06:39	05:45	05:23	05:45	06:32	07:22	08:12	08:06	08:44
	17:07	18:03	18:52	20:44	21:33	22:03	21:50	20:59	19:49	18:42	16:48	16:33
20	08:38	07:48	06:47	06:37	05:44	05:23	05:47	06:33	07:23	08:13	08:08	08:45
	17:08	18:04	18:54	20:46	21:34	22:03	21:49	20:57	19:47	18:40	16:47	16:33
21	08:37	07:46	06:45	06:35	05:42	05:23	05:48	06:35	07:25	08:15	08:09	08:46
	17:10	18:06	18:55	20:48	21:36	22:04	21:48	20:54	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	05:41	05:24	05:49	06:37	07:26	08:17	08:11	08:46
	17:12	18:08	18:57	20:49	21:37	22:04	21:47	20:52	19:42	18:36	16:44	16:34
23	08:34	07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:18	08:13	08:47
	17:14	18:10	18:59	20:51	21:38	22:04	21:45	20:50	19:40	18:34	16:43	16:35
24	08:33	07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	08:14	08:47
	17:15	18:12	19:00	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:42	16:35
25	08:32	07:38	06:35	06:27	05:37	05:24	05:53	06:41	07:31	08:22	08:16	08:48
	17:17	18:13	19:02	20:54	21:41	22:04	21:43	20:46	19:36	18:30	16:41	16:36
26	08:31	07:36	06:33	06:25	05:36	05:25	05:55	06:43	07:33	08:24	08:17	08:48
	17:19	18:15	19:04	20:56	21:42	22:04	21:41	20:44	19:33	18:28	16:40	16:37
27	08:29	07:34	06:31	06:23	05:35	05:25	05:56	06:45	07:35	08:26	08:19	08:48
	17:21	18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	18:26	16:39	16:37
28	08:28	07:32	06:28	06:21	05:34	05:26	05:58	06:46	07:36	08:27	08:20	08:48
	17:22	18:19	19:07	20:59	21:45	22:04	21:38	20:39	19:29	18:24	16:39	16:38
29	08:27	07:26	06:19	06:19	05:33	05:26	05:59	06:48	07:38	08:29	08:22	08:49
	17:24	18:20	19:09	21:01	21:46	22:04	21:37	20:37	19:26	18:22	16:38	16:39
30	08:25	07:24	06:17	06:17	05:32	05:27	06:01	06:50	07:40	08:31	08:23	08:49
	17:26	18:21	19:10	21:03	21:47	22:04	21:35	20:35	19:24	18:20	16:37	16:40
31	08:24	07:22	06:15	06:15	05:31	05:26	06:02	06:51	07:41	08:32	08:24	08:49
	17:28	18:22	19:11	21:05	21:49	22:04	21:34	20:33	19:24	18:20	16:37	16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
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: Receptors layout 1Shadow receptor: H - Arenbergsesingeldijk 1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49 16:42	08:22 17:29	07:29 18:21	07:19 20:14	06:15 21:04	05:30 21:50	05:27 22:04	06:04 21:32	06:53 20:31	19:32 (8) 19:53 (8)	07:41 19:22	07:34 17:16	08:25 16:36
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	06:13 21:06	05:29 21:51	05:28 22:03	06:05 21:30	06:54 20:28	19:31 (8) 19:53 (8)	07:43 19:19	17:16 17:14	08:26 16:36
3	08:48 16:44	08:19 17:33	07:25 18:24	07:15 20:17	06:11 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	19:31 (8) 19:53 (8)	07:44 19:17	17:14 17:12	08:28 16:35
4	08:48 16:45	08:18 17:35	07:23 18:26	07:13 20:19	06:09 21:09	05:28 21:53	05:28 22:02	06:08 21:27	06:58 20:24	19:30 (8) 19:52 (8)	07:46 19:15	17:12 17:11	08:29 16:34
5	08:48 16:47	08:16 17:37	07:21 18:28	07:10 20:21	06:08 21:11	05:27 21:54	05:27 22:02	06:10 21:25	06:59 20:22	19:30 (8) 19:52 (8)	07:48 19:13	17:11 17:09	08:30 16:34
6	08:48 16:48	08:14 17:39	07:18 18:29	07:08 20:22	06:06 21:13	05:27 21:55	05:27 22:01	06:11 21:24	07:01 20:19	19:30 (8) 19:51 (8)	07:49 19:10	17:09 17:07	08:32 16:34
7	08:47 16:49	08:13 17:40	07:16 18:31	07:06 20:24	06:04 21:14	05:26 21:56	05:26 22:01	06:13 21:22	07:02 20:17	19:30 (8) 19:50 (8)	07:51 19:08	17:07 17:06	08:33 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	07:03 20:26	06:02 21:16	05:26 21:57	05:26 22:00	06:14 21:22	07:04 20:15	19:31 (8) 19:48 (8)	07:53 19:06	17:06 17:04	08:34 16:33
9	08:46 16:52	08:09 17:44	07:12 18:35	07:01 20:28	06:01 21:17	05:25 21:57	05:25 22:00	06:16 21:18	07:06 20:13	19:32 (8) 19:46 (8)	07:54 19:04	17:04 17:02	08:35 16:33
10	08:46 16:53	08:07 17:46	07:10 18:36	06:59 20:29	05:59 21:19	05:25 21:58	05:25 21:59	06:17 21:16	07:07 20:10	19:34 (8) 19:44 (8)	07:56 19:01	17:02 17:01	08:36 16:32
11	08:45 16:54	08:06 17:48	07:07 18:38	06:57 20:31	05:57 21:21	05:24 21:59	05:24 21:58	06:19 21:14	07:09 20:08	19:44 (8) 19:54 (8)	07:58 18:59	17:01 16:59	08:37 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	05:56 21:22	05:24 22:00	05:24 21:57	06:21 21:13	07:10 20:06	19:53 (8) 19:30 (8)	08:00 18:57	16:54 16:58	08:39 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	06:52 20:34	05:54 21:24	05:24 22:00	05:24 21:56	06:22 21:11	07:12 20:03	19:31 (8) 19:51 (8)	08:01 18:55	16:56 16:56	08:40 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	06:50 20:36	05:52 21:25	05:23 22:01	05:23 22:01	06:24 21:09	07:14 20:01	19:32 (8) 19:52 (8)	08:03 18:53	16:57 16:55	08:40 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	06:48 20:38	05:51 21:27	05:23 22:01	05:23 21:55	06:25 21:07	07:15 19:59	19:48 (8) 19:59	08:05 18:50	16:53 16:53	08:41 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:39	05:49 21:28	05:23 22:02	05:23 21:54	06:27 21:05	07:17 19:56	19:43 (8) 19:54	08:06 18:48	16:52 16:52	08:42 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	05:48 21:30	05:23 22:02	05:23 21:53	06:29 21:03	07:18 19:54	19:52 (8) 19:54	08:08 18:46	16:50 16:50	08:43 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	06:42 20:43	05:46 21:31	05:23 22:03	05:23 21:51	06:30 21:01	07:20 19:52	19:52 (8) 19:52	08:10 18:44	16:49 16:49	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	06:39 20:44	05:45 21:33	05:23 22:03	05:23 21:50	06:32 20:59	07:22 19:49	19:52 (8) 19:49	08:12 18:42	16:48 16:48	08:44 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	06:37 20:46	05:44 21:34	05:23 22:04	05:23 21:49	06:33 20:57	07:23 19:47	19:49 (8) 19:47	08:13 18:40	16:47 16:47	08:45 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	06:35 20:48	05:42 21:36	05:23 22:04	05:23 21:48	06:35 20:54	07:25 19:45	19:47 (8) 19:45	08:15 18:38	16:46 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	06:33 20:49	05:41 21:37	05:24 22:04	05:24 21:47	06:37 20:52	07:26 19:42	19:46 (8) 19:42	08:17 18:36	16:44 16:44	08:46 16:34
23	08:35 17:13	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:38	05:24 22:04	05:24 21:45	06:38 20:50	07:28 19:40	19:42 (8) 19:40	08:18 18:34	16:43 16:43	08:47 16:35
24	08:33 17:15	07:40 18:12	06:38 19:00	06:29 20:53	05:39 21:40	05:24 22:04	05:24 21:44	06:40 20:48	07:30 19:38	19:38 (8) 19:38	08:20 18:32	16:41 16:42	08:47 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	05:37 21:41	05:24 22:04	05:24 21:43	06:41 20:46	07:31 19:36	19:36 (8) 19:36	07:22 17:30	16:42 16:41	08:48 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	05:36 21:42	05:25 22:04	05:25 21:41	06:43 20:44	07:33 19:33	19:33 (8) 19:33	07:24 17:28	16:41 16:40	08:48 16:37
27	08:29 17:20	07:34 18:17	06:31 19:06	06:23 20:58	05:35 21:44	05:25 22:04	05:25 21:40	06:45 20:42	07:35 19:31	19:43 (8) 19:46 (8)	07:26 17:26	16:40 16:39	08:48 16:37
28	08:28 17:22	07:32 18:19	06:28 19:07	06:21 20:59	05:34 21:45	05:26 22:04	05:26 21:38	06:46 20:39	07:36 19:29	19:38 (8) 19:49 (8)	07:36 19:29	16:39 16:39	08:48 16:38
29	08:27 17:24	07:26 18:09	06:19 20:09	06:19 21:01	05:33 21:46	05:26 22:04	05:26 21:37	06:48 20:37	07:38 19:26	19:36 (8) 19:51 (8)	07:38 19:26	16:38 16:38	08:49 16:39
30	08:25 17:26	07:24 20:11	06:17 21:03	06:17 21:03	05:32 21:47	05:27 22:04	05:27 21:35	06:01 20:35	07:40 19:24	19:35 (8) 19:52 (8)	07:40 19:24	16:37 16:40	08:49 16:40
31	08:24 17:28	07:22 20:12	06:17 21:03	06:17 21:03	05:31 21:49	05:27 22:04	05:27 21:34	06:02 20:33	07:40 19:24	19:33 (8) 19:53 (8)	07:40 19:24	16:37 16:40	08:49 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245	
Total, worst case				252				66	191				
Sun reduction				0,35				0,41	0,33				
Oper. time red.				0,95				0,95	0,95				
Wind dir. red.				0,58				0,58	0,58				
Total reduction				0,19				0,23	0,18				
Total, real				49				15	35				

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: Receptors layout 1Shadow receptor: I - Koekoekendijk 10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:42	08:22 17:30	07:29 18:21	07:19 20:14	06:15 21:04	05:30 21:50	05:28 22:04	06:04 21:32	06:53 20:31	07:41 19:22	18:23 (7)	07:34 17:16
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	06:13 21:06	05:30 21:51	05:28 22:03	06:05 21:31	06:54 20:28	07:43 19:19	24 18:47 (7)	17:16 16:36
3	08:49 16:44	08:19 17:33	07:25 18:24	07:15 20:17	06:11 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	07:45 19:17	24 18:47 (7)	17:14 16:36
4	08:48 16:45	08:18 17:35	07:23 18:26	07:13 20:19	06:10 21:09	05:28 21:53	05:30 22:03	06:08 21:27	06:58 20:24	07:46 19:15	23 18:46 (7)	17:13 16:35
5	08:48 16:47	08:16 17:37	07:21 18:28	17:55 (7) 18:00 (7)	07:10 20:21	06:08 21:11	05:27 21:54	06:10 22:02	06:59 21:25	07:48 19:13	22 18:45 (7)	17:11 16:35
6	08:48 16:48	08:14 17:39	07:19 18:29	17:51 (7) 18:04 (7)	07:08 20:23	06:06 21:13	05:27 21:55	06:11 22:02	07:01 21:24	07:50 19:10	20 18:44 (7)	17:09 16:34
7	08:47 16:49	08:13 17:41	07:16 18:31	17:49 (7) 18:05 (7)	07:06 20:24	06:04 21:14	05:26 21:56	06:13 22:01	07:02 21:22	07:51 19:08	18 18:43 (7)	17:07 16:34
8	08:47 16:50	08:11 17:42	07:14 18:33	17:47 (7) 18:06 (7)	07:04 20:26	06:02 21:16	05:26 21:57	06:14 22:00	07:04 21:20	07:53 19:06	15 18:40 (7)	17:06 16:33
9	08:47 16:52	08:09 17:44	07:12 18:35	17:46 (7) 18:07 (7)	07:01 20:28	06:01 21:17	05:25 21:57	06:16 22:00	07:06 21:18	07:55 19:04	9 18:37 (7)	17:04 16:33
10	08:46 16:53	08:07 17:46	07:10 18:37	17:45 (7) 18:07 (7)	06:59 20:29	05:25 21:19	05:35 21:58	06:18 21:59	07:07 21:16	07:56 19:01	07:49 17:01	16:33 16:32
11	08:45 16:55	08:06 17:48	07:07 18:38	17:44 (7) 18:08 (7)	06:57 20:31	05:57 21:21	05:24 21:59	06:19 21:58	07:09 21:15	07:58 18:59	07:52 16:59	16:32 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	17:44 (7) 18:08 (7)	06:55 20:33	05:56 21:22	05:24 22:00	06:21 21:57	07:10 21:13	08:00 18:57	07:54 16:58	16:32 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	17:44 (7) 18:08 (7)	06:52 20:34	05:54 21:24	05:24 22:00	06:22 21:57	07:12 21:11	08:01 18:55	07:56 16:56	16:32 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	17:44 (7) 18:07 (7)	06:50 20:36	05:52 21:25	05:24 22:01	06:24 21:56	07:14 21:09	08:03 18:53	07:57 16:55	16:32 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	17:44 (7) 18:06 (7)	06:48 20:38	05:51 21:27	05:23 22:02	06:25 21:55	07:15 19:59	08:05 18:50	07:59 16:53	16:32 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	17:45 (7) 18:06 (7)	06:46 20:39	05:49 21:28	05:23 22:02	06:27 21:54	07:17 19:56	08:06 18:48	08:01 16:52	16:32 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	17:45 (7) 18:04 (7)	06:44 20:41	05:48 21:30	05:23 22:02	06:29 21:53	07:18 19:54	08:08 18:46	08:03 16:51	16:32 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	17:47 (7) 18:02 (7)	06:42 20:43	05:46 21:31	05:23 22:03	06:30 21:52	07:20 19:52	08:10 18:44	08:04 16:49	16:33 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	17:50 (7) 18:00 (7)	06:39 20:44	05:45 21:33	05:23 22:03	06:32 21:50	07:22 19:49	08:12 18:42	08:06 16:48	16:33 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	06:37 20:46	05:44 21:34	05:23 22:04	05:47 21:49	06:33 20:57	07:23 19:47	08:13 18:40	08:08 16:47	16:33 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	06:35 20:48	05:42 21:36	05:23 22:04	05:48 21:48	06:35 20:55	07:25 19:45	08:15 18:38	08:09 16:46	16:34 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	06:33 20:49	05:41 21:37	05:24 22:04	05:49 21:47	06:37 20:52	07:27 19:43	08:17 18:36	08:11 16:44	16:34 16:34
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:38	05:24 22:04	05:51 21:45	06:38 20:50	07:28 19:40	08:19 18:34	08:13 16:43	16:34 16:35
24	08:33 17:15	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	05:24 22:04	05:52 21:44	06:40 20:48	07:30 19:38	18:34 (7) 18:42 (7)	08:20 18:32	16:42 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	05:37 21:41	05:24 22:04	05:53 21:43	06:42 20:46	07:31 19:36	18:31 (7) 18:44 (7)	07:22 17:30	16:41 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	05:36 21:42	05:25 22:04	05:55 21:41	06:43 20:44	07:33 19:33	18:29 (7) 18:46 (7)	07:24 17:28	16:40 16:37
27	08:30 17:21	07:34 18:17	06:31 19:06	06:23 20:58	05:35 21:44	05:25 22:04	05:56 21:40	06:45 20:42	07:35 19:31	18:27 (7) 18:47 (7)	07:26 17:26	16:39 16:37
28	08:28 17:22	07:32 18:19	06:29 19:07	06:21 20:59	05:34 21:45	05:26 22:04	05:58 21:38	06:46 20:40	07:36 19:29	18:25 (7) 18:47 (7)	07:27 17:24	16:39 16:38
29	08:27 17:24	07:26 18:09	06:26 20:09	06:19 21:01	05:33 21:46	05:26 22:04	05:59 21:37	06:48 20:37	07:38 19:26	22 18:25 (7)	07:29 17:22	16:38 16:39
30	08:25 17:26	07:24 18:06	06:24 20:11	06:17 21:03	05:32 21:47	05:27 22:04	06:01 21:35	06:50 20:35	07:40 19:24	18:24 (7) 18:48 (7)	07:31 17:20	16:37 16:40
31	08:24 17:28	07:22 18:02	06:22 20:12	06:15 21:09	05:31 21:49	05:27 22:04	06:02 21:34	06:51 20:33	07:40 17:18	18:24 (7) 17:18	07:31 16:41	16:37 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
Total, worst case			278									
Sun reduction			0,26						0,33		0,29	
Oper. time red.			0,95						0,95		0,95	
Wind dir. red.			0,63						0,63		0,63	
Total reduction			0,16						0,20		0,17	
Total, real			43						25		27	

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: Receptors layout 1Shadow receptor: J - Lapdijk 14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49 16:42	08:22 17:29	07:29 18:21	07:19 20:14	06:15 21:04	05:30 21:50	05:27 22:04	06:04 21:32	06:53 20:31	07:41 19:22	18:15 (8) 18:43 (8)	07:34 17:16	08:25 16:36
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	06:13 21:06	05:29 21:51	05:28 22:03	06:05 21:31	06:54 20:28	07:43 19:19	18:15 (8) 18:43 (8)	07:36 17:14	08:26 16:36
3	08:49 16:44	08:19 17:33	07:25 18:24	07:15 20:17	06:11 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	07:44 19:17	18:16 (8) 18:42 (8)	07:38 17:13	08:28 16:35
4	08:48 16:45	08:18 17:35	07:23 18:26	17:51 (8) 20:19	07:13 21:09	06:09 21:53	05:28 22:03	06:08 21:27	06:58 20:24	07:46 19:15	18:15 (8) 18:41 (8)	07:40 17:11	08:29 16:34
5	08:48 16:47	08:16 17:37	07:21 18:28	17:45 (8) 20:21	07:10 21:11	06:08 21:54	05:27 22:02	06:10 21:25	06:59 20:22	07:48 19:13	18:16 (8) 18:40 (8)	07:42 17:09	08:30 16:34
6	08:48 16:48	08:14 17:39	07:18 18:29	17:43 (8) 20:22	07:08 21:13	06:06 21:55	05:27 22:02	06:11 21:24	07:01 20:19	07:49 19:10	18:17 (8) 18:39 (8)	07:43 17:07	08:32 16:34
7	08:47 16:49	08:13 17:40	07:16 18:31	17:41 (8) 20:24	07:06 21:14	06:04 21:56	05:26 22:01	06:13 21:22	07:02 20:17	07:51 19:08	18:19 (8) 18:36 (8)	07:45 17:06	08:33 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	17:39 (8) 20:26	07:03 21:16	06:02 21:57	05:26 22:00	06:14 21:20	07:04 20:15	07:53 19:06	18:19 (8) 18:34 (8)	07:47 17:04	08:34 16:33
9	08:46 16:52	08:09 17:44	07:12 18:35	17:38 (8) 20:28	07:01 21:17	06:01 21:57	05:25 22:00	06:16 21:18	07:06 20:13	07:54 19:04	18:22 (8) 18:31 (8)	07:49 17:02	08:35 16:33
10	08:46 16:53	08:07 17:46	07:10 18:36	17:37 (8) 20:29	06:59 21:19	05:25 21:58	05:35 21:59	06:17 21:16	07:07 20:10	07:56 19:01	18:31 (8)	17:01	08:36 16:32
11	08:45 16:54	08:06 17:48	07:07 18:38	17:36 (8) 20:31	06:57 21:21	05:24 21:59	05:36 21:58	06:19 21:14	07:09 20:08	07:58 18:59	18:31 (8)	17:01	08:38 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	17:36 (8) 20:33	06:55 21:22	05:56 22:00	05:37 21:57	06:21 21:13	07:10 20:06	08:00 18:57	18:31 (8)	17:01	08:39 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	17:36 (8) 20:34	06:52 21:24	05:54 22:00	05:38 21:56	06:22 21:11	07:12 20:03	08:01 18:55	18:31 (8)	17:01	08:40 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	17:35 (8) 20:36	06:50 21:25	05:52 22:01	05:39 21:56	06:24 21:09	07:14 20:01	08:03 18:53	18:31 (8)	17:01	08:40 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	17:36 (8) 20:38	06:48 21:27	05:51 22:02	05:40 21:55	06:25 21:07	07:15 19:59	08:05 18:50	18:31 (8)	17:01	08:41 16:32
16	08:42 17:02	07:56 17:57	06:56 18:46	17:37 (8) 20:39	06:46 21:28	05:49 22:02	05:42 21:54	06:27 21:05	07:17 19:56	08:06 18:48	18:31 (8)	17:01	08:42 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	17:36 (8) 20:41	06:44 21:30	05:48 22:02	05:43 21:53	06:29 21:03	07:18 19:54	08:08 18:46	18:31 (8)	17:01	08:43 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	17:38 (8) 20:43	06:42 21:31	05:46 22:03	05:44 21:51	06:30 21:01	07:20 19:52	08:10 18:44	18:31 (8)	17:01	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	17:39 (8) 20:44	06:39 21:33	05:45 22:03	05:45 21:50	06:32 20:59	07:22 19:49	08:12 18:42	18:31 (8)	17:01	08:45 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	17:40 (8) 20:46	06:37 21:34	05:44 22:04	05:47 21:49	06:33 20:57	07:23 19:47	08:13 18:40	18:31 (8)	17:01	08:45 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	17:43 (8) 20:48	06:35 21:36	05:42 22:04	05:48 21:48	06:35 20:54	07:25 19:45	08:15 18:38	18:31 (8)	17:01	08:46 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	17:53 (8) 20:49	06:33 21:37	05:41 22:04	05:49 21:47	06:37 20:52	07:26 19:42	08:17 18:26 (8)	18:31 (8)	17:01	08:46 16:34
23	08:35 17:13	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:38	05:24 22:04	05:51 21:45	06:38 20:50	07:28 19:40	08:19 18:40 (8)	18:31 (8)	17:01	08:47 16:35
24	08:33 17:15	07:40 18:12	06:38 19:00	06:29 20:53	05:39 21:40	05:24 22:04	05:52 21:44	06:40 20:48	07:30 19:38	08:20 18:42 (8)	18:31 (8)	17:01	08:47 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	05:37 21:41	05:24 22:04	05:53 21:43	06:41 20:46	07:31 19:33	08:21 18:42 (8)	18:31 (8)	17:01	08:48 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	05:36 21:42	05:25 22:04	05:55 21:41	06:43 20:44	07:33 19:33	08:19 18:43 (8)	18:31 (8)	17:01	08:48 16:37
27	08:29 17:20	07:34 18:17	06:31 19:06	06:23 20:58	05:35 21:44	05:25 22:04	05:56 21:40	06:45 20:42	07:35 19:31	08:18 18:44 (8)	18:31 (8)	17:01	08:48 16:37
28	08:28 17:22	07:32 18:19	06:28 19:07	06:21 20:59	05:34 21:45	05:26 22:04	05:58 21:38	06:46 20:40	07:36 19:29	08:17 18:43 (8)	18:31 (8)	17:01	08:48 16:38
29	08:27 17:24	07:26 18:09	06:26 20:09	06:19 21:01	05:33 21:46	05:26 22:04	05:59 21:37	06:48 20:37	07:38 19:26	08:16 18:44 (8)	18:31 (8)	17:01	08:49 16:39
30	08:25 17:26	07:24 18:06	06:24 20:11	06:17 21:03	05:32 21:47	05:27 22:04	06:01 21:35	06:50 20:35	07:40 19:24	08:15 18:43 (8)	18:31 (8)	17:01	08:49 16:40
31	08:24 17:28	07:22 18:06	06:22 20:12	06:15 21:03	05:31 21:49	05:27 22:04	06:02 21:34	06:51 20:33	07:33 17:18	08:13 18:31 (8)	18:31 (8)	17:01	08:49 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245	
Total, worst case			381							193	197		
Sun reduction			0,26							0,33	0,29		
Oper. time red.			0,95							0,95	0,95		
Wind dir. red.			0,63							0,63	0,63		
Total reduction			0,16							0,20	0,17		
Total, real			60							38	34		

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: Receptors layout 1Shadow receptor: K - Arenbergsesingeldijk 4

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49 16:42	08:22 17:29	07:29 18:21	07:19 20:14	06:15 21:04	05:30 21:50	05:27 22:04	06:04 21:32	06:53 20:31	19:40 (8) 20:01 (8)	07:41 19:22	07:34 17:16	08:25 16:36
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	06:13 21:06	05:29 21:51	05:28 22:03	06:05 21:30	06:54 20:28	19:39 (8) 20:00 (8)	07:43 19:19	17:16 17:14	08:26 16:36
3	08:48 16:44	08:19 17:33	07:25 18:24	07:15 20:17	06:11 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	19:40 (8) 20:00 (8)	07:44 19:17	07:38 17:12	08:28 16:35
4	08:48 16:45	08:18 17:35	07:23 18:26	07:13 20:19	06:09 21:09	05:28 21:53	05:28 22:02	06:08 21:27	06:58 20:24	19:40 (8) 19:57 (8)	07:46 19:15	07:40 17:11	08:29 16:34
5	08:48 16:47	08:16 17:37	07:21 18:28	07:10 20:21	19:50 (8) 19:55 (8)	06:08 21:11	05:27 21:54	06:10 22:02	06:59 20:22	19:41 (8) 19:55 (8)	07:48 19:13	07:42 17:09	08:30 16:34
6	08:48 16:48	08:14 17:39	07:18 18:29	07:08 20:22	19:47 (8) 19:57 (8)	06:06 21:13	05:27 21:55	06:11 22:01	07:01 21:24	19:42 (8) 19:52 (8)	07:49 19:10	07:43 17:07	08:32 16:34
7	08:47 16:49	08:13 17:40	07:16 18:31	07:06 20:24	19:44 (8) 19:58 (8)	06:04 21:14	05:26 21:56	06:13 22:01	07:02 21:22	19:45 (8) 19:50 (8)	07:51 19:08	07:45 17:06	08:33 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	07:03 20:26	19:43 (8) 20:00 (8)	06:02 21:16	05:26 21:57	06:14 22:00	07:04 21:20	19:07 19:15	07:53 19:06	07:47 17:04	08:34 16:33
9	08:46 16:52	08:09 17:44	07:12 18:35	07:01 20:28	19:42 (8) 20:02 (8)	06:01 21:17	05:25 21:57	06:16 22:00	07:06 21:18	19:05 19:13	07:54 19:04	07:49 17:02	08:35 16:33
10	08:46 16:53	08:07 17:46	07:10 18:36	06:59 20:29	19:41 (8) 20:02 (8)	05:59 21:19	05:25 21:58	06:17 21:59	07:07 21:16	19:04 19:10	07:56 19:01	07:50 17:01	08:36 16:32
11	08:45 16:54	08:06 17:48	07:07 18:38	06:57 20:31	19:40 (8) 20:01 (8)	05:57 21:21	05:24 21:59	06:19 21:58	07:09 21:14	19:09 20:08	07:58 18:59	07:52 16:59	08:37 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	19:40 (8) 20:01 (8)	05:56 21:22	05:24 22:00	06:21 21:57	07:10 21:13	19:10 20:06	08:00 18:57	07:54 16:58	08:39 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	06:52 20:34	19:40 (8) 20:01 (8)	05:54 21:24	05:24 22:00	06:22 21:56	07:12 21:11	19:12 20:03	08:01 18:55	07:56 16:56	08:40 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	06:50 20:36	19:40 (8) 20:01 (8)	05:52 21:25	05:23 22:01	06:24 21:56	07:14 21:09	19:14 20:01	08:03 18:53	07:57 16:55	08:40 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	06:48 20:38	19:41 (8) 20:00 (8)	05:51 21:27	05:23 22:01	06:25 21:55	07:15 21:07	19:15 19:59	08:05 18:50	07:59 16:53	08:41 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:39	19:42 (8) 19:59 (8)	05:49 21:28	05:23 22:02	06:27 21:54	07:17 21:05	19:17 19:56	08:06 18:48	08:01 16:52	08:42 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	19:43 (8) 19:57 (8)	05:48 21:30	05:23 22:02	06:29 21:53	07:18 21:03	19:18 19:54	08:08 18:46	08:03 16:50	08:43 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	06:42 20:43	19:45 (8) 19:56 (8)	05:46 21:31	05:23 22:03	06:30 21:51	07:20 21:01	19:20 19:52	08:10 18:44	08:04 16:49	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	06:39 20:44	19:48 (8) 19:52 (8)	05:45 21:33	05:23 22:03	06:32 21:50	07:22 20:59	19:22 19:49	08:12 18:42	08:06 16:48	08:44 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	06:37 20:46	19:52 (8) 21:34	05:44 22:04	05:23 21:49	06:33 20:57	07:23 19:47	19:23 18:40	08:13 16:47	08:08 16:47	08:45 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	06:35 20:48	05:42 21:36	05:23 22:04	05:48 21:48	06:35 20:54	07:25 19:45	19:09 19:45	08:15 18:38	08:09 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	06:33 20:49	05:41 21:37	05:24 22:04	05:49 21:47	06:37 20:52	07:26 19:42	19:10 19:28	08:17 18:36	08:11 16:44	08:46 16:34
23	08:35 17:13	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:38	05:24 22:04	05:51 21:45	06:38 20:50	07:28 19:40	19:10 19:40	08:18 18:34	08:13 16:43	08:47 16:35
24	08:33 17:15	07:40 18:12	06:38 19:00	06:29 20:53	05:39 21:40	05:24 22:04	05:52 21:44	06:40 20:48	19:50 (8) 19:56 (8)	07:30 19:38	08:20 18:32	16:43 16:42	08:47 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	05:37 21:41	05:24 22:04	05:53 21:43	06:41 20:46	19:47 (8) 19:59 (8)	07:31 19:36	07:22 17:30	08:16 16:41	08:48 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	05:36 21:42	05:25 22:04	05:55 21:41	06:43 20:44	19:44 (8) 19:59 (8)	07:33 19:33	07:24 17:28	08:17 16:40	08:48 16:37
27	08:29 17:20	07:34 18:17	06:31 19:06	06:23 20:58	05:35 21:44	05:25 22:04	05:56 21:40	06:45 20:42	19:43 (8) 20:01 (8)	07:35 19:31	07:26 17:26	08:19 16:39	08:48 16:37
28	08:28 17:22	07:32 18:19	06:28 19:07	06:21 20:59	05:34 21:45	05:26 22:04	05:58 21:38	06:46 20:39	19:41 (8) 20:01 (8)	07:36 19:29	07:27 17:24	08:20 16:39	08:48 16:38
29	08:27 17:24	07:26 18:09	06:19 21:01	06:19 21:01	05:33 21:46	05:26 22:04	05:59 21:37	06:48 20:37	19:41 (8) 20:01 (8)	07:38 19:26	07:29 17:22	08:22 16:38	08:49 16:39
30	08:25 17:26	07:24 18:11	06:17 21:03	06:17 21:03	05:32 21:47	05:27 22:04	06:01 21:35	06:49 20:35	19:41 (8) 20:02 (8)	07:40 19:24	07:31 17:20	08:23 16:37	08:49 16:40
31	08:24 17:28	07:22 18:12	06:17 20:12	06:17 20:12	05:31 21:49	05:27 22:04	06:02 21:34	06:51 20:33	19:40 (8) 20:01 (8)	07:40 19:24	07:33 17:18	08:23 16:37	08:49 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245	
Total, worst case				236					108				
Sun reduction				0,35				133	0,33				
Oper. time red.				0,95				0,41	0,95				
Wind dir. red.				0,57				0,57	0,57				
Total reduction				0,19				0,22	0,18				
Total, real				45				29	19				

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: Receptors layout 1Shadow receptor: L - woning Gorsdijk 1 - wegbestemd
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49	15:10 (8) 08:22	15:00 (8) 07:29	07:19	06:15	05:30	05:27	06:04	06:53	07:41	07:34	14:33 (8) 08:25	14:47 (8)
2	16:42	16:08 (7) 17:29	15:57 (8) 18:21	20:14	21:04	21:50	22:04	21:32	20:31	19:22	17:16	15:26 (8) 16:36	16:03 (7)
3	08:49	15:10 (8) 08:21	15:01 (8) 07:27	07:17	06:13	05:30	05:28	06:05	06:54	07:43	07:36	14:33 (8) 08:26	14:47 (8)
4	16:43	16:09 (7) 17:31	15:58 (8) 18:22	20:16	21:06	21:51	22:03	21:31	20:28	19:19	17:14	15:27 (8) 16:36	16:02 (7)
5	08:49	15:08 (8) 08:19	15:01 (8) 07:25	07:15	06:11	05:29	05:29	06:07	06:56	07:45	07:38	14:32 (8) 08:28	14:49 (8)
6	16:44	16:10 (7) 17:33	15:58 (8) 18:24	20:17	21:08	21:52	22:03	21:29	20:26	19:17	17:13	15:27 (8) 16:35	16:02 (7)
7	08:48	15:08 (8) 08:18	15:01 (8) 07:23	07:13	06:09	05:28	05:30	06:08	06:58	07:46	07:40	14:32 (8) 08:29	14:50 (8)
8	16:45	16:11 (7) 17:35	15:58 (8) 18:26	20:19	21:09	21:53	22:03	21:27	20:24	19:15	17:11	15:28 (8) 16:34	16:01 (7)
9	08:48	15:08 (8) 08:16	15:01 (8) 07:21	07:10	06:08	05:27	05:30	06:10	06:59	07:48	07:42	14:32 (8) 08:30	14:52 (8)
10	16:47	16:13 (7) 17:37	15:57 (8) 18:28	20:21	21:11	21:54	22:02	21:25	20:22	19:13	17:09	15:28 (8) 16:34	16:01 (7)
11	08:48	15:07 (8) 08:14	15:02 (8) 07:19	07:08	06:06	05:27	05:31	06:11	07:01	07:50	07:43	14:32 (8) 08:32	14:53 (8)
12	16:48	16:14 (7) 17:39	15:58 (8) 18:29	20:23	21:13	21:55	22:02	21:24	20:19	19:10	17:07	15:28 (8) 16:34	16:00 (7)
13	08:47	15:07 (8) 08:13	15:02 (8) 07:16	07:06	06:04	05:26	05:32	06:13	07:02	07:51	07:45	14:32 (8) 08:33	14:54 (8)
14	16:49	16:15 (7) 17:40	15:58 (8) 18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	15:28 (8) 16:33	15:59 (7)
15	08:47	15:06 (8) 08:11	15:03 (8) 07:14	07:04	06:02	05:26	05:33	06:14	07:04	07:53	07:47	14:32 (8) 08:34	14:56 (8)
16	16:50	16:16 (7) 17:42	15:57 (8) 18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	15:29 (8) 16:33	15:59 (7)
17	08:46	15:05 (8) 08:09	15:03 (8) 07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:55	07:49	14:31 (8) 08:35	14:57 (8)
18	16:52	16:18 (7) 17:44	15:57 (8) 18:35	20:28	21:18	21:58	22:00	21:18	20:13	19:04	17:02	15:28 (8) 16:33	15:59 (7)
19	08:46	15:05 (8) 08:07	15:04 (8) 07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:50	14:31 (8) 08:36	14:59 (8)
20	16:53	16:20 (7) 17:46	15:56 (8) 18:37	20:29	21:19	21:58	21:59	21:16	20:10	19:01	17:01	15:28 (8) 16:32	15:58 (7)
21	08:45	15:05 (8) 08:06	15:04 (8) 07:07	06:57	05:57	05:24	05:36	06:19	07:09	07:58	07:52	14:32 (8) 08:38	15:00 (8)
22	16:54	16:21 (7) 17:48	15:56 (8) 18:38	20:31	21:21	21:59	21:58	21:15	20:08	18:59	16:59	15:28 (8) 16:32	15:58 (7)
23	08:45	15:04 (8) 08:04	15:05 (8) 07:05	06:55	05:56	05:24	05:37	06:21	07:10	08:00	07:54	14:32 (8) 08:39	15:02 (8)
24	16:56	16:22 (7) 17:50	15:55 (8) 18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	15:28 (8) 16:32	15:14 (8)
25	08:44	15:04 (8) 08:02	15:06 (8) 07:03	06:52	05:54	05:24	05:38	06:22	07:12	08:01	07:56	14:32 (8) 08:40	15:04 (8)
26	16:57	16:24 (7) 17:52	15:54 (8) 18:42	20:34	21:24	22:00	21:57	21:11	20:03	18:55	16:56	15:28 (8) 16:32	15:13 (8)
27	08:43	15:03 (8) 08:00	15:07 (8) 07:01	06:50	05:52	05:23	05:39	06:24	07:14	08:03	07:57	14:33 (8) 08:41	15:06 (8)
28	16:59	16:25 (7) 17:53	15:54 (8) 18:43	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	15:28 (8) 16:32	15:11 (8)
29	08:43	15:03 (8) 07:58	15:08 (8) 06:58	06:48	05:51	05:23	05:40	06:25	07:15	08:05	07:59	14:33 (8) 08:41	15:11 (8)
30	17:00	16:26 (7) 17:55	15:53 (8) 18:45	20:38	21:27	22:02	21:55	21:07	19:59	18:50	16:53	15:28 (8) 16:32	15:11 (8)
31	08:42	15:02 (8) 07:56	15:10 (8) 06:56	06:46	05:49	05:23	05:42	06:27	07:17	08:06	08:01	14:34 (8) 08:42	15:11 (8)
32	17:02	16:27 (7) 17:57	15:52 (8) 18:47	20:39	21:28	22:02	21:54	21:05	19:56	18:48	16:52	15:28 (8) 16:32	15:11 (8)
33	08:41	15:02 (8) 07:54	15:12 (8) 06:54	06:44	05:48	05:23	05:43	06:29	07:18	08:08	08:03	14:35 (8) 08:43	15:11 (8)
34	17:04	16:26 (7) 17:59	15:50 (8) 18:49	20:41	21:30	22:03	21:53	21:03	19:54	18:46	16:51	15:28 (8) 16:32	15:11 (8)
35	08:40	15:02 (8) 07:52	15:14 (8) 06:51	06:42	05:46	05:23	05:44	06:30	07:20	08:10	08:04	14:35 (8) 08:44	15:11 (8)
36	17:05	16:27 (7) 18:01	15:49 (8) 18:50	20:43	21:31	22:03	21:52	21:01	19:52	18:44	16:49	15:28 (8) 16:33	15:11 (8)
37	08:39	15:02 (8) 07:50	15:16 (8) 06:49	06:39	05:45	05:23	05:45	06:32	07:22	08:12	08:06	14:35 (8) 08:45	15:11 (8)
38	17:07	16:27 (7) 18:03	15:47 (8) 18:52	20:44	21:33	22:03	21:50	20:59	19:49	18:42	16:48	15:28 (8) 16:33	15:11 (8)
39	08:38	15:02 (8) 07:48	15:20 (8) 06:47	06:37	05:44	05:23	05:47	06:33	07:23	08:13	08:08	14:36 (8) 08:45	15:11 (8)
40	17:08	16:27 (7) 18:04	15:45 (8) 18:54	20:46	21:34	22:04	21:49	20:57	19:47	18:40	16:49	15:28 (8) 16:33	15:11 (8)
41	08:37	15:02 (8) 07:46	15:23 (8) 06:45	06:35	05:42	05:23	05:48	06:35	07:25	08:15	08:09	14:37 (8) 08:46	15:11 (8)
42	17:10	16:27 (7) 18:06	15:42 (8) 18:55	20:48	21:36	22:04	21:48	20:55	19:45	18:38	16:46	15:28 (8) 16:34	15:11 (8)
43	08:36	15:01 (8) 07:44	15:30 (8) 06:42	06:33	05:41	05:24	05:49	06:37	07:27	08:17	08:11	14:38 (8) 08:46	15:11 (8)
44	17:12	16:26 (7) 18:08	15:35 (8) 18:57	20:49	21:37	22:04	21:47	20:52	19:43	18:36	16:46	15:28 (8) 16:34	15:11 (8)
45	08:35	15:01 (8) 07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:19	15:46 (8) 08:13	14:39 (8) 08:47	15:11 (8)
46	17:14	16:26 (7) 18:10	15:59	20:51	21:39	22:04	21:45	20:50	19:40	18:34	16:44	15:28 (8) 16:34	15:11 (8)
47	08:33	15:01 (8) 07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	15:44 (8) 08:14	14:39 (8) 08:47	15:11 (8)
48	17:15	16:26 (7) 18:12	19:01	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:42 (8) 16:42	15:28 (8) 16:35	15:11 (8)
49	08:32	15:01 (8) 07:38	06:35	06:27	05:37	05:24	05:53	06:41	07:31	08:22	14:42 (8) 08:16	14:40 (8) 08:48	15:11 (8)
50	17:17	16:24 (7) 18:13	19:02	20:54	21:41	22:04	21:43	20:46	19:36	18:30	16:42 (8) 16:41	15:28 (8) 16:36	15:11 (8)
51	08:31	15:01 (8) 07:36	06:33	06:25	05:36	05:25	05:55	06:43	07:33	08:24	14:40 (8) 08:17	14:42 (8) 08:48	15:11 (8)
52	17:19	16:22 (7) 18:15	19:04	20:56	21:43	22:04	21:41	20:44	19:33	18:28	16:42 (8) 16:40	15:28 (8) 16:37	15:11 (8)
53	08:30	15:00 (8) 07:34	06:31	06:23	05:35	05:25	05:56	06:45	07:35	08:26	14:39 (8) 08:19	14:42 (8) 08:48	15:11 (8)
54	17:20	16:26 (7) 18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	18:26	16:42 (8) 16:39	15:28 (8) 16:37	15:11 (8)
55	08:28	15:01 (8) 07:32	06:29	06:21	05:34	05:26	05:58	06:46	07:36	08:27	14:36 (8) 08:21	14:43 (8) 08:48	15:11 (8)
56	17:22	16:26 (7) 18:19	19:07	20:59	21:45	22:04	21:38	20:40	19:29	18:24	16:42 (8) 16:39	15:28 (8) 16:38	15:11 (8)
57	08:27	15:00 (8)	07:26	06:19	05:33	05:26	05:59	06:48	07:38	08:29	14:35 (8) 08:22	14:45 (8) 08:49	15:11 (8)
58	17:24	16:26 (7) 18:20	20:09	21:01	21:46	22:04	21:37	20:37	19:26	18:22	16:42 (8) 16:38	15:28 (8) 16:39	15:11 (8)
59	08:25	15:01 (8)	07:24	06:17	05:32	05:27	06:01	06:50	07:40	08:31	14:35 (8) 08:24	14:45 (8) 08:49	15:11 (8)
60	17:26	16:26 (7) 18:20	20:11	21:03	21:47	22:04	21:35	20:35	19:24	18:20	16:42 (8) 16:37	15:28 (8) 16:40	15:11 (8)
61	08:24	15:01 (8)	07:22	06:15	05:31	05:27	06:02	06:51	07:41	08:32	14:34 (8)	14:45 (8) 08:49	15:11 (8)
62	17:28	16:26 (7) 18:21	20:12	21:04	21:49	22:04	21:34	20:33	19:24	18:20	16:42 (8) 16:37	15:28 (8) 16:41	15:11 (8)
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245	419
Total, worst case	1585	993									451	1776	419
Sun reduction	0,19	0,28									0,29	0,21	0,15
Oper. time red.	0,95	0,95									0,95	0,95	0,95
Wind dir. red.	0,73	0,73									0,73	0,73	0,73
Total reduction	0,13	0,19									0,20	0,15	0,11
Total, real	209	191									90	261	45

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: Receptors layout 1Shadow receptor: M - Brandweerkazerne

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49 16:42 17:30	08:22 17:30	07:29 18:21	16:33 (7) 17:23 (7)	07:19 20:14	06:15 21:04	05:30 21:50	05:28 22:04	06:04 21:32	06:53 20:31	07:41 19:22	17:11 (7) 17:16	07:34 16:36
2	08:49 16:43 17:31	08:21 17:31	07:27 18:22	16:33 (7) 17:23 (7)	07:17 20:16	06:13 21:06	05:30 21:51	05:28 22:03	06:05 21:31	06:54 20:28	07:43 19:20	17:10 (7) 18:00 (7)	07:36 17:14
3	08:49 16:44 17:33	08:19 17:33	07:25 18:24	16:32 (7) 17:23 (7)	07:15 20:17	06:11 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	07:45 19:17	17:10 (7) 18:00 (7)	07:38 17:13
4	08:48 16:45 17:35	08:18 17:35	07:23 18:26	16:31 (7) 17:23 (7)	07:13 20:19	06:10 21:09	05:28 21:53	05:30 22:03	06:08 21:27	06:58 20:24	07:46 19:15	17:08 (7) 17:59 (7)	07:40 17:11
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7	08:47 16:49 17:41	08:13 17:41	07:16 18:31	16:30 (7) 17:23 (7)	07:06 20:24	06:04 21:14	05:26 21:56	05:32 22:01	06:13 21:22	07:02 20:17	07:51 19:04	17:06 (7) 17:59 (7)	07:45 17:06
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12	08:45 16:56 17:50	08:04 17:50	07:05 18:40	16:32 (7) 17:21 (7)	06:55 20:33	05:56 21:22	05:24 21:57	05:37 21:13	06:21 21:13	07:10 20:06	08:00 18:57	17:06 (7) 17:56 (7)	07:54 16:58
13	08:44 16:57 17:52	08:02 17:52	07:03 18:42	16:33 (7) 17:20 (7)	06:52 20:34	05:54 21:24	05:24 21:57	05:38 21:11	06:22 21:11	07:12 20:03	08:01 18:55	17:07 (7) 17:56 (7)	07:56 16:56
14	08:43 16:59 17:53	08:00 17:53	07:01 18:43	16:33 (7) 17:18 (7)	06:50 20:36	05:52 21:25	05:24 22:01	05:39 21:56	06:24 21:09	07:14 20:01	08:03 18:53	17:07 (7) 17:55 (7)	07:57 16:55
15	08:43 17:00 17:55	07:58 17:55	06:58 18:45	16:34 (7) 17:17 (7)	06:48 20:38	05:51 21:27	05:23 22:02	05:40 21:55	06:26 21:07	07:15 19:59	08:05 18:51	17:07 (7) 17:53 (7)	07:59 16:53
16	08:42 17:02 17:57	07:56 17:57	06:56 18:47	16:35 (7) 17:16 (7)	06:46 20:39	05:49 21:28	05:23 22:02	05:42 21:54	06:27 21:05	07:17 19:56	08:06 18:48	17:08 (7) 17:52 (7)	08:01 16:52
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22	08:36 17:12 18:08	07:44 18:08	16:41 (7) 17:16 (7)	16:48 (7) 17:02 (7)	06:42 20:49	05:41 21:37	05:24 22:04	05:49 21:47	06:37 20:52	07:27 19:43	08:17 18:36	17:15 (7) 17:51 (7)	08:11 16:44
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24	08:33 17:15 18:12	07:40 18:12	16:38 (7) 17:19 (7)	16:38 19:01	06:38 20:53	05:39 21:40	05:24 22:04	05:52 21:44	06:40 20:48	07:30 19:38	08:20 17:55 (7)	17:24 (7) 18:32	16:43 16:42
25	08:32 17:17 18:14	07:38 18:14	16:37 (7) 17:20 (7)	16:35 (7) 19:02	06:35 20:54	05:37 21:41	05:25 22:04	05:53 21:43	06:42 20:46	07:31 19:36	17:21 (7) 17:55 (7)	17:21 (7) 18:30	08:16 16:41
26	08:31 17:19 18:15	07:36 18:15	16:35 (7) 17:20 (7)	16:33 19:04	06:33 20:56	05:35 21:43	05:25 22:04	05:55 21:41	06:43 20:44	07:33 19:33	17:19 (7) 17:57 (7)	17:19 (7) 18:28	08:17 16:40
27	08:30 17:21 18:17	07:34 18:17	16:35 (7) 17:21 (7)	16:31 19:06	06:31 20:58	05:35 21:44	05:25 22:04	05:56 21:40	06:45 20:42	07:35 19:31	17:17 (7) 17:58 (7)	17:17 (7) 18:26	08:19 16:39
28	08:28 17:22 18:19	07:32 18:19	16:34 (7) 17:22 (7)	16:29 19:07	06:29 20:59	05:34 21:45	05:26 22:04	05:58 21:38	06:46 20:40	07:36 19:29	17:15 (7) 17:58 (7)	17:15 (7) 18:24	08:21 16:38
29	08:27 17:24 18:25	07:26 18:25	16:33 (7) 17:24 (7)	16:26 19:09	06:26 21:01	05:33 21:46	05:26 22:04	05:59 21:37	06:48 20:37	07:38 19:26	17:14 (7) 17:59 (7)	17:14 (7) 18:22	08:22 16:39
30	08:25 17:26 18:24	07:24 18:24	16:32 (7) 17:22 (7)	16:17 19:07	06:17 21:03	05:32 21:47	05:27 22:04	06:01 21:35	06:50 20:35	07:40 19:24	17:13 (7) 18:00 (7)	17:13 (7) 18:20	08:24 16:40
31	08:24 17:28	07:22 18:24	16:31 (7) 17:22 (7)	16:15 19:07	06:15 21:07	05:31 21:49	05:27 22:04	06:02 21:34	06:51 20:33	07:41 19:24	17:12 (7) 17:58 (7)	17:12 (7) 18:20	08:24 16:41
Potential sun hours	260	278	392	416	484	497	501	453	381	332	267	245	
Total, worst case			392	960					336	1042			
Sun reduction			0,28	0,26					0,33	0,29			
Oper. time red.			0,95	0,95					0,95	0,95			
Wind dir. red.			0,69	0,69					0,69	0,69			
Total reduction			0,18	0,17					0,22	0,19			
Total, real			71	165					73	197			

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Receptors layout 1Shadow receptor: N - Van Polanenpark 23

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum

469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

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

SHADOW - Calendar

Calculation: Receptors layout 1Shadow receptor: O - Kerkweg 79

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
 Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December								
1	08:49	08:23	09:07 (6)	07:30	06:15	05:31	05:26	06:36 (2)	05:28	06:38 (2)	06:04	06:35								
2	08:49	17:30	09:18 (6)	18:21	20:14	21:05	22:06	06:48 (2)	22:04	10	06:48 (2)	21:32								
3	08:49	08:20	09:06 (6)	07:28	06:14	05:30	06:27 (2)	05:29	06:38 (2)	06:05	06:38 (2)	06:35								
4	08:49	17:32	09:16 (6)	18:23	20:16	21:06	20:47 (2)	22:04	11	06:49 (2)	20:29	19	07:42 (3)	19:20	08:08 (4)	07:37				
5	08:48	17:34	08:20	07:25	07:15	06:12	05:29	06:28 (2)	05:29	13	06:50 (2)	21:31	16	06:55 (2)	20:27	17	07:40 (3)	19:18	07:38	
6	08:48	17:37	08:16	07:21	07:11	06:08	05:28	06:29 (2)	05:31	14	06:50 (2)	22:03	14	06:43 (2)	20:24	14	07:39 (3)	19:15	07:38	
7	08:48	17:41	08:16	07:21	07:11	06:08	05:28	06:29 (2)	05:31	15	06:51 (2)	22:02	8	07:35 (3)	19:13	07:27 (3)	19:13	07:42	08:31	
8	08:48	17:39	08:15	07:19	07:08	06:06	05:27	06:29 (2)	05:32	15	06:51 (2)	22:02	8	07:35 (3)	19:13	07:27 (3)	19:13	07:42	08:31	
9	08:47	17:42	08:15	07:19	07:08	06:06	05:27	06:29 (2)	05:32	15	06:51 (2)	22:02	8	07:35 (3)	19:13	07:27 (3)	19:13	07:42	08:31	
10	08:47	17:42	08:15	07:19	07:08	06:06	05:27	06:29 (2)	05:32	15	06:51 (2)	22:02	8	07:35 (3)	19:13	07:27 (3)	19:13	07:42	08:31	
11	08:46	17:46	08:06	07:08	06:06	05:27	06:29 (2)	05:32	15	06:51 (2)	22:02	8	07:35 (3)	19:13	07:27 (3)	19:13	07:42	08:31		
12	08:46	17:48	08:06	07:08	06:06	05:27	06:29 (2)	05:32	15	06:51 (2)	22:02	8	07:35 (3)	19:13	07:27 (3)	19:13	07:42	08:31		
13	08:44	17:50	08:29 (5)	07:05	06:39	05:31 (4)	06:57	07:23 (3)	05:58	11	07:39 (4)	20:33	23	07:45 (3)	21:23	22	06:48 (2)	22:00	20	06
14	08:44	17:50	08:29 (5)	07:05	06:39	05:31 (4)	06:57	07:23 (3)	05:58	11	07:39 (4)	20:33	23	07:45 (3)	21:23	22	06:48 (2)	22:00	20	06
15	08:43	17:52	08:35 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
16	08:42	17:56	08:36 (5)	07:01	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
17	08:41	17:57	08:36 (5)	07:01	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
18	08:41	17:57	08:36 (5)	07:01	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
19	08:41	17:57	08:36 (5)	07:01	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
20	08:38	18:00	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
21	08:37	18:01	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
22	08:36	18:02	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
23	08:36	18:02	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
24	08:34	18:04	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
25	08:32	18:06	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
26	08:31	18:07	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
27	08:30	18:08	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
28	08:28	18:10	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
29	08:27	18:11	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
30	08:26	18:12	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
31	08:24	18:14	08:25 (5)	07:03	06:59	05:29 (2)	05:25	06:29 (2)	05:25	12	06:44 (2)	21:59	21	06:56 (2)	21:15	20	06:56 (2)	21:15	19	06
Potential sun hours	260	278	191	367	416	484	23	06:49 (2)	497	501	501	381	297	193	267	228	245			
Total, worst case	209	191	233	312	580	229	694	317	995	995	995	995	995	995	995	995	995	995	995	
Sun reduction	0,19	0,28	0,26	0,35	0,40	0,35	0,38	0,41	0,33	0,29	0,21	0,21	0,21	0,21	0,21	0,21	0,21	0,21	0,21	
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	
Wind dir. red.	0,55	0,54	0,56	0,62	0,68	0,68	0,68	0,64	0,58	0,54	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	0,55	
Total reduction	0,10	0,14	0,14	0,20	0,25	0,22	0,24	0,24	0,18	0,15	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	
Total, real	20	27	32	64	147	50	68	77	53	28	25	25	25	25	25	25	25	25	25	

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: Receptors layout 1Shadow receptor: P - Moye Keene 130

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December					
1	08:49	08:23	07:30	19 07:57 (6)	07:20	07:46 (5)	06:15	21:50	18 06:26 (4)	05:28	06:04	20 06:34 (4)	06:53	07:42	08:34 (6)	07:35	08:25
2	08:49	08:21	07:28	19 08:16 (6)	20:14	24 08:10 (5)	21:05	05:30	18 06:44 (4)	22:04	21:32	20 06:54 (4)	06:53	07:42	08:34 (6)	07:35	08:25
3	08:49	08:19	07:25	21 08:17 (6)	20:16	24 08:10 (5)	21:06	05:30	16 06:43 (4)	22:04	21:31	18 06:54 (4)	06:53	07:42	08:34 (6)	07:35	08:25
4	08:49	08:18	07:23	23 08:18 (6)	20:18	24 08:10 (5)	21:08	05:30	21:52	15 06:43 (4)	22:03	21:29	15 06:52 (4)	06:26	14 08:00 (5)	11:17	16:35
5	08:48	08:16	07:21	07:53 (6)	07:11	07:45 (5)	06:08	05:28	14 06:42 (4)	22:03	4 06:43 (4)	12 06:51 (4)	20:24	18 08:02 (5)	19:15	23 08:54 (6)	17:13
6	08:48	08:15	07:19	25 08:18 (6)	20:21	23 08:08 (5)	21:11	05:27	12 06:42 (4)	22:02	7 06:45 (4)	21:26	7 06:48 (4)	20:22	21 08:03 (5)	19:13	25 08:54 (6)
7	08:48	08:13	07:17	25 08:18 (6)	20:23	22 08:07 (5)	21:13	05:27	11 06:41 (4)	22:02	10 06:47 (4)	21:24	20:20	22 08:04 (5)	19:11	25 08:54 (6)	17:08
8	08:47	08:11	07:14	25 08:17 (6)	20:26	18 08:04 (5)	21:16	10 06:40 (4)	06:39 (4)	05:33	06:36 (4)	06:15	07:04	07:40 (5)	07:53	08:29 (6)	07:45
9	08:47	08:09	07:12	25 08:17 (6)	20:26	18 08:04 (5)	21:16	10 06:40 (4)	06:39 (4)	05:33	06:36 (4)	06:15	07:04	07:40 (5)	07:53	08:29 (6)	07:45
10	08:46	08:08	07:10	25 08:17 (6)	20:26	18 08:04 (5)	21:16	10 06:40 (4)	06:39 (4)	05:33	06:36 (4)	06:15	07:04	07:40 (5)	07:53	08:29 (6)	07:45
11	08:46	08:06	07:08	25 08:17 (6)	20:26	18 08:04 (5)	21:16	10 06:40 (4)	06:39 (4)	05:33	06:36 (4)	06:15	07:04	07:40 (5)	07:53	08:29 (6)	07:45
12	08:45	08:04	07:05	25 08:17 (6)	20:26	18 08:04 (5)	21:16	10 06:40 (4)	06:39 (4)	05:33	06:36 (4)	06:15	07:04	07:40 (5)	07:53	08:29 (6)	07:45
13	08:44	08:00	07:01	25 08:17 (6)	20:26	18 08:04 (5)	21:16	10 06:40 (4)	06:39 (4)	05:33	06:36 (4)	06:15	07:04	07:40 (5)	07:53	08:29 (6)	07:45
14	08:44	08:00	07:01	25 08:17 (6)	20:26	18 08:04 (5)	21:16	10 06:40 (4)	06:39 (4)	05:33	06:36 (4)	06:15	07:04	07:40 (5)	07:53	08:29 (6)	07:45
15	08:43	07:58	06:59	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
16	08:43	07:56	06:56	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
17	08:43	07:54	06:54	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
18	08:40	07:53	06:52	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
19	08:39	07:51	06:49	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
20	08:38	07:49	06:47	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
21	08:37	07:46	06:45	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
22	08:36	07:44	06:43	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
23	08:35	07:42	06:40	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
24	08:34	07:40	06:38	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
25	08:32	07:38	06:36	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
26	08:31	07:36	06:33	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
27	08:30	07:34	06:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
28	08:29	07:32	06:29	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
29	08:27	07:29	06:27	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
30	08:26	07:28	06:26	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
31	08:24	07:24	06:24	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31	21 08:14 (6)	20:31
Potential sun hours	260	278	367	416	484	533	497	501	453	381	332	267	245				
Total, worst case	26	26	383	204	533	101	565	72	309	314	267	245					
Sun reduction	0,28	0,28	0,26	0,35	0,40	0,35	0,38	0,41	0,33	0,29	0,26	0,24					
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95					
Wind dir. red.	0,53	0,53	0,54	0,60	0,68	0,68	0,68	0,68	0,60	0,53	0,46	0,44					
Total reduction	0,14	0,13	0,13	0,20	0,25	0,22	0,24	0,26	0,19	0,14	0,11	0,10					
Total, real	4	4	51	41	136	22	137	19	57	45	36	31					

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: Receptors layout 1Shadow receptor: Q - Zevenbergseweg 23

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Table with 12 columns (Jan-Dec) and 2 rows of numerical data representing sunshine probability values.

Operational time

Table with 13 columns (N, NNE, ENE, E, ESE, SSE, S, SSW, WSW, W, WNW, NNW, Sum) and 2 rows of numerical data representing operational time.

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

Main shadow calculation table with columns for months (January-December) and rows for each day of the month, including sun rise/set times, flicker minutes, and reduction percentages.

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

Matrix defining table layout 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: Receptors layout 1Shadow receptor: R - Zevenbergseweg 22

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum

469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:43	08:23 17:30	07:30 18:21	07:20 20:14	06:16 21:05	05:31 21:50	06:10 (6) 05:28	06:17 (6) 06:04	06:04 21:32	06:53 20:31	07:42 19:22	07:35 17:17
2	08:49 16:44	08:21 17:32	07:28 18:23	07:17 20:16	06:14 21:06	05:30 21:51	06:10 (6) 05:29	06:18 (6) 06:06	20:31 20:29	06:55 19:20	07:43 17:15	07:36 16:36
3	08:49 16:45	08:19 17:34	07:25 18:25	07:15 20:18	06:12 21:08	05:29 21:52	06:11 (6) 05:30	06:18 (6) 06:07	21:31 21:29	06:56 20:26	07:45 19:18	07:38 17:13
4	08:49 16:46	08:18 17:35	07:23 18:26	07:13 20:19	06:10 21:10	05:28 21:53	06:11 (6) 05:31	06:17 (6) 06:10	06:09 21:27	06:58 20:24	07:46 19:15	07:40 17:11
5	08:48 16:47	08:16 17:37	07:21 18:28	07:11 20:21	06:08 21:11	05:28 21:54	06:12 (6) 05:32	06:18 (6) 06:12	06:10 21:26	07:00 20:22	07:48 19:13	07:42 17:09
6	08:48 16:48	08:15 17:39	07:19 18:30	07:08 20:23	06:06 21:13	05:27 21:55	06:12 (6) 05:33	06:18 (6) 06:13	06:12 21:24	07:01 20:20	07:50 19:11	07:44 17:08
7	08:48 16:49	08:13 17:41	07:17 18:32	07:06 20:24	06:04 21:14	05:27 21:56	06:12 (6) 05:33	06:18 (6) 06:15	06:13 21:22	07:03 20:17	07:51 19:08	07:45 17:06
8	08:47 16:51	08:11 17:43	07:14 18:33	07:04 20:26	06:03 21:16	05:26 21:57	06:12 (6) 05:34	06:18 (6) 06:16	06:15 21:20	07:04 20:15	07:53 19:06	07:47 17:04
9	08:47 16:52	08:09 17:45	07:12 18:35	07:02 20:28	06:01 21:18	05:26 21:58	06:13 (6) 05:35	06:18 (6) 06:18	06:16 21:18	07:06 20:13	07:55 19:04	07:49 17:03
10	08:46 16:53	08:08 17:46	07:10 18:37	06:59 20:30	05:59 21:19	05:25 21:58	06:13 (6) 05:36	06:19 (6) 06:19	06:18 21:17	07:08 20:11	07:56 19:02	07:51 17:01
11	08:46 16:55	08:06 17:48	07:08 18:39	06:57 20:31	05:58 21:21	05:25 21:59	06:13 (6) 05:36	06:19 (6) 06:19	06:19 21:15	07:09 20:08	07:58 19:00	07:52 17:00
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	05:56 21:22	05:24 22:00	06:13 (6) 05:38	06:19 (6) 06:21	06:21 21:13	07:11 20:06	08:00 18:57	07:54 16:58
13	08:44 16:58	08:02 17:52	07:03 18:42	06:53 20:35	05:54 21:24	05:24 22:01	06:14 (6) 05:39	06:19 (6) 06:23	06:23 21:11	07:12 20:04	08:02 18:55	07:56 16:57
14	08:44 16:59	08:00 17:54	07:01 18:44	06:51 20:36	05:53 21:26	05:24 22:01	06:14 (6) 05:40	06:19 (6) 06:24	06:24 21:09	07:14 20:01	08:03 18:53	07:58 16:55
15	08:43 17:01	07:58 17:56	06:59 18:45	06:48 20:38	05:51 21:27	05:24 22:02	06:15 (6) 05:41	06:19 (6) 06:26	06:26 21:07	07:16 19:59	08:05 18:51	07:59 16:54
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:40	05:50 21:29	05:24 22:02	06:15 (6) 05:42	06:20 (6) 06:27	06:27 21:05	07:17 19:57	08:07 18:49	08:01 16:52
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	05:48 21:30	05:24 22:03	06:15 (6) 05:43	06:20 (6) 06:29	06:29 21:03	07:19 19:54	08:08 18:47	08:03 16:51
18	08:40 17:06	07:52 18:01	06:52 18:51	06:42 20:43	05:47 21:32	05:24 22:03	06:16 (6) 05:44	06:20 (6) 06:31	06:31 21:01	07:20 19:52	08:10 18:44	08:05 16:50
19	08:39 17:07	07:51 18:03	06:49 18:52	06:40 20:45	05:45 21:33	05:24 22:03	06:16 (6) 05:46	06:20 (6) 06:32	06:32 20:59	07:22 19:50	08:12 18:42	08:06 16:48
20	08:38 17:09	07:49 18:05	06:47 18:54	06:38 20:46	05:44 21:34	05:24 22:04	06:16 (6) 05:47	06:21 (6) 06:34	06:34 20:57	07:24 19:47	08:14 18:40	08:08 16:47
21	08:37 17:11	07:46 18:07	06:45 18:56	06:36 20:48	05:43 21:36	05:24 22:04	06:16 (6) 05:48	06:22 (6) 06:35	06:35 20:55	07:25 19:45	08:15 18:38	08:10 16:46
22	08:36 17:12	07:44 18:08	06:43 18:57	06:34 20:50	05:41 21:37	05:24 22:04	06:16 (6) 05:50	06:22 (6) 06:37	06:37 20:53	07:27 19:43	08:17 18:36	08:11 16:45
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:39	05:24 22:04	06:17 (6) 05:51	06:23 (6) 06:39	06:39 20:48	07:28 19:41	08:19 18:34	08:13 16:44
24	08:34 17:16	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	05:25 22:04	06:17 (6) 05:52	06:25 (6) 06:40	06:40 20:48	07:30 19:38	08:21 18:32	08:14 16:43
25	08:32 17:17	07:38 18:14	06:36 19:03	06:27 20:55	05:38 21:41	05:25 22:05	06:17 (6) 05:54	06:26 (6) 06:42	06:42 20:46	07:32 19:36	07:22 17:30	08:16 16:42
26	08:31 17:19	07:36 18:16	06:33 19:04	06:25 20:56	05:37 21:43	05:25 22:05	06:17 (6) 05:55	06:27 (6) 06:43	06:43 20:44	07:33 19:34	07:24 17:28	08:18 16:41
27	08:30 17:21	07:34 18:17	06:31 19:06	06:23 20:58	05:36 21:44	05:26 22:05	06:17 (6) 05:57	06:29 (6) 06:45	06:45 20:42	07:35 19:31	07:26 17:26	08:19 16:40
28	08:28 17:23	07:32 18:19	06:29 19:08	06:21 21:00	05:35 21:45	05:26 22:04	06:18 (6) 05:58	06:47 06:47	06:47 20:40	07:37 19:29	07:28 17:24	08:21 16:39
29	08:27 17:24	07:27 20:09	06:19 21:01	05:34 21:46	05:34 21:46	05:27 22:04	06:17 (6) 06:00	06:48 06:48	06:48 20:38	07:38 19:27	07:29 17:22	08:22 16:38
30	08:26 17:26	07:24 20:11	06:17 21:03	05:33 21:48	05:33 21:48	05:27 22:04	06:18 (6) 06:01	06:50 06:50	07:40 19:24	07:31 17:20	08:24 16:37	08:49 16:40
31	08:24 17:28	07:22 20:13	06:16 21:03	05:32 21:49	05:32 21:49	05:27 22:04	06:18 (6) 06:02	06:52 21:34	07:33 20:33	07:33 17:18	08:24 16:37	08:49 16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
Total, worst case					319	699	604					
Sun reduction					0.40	0.35	0.38					
Oper. time red.					0.95	0.95	0.95					
Wind dir. red.					0.69	0.69	0.69					
Total reduction					0.26	0.23	0.25					
Total, real					84	159	151					

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: Receptors layout 1Shadow receptor: S - Zevenbergseweg 21

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:43	08:23 17:30	07:30 18:21	07:20 20:14	06:16 21:05	05:31 21:50	06:06 (6) 22:04	05:28 25	06:11 (6) 21:32	06:04 20:31	06:53 19:22	07:42 17:17
2	08:49 16:44	08:21 17:32	07:28 18:23	07:17 20:16	06:14 21:06	05:30 21:51	06:05 (6) 22:03	05:29 25	06:12 (6) 21:31	06:06 20:29	06:55 19:20	07:43 17:15
3	08:49 16:45	08:19 17:34	07:25 18:25	07:15 20:18	06:12 21:08	05:29 21:52	06:06 (6) 22:03	05:29 25	06:12 (6) 21:31	06:07 20:26	06:56 19:18	07:45 17:13
4	08:49 16:46	08:18 17:35	07:23 18:26	07:13 20:19	06:10 21:10	05:28 21:53	06:06 (6) 22:03	05:28 25	06:12 (6) 21:31	06:09 20:24	06:58 19:15	07:46 17:11
5	08:48 16:47	08:16 17:37	07:21 18:28	07:11 20:21	06:08 21:11	05:28 21:54	06:06 (6) 22:02	05:28 26	06:12 (6) 21:26	06:10 20:22	07:00 19:13	07:48 17:09
6	08:48 16:48	08:15 17:39	07:19 18:30	07:08 20:23	06:06 21:13	05:27 21:55	06:06 (6) 22:02	05:27 25	06:12 (6) 21:24	06:12 20:20	07:01 19:11	07:50 17:08
7	08:48 16:49	08:13 17:41	07:17 18:32	07:06 20:24	06:04 21:14	05:27 21:56	06:07 (6) 22:01	05:27 25	06:13 (6) 21:22	06:13 20:17	07:03 19:08	07:51 17:06
8	08:47 16:51	08:11 17:43	07:14 18:33	07:04 20:26	06:03 21:16	05:26 21:57	06:06 (6) 22:01	05:26 26	06:13 (6) 21:20	06:15 20:15	07:04 19:06	07:53 17:04
9	08:47 16:52	08:09 17:45	07:12 18:35	07:02 20:28	06:01 21:18	05:26 21:58	06:07 (6) 22:00	05:26 25	06:13 (6) 21:18	06:16 20:13	07:06 19:04	07:55 17:03
10	08:46 16:53	08:08 17:46	07:10 18:37	06:59 20:30	05:59 21:19	05:25 21:58	06:07 (6) 21:59	05:25 26	06:14 (6) 21:17	06:18 20:11	07:08 19:02	07:56 17:01
11	08:46 16:55	08:06 17:48	07:08 18:39	06:57 20:31	05:58 21:21	05:25 21:59	06:07 (6) 21:58	05:25 25	06:14 (6) 21:15	06:19 20:08	07:09 19:00	07:58 17:00
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	05:56 21:22	05:24 22:00	06:07 (6) 21:58	05:24 25	06:14 (6) 21:13	06:21 20:06	07:11 18:57	08:00 16:58
13	08:44 16:58	08:02 17:52	07:03 18:42	06:53 20:35	05:54 21:24	05:24 22:01	06:08 (6) 21:57	05:24 25	06:15 (6) 21:11	06:23 20:04	07:12 18:55	08:02 16:57
14	08:44 16:59	08:00 17:54	07:01 18:44	06:51 20:36	05:53 21:26	05:24 22:01	06:08 (6) 21:56	05:24 25	06:15 (6) 21:09	06:24 20:01	07:14 18:53	08:03 16:55
15	08:43 17:01	07:58 17:56	06:59 18:45	06:48 20:38	05:51 21:27	05:24 22:02	06:09 (6) 21:55	05:24 24	06:15 (6) 21:07	06:26 19:59	07:16 18:51	08:05 16:54
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:40	05:50 21:29	05:24 22:02	06:09 (6) 21:54	05:24 25	06:16 (6) 21:05	06:27 19:57	07:17 18:49	08:07 16:52
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	05:48 21:30	05:24 22:03	06:09 (6) 21:53	05:24 25	06:16 (6) 21:03	06:29 19:54	07:19 18:47	08:08 16:51
18	08:40 17:06	07:52 18:01	06:52 18:51	06:42 20:43	05:47 21:32	05:24 22:03	06:09 (6) 21:52	05:24 25	06:17 (6) 21:01	06:31 19:52	07:20 18:44	08:05 16:50
19	08:39 17:07	07:51 18:03	06:49 18:52	06:40 20:45	05:45 21:33	05:24 22:03	06:09 (6) 21:51	05:24 19	06:17 (6) 20:59	06:32 19:50	07:22 18:42	08:06 16:48
20	08:38 17:09	07:49 18:05	06:47 18:54	06:38 20:46	05:44 21:34	05:24 22:04	06:09 (6) 21:49	05:24 25	06:19 (6) 20:57	06:34 19:47	07:24 18:40	08:08 16:47
21	08:37 17:11	07:46 18:07	06:45 18:56	06:36 20:48	05:43 21:36	05:24 22:04	06:12 (6) 21:48	05:24 24	06:20 (6) 20:55	06:35 19:45	07:25 18:38	08:10 16:46
22	08:36 17:12	07:44 18:08	06:43 18:57	06:34 20:50	05:41 21:37	05:24 22:04	06:10 (6) 21:47	05:24 24	06:21 (6) 20:53	06:37 19:43	07:27 18:36	08:11 16:45
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:39	05:24 22:04	06:10 (6) 21:46	05:24 25	06:23 (6) 20:51	06:39 19:41	07:28 18:34	08:13 16:44
24	08:34 17:16	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	05:25 22:04	06:08 (6) 21:44	05:25 25	06:27 (6) 20:48	06:40 19:38	07:30 18:32	08:21 16:43
25	08:32 17:17	07:38 18:14	06:36 19:03	06:27 20:55	05:38 21:41	05:25 22:05	06:10 (6) 21:43	05:25 25	06:29 (6) 20:46	06:42 19:36	07:32 18:30	07:22 16:42
26	08:31 17:19	07:36 18:16	06:33 19:04	06:25 20:56	05:37 21:43	05:25 22:05	06:07 (6) 21:42	05:25 25	06:31 (6) 21:42	06:43 20:44	07:33 19:34	07:24 18:31
27	08:30 17:21	07:34 18:17	06:31 19:06	06:23 20:58	05:36 21:44	05:26 22:05	06:07 (6) 21:40	05:26 24	06:33 (6) 21:40	06:45 20:42	07:35 19:31	07:26 18:31
28	08:28 17:23	07:32 18:19	06:29 19:08	06:21 21:00	05:35 21:45	05:26 22:04	06:06 (6) 21:39	05:26 25	06:11 (6) 20:40	06:47 19:29	07:37 18:24	07:28 16:40
29	08:27 17:24	07:27 20:09	06:19 21:01	06:19 21:01	05:34 21:46	05:27 22:04	06:11 (6) 21:37	05:27 25	06:00 20:38	06:48 19:27	07:38 18:22	07:29 16:38
30	08:26 17:26	07:24 20:11	06:17 21:03	06:17 21:03	05:33 21:48	05:27 22:04	06:06 (6) 21:36	05:27 25	06:01 20:35	06:50 19:24	07:40 18:24	07:31 16:37
31	08:24 17:28	07:22 20:13	06:15 21:03	06:15 21:03	05:32 21:49	05:27 22:04	06:06 (6) 21:34	05:27 25	06:02 20:33	06:52 19:24	07:33 18:24	07:33 16:37
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
Total, worst case					219	748	509					
Sun reduction					0.40	0.35	0.38					
Oper. time red.					0.95	0.95	0.95					
Wind dir. red.					0.70	0.70	0.70					
Total reduction					0.26	0.23	0.25					
Total, real					58	171	128					

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: Receptors layout 1Shadow receptor: T - Zevenbergseweg 19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December				
1	08:49	08:23	07:30	07:20	06:16	05:31	05:28	05:59 (6)	06:04	06:53	07:42	07:35	08:25			
	16:43	17:30	18:21	20:14	21:05	21:50	22:04	15	06:14 (6)	21:32	20:31	19:22	17:17	16:37		
2	08:49	08:21	07:28	07:17	06:14	05:30	05:29	06:00 (6)	06:06	06:55	07:43	07:36	08:27			
	16:44	17:32	18:23	20:16	21:06	21:51	22:03	14	06:14 (6)	21:31	20:29	19:20	17:15	16:36		
3	08:49	08:19	07:25	07:15	06:12	05:29	05:29	06:01 (6)	06:07	06:56	07:45	07:38	08:28			
	16:45	17:34	18:25	20:18	21:08	21:52	22:03	14	06:15 (6)	21:29	20:26	19:18	17:13	16:35		
4	08:49	08:18	07:23	07:13	06:10	05:28	05:30	06:01 (6)	06:09	06:58	07:46	07:40	08:29			
	16:46	17:35	18:26	20:19	21:10	21:53	22:03	12	06:13 (6)	21:27	20:24	19:15	17:11	16:35		
5	08:48	08:16	07:21	07:11	06:08	05:28	05:59 (6)	05:31	06:02 (6)	06:10	07:00	07:48	07:42	08:31		
	16:47	17:37	18:28	20:21	21:11	21:54	6	06:05 (6)	22:02	11	06:13 (6)	21:26	20:22	19:13	17:09	16:34
6	08:48	08:15	07:19	07:08	06:06	05:27	05:57 (6)	05:32	06:03 (6)	06:12	07:01	07:50	07:44	08:32		
	16:48	17:39	18:30	20:23	21:13	21:55	9	06:06 (6)	22:02	10	06:13 (6)	21:24	20:20	19:11	17:08	16:34
7	08:48	08:13	07:17	07:06	06:04	05:27	05:57 (6)	05:33	06:05 (6)	06:13	07:03	07:51	07:45	08:33		
	16:49	17:41	18:32	20:24	21:14	21:56	11	06:08 (6)	22:01	7	06:12 (6)	21:22	20:17	19:08	17:06	16:34
8	08:47	08:11	07:14	07:04	06:03	05:26	05:56 (6)	05:33	06:07 (6)	06:15	07:04	07:53	07:47	08:34		
	16:51	17:43	18:33	20:26	21:16	21:57	12	06:08 (6)	22:01	3	06:10 (6)	21:20	20:15	19:06	17:04	16:33
9	08:47	08:09	07:12	07:02	06:01	05:26	05:56 (6)	05:34	06:06 (6)	06:16	07:06	07:55	07:49	08:36		
	16:52	17:45	18:35	20:28	21:18	21:58	13	06:09 (6)	22:00	21:18	20:13	19:04	17:03	16:33		
10	08:46	08:08	07:10	06:59	05:59	05:25	05:56 (6)	05:35	06:07 (6)	06:18	07:08	07:56	07:51	08:37		
	16:54	17:46	18:37	20:30	21:19	21:58	14	06:10 (6)	21:59	21:17	20:11	19:02	17:01	16:33		
11	08:46	08:06	07:08	06:57	05:58	05:25	05:55 (6)	05:36	06:09 (6)	06:19	07:09	07:58	07:52	08:38		
	16:55	17:48	18:39	20:31	21:21	21:59	15	06:10 (6)	21:58	21:15	20:08	19:00	17:00	16:33		
12	08:45	08:04	07:05	06:55	05:56	05:24	05:55 (6)	05:38	06:07 (6)	06:21	07:11	08:00	07:54	08:39		
	16:56	17:50	18:40	20:33	21:22	22:00	16	06:11 (6)	21:58	21:13	20:06	18:57	16:58	16:33		
13	08:44	08:02	07:03	06:53	05:54	05:24	05:55 (6)	05:39	06:08 (6)	06:23	07:12	08:02	07:56	08:40		
	16:58	17:52	18:42	20:35	21:24	22:01	16	06:11 (6)	21:57	21:11	20:04	18:55	16:57	16:32		
14	08:44	08:00	07:01	06:51	05:53	05:24	05:55 (6)	05:40	06:09 (6)	06:24	07:14	08:03	07:58	08:41		
	16:59	17:54	18:44	20:36	21:26	22:01	17	06:12 (6)	21:56	21:09	20:01	18:53	16:55	16:32		
15	08:43	07:58	06:59	06:48	05:51	05:24	05:55 (6)	05:41	06:26 (6)	07:16	08:05	07:59	08:42			
	17:01	17:56	18:45	20:38	21:27	22:02	17	06:12 (6)	21:55	21:07	19:59	18:51	16:54	16:33		
16	08:42	07:56	06:56	06:46	05:50	05:24	05:55 (6)	05:42	06:27 (6)	07:17	08:07	08:01	08:42			
	17:02	17:57	18:47	20:40	21:29	22:02	18	06:13 (6)	21:54	21:05	19:57	18:49	16:52	16:33		
17	08:41	07:54	06:54	06:44	05:48	05:24	05:55 (6)	05:43	06:29 (6)	07:19	08:08	08:03	08:43			
	17:04	17:59	18:49	20:41	21:30	22:03	18	06:13 (6)	21:53	21:03	19:54	18:47	16:51	16:33		
18	08:40	07:52	06:52	06:42	05:47	05:24	05:55 (6)	05:44	06:31 (6)	07:20	08:10	08:05	08:44			
	17:06	18:01	18:51	20:43	21:32	22:03	18	06:13 (6)	21:52	21:01	19:52	18:44	16:50	16:33		
19	08:39	07:51	06:49	06:40	05:45	05:24	05:55 (6)	05:46	06:32 (6)	07:22	08:12	08:06	08:45			
	17:07	18:03	18:52	20:45	21:33	22:03	19	06:14 (6)	21:51	20:59	19:50	18:42	16:48	16:33		
20	08:38	07:49	06:47	06:38	05:44	05:24	05:55 (6)	05:47	06:34 (6)	07:24	08:14	08:08	08:45			
	17:09	18:05	18:54	20:46	21:34	22:04	19	06:14 (6)	21:49	20:57	19:47	18:40	16:47	16:34		
21	08:37	07:46	06:45	06:36	05:43	05:24	05:55 (6)	05:48	06:35 (6)	07:25	08:15	08:10	08:46			
	17:11	18:07	18:56	20:48	21:36	22:04	19	06:14 (6)	21:48	20:55	19:45	18:38	16:46	16:34		
22	08:36	07:44	06:43	06:34	05:41	05:24	05:55 (6)	05:50	06:37 (6)	07:27	08:17	08:11	08:46			
	17:12	18:08	18:57	20:50	21:37	22:04	19	06:14 (6)	21:47	20:53	19:43	18:36	16:45	16:35		
23	08:35	07:42	06:40	06:31	05:40	05:24	05:56 (6)	05:51	06:39 (6)	07:28	08:19	08:13	08:47			
	17:14	18:10	18:59	20:51	21:39	22:04	19	06:15 (6)	21:46	20:51	19:41	18:34	16:44	16:35		
24	08:34	07:40	06:38	06:29	05:39	05:25	05:56 (6)	05:52	06:40 (6)	07:30	08:21	08:14	08:47			
	17:16	18:12	19:01	20:53	21:40	22:04	19	06:15 (6)	21:44	20:48	19:38	18:32	16:43	16:36		
25	08:32	07:38	06:36	06:27	05:38	05:25	05:56 (6)	05:54	06:42 (6)	07:32	08:22	08:16	08:48			
	17:17	18:14	19:03	20:55	21:41	22:05	18	06:14 (6)	21:43	20:46	19:36	17:30	16:42	16:36		
26	08:31	07:36	06:33	06:25	05:37	05:25	05:57 (6)	05:55	06:43 (6)	07:33	08:24	08:18	08:48			
	17:19	18:16	19:04	20:56	21:43	22:05	18	06:15 (6)	21:42	20:44	19:34	17:28	16:41	16:37		
27	08:30	07:34	06:31	06:23	05:36	05:26	05:57 (6)	05:57	06:45 (6)	07:35	08:26	08:19	08:48			
	17:21	18:17	19:06	20:58	21:44	22:04	18	06:15 (6)	21:40	20:42	19:31	17:26	16:40	16:38		
28	08:28	07:32	06:29	06:21	05:35	05:26	05:58 (6)	05:58	06:47 (6)	07:37	08:28	08:21	08:49			
	17:23	18:19	19:08	21:00	21:45	22:04	17	06:15 (6)	21:39	20:40	19:29	17:24	16:39	16:39		
29	08:27	07:27	06:19	06:19	05:34	05:27	05:58 (6)	06:00	06:48 (6)	07:38	08:29	08:22	08:49			
	17:24	18:20	19:09	21:01	21:46	22:04	17	06:15 (6)	21:37	20:38	19:27	17:22	16:38	16:39		
30	08:26	07:24	06:17	06:17	05:33	05:27	05:59 (6)	06:01	06:50 (6)	07:40	08:31	08:24	08:49			
	17:26	18:22	19:11	21:03	21:48	22:04	16	06:15 (6)	21:36	20:35	19:24	17:20	16:37	16:40		
31	08:24	07:22	06:15	06:15	05:32	05:27	06:02 (6)	06:02	06:52 (6)	07:40	08:31	08:24	08:49			
	17:28	18:23	19:12	21:05	21:49	22:05	21:34	21:34	20:33	19:22	17:18	16:33	16:41	16:41		
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245				
Total, worst case							418	86								
Sun reduction							0,35	0,38								
Oper. time red.							0,95	0,95								
Wind dir. red.							0,71	0,71								
Total reduction							0,23	0,26								
Total, real							97	22								

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Receptors layout 1Shadow receptor: U - Zevenbergseweg 25

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	07:30	07:20	06:15	05:31	05:28	06:04	06:53	07:41	07:35	08:25
	16:43	17:30	18:21	20:14	21:05	21:50	22:04	21:32	20:31	19:22	17:17	16:37
2	08:49	08:21	07:28	07:17	06:14	05:30	05:29	06:05	06:55	07:43	07:36	08:27
	16:44	17:32	18:23	20:16	21:06	21:51	22:03	21:31	20:29	19:20	17:15	16:36
3	08:49	08:19	07:25	07:15	06:12	05:29	05:29	06:07	06:56	07:45	07:38	08:28
	16:45	17:34	18:24	20:18	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
4	08:48	08:18	07:23	07:13	06:10	05:28	05:30	06:09	06:58	07:46	07:40	08:29
	16:46	17:35	18:26	20:19	21:10	21:53	22:03	21:27	20:24	19:15	17:11	16:35
5	08:48	08:16	07:21	07:11	06:08	05:28	05:31	06:10	07:00	07:48	07:42	08:31
	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:26	20:22	19:13	17:09	16:34
6	08:48	08:15	07:19	07:08	06:06	05:27	05:32	06:12	07:01	07:50	07:44	08:32
	16:48	17:39	18:30	20:23	21:13	21:55	22:02	21:24	20:20	19:11	17:08	16:34
7	08:48	08:13	07:17	07:06	06:04	05:27	05:33	06:13	07:03	07:51	07:45	08:33
	16:49	17:41	18:32	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:34
8	08:47	08:11	07:14	07:04	06:03	05:26	05:33	06:15	07:04	07:53	07:47	08:34
	16:51	17:43	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
9	08:47	08:09	07:12	07:02	06:01	05:26	05:34	06:16	07:06	07:55	07:49	08:35
	16:52	17:45	18:35	20:28	21:18	21:58	22:00	21:18	20:13	19:04	17:03	16:33
10	08:46	08:08	07:10	06:59	05:59	05:25	05:35	06:18	07:08	07:56	07:51	08:37
	16:53	17:46	18:37	20:29	21:19	21:58	21:59	21:17	20:11	19:02	17:01	16:33
11	08:46	08:06	07:08	06:57	05:58	05:25	05:36	06:19	07:09	07:58	07:52	08:38
	16:55	17:48	18:39	20:31	21:21	21:59	21:58	21:15	20:08	19:00	17:00	16:33
12	08:45	08:04	07:05	06:55	05:56	05:24	05:37	06:21	07:11	08:00	07:54	08:39
	16:56	17:50	18:40	20:33	21:22	22:00	21:58	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:53	05:54	05:24	05:39	06:23	07:12	08:02	07:56	08:40
	16:58	17:52	18:42	20:35	21:24	22:01	21:57	21:11	20:04	18:55	16:57	16:32
14	08:44	08:00	07:01	06:51	05:53	05:24	05:40	06:24	07:14	08:03	07:58	08:41
	16:59	17:54	18:44	20:36	21:26	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:43	07:58	06:59	06:48	05:51	05:24	05:41	06:26	07:16	08:05	07:59	08:42
	17:01	17:56	18:45	20:38	21:27	22:02	21:55	21:07	19:59	18:51	16:54	16:33
16	08:42	07:56	06:56	06:46	05:50	05:24	05:42	06:27	07:17	08:07	08:01	08:42
	17:02	17:57	18:47	20:40	21:29	22:02	21:54	21:05	19:57	18:49	16:52	16:33
17	08:41	07:54	06:54	06:44	05:48	05:24	05:43	06:29	07:19	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:03	21:53	21:03	19:54	18:46	16:51	16:33
18	08:40	07:52	06:52	06:42	05:47	05:24	05:44	06:31	07:20	08:10	08:05	08:44
	17:06	18:01	18:51	20:43	21:32	22:03	21:52	21:01	19:52	18:44	16:50	16:33
19	08:39	07:50	06:49	06:40	05:45	05:24	05:46	06:32	07:22	08:12	08:06	08:45
	17:07	18:03	18:52	20:45	21:33	22:03	21:51	20:59	19:50	18:42	16:48	16:33
20	08:38	07:48	06:47	06:38	05:44	05:24	05:47	06:34	07:24	08:14	08:08	08:45
	17:09	18:05	18:54	20:46	21:34	22:04	21:49	20:57	19:47	18:40	16:47	16:34
21	08:37	07:46	06:45	06:36	05:43	05:24	05:48	06:35	07:25	08:15	08:10	08:46
	17:11	18:07	18:56	20:48	21:36	22:04	21:48	20:55	19:45	18:38	16:46	16:34
22	08:36	07:44	06:43	06:33	05:41	05:24	05:50	06:37	07:27	08:17	08:11	08:46
	17:12	18:08	18:57	20:50	21:37	22:04	21:47	20:53	19:43	18:36	16:45	16:35
23	08:35	07:42	06:40	06:31	05:40	05:24	05:51	06:39	07:28	08:19	08:13	08:47
	17:14	18:10	18:59	20:51	21:39	22:04	21:46	20:51	19:40	18:34	16:44	16:35
24	08:34	07:40	06:38	06:29	05:39	05:25	05:52	06:40	07:30	08:21	08:14	08:47
	17:16	18:12	19:01	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:43	16:36
25	08:32	07:38	06:36	06:27	05:38	05:25	05:54	06:42	07:32	08:22	08:16	08:48
	17:17	18:14	19:02	20:55	21:41	22:05	21:43	20:46	19:36	17:30	16:42	16:36
26	08:31	07:36	06:33	06:25	05:37	05:25	05:55	06:43	07:33	08:24	08:18	08:48
	17:19	18:16	19:04	20:56	21:43	22:05	21:42	20:44	19:34	17:28	16:41	16:37
27	08:30	07:34	06:31	06:23	05:36	05:26	05:57	06:45	07:35	08:26	08:19	08:48
	17:21	18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	17:26	16:40	16:38
28	08:28	07:32	06:29	06:21	05:35	05:26	05:58	06:47	07:37	08:28	08:21	08:49
	17:23	18:19	19:08	21:00	21:45	22:04	21:39	20:40	19:29	17:24	16:39	16:39
29	08:27	07:27	06:19	06:19	05:34	05:27	06:00	06:48	07:38	08:29	08:22	08:49
	17:24	18:19	19:09	21:01	21:46	22:04	21:37	20:38	19:27	17:22	16:38	16:39
30	08:25	07:24	06:17	06:17	05:33	05:27	06:01	06:50	07:40	08:31	08:24	08:49
	17:26	18:19	19:09	21:03	21:48	22:04	21:36	20:35	19:24	17:20	16:37	16:40
31	08:24	07:22	06:15	06:15	05:32	05:27	06:02	06:51	07:41	08:32	08:25	08:49
	17:28	18:19	19:09	21:03	21:49	22:04	21:34	20:33	19:24	17:18	16:37	16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
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: Receptors layout 1Shadow receptor: V - Zevenbergseweg 30

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:43	08:22 17:30	07:30 18:21	07:20 20:14	06:15 21:05	05:31 21:50	05:28 22:04	06:04 21:32	06:53 20:31	07:41 19:22	07:35 17:16	08:25 16:37
2	08:49 16:44	08:21 17:32	07:27 18:23	07:17 20:16	06:14 21:06	05:30 21:51	05:29 22:03	06:05 21:31	06:55 20:29	07:43 19:20	07:36 17:15	08:26 16:36
3	08:49 16:45	08:19 17:33	07:25 18:24	07:15 20:18	06:12 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	07:45 19:17	07:38 17:13	08:28 16:35
4	08:48 16:46	08:18 17:35	07:23 18:26	07:13 20:19	06:10 21:10	05:28 21:53	05:30 22:03	06:09 21:27	06:58 20:24	07:46 19:15	07:40 17:11	08:29 16:35
5	08:48 16:47	08:16 17:37	07:21 18:28	07:11 20:21	06:08 21:11	05:28 21:54	05:31 22:02	06:10 21:26	06:59 20:22	07:48 19:13	07:42 17:09	08:31 16:34
6	08:48 16:48	08:14 17:39	07:19 18:30	07:08 20:23	06:06 21:13	05:27 21:55	05:32 22:02	06:12 21:24	07:01 20:20	07:50 19:11	07:44 17:08	08:32 16:34
7	08:48 16:49	08:13 17:41	07:17 18:32	07:06 20:24	06:04 21:14	05:27 21:56	05:33 22:01	06:13 21:22	07:03 20:17	07:51 19:08	07:45 17:06	08:33 16:34
8	08:47 16:51	08:11 17:43	07:14 18:33	07:04 20:26	06:03 21:16	05:26 21:57	05:33 22:00	06:15 21:20	07:04 20:15	07:53 19:06	07:47 17:04	08:34 16:33
9	08:47 16:52	08:09 17:45	07:12 18:35	07:02 20:28	06:01 21:18	05:26 21:58	05:34 22:00	06:16 21:18	07:06 20:13	07:55 19:04	07:49 17:03	08:35 16:33
10	08:46 16:53	08:08 17:46	07:10 18:37	06:59 20:29	05:59 21:19	05:25 21:58	05:35 21:59	06:18 21:17	07:08 20:11	07:56 19:02	07:51 17:01	08:37 16:33
11	08:46 16:55	08:06 17:48	07:08 18:39	06:57 20:31	05:58 21:21	05:25 21:59	05:36 21:58	06:19 21:15	07:09 20:08	07:58 18:59	07:52 17:00	08:38 16:33
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	05:56 21:22	05:24 22:00	05:37 21:57	06:21 21:13	07:11 20:06	08:00 18:57	07:54 16:58	08:39 16:32
13	08:44 16:58	08:02 17:52	07:03 18:42	06:53 20:34	05:54 21:24	05:24 22:00	05:39 21:57	06:23 21:11	07:12 20:04	08:01 18:55	07:56 16:57	08:40 16:32
14	08:43 16:59	08:00 17:54	07:01 18:44	06:51 20:36	05:53 21:25	05:24 22:01	05:40 21:56	06:24 21:09	07:14 20:01	08:03 18:53	07:58 16:55	08:41 16:32
15	08:43 17:01	07:58 17:56	06:59 18:45	06:48 20:38	05:51 21:27	05:24 22:02	05:41 21:55	06:26 21:07	07:16 19:59	08:05 18:51	07:59 16:54	08:42 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:40	05:50 21:29	05:24 22:02	05:42 21:54	06:27 21:05	07:17 19:57	08:07 18:49	08:01 16:52	08:42 16:33
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	05:48 21:30	05:24 22:03	05:43 21:53	06:29 21:03	07:19 19:54	08:08 18:46	08:03 16:51	08:43 16:33
18	08:40 17:06	07:52 18:01	06:52 18:51	06:42 20:43	05:47 21:31	05:24 22:03	05:44 21:52	06:31 21:01	07:20 19:52	08:10 18:44	08:04 16:50	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	06:40 20:45	05:45 21:33	05:24 22:03	05:46 21:50	06:32 20:59	07:22 19:50	08:12 18:42	08:06 16:48	08:45 16:33
20	08:38 17:09	07:48 18:05	06:47 18:54	06:38 20:46	05:44 21:34	05:24 22:04	05:47 21:49	06:34 20:57	07:24 19:47	08:14 18:40	08:08 16:47	08:45 16:34
21	08:37 17:10	07:46 18:07	06:45 18:56	06:36 20:48	05:43 21:36	05:24 22:04	05:48 21:48	06:35 20:55	07:25 19:45	08:15 18:38	08:10 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:43 18:57	06:33 20:50	05:41 21:37	05:24 22:04	05:50 21:47	06:37 20:53	07:27 19:43	08:17 18:36	08:11 16:45	08:46 16:35
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:39	05:24 22:04	05:51 21:46	06:39 20:50	07:28 19:40	08:19 18:34	08:13 16:44	08:47 16:35
24	08:33 17:16	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	05:25 22:04	05:52 21:44	06:40 20:48	07:30 19:38	08:20 18:32	08:14 16:43	08:47 16:36
25	08:32 17:17	07:38 18:14	06:36 19:02	06:27 20:55	05:38 21:41	05:25 22:04	05:54 21:43	06:42 20:46	07:32 19:36	08:22 17:30	08:16 16:42	08:48 16:36
26	08:31 17:19	07:36 18:16	06:33 19:04	06:25 20:56	05:37 21:43	05:25 22:04	05:55 21:41	06:43 20:44	07:33 19:34	08:24 17:28	08:18 16:41	08:48 16:37
27	08:30 17:21	07:34 18:17	06:31 19:06	06:23 20:58	05:36 21:44	05:26 22:04	05:57 21:40	06:45 20:42	07:35 19:31	08:26 17:26	08:19 16:40	08:48 16:38
28	08:28 17:23	07:32 18:19	06:29 19:08	06:21 21:00	05:35 21:45	05:26 22:04	05:58 21:39	06:47 20:40	07:37 19:29	08:28 17:24	08:21 16:39	08:49 16:39
29	08:27 17:24	07:27 18:09	06:27 19:01	06:19 21:01	05:34 21:46	05:27 22:04	05:59 21:37	06:48 20:38	07:38 19:27	08:29 17:22	08:22 16:38	08:49 16:39
30	08:25 17:26	07:24 18:07	06:24 19:01	06:17 21:03	05:33 21:48	05:27 22:04	06:01 21:36	06:50 20:35	07:40 19:24	08:31 17:20	08:24 16:37	08:49 16:40
31	08:24 17:28	07:22 18:03	06:22 19:03	06:15 21:03	05:32 21:49	05:27 22:04	06:02 21:34	06:51 20:33	07:33 19:18	08:33 17:18	08:49 16:41	08:49 16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
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: Receptors layout 1Shadow receptor: W - van Vlaanderenstraat 28

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December				
1	08:49	08:23	07:30	07:20	07:42 (3)	06:15	05:28	06:04	06:50 (2)	06:53	07:34 (3)	07:42	08:09 (4)	07:35	08:02 (5)	08:25
2	08:49	08:21	07:28	07:17	07:40 (3)	06:14	05:29	06:05	06:51 (2)	06:55	07:33 (3)	07:43	08:09 (4)	07:37	08:02 (5)	08:27
3	08:49	08:20	07:25	07:15	07:38 (3)	06:12	05:29	06:07	06:50 (2)	06:56	07:32 (3)	07:45	08:10 (4)	07:38	08:03 (5)	08:28
4	08:49	08:18	07:23	07:13	07:36 (3)	06:10	05:30	06:09	06:50 (2)	06:58	07:32 (3)	07:46	08:12 (4)	07:40	08:05 (5)	08:29
5	08:48	08:16	07:21	07:11	07:35 (3)	06:08	05:31	06:10	06:49 (2)	07:00	07:31 (3)	07:48	08:13 (4)	07:42	08:07 (5)	08:31
6	08:48	08:15	07:19	07:08	07:34 (3)	06:06	05:32	06:12	06:48 (2)	07:01	07:30 (3)	07:50	08:25 (4)	07:44	08:09 (5)	08:32
7	08:48	08:13	07:17	07:06	07:33 (3)	06:04	05:33	06:13	06:47 (2)	07:03	07:31 (3)	07:51	08:24 (4)	07:45	08:10 (5)	08:33
8	08:47	08:11	07:14	07:04	07:32 (3)	06:03	05:33	06:15	06:50 (2)	07:04	07:31 (3)	07:53	08:24 (4)	07:47	08:09 (5)	08:34
9	08:47	08:09	07:12	07:02	07:31 (3)	06:01	05:34	06:16	06:50 (2)	07:06	07:31 (3)	07:53	08:24 (4)	07:49	08:10 (5)	08:36
10	08:46	08:08	07:10	07:00	07:30 (3)	05:59	05:35	06:18	06:51 (2)	07:08	07:33 (3)	07:57	08:24 (4)	07:51	08:11 (5)	08:37
11	08:46	08:06	07:08	06:58	07:29 (3)	05:57	05:36	06:19	06:51 (2)	07:09	07:34 (3)	07:58	08:24 (4)	07:52	08:12 (5)	08:38
12	08:45	08:04	07:05	06:55	07:28 (3)	05:56	05:37	06:21	06:52 (2)	07:11	07:35 (3)	08:00	08:25 (4)	07:53	08:14 (5)	08:39
13	08:44	08:02	07:03	06:53	07:27 (3)	05:54	05:38	06:23	06:53 (2)	07:12	07:36 (3)	08:01	08:26 (4)	07:54	08:15 (5)	08:40
14	08:44	08:00	07:01	06:51	07:26 (3)	05:53	05:39	06:24	06:54 (2)	07:14	07:37 (3)	08:02	08:27 (4)	07:55	08:16 (5)	08:41
15	08:43	07:58	06:59	06:48	07:25 (3)	05:51	05:41	06:26	06:56 (2)	07:16	07:38 (3)	08:03	08:28 (4)	07:56	08:17 (5)	08:42
16	08:42	07:56	06:57	06:46	07:24 (3)	05:50	05:42	06:27	06:57 (2)	07:17	07:39 (3)	08:04	08:29 (4)	07:57	08:18 (5)	08:43
17	08:41	07:55	06:56	06:45	07:23 (3)	05:49	05:43	06:29	06:58 (2)	07:19	07:40 (3)	08:05	08:30 (4)	07:58	08:19 (5)	08:44
18	08:40	07:53	06:54	06:43	07:22 (3)	05:48	05:44	06:31	06:59 (2)	07:21	07:41 (3)	08:06	08:31 (4)	07:59	08:20 (5)	08:45
19	08:39	07:51	06:52	06:41	07:21 (3)	05:47	05:45	06:32	06:59 (2)	07:22	07:42 (3)	08:07	08:32 (4)	07:59	08:21 (5)	08:46
20	08:38	07:49	06:50	06:40	07:20 (3)	05:46	05:46	06:34	06:59 (2)	07:23	07:43 (3)	08:08	08:33 (4)	07:59	08:22 (5)	08:47
21	08:37	07:47	06:49	06:39	07:19 (3)	05:45	05:47	06:35	06:59 (2)	07:24	07:44 (3)	08:09	08:34 (4)	07:59	08:23 (5)	08:48
22	08:36	07:44	06:48	06:38	07:18 (3)	05:44	05:48	06:37	06:59 (2)	07:25	07:45 (3)	08:10	08:35 (4)	07:59	08:24 (5)	08:49
23	08:35	07:42	06:47	06:37	07:17 (3)	05:43	05:49	06:39	06:59 (2)	07:26	07:46 (3)	08:11	08:36 (4)	07:59	08:25 (5)	08:50
24	08:34	07:40	06:46	06:36	07:16 (3)	05:42	05:50	06:41	06:59 (2)	07:27	07:47 (3)	08:12	08:37 (4)	07:59	08:26 (5)	08:51
25	08:32	07:38	06:45	06:35	07:15 (3)	05:41	05:51	06:43	06:59 (2)	07:28	07:48 (3)	08:13	08:38 (4)	07:59	08:27 (5)	08:52
26	08:31	07:36	06:44	06:34	07:14 (3)	05:40	05:52	06:45	06:59 (2)	07:29	07:49 (3)	08:14	08:39 (4)	07:59	08:28 (5)	08:53
27	08:30	07:34	06:43	06:33	07:13 (3)	05:39	05:53	06:47	06:59 (2)	07:30	07:50 (3)	08:15	08:40 (4)	07:59	08:29 (5)	08:54
28	08:29	07:32	06:42	06:32	07:12 (3)	05:38	05:54	06:49	06:59 (2)	07:31	07:51 (3)	08:16	08:41 (4)	07:59	08:30 (5)	08:55
29	08:27	07:30	06:41	06:31	07:11 (3)	05:37	05:55	06:51	06:59 (2)	07:32	07:52 (3)	08:17	08:42 (4)	07:59	08:31 (5)	08:56
30	08:26	07:28	06:40	06:30	07:10 (3)	05:36	05:56	06:53	06:59 (2)	07:33	07:53 (3)	08:18	08:43 (4)	07:59	08:32 (5)	08:57
31	08:24	07:26	06:39	06:29	07:09 (3)	05:35	05:57	06:55	06:59 (2)	07:34	07:54 (3)	08:19	08:44 (4)	07:59	08:33 (5)	08:58
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245				
Total, worst case	147	203	314	415	497	501	453	381	332	267	245	245				
Sun reduction	0,28	0,26	0,35	0,40	0,40	0,38	0,38	0,41	0,33	0,29	0,21	0,21				
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95				
Wind dir. red.	0,54	0,55	0,62	0,66	0,66	0,66	0,66	0,65	0,59	0,55	0,54	0,54				
Total reduction	0,14	0,14	0,21	0,25	0,25	0,24	0,25	0,25	0,18	0,15	0,11	0,11				
Total, real	21	27	64	102	102	29	100	60	36	36	0	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	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
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SHADOW - Calendar

Calculation: Receptors layout 1Shadow receptor: X - van Vlaanderenstraat 54

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum

469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December					
1	08:49	08:23	07:30	07:20	07:45 (3)	06:15	06:03 (1)	05:28	06:03 (1)	06:04	06:53	07:42	08:17 (4)	07:35	08:25		
2	08:49	08:21	07:28	07:17	07:45 (3)	06:14	06:02 (1)	05:29	06:04 (1)	06:05	06:55	07:43	08:18 (4)	07:37	08:27		
3	08:49	08:20	07:25	07:15	08:07 (3)	06:12	06:02 (1)	05:29	06:05 (1)	06:07	06:56	07:48 (3)	07:45	08:15 (4)	07:38	08:28	
4	08:49	08:18	07:22	07:12	07:46 (4)	06:13	06:19 (1)	05:30	06:28 (1)	06:29	07:10 (2)	06:58	07:54 (3)	07:47	08:19 (4)	07:40	08:29
5	08:48	08:16	07:21	07:11	07:53 (4)	06:19	06:19 (1)	05:31	06:27 (1)	06:27	07:19 (2)	07:07 (2)	07:57 (3)	07:48	08:14 (4)	07:42	08:31
6	08:48	08:15	07:19	07:10	07:55 (4)	06:21	06:21 (1)	05:32	06:27 (1)	06:28	07:20 (2)	07:08	07:58 (3)	07:49	08:14 (4)	07:42	08:31
7	08:48	08:13	07:17	07:08	07:56 (4)	06:23	06:23 (1)	05:33	06:27 (1)	06:28	07:22 (2)	07:09	07:58 (3)	07:50	08:15 (4)	07:44	08:32
8	08:47	08:11	07:14	07:05	07:57 (4)	06:25	06:25 (1)	05:34	06:27 (1)	06:28	07:23 (2)	07:10	07:59 (3)	07:51	08:16 (4)	07:45	08:33
9	08:47	08:10	07:13	07:04	07:57 (4)	06:26	06:26 (1)	05:35	06:27 (1)	06:28	07:24 (2)	07:11	08:00 (3)	07:52	08:17 (4)	07:46	08:34
10	08:46	08:08	07:10	07:01	07:57 (4)	06:28	06:28 (1)	05:36	06:27 (1)	06:28	07:25 (2)	07:12	08:01 (3)	07:53	08:18 (4)	07:47	08:35
11	08:46	08:06	07:08	07:00	07:57 (4)	06:29	06:29 (1)	05:37	06:27 (1)	06:28	07:26 (2)	07:13	08:02 (3)	07:54	08:19 (4)	07:48	08:36
12	08:45	08:04	07:05	07:00	07:57 (4)	06:30	06:30 (1)	05:38	06:27 (1)	06:28	07:27 (2)	07:14	08:03 (3)	07:55	08:20 (4)	07:49	08:37
13	08:44	08:02	07:03	07:00	07:57 (4)	06:31	06:31 (1)	05:39	06:27 (1)	06:28	07:28 (2)	07:15	08:04 (3)	07:56	08:21 (4)	07:50	08:38
14	08:44	08:00	07:01	07:00	07:57 (4)	06:32	06:32 (1)	05:40	06:27 (1)	06:28	07:29 (2)	07:16	08:05 (3)	07:57	08:22 (4)	07:51	08:39
15	08:43	07:58	06:59	07:41 (4)	06:48	05:51	06:00 (1)	05:41	06:26	07:01 (2)	07:16	07:41 (3)	08:05	07:59	08:42	07:59	08:42
16	08:42	07:56	06:56	07:40 (4)	06:46	05:50	06:00 (1)	05:42	06:27	07:01 (2)	07:17	07:42 (3)	08:07	08:01	08:43	08:01	08:43
17	08:41	07:55	06:54	07:39 (4)	06:44	05:49	06:00 (1)	05:43	06:27	07:01 (2)	07:18	07:43 (3)	08:08	08:02	08:44	08:02	08:44
18	08:40	07:53	06:52	07:37 (4)	06:42	05:47	06:00 (1)	05:44	06:31	07:02 (2)	07:20	07:44 (3)	08:09	08:03	08:45	08:03	08:45
19	08:39	07:51	06:50	07:35 (4)	06:40	05:45	06:00 (1)	05:45	06:32	07:02 (2)	07:21	07:45 (3)	08:10	08:04	08:46	08:04	08:46
20	08:38	07:49	06:47	07:32 (4)	06:38	05:44	06:01 (1)	05:47	06:34	07:03 (2)	07:24	07:46 (3)	08:11	08:05	08:47	08:05	08:47
21	08:37	07:47	06:45	07:30 (4)	06:36	05:43	06:01 (1)	05:48	06:35	07:04 (2)	07:25	07:47 (3)	08:12	08:06	08:48	08:06	08:48
22	08:36	07:44	06:43	07:28 (4)	06:33	05:42	06:01 (1)	05:50	06:36	07:05 (2)	07:26	07:48 (3)	08:13	08:07	08:49	08:07	08:49
23	08:35	07:42	06:40	07:26 (4)	06:31	05:40	06:02 (1)	05:51	06:37	07:06 (2)	07:27	07:49 (3)	08:14	08:08	08:50	08:08	08:50
24	08:34	07:40	06:38	07:24 (4)	06:29	05:39	06:03 (1)	05:52	06:38	07:07 (2)	07:28	07:50 (3)	08:15	08:09	08:51	08:09	08:51
25	08:32	07:38	06:36	07:22 (4)	06:27	05:38	06:04 (1)	05:53	06:39	07:08 (2)	07:29	07:51 (3)	08:16	08:10	08:52	08:10	08:52
26	08:31	07:36	06:33	07:20 (4)	06:25	05:37	06:05 (1)	05:54	06:40	07:09 (2)	07:30	07:52 (3)	08:17	08:11	08:53	08:11	08:53
27	08:30	07:34	06:31	07:18 (4)	06:23	05:35	06:06 (1)	05:55	06:41	07:10 (2)	07:31	07:53 (3)	08:18	08:12	08:54	08:12	08:54
28	08:28	07:32	06:29	07:16 (4)	06:21	05:34	06:07 (1)	05:56	06:42	07:11 (2)	07:32	07:54 (3)	08:19	08:13	08:55	08:13	08:55
29	08:27	07:30	06:27	07:14 (4)	06:19	05:33	06:08 (1)	05:57	06:43	07:12 (2)	07:33	07:55 (3)	08:20	08:14	08:56	08:14	08:56
30	08:26	07:28	06:25	07:12 (4)	06:17	05:32	06:09 (1)	05:58	06:44	07:13 (2)	07:34	07:56 (3)	08:21	08:15	08:57	08:15	08:57
31	08:24	07:22	06:23	07:10 (4)	06:15	05:31	06:10 (1)	05:59	06:45	07:14 (2)	07:35	07:57 (3)	08:22	08:16	08:58	08:16	08:58
Potential sun hours	260	278	367	416	484	497	501	453	381	270	158	267	245				
Total, worst case			260	387	182	697	251	395	270	158	267	245					
Sun reduction			0,26	0,35	0,40	0,35	0,38	0,41	0,33	0,29	0,29	0,29					
Oper. time red.			0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95					
Wind dir. red.			0,56	0,62	0,65	0,71	0,71	0,64	0,60	0,60	0,54	0,54					
Total reduction			0,14	0,21	0,24	0,23	0,25	0,25	0,19	0,15	0,15	0,15					
Total, real			36	80	44	160	64	97	50	23	23	23					

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

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

SHADOW - Calendar

Calculation: Receptors layout 1Shadow receptor: Y - Molenvliet 54

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December					
1	08:49	08:23	07:30	07:20	07:50 (3)	06:15	07:21 (2)	05:31	06:28 (1)	05:28	06:08 (1)	06:04	06:53	07:42	08:24 (4)	07:35	08:25
2	08:49	08:21	07:28	07:51 (4)	07:17	20	07:50 (3)	06:14	07:02 (2)	05:30	06:04 (1)	06:05	06:55	07:43	08:21 (4)	07:37	08:27
3	08:49	08:20	07:25	07:49 (4)	07:15	21	08:11 (3)	07:15	07:20 (2)	06:15	06:29 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
4	08:49	08:18	07:23	07:46 (4)	07:13	19	08:10 (3)	07:18	07:18 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
5	08:48	08:15	07:19	07:42 (4)	07:08	14	08:06 (3)	07:11	07:16 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
6	08:48	08:16	07:21	07:44 (4)	07:11	14	08:06 (3)	07:11	07:16 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
7	08:48	08:13	07:17	07:42 (4)	07:06	10	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
8	08:47	08:11	07:14	07:41 (4)	07:04	10	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
9	08:47	08:11	07:14	07:41 (4)	07:04	10	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
10	08:46	08:08	07:10	07:42 (4)	06:59	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
11	08:46	08:06	07:08	07:43 (4)	06:57	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
12	08:45	08:04	07:05	07:43 (4)	06:55	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
13	08:44	08:02	07:03	07:46 (4)	06:53	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
14	08:44	08:00	07:01	07:54 (4)	06:51	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
15	08:43	07:58	06:59	06:48	05:51	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
16	08:42	07:56	06:56	06:46	05:50	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
17	08:41	07:55	06:54	06:44	05:49	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
18	08:40	07:53	06:52	06:42	05:47	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
19	08:39	07:51	06:50	06:40	05:45	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
20	08:38	07:49	06:47	06:38	05:44	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
21	08:37	07:47	06:45	06:36	05:43	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
22	08:36	07:44	06:43	06:33	05:42	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
23	08:35	07:42	06:40	06:31	05:40	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
24	08:34	07:40	06:38	06:29	05:39	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
25	08:32	07:38	06:36	06:27	05:38	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
26	08:31	07:36	06:33	06:25	05:37	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
27	08:30	07:34	06:31	06:23	05:36	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
28	08:28	07:32	06:29	06:21	05:35	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
29	08:27	07:31	06:28	06:20	05:34	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
30	08:26	07:30	06:27	06:19	05:33	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
31	08:24	07:28	06:22	06:13	05:32	11	08:03 (3)	07:13	07:13 (2)	06:15	06:30 (1)	06:29	06:56	07:45	08:20 (4)	07:38	08:28
Potential sun hours	260	278	367	416	484	497	501	453	381	244	177	267	245				
Total, worst case			311	401	214	837	501	453	372	244	177	267	245				
Sun reduction			0,26	0,35	0,40	0,35	0,38	0,41	0,33	0,33	0,29	0,29	0,29				
Oper. time red.			0,56	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95				
Wind dir. red.			0,14	0,21	0,25	0,23	0,25	0,24	0,19	0,19	0,14	0,14	0,14				
Total reduction			0,96	1,51	1,55	1,53	1,59	1,61	1,61	1,61	1,59	1,59	1,59				
Total, real			43	83	55	191	114	90	46	26	26	26	26				

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

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

Calculation: Receptors layout 1Shadow receptor: Z - Zweedsestraat 19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

Table with columns for months (January to December) and rows for time slots (08:49 to 20:26). Includes a summary row for 'Potential sun hours' and a 'Total, worst case' row at the bottom.

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

Day in month Sun rise (hh:mm) Sun set (hh:mm) Minutes 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: Receptors layout 1Shadow receptor: AA - Van Abcoudestraat 5
Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	08:54 (6)	07:30	08:00 (5)	07:20	07:49 (4)	06:15	06:04	06:51 (3)	06:53	07:42
2	16:42	17:30	21 09:15 (6)	18:21	21 08:21 (5)	20:14	25 08:14 (4)	21:05	22 07:06 (3)	21:50	22:04	17:17
3	08:49	08:21	08:53 (6)	07:28	08:01 (5)	07:17	07:49 (4)	06:14	06:05	06:51 (3)	06:55	07:43
4	16:44	17:32	22 09:15 (6)	18:23	20 08:21 (5)	20:16	25 08:14 (4)	21:06	24 07:06 (3)	21:51	22:04	17:15
5	16:45	17:34	21 09:14 (6)	18:25	18 08:20 (5)	20:18	25 08:14 (4)	21:08	25 07:06 (3)	21:52	22:03	17:13
6	08:49	08:18	08:53 (6)	07:23	08:02 (5)	07:13	07:48 (4)	06:10	06:09	06:50 (3)	06:58	07:49
7	16:46	17:35	21 09:14 (6)	18:26	18 08:18 (5)	20:19	24 08:12 (4)	21:10	21 07:06 (3)	21:53	22:03	17:11
8	08:47	08:16	08:55 (6)	07:21	08:03 (5)	07:11	07:49 (4)	06:08	06:41 (3)	06:28	06:31	07:42
9	16:47	17:37	20 09:15 (6)	18:28	13 08:16 (5)	20:21	23 08:12 (4)	21:11	26 07:07 (3)	21:54	22:02	17:09
10	08:48	08:15	08:55 (6)	07:19	08:05 (5)	07:08	07:50 (4)	06:06	06:40 (3)	05:27	05:32	07:44
11	16:48	17:39	19 09:14 (6)	18:30	9 08:14 (5)	20:23	21 08:11 (4)	21:13	27 07:07 (3)	21:55	22:02	17:08
12	08:48	08:13	08:56 (6)	07:17	07:06	07:51 (4)	06:04	06:04	06:40 (3)	05:27	05:33	07:43
13	16:49	17:41	17 09:13 (6)	18:32	20:24	18 08:09 (4)	21:15	27 07:07 (3)	21:56	22:01	22:01	17:06
14	08:47	08:11	08:57 (6)	07:14	07:04	07:51 (4)	06:03	06:03	06:40 (3)	05:25	05:36	07:53
15	16:51	17:43	15 09:12 (6)	18:33	20:26	15 08:06 (4)	21:16	27 07:07 (3)	21:57	22:01	22:01	17:05
16	08:47	08:09	08:58 (6)	07:12	07:02	07:53 (4)	06:01	06:01	06:40 (3)	05:26	05:34	07:49
17	16:52	17:45	12 09:10 (6)	18:35	20:28	11 08:04 (4)	21:18	27 07:07 (3)	21:58	22:02	22:02	17:04
18	08:46	08:08	09:01 (6)	07:10	06:59	07:51 (4)	06:05	06:05	06:41 (3)	05:25	05:35	07:51
19	16:53	17:46	7 09:08 (6)	18:37	20:30	21:19	26 07:07 (3)	21:59	21:59	21:59	21:59	17:01
20	08:46	08:06	09:01 (6)	07:08	06:57	07:52 (4)	06:06	06:06	06:40 (3)	05:25	05:36	07:52
21	16:55	17:48	18:39	20:31	21:21	26 07:06 (3)	21:59	21:58	21:55	21:55	21:55	17:00
22	08:45	08:04	07:05	06:55	06:55	06:40 (3)	05:24	05:37	06:21	06:52 (3)	07:11	07:42
23	16:56	17:50	18:40	20:33	21:22	25 07:05 (3)	22:00	21:58	21:13	22 07:14 (3)	20:06	18:57
24	08:44	08:02	07:03	06:53	06:54	06:41 (3)	05:24	05:39	06:23	06:53 (3)	07:12	07:42
25	16:58	17:52	18:42	20:35	21:24	24 07:05 (3)	22:01	21:57	21:11	19 07:12 (3)	20:04	18:55
26	08:44	08:00	07:01	06:51	06:53	06:42 (3)	05:24	05:40	06:24	06:55 (3)	07:14	07:42
27	16:59	17:54	18:44	20:36	21:26	22 07:04 (3)	22:01	21:54	21:09	16 07:11 (3)	20:01	18:53
28	08:43	07:58	06:59	06:48	06:51	06:41 (3)	05:24	05:41	06:26	06:56 (3)	07:16	07:43
29	17:01	17:56	18:45	20:38	21:27	21 07:03 (3)	22:02	21:55	21:07	13 07:09 (3)	19:59	18:50
30	08:42	07:56	06:56	06:46	06:50	06:44 (3)	05:24	05:42	06:27	07:00 (3)	07:17	07:44
31	17:02	17:57	18:47	20:40	21:29	18 07:02 (3)	22:02	21:54	21:05	6 07:06 (3)	19:57	18:49
1	08:41	07:54	06:54	06:44	06:48	06:44 (3)	05:24	05:43	06:29	07:19	07:46 (4)	08:08
2	17:04	17:59	18:49	20:41	21:30	17 07:01 (3)	22:03	21:53	21:03	19:54	13 07:59 (4)	18:46
3	08:40	07:53	06:52	06:42	06:45	06:45 (3)	05:24	05:44	06:31	07:20	07:48 (4)	08:10
4	17:06	18:01	18:51	20:43	21:32	15 07:00 (3)	22:03	21:52	21:01	19:52	7 07:55 (4)	18:44
5	08:39	07:51	06:49	06:40	06:45	06:47 (3)	05:24	05:46	06:32	07:22	08:12	08:36
6	17:07	18:03	18:52	20:45	21:33	11 06:58 (3)	22:04	21:51	20:59	19:50	18:42	18:42
7	08:38	07:49	06:47	06:38	06:44	06:50 (3)	05:24	05:47	06:34	07:24	08:14	08:08
8	17:09	18:05	18:54	20:46	21:35	6 06:56 (3)	22:04	21:49	20:57	19:47	18:40	18:47
9	08:37	07:47	08:10 (5)	06:45	06:36	06:42 (3)	05:24	05:48	06:35	07:25	08:15	08:15
10	17:10	18:07	4 08:14 (5)	18:56	20:48	21:36	22:04	21:48	20:55	19:45	18:38	16:46
11	08:36	07:44	08:08 (5)	06:43	06:33	06:41	06:51	06:37	06:37	07:27	08:17	08:17
12	17:12	18:08	10 08:18 (5)	18:57	20:50	21:37	22:04	21:47	20:53	19:43	18:36	16:45
13	08:35	07:42	08:06 (5)	06:40	06:31	06:42	06:50	06:39	06:39	07:28	08:19	08:13
14	17:14	18:10	13 08:19 (5)	18:59	20:51	21:39	22:04	21:46	20:51	19:41	18:34	16:44
15	08:34	07:40	08:04 (5)	06:38	06:29	06:41	06:52	06:40	06:40	07:30	08:21	08:15
16	17:16	18:12	17 08:21 (5)	19:01	20:53	21:40	22:05	21:44	9 07:08 (3)	19:38	18:32	16:43
17	08:32	08:59 (6)	07:38	08:02 (5)	06:36	07:02 (4)	06:27	06:25	06:25	07:32	08:22	08:48
18	17:17	8 09:07 (6)	18:14	19 08:21 (5)	19:03	4 07:06 (4)	20:55	21:41	22:05	21:43	12 07:09 (3)	20:46
19	08:31	08:58 (6)	07:36	08:02 (5)	06:33	06:58 (4)	06:25	06:31	06:25	06:55 (3)	06:43	07:34
20	17:19	11 09:09 (6)	18:16	20 08:22 (5)	19:04	12 07:10 (4)	20:56	21:43	22:05	21:42	16 07:11 (3)	20:44
21	08:30	08:56 (6)	07:34	08:00 (5)	06:31	06:56 (4)	06:23	06:26	06:26	06:57	06:55 (3)	06:45
22	17:21	14 09:10 (6)	18:17	21 08:21 (5)	19:06	16 07:12 (4)	20:58	8 06:59 (3)	21:44	22:05	21:40	17 07:12 (3)
23	08:28	08:55 (6)	07:32	08:00 (5)	06:29	06:53 (4)	06:21	06:26	06:26	06:58	06:54 (3)	06:47
24	17:23	17 09:12 (6)	18:19	21 08:21 (5)	19:08	20 07:13 (4)	21:00	14 07:02 (3)	21:45	22:04	21:39	19 07:13 (3)
25	08:27	08:54 (6)	07:27	07:52 (4)	06:19	06:46 (3)	05:33	05:33	05:27	05:27	05:59	06:52 (3)
26	17:24	18 09:12 (6)	07:24	07:51 (4)	06:17	06:44 (3)	05:33	05:33	05:27	06:01	06:52 (3)	06:50
27	08:26	08:54 (6)	07:24	07:51 (4)	06:17	06:44 (3)	05:33	05:33	05:27	06:01	06:52 (3)	06:50
28	17:26	19 09:13 (6)	07:24	07:51 (4)	06:17	06:44 (3)	05:33	05:33	05:27	06:01	06:52 (3)	06:50
29	08:24	08:53 (6)	07:22	07:50 (4)	06:15	06:42 (3)	05:32	05:32	05:26	06:02	06:51 (3)	06:51
30	17:28	21 09:14 (6)	07:22	07:50 (4)	06:15	06:42 (3)	05:32	05:32	05:26	06:02	06:51 (3)	06:51
Potential sun hours	260											
Total, worst case	108	278			367	416	484	497	501	453	381	352
Sun reduction	0,19				0,28	0,35	0,40	0,38	0,41	0,33	0,29	0,21
Oper. time red.	0,95				0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.	0,55	0,54			0,57	0,61	0,66	0,66	0,66	0,60	0,53	0,55
Total reduction	0,10				0,14	0,20	0,25	0,23	0,25	0,19	0,14	0,11
Total, real	11	42			30	50	108	33	90	58	32	31

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: Receptors layout 1Shadow receptor: AB - Van Abcoudestraat 19
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

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

SHADOW - Calendar

Calculation: Receptors layout 1Shadow receptor: AC - Van Abcoudestraat 29

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

Table with columns for months (January to December) and rows for time slots (08:49 to 24:00). It contains numerical data for sunshine probability and potential sun hours, along with a summary table at the bottom for total, worst case, sun reduction, oper. time red., wind dir. red., total reduction, 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: Receptors layout 1Shadow receptor: AD - Tol 8
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	07:30									
2	16:42	17:30	18:21	08:14 (6)	07:20	10	08:10 (5)	06:15	21	07:04 (4)	05:31	05:28
3	08:49	08:19	07:25	08:16 (6)	07:15							
4	16:45	17:34	18:25	08:34 (6)	07:18							
5	08:48	08:18	07:23	08:17 (6)	07:13							
6	16:46	17:35	18:26	13 08:30 (6)	07:19							
7	08:48	08:16	07:21	08:20 (6)	07:11							
8	16:47	17:37	18:28	7 08:27 (6)	07:21							
9	08:47	08:11	07:14	07:04	07:04							
10	16:44	17:32	18:23	20 08:35 (6)	07:16							
11	08:49	08:19	07:25	08:16 (6)	07:15							
12	16:45	17:34	18:25	18 08:34 (6)	07:18							
13	08:49	08:18	07:23	08:17 (6)	07:13							
14	16:46	17:35	18:26	13 08:30 (6)	07:19							
15	08:48	08:16	07:21	08:20 (6)	07:11							
16	16:47	17:37	18:28	7 08:27 (6)	07:21							
17	08:48	08:15	07:19	07:08	07:08							
18	16:48	17:39	18:30	20:23	20:23							
19	08:48	08:13	07:17	07:06	07:06							
20	16:49	17:41	18:32	20:24	20:24							
21	08:47	08:11	07:14	07:04	07:04							
22	16:51	17:43	18:33	20:26	20:26							
23	08:47	08:09	07:12	07:02	07:02							
24	16:52	17:45	18:35	20:28	20:28							
25	08:46	08:08	07:10	06:59	06:59							
26	16:53	17:46	18:37	20:30	20:30							
27	08:46	08:06	07:08	06:57	06:57							
28	16:55	17:48	18:39	20:31	20:31							
29	08:45	08:04	07:05	06:55	06:55							
30	16:56	17:50	18:40	20:33	20:33							
31	08:44	08:02	07:03	06:53	06:53							
1	16:58	17:52	18:42	21:24	21:24							
2	08:44	08:00	07:01	06:51	06:51							
3	16:59	17:54	18:44	20:36	20:36							
4	08:43	07:58	06:59	06:48	06:48							
5	17:01	17:56	18:45	21:27	21:27							
6	08:42	07:56	06:56	06:46	06:46							
7	17:02	17:57	18:47	20:40	20:40							
8	08:41	07:54	06:54	06:44	06:44							
9	17:04	17:59	18:49	20:41	20:41							
10	08:40	07:53	06:52	06:42	06:42							
11	17:06	18:01	18:51	20:43	20:43							
12	08:39	07:51	06:49	06:39	06:39							
13	17:07	18:03	18:52	20:45	20:45							
14	08:38	07:49	06:47	06:37	06:37							
15	17:09	18:05	18:54	20:46	20:46							
16	08:37	07:47	06:45	06:35	06:35							
17	17:10	18:07	18:56	20:48	20:48							
18	08:36	07:44	06:43	06:33	06:33							
19	17:12	18:08	18:57	20:50	20:50							
20	08:35	07:42	06:40	06:31	06:31							
21	17:14	18:10	18:59	20:51	20:51							
22	08:34	07:40	06:38	06:29	06:29							
23	17:16	18:12	19:01	20:53	20:53							
24	08:32	07:38	06:36	06:27	06:27							
25	17:17	18:14	19:03	20:55	20:55							
26	08:31	07:36	06:33	06:25	06:25							
27	17:19	18:16	19:04	20:56	20:56							
28	08:30	07:34	06:31	06:23	06:23							
29	17:21	18:17	19:06	20:58	20:58							
30	08:28	07:32	06:29	06:21	06:21							
31	17:23	18:19	19:08	21:00	21:00							
1	08:27		07:27	06:19	06:19							
2	17:24		20:09	08:27 (5)	21:01	15	07:01 (4)	21:46				
3	08:26		07:24	06:08 (5)	06:17							
4	17:26		20:11	08:26 (5)	21:03	18	07:02 (4)	21:48				
5	08:24		07:22	06:08 (5)								
6	17:28		20:13	08:23 (5)								
Potential sun hours		278		416		484		497	501	453	381	267
Total, worst case			367		55	454		160	343	290	330	245
Sun reduction		0,28		0,35		0,40		0,38	0,41	0,33	0,29	
Oper. time red.		0,95		0,95		0,95		0,95	0,95	0,95	0,95	
Wind dir. red.		0,54		0,57		0,65		0,66	0,66	0,58	0,54	
Total reduction		0,14		0,21		0,25		0,24	0,25	0,18	0,15	
Total, real		35		50		112		38	86	52	48	

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: Receptors layout 1Shadow receptor: AE - Moye Keene 169
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December					
1	08:49	08:23	07:30	08:00 (6)	07:20	07:51 (5)	06:15	05:30	06:04	06:37 (4)	06:53	07:42	07:35	08:25			
2	08:49	08:21	07:28	08:00 (6)	07:17	07:52 (5)	06:14	05:31	06:40 (4)	06:55	07:43	08:44 (6)	07:36	08:27			
3	08:49	08:19	07:25	08:24 (6)	20:16	23 08:15 (5)	21:06	21:51	22:04	21:31	24 07:02 (4)	20:29	19:20	7 08:51 (6)	17:15	16:36	
4	08:49	08:18	07:23	08:24 (6)	20:16	23 08:15 (5)	21:06	21:51	22:04	21:31	24 07:02 (4)	20:29	19:20	7 08:51 (6)	17:15	16:36	
5	08:48	08:16	07:21	07:58 (6)	07:11	07:52 (5)	06:12	05:29	06:07	06:39 (4)	06:56	07:45	08:41 (6)	07:38	08:28		
6	08:48	08:15	07:19	07:59 (6)	07:06	07:54 (5)	06:10	05:30	06:09	06:40 (4)	06:58	07:46	08:39 (6)	07:40	08:29		
7	08:48	08:13	07:17	08:24 (6)	20:18	22 08:14 (5)	21:08	21:52	22:03	21:27	21 07:01 (4)	20:24	19:17	17 08:56 (6)	17:11	16:35	
8	08:47	08:11	07:14	08:23 (6)	20:24	11 08:07 (5)	21:15	21:56	22:02	21:26	20 07:00 (4)	20:22	11 08:03 (5)	19:13	20 08:57 (6)	17:09	16:34
9	08:47	08:09	07:12	08:01 (6)	07:02	06:01	06:29	05:26	06:15	06:46 (4)	07:04	07:47 (5)	07:53	08:34 (6)	07:47	08:34	
10	08:46	08:08	07:10	08:19 (6)	20:28	18 08:19 (6)	20:28	21:18	22:00	21:19	20 08:07 (5)	19:04	26 08:59 (6)	17:03	16:33		
11	08:46	08:06	07:08	08:04 (6)	06:57	05:58	06:28	05:25	06:18	06:48	07:08	07:45 (5)	07:56	08:33 (6)	07:51	08:37	
12	08:45	08:04	07:05	08:17 (6)	20:30	15 08:17 (6)	20:30	21:19	22:01	21:17	20 08:08 (5)	19:02	26 08:59 (6)	17:01	16:33		
13	08:44	08:02	07:03	08:04 (6)	06:57	05:58	06:28	05:25	06:19	06:49	07:09	07:44 (5)	07:58	08:33 (6)	07:52	08:38	
14	08:44	08:00	07:01	08:14 (6)	20:31	10 08:14 (6)	20:31	21:21	22:02	21:15	20 08:08 (5)	19:00	26 08:59 (6)	17:00	16:33		
15	08:43	07:58	06:59	07:59 (6)	07:06	07:59 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
16	08:42	07:56	06:56	07:56 (6)	07:06	07:56 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
17	08:41	07:54	06:54	07:54 (6)	07:06	07:54 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
18	08:40	07:53	06:52	07:53 (6)	07:06	07:53 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
19	08:39	07:51	06:49	07:51 (6)	07:06	07:51 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
20	08:38	07:49	06:47	07:49 (6)	07:06	07:49 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
21	08:37	07:47	06:45	07:47 (6)	07:06	07:47 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
22	08:36	07:44	06:43	07:44 (6)	07:06	07:44 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
23	08:35	07:42	06:40	07:42 (6)	07:06	07:42 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
24	08:34	07:40	06:38	07:40 (6)	07:06	07:40 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
25	08:32	07:38	06:36	07:38 (6)	07:06	07:38 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
26	08:31	07:36	06:33	07:36 (6)	07:06	07:36 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
27	08:30	07:34	06:31	07:34 (6)	07:06	07:34 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
28	08:29	07:32	06:29	07:32 (6)	07:06	07:32 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
29	08:27	07:30	06:27	07:30 (6)	07:06	07:30 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
30	08:26	07:28	06:25	07:28 (6)	07:06	07:28 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
31	08:24	07:26	06:23	07:26 (6)	07:06	07:26 (6)	07:06	06:48	07:37	06:46 (4)	06:21	05:37	06:44 (4)	06:23	05:30	06:05	06:29
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245					
Total, worst case	83	388	134	561	1	412	152	286	332	267	245						
Sun reduction	0,28	0,26	0,35	0,40	0,35	0,38	0,41	0,33	0,29	0,26	0,24						
Oper time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95						
Wind dir. red.	0,53	0,56	0,60	0,68	0,68	0,68	0,68	0,60	0,53	0,53	0,53						
Total reduction	0,14	0,14	0,20	0,25	0,22	0,24	0,26	0,19	0,14	0,14	0,14						
Total, real	11	53	26	141	0	99	39	53	48	48	48						

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: Receptors layout 2Shadow receptor: A - Dikkendijk 2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:22	07:30	07:20	06:15	05:31	05:28	06:04	06:53	07:41	07:35	08:25
	16:42	17:30	18:21	20:14	21:05	21:50	22:04	21:32	20:31	19:22	17:16	16:37
2	08:49	08:21	07:27	07:17	06:13	05:30	05:28	06:05	06:55	07:43	07:36	08:26
	16:43	17:32	18:23	20:16	21:06	21:51	22:03	21:31	20:29	19:20	17:15	16:36
3	08:49	08:19	07:25	07:15	06:12	05:29	05:29	06:07	06:56	07:45	07:38	08:28
	16:45	17:33	18:24	20:18	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
4	08:48	08:18	07:23	07:13	06:10	05:28	05:30	06:08	06:58	07:46	07:40	08:29
	16:46	17:35	18:26	20:19	21:09	21:53	22:03	21:27	20:24	19:15	17:11	16:35
5	08:48	08:16	07:21	07:10	06:08	05:28	05:31	06:10	06:59	07:48	07:42	08:30
	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:26	20:22	19:13	17:09	16:34
6	08:48	08:14	07:19	07:08	06:06	05:27	05:32	06:11	07:01	07:50	07:43	08:32
	16:48	17:39	18:30	20:23	21:13	21:55	22:02	21:24	20:20	19:11	17:08	16:34
7	08:47	08:13	07:16	07:06	06:04	05:26	05:32	06:13	07:03	07:51	07:45	08:33
	16:49	17:41	18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:33
8	08:47	08:11	07:14	07:04	06:03	05:26	05:33	06:15	07:04	07:53	07:47	08:34
	16:51	17:43	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
9	08:47	08:09	07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:55	07:49	08:35
	16:52	17:44	18:35	20:28	21:18	21:58	22:00	21:18	20:13	19:04	17:03	16:33
10	08:46	08:07	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:51	08:36
	16:53	17:46	18:37	20:29	21:19	21:58	21:59	21:16	20:10	19:02	17:01	16:33
11	08:45	08:06	07:07	06:57	05:57	05:25	05:36	06:19	07:09	07:58	07:52	08:38
	16:55	17:48	18:38	20:31	21:21	21:59	21:58	21:15	20:08	18:59	16:59	16:32
12	08:45	08:04	07:05	06:55	05:56	05:24	05:37	06:21	07:11	08:00	07:54	08:39
	16:56	17:50	18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:53	05:54	05:24	05:38	06:22	07:12	08:01	07:56	08:40
	16:58	17:52	18:42	20:34	21:24	22:00	21:57	21:11	20:04	18:55	16:56	16:32
14	08:43	08:00	07:01	06:50	05:53	05:24	05:40	06:24	07:14	08:03	07:58	08:41
	16:59	17:54	18:44	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:43	07:58	06:58	06:48	05:51	05:24	05:41	06:26	07:15	08:05	07:59	08:41
	17:01	17:55	18:45	20:38	21:27	22:02	21:55	21:07	19:59	18:51	16:53	16:32
16	08:42	07:56	06:56	06:46	05:50	05:23	05:42	06:27	07:17	08:07	08:01	08:42
	17:02	17:57	18:47	20:39	21:28	22:02	21:54	21:05	19:57	18:48	16:52	16:32
17	08:41	07:54	06:54	06:44	05:48	05:23	05:43	06:29	07:19	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:03	21:53	21:03	19:54	18:46	16:51	16:33
18	08:40	07:52	06:52	06:42	05:47	05:23	05:44	06:30	07:20	08:10	08:04	08:44
	17:05	18:01	18:50	20:43	21:31	22:03	21:52	21:01	19:52	18:44	16:49	16:33
19	08:39	07:50	06:49	06:40	05:45	05:23	05:46	06:32	07:22	08:12	08:06	08:45
	17:07	18:03	18:52	20:44	21:33	22:03	21:50	20:59	19:50	18:42	16:48	16:33
20	08:38	07:48	06:47	06:38	05:44	05:24	05:47	06:34	07:23	08:13	08:08	08:45
	17:09	18:05	18:54	20:46	21:34	22:04	21:49	20:57	19:47	18:40	16:47	16:34
21	08:37	07:46	06:45	06:35	05:43	05:24	05:48	06:35	07:25	08:15	08:09	08:46
	17:10	18:06	18:56	20:48	21:36	22:04	21:48	20:55	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	05:41	05:24	05:49	06:37	07:27	08:17	08:11	08:46
	17:12	18:08	18:57	20:50	21:37	22:04	21:47	20:53	19:43	18:36	16:45	16:34
23	08:35	07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:19	08:13	08:47
	17:14	18:10	18:59	20:51	21:39	22:04	21:45	20:50	19:40	18:34	16:44	16:35
24	08:33	07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	08:14	08:47
	17:15	18:12	19:01	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:43	16:36
25	08:32	07:38	06:36	06:27	05:38	05:25	05:54	06:42	07:32	08:22	08:16	08:48
	17:17	18:14	19:02	20:55	21:41	22:04	21:43	20:46	19:36	17:30	16:42	16:36
26	08:31	07:36	06:33	06:25	05:37	05:25	05:55	06:43	07:33	08:24	08:17	08:48
	17:19	18:15	19:04	20:56	21:43	22:04	21:41	20:44	19:33	17:28	16:41	16:37
27	08:30	07:34	06:31	06:23	05:35	05:26	05:56	06:45	07:35	08:26	08:19	08:48
	17:21	18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	17:26	16:40	16:38
28	08:28	07:32	06:29	06:21	05:34	05:26	05:58	06:47	07:36	08:27	08:21	08:48
	17:23	18:19	19:07	21:00	21:45	22:04	21:38	20:40	19:29	17:24	16:39	16:38
29	08:27	07:26	06:19	06:11	05:33	05:27	05:59	06:48	07:38	08:29	08:22	08:49
	17:24	18:19	19:07	20:59	21:44	22:04	21:37	20:37	19:26	17:22	16:38	16:39
30	08:25	07:24	06:17	06:09	05:32	05:27	06:01	06:50	07:40	08:31	08:24	08:49
	17:26	18:19	19:06	20:58	21:43	22:04	21:35	20:35	19:24	17:20	16:37	16:40
31	08:24	07:22	06:15	06:07	05:31	05:26	06:02	06:51	07:41	08:32	08:25	08:49
	17:28	18:19	19:06	20:58	21:43	22:04	21:34	20:33	19:22	17:18	16:37	16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
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: Receptors layout 2Shadow receptor: B - Schapenweg 1/2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:42	08:23 17:30	07:30 18:21	07:53 (1) 20:14	07:20 21:05	06:15 21:50	05:31 22:04	05:28 21:33	06:04 20:31	06:53 19:22	07:42 17:17	08:25 16:37
2	08:49 16:44	08:21 17:32	07:28 18:23	07:51 (1) 20:16	07:17 21:06	06:14 21:51	05:30 22:04	05:29 21:31	06:05 20:29	06:55 19:20	07:43 17:15	08:27 16:36
3	08:49 16:45	08:20 17:34	07:25 18:25	07:49 (1) 20:18	07:15 21:08	06:12 21:52	05:29 22:03	05:29 21:29	06:07 20:27	06:56 19:18	07:45 17:13	08:28 16:35
4	08:49 16:46	08:18 17:35	07:23 18:26	07:46 (1) 20:19	07:13 21:10	06:10 21:53	05:30 22:03	06:09 21:28	06:58 20:24	07:47 19:15	08:28 (1) 17:11	08:29 16:35
5	08:48 16:47	08:16 17:37	07:21 18:28	07:45 (1) 20:21	07:11 21:11	06:08 21:54	05:28 22:02	05:31 21:26	06:10 20:22	07:00 19:13	07:48 17:09	08:31 16:34
6	08:48 16:48	08:15 17:39	07:19 18:30	07:45 (1) 20:23	07:08 21:13	06:06 21:55	05:27 22:02	06:12 21:24	07:01 20:20	07:50 19:11	08:38 (1) 17:08	08:32 16:34
7	08:48 16:49	08:39 17:41	07:17 18:32	07:46 (1) 20:25	07:06 21:15	06:04 21:56	05:27 22:01	06:13 21:22	07:03 20:18	07:52 19:08	08:39 (1) 17:06	08:33 16:34
8	08:47 16:51	08:11 17:43	07:14 18:33	07:46 (1) 20:26	07:04 21:16	06:03 21:57	05:26 22:01	06:15 21:20	07:04 20:15	07:53 19:06	08:40 (1) 17:04	08:35 16:33
9	08:47 16:52	08:10 17:45	07:12 18:35	07:47 (1) 20:28	07:02 21:18	06:01 21:58	05:26 22:00	06:16 21:19	07:06 20:13	07:55 19:04	08:40 (1) 17:03	08:36 16:33
10	08:46 16:53	08:08 17:46	07:10 18:37	07:49 (1) 20:30	06:59 21:19	06:59 21:59	05:25 21:59	06:18 21:17	07:08 20:11	07:57 19:02	08:41 (1) 17:01	08:37 16:33
11	08:46 16:55	08:06 17:48	07:08 18:39	07:58 (1) 20:31	06:57 21:21	05:58 21:59	05:25 21:59	06:19 21:15	07:09 20:08	07:58 19:00	08:39 (1) 17:00	08:38 16:33
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	06:55 21:23	05:56 22:00	05:24 21:58	06:21 21:13	07:11 20:06	08:00 18:57	08:25 (1) 16:58	08:39 16:32
13	08:44 16:58	08:02 17:52	07:03 18:42	06:53 20:35	06:54 21:24	05:54 22:01	05:24 21:57	06:23 21:11	07:12 20:04	08:02 18:55	08:27 (1) 16:57	08:40 16:32
14	08:44 16:59	08:00 17:54	07:01 18:44	06:51 20:36	06:53 21:26	05:53 22:01	05:24 21:56	06:24 21:09	07:14 20:01	08:03 18:53	08:29 (1) 16:55	08:41 16:32
15	08:43 17:01	07:58 17:56	06:59 18:46	06:48 20:38	06:48 21:27	05:51 22:02	05:24 21:55	06:26 21:07	07:16 19:59	08:05 18:51	08:31 (1) 16:54	08:42 16:32
16	08:42 17:02	07:57 17:57	06:56 18:47	06:46 20:40	06:46 21:29	05:50 22:02	05:24 21:54	06:27 21:05	07:17 19:57	08:07 18:49	08:37 (1) 16:52	08:43 16:33
17	08:41 17:04	07:55 17:59	06:54 18:49	06:44 20:41	06:48 21:30	05:48 22:03	05:24 21:53	06:29 21:03	07:19 19:54	08:08 18:47	08:38 (1) 16:51	08:43 16:33
18	08:40 17:06	07:53 18:01	06:52 18:51	06:42 20:43	06:47 21:32	05:23 22:03	05:44 21:52	06:31 21:01	07:20 19:52	08:10 18:44	08:39 (1) 16:50	08:44 16:33
19	08:39 17:07	07:51 18:03	06:50 18:52	06:40 20:45	06:45 21:33	05:24 22:04	05:46 21:51	06:32 20:59	07:22 19:50	08:12 18:42	08:40 (1) 16:48	08:45 16:33
20	08:38 17:09	07:49 18:05	06:47 18:54	06:38 20:46	06:38 21:35	05:44 22:04	05:47 21:50	06:34 20:57	07:24 19:48	08:14 18:40	08:08 (1) 16:47	08:46 16:34
21	08:37 17:10	07:47 18:07	06:45 18:56	06:36 20:48	06:36 21:36	05:43 22:04	05:24 21:48	06:35 20:55	07:25 19:45	08:15 18:38	08:10 (1) 16:46	08:46 16:34
22	08:36 17:12	07:45 18:08	06:43 18:57	06:33 20:50	06:33 21:37	05:41 22:04	05:24 21:47	06:37 20:53	07:27 19:43	08:17 18:36	08:11 (1) 16:45	08:47 16:35
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	06:31 21:39	05:40 22:05	05:24 21:46	06:39 20:51	07:29 19:41	08:19 18:34	08:13 (1) 16:44	08:47 16:35
24	08:34 17:16	07:40 18:12	06:38 19:01	06:29 20:53	06:29 21:40	05:39 22:05	05:52 21:44	06:40 20:49	07:30 19:38	08:21 18:32	08:15 (1) 16:43	08:48 16:36
25	08:32 17:17	07:38 18:14	06:36 19:03	06:27 20:55	06:27 21:42	05:38 22:05	05:25 21:43	06:42 20:46	07:32 19:36	07:22 18:30	08:16 (1) 16:42	08:48 16:36
26	08:31 17:19	07:36 18:16	06:33 19:04	06:25 20:56	06:25 21:43	05:37 22:05	05:25 21:42	06:43 20:44	07:33 19:34	07:24 18:28	08:18 (1) 16:41	08:48 16:37
27	08:30 17:21	07:34 18:17	07:58 (1) 08:02 (1)	06:31 19:06	06:23 20:58	05:36 21:44	05:26 22:05	06:45 21:40	07:35 19:31	07:26 18:26	08:19 (1) 16:40	08:49 16:38
28	08:29 17:23	07:32 18:19	07:55 (1) 08:03 (1)	06:29 19:08	06:21 21:00	05:34 21:45	05:26 22:05	06:47 21:39	07:37 19:29	07:28 18:24	08:21 (1) 16:39	08:49 16:38
29	08:27 17:24			07:27 20:09	06:19 21:01	05:33 21:47	05:27 22:04	06:48 21:37	07:38 19:27	07:29 18:22	08:22 (1) 16:38	08:49 16:39
30	08:26 17:26			07:24 20:11	06:17 21:03	05:33 21:48	05:27 22:04	06:01 21:36	07:40 20:35	07:31 19:24	08:24 (1) 16:37	08:49 16:40
31	08:24 17:28			07:22 20:13		05:32 21:49		06:02 21:34	07:33 20:33	07:33 18:18		08:49 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
Total, worst case		12	155							169		
Sun reduction		0,28	0,26							0,29		
Oper. time red.		0,95	0,95							0,95		
Wind dir. red.		0,52	0,52							0,52		
Total reduction		0,14	0,13							0,14		
Total, real		2	20							24		

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: Receptors layout 2Shadow receptor: C - Koekoekendijk 14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December							
1	08:49	08:22	07:29	07:19	06:15	05:30	20:28 (6)	05:28	20:36 (6)	06:04	20:43 (6)	06:53	07:41	07:34	08:25				
	16:42	17:30	18:21	18:21	20:14	21:04	21:50	21:00 (6)	22:04	28	21:04 (6)	21:32	20:31	19:22	17:16	16:36			
2	08:49	08:21	07:27	07:17	06:13	05:30	20:28 (6)	05:28	20:36 (6)	06:05	20:46 (6)	06:54	07:43	07:36	08:26				
	16:43	17:31	18:22	18:22	20:16	21:06	21:51	21:00 (6)	22:03	29	21:05 (6)	21:31	20:59 (6)	20:28	19:19	17:14	16:36		
3	08:49	08:19	07:25	07:15	06:11	05:29	20:28 (6)	05:29	20:35 (6)	06:07	20:48 (6)	06:56	07:45	07:38	08:28				
	16:44	17:33	18:24	18:24	20:17	21:08	21:52	21:00 (6)	22:03	30	21:05 (6)	21:29	20:56 (6)	20:26	19:17	17:13	16:35		
4	08:48	08:18	07:23	07:13	06:10	05:28	20:29 (6)	05:30	20:36 (6)	06:08	20:58	07:46	07:40	08:29					
	16:45	17:35	18:26	18:26	20:19	21:09	21:53	21:00 (6)	22:02	29	21:05 (6)	21:27	20:24	19:15	17:11	16:35			
5	08:48	08:16	07:21	07:10	06:08	05:27	20:29 (6)	05:30	20:36 (6)	06:10	20:69	07:48	07:42	08:30					
	16:47	17:37	18:28	18:28	20:21	21:11	21:54	21:00 (6)	22:02	30	21:06 (6)	21:25	20:22	19:13	17:09	16:34			
6	08:48	08:14	07:19	07:08	06:06	05:27	20:30 (6)	05:31	20:36 (6)	06:11	20:71	07:50	07:43	08:32					
	16:48	17:39	18:30	18:30	20:23	21:13	21:55	21:00 (6)	22:02	31	21:07 (6)	21:24	20:19	19:10	17:07	16:34			
7	08:47	08:13	07:16	07:06	06:04	05:26	20:29 (6)	05:32	20:35 (6)	06:13	20:72	07:51	07:45	08:33					
	16:49	17:41	18:31	18:31	20:24	21:14	21:56	21:00 (6)	22:01	31	21:06 (6)	21:22	20:17	19:08	17:06	16:33			
8	08:47	08:11	07:14	07:04	06:02	05:26	20:30 (6)	05:33	20:35 (6)	06:14	20:74	07:53	07:47	08:34					
	16:50	17:42	18:33	18:33	20:26	21:16	21:57	21:00 (6)	22:00	32	21:07 (6)	21:20	20:15	19:06	17:04	16:33			
9	08:46	08:09	07:12	07:01	06:01	05:25	20:31 (6)	05:34	20:35 (6)	06:16	20:76	07:55	07:49	08:35					
	16:52	17:44	18:35	18:35	20:28	21:17	21:57	21:00 (6)	22:00	32	21:07 (6)	21:18	20:13	19:04	17:02	16:33			
10	08:46	08:07	07:10	06:59	05:59	05:25	20:31 (6)	05:35	20:35 (6)	06:18	20:77	07:56	07:50	08:36					
	16:53	17:46	18:37	18:37	20:29	21:19	20:47 (6)	21:58	29	21:00 (6)	21:59	32	21:07 (6)	21:16	20:10	19:01	17:01	16:32	
11	08:45	08:06	07:07	06:57	05:57	05:24	20:35 (6)	05:24	20:31 (6)	06:19	20:79	07:58	07:52	08:38					
	16:55	17:48	18:38	18:38	20:31	21:21	20:50 (6)	21:59	29	21:00 (6)	21:58	33	21:08 (6)	21:15	20:08	18:59	16:59	16:32	
12	08:45	08:04	07:05	06:55	05:56	05:24	20:32 (6)	05:24	20:32 (6)	06:21	20:80	08:00	07:54	08:39					
	16:56	17:50	18:40	18:40	20:33	21:22	20:51 (6)	22:00	29	21:01 (6)	21:57	33	21:08 (6)	21:13	20:10	18:57	16:58	16:32	
13	08:44	08:02	07:03	06:52	05:54	05:24	20:32 (6)	05:24	20:32 (6)	06:22	20:81	08:01	07:56	08:40					
	16:57	17:52	18:42	18:42	20:34	21:24	20:53 (6)	22:00	28	21:00 (6)	21:56	33	21:08 (6)	21:11	20:03	18:55	16:56	16:32	
14	08:43	08:00	07:01	06:50	05:52	05:24	20:30 (6)	05:24	20:32 (6)	06:24	20:82	08:03	07:57	08:40					
	16:59	17:53	18:43	18:43	20:36	21:25	20:54 (6)	22:01	28	21:00 (6)	21:56	33	21:08 (6)	21:09	20:01	18:53	16:55	16:32	
15	08:43	07:58	06:58	06:48	05:51	05:23	20:30 (6)	05:23	20:32 (6)	06:26	20:83	08:05	07:59	08:41					
	17:00	17:55	18:45	18:45	20:38	21:27	20:55 (6)	22:02	28	21:00 (6)	21:55	33	21:08 (6)	21:07	19:59	18:50	16:53	16:32	
16	08:42	07:56	06:56	06:46	05:49	05:23	20:29 (6)	05:23	20:33 (6)	06:27	20:84	08:06	08:01	08:42					
	17:02	17:57	18:47	18:47	20:39	21:28	20:56 (6)	22:02	27	21:00 (6)	21:54	33	21:09 (6)	21:05	19:56	18:48	16:52	16:32	
17	08:41	07:54	06:54	06:44	05:48	05:23	20:28 (6)	05:23	20:33 (6)	06:29	20:85	08:08	08:03	08:43					
	17:04	17:59	18:49	18:49	20:41	21:30	20:56 (6)	22:02	27	21:00 (6)	21:53	33	21:09 (6)	21:03	19:54	18:46	16:51	16:32	
18	08:40	07:52	06:51	06:42	05:47	05:23	20:28 (6)	05:23	20:33 (6)	06:30	20:86	08:10	08:04	08:44					
	17:05	18:01	18:50	18:50	20:43	21:31	20:57 (6)	22:03	28	21:01 (6)	21:51	33	21:09 (6)	21:01	19:52	18:44	16:49	16:33	
19	08:39	07:50	06:49	06:39	05:45	05:23	20:28 (6)	05:23	20:34 (6)	06:32	20:87	08:12	08:06	08:44					
	17:07	18:03	18:52	18:52	20:44	21:33	20:58 (6)	22:03	27	21:01 (6)	21:50	33	21:09 (6)	20:59	19:49	18:42	16:48	16:33	
20	08:38	07:48	06:47	06:37	05:44	05:23	20:26 (6)	05:23	20:35 (6)	06:34	20:88	08:13	08:08	08:45					
	17:09	18:04	18:54	18:54	20:46	21:34	20:58 (6)	22:04	27	21:02 (6)	21:49	33	21:09 (6)	20:57	19:47	18:40	16:47	16:33	
21	08:37	07:46	06:45	06:35	05:42	05:23	20:26 (6)	05:23	20:35 (6)	06:35	20:89	08:15	08:09	08:46					
	17:10	18:06	18:55	18:55	20:48	21:36	20:58 (6)	22:04	27	21:02 (6)	21:48	32	21:08 (6)	20:55	19:45	18:38	16:46	16:34	
22	08:36	07:44	06:42	06:33	05:41	05:24	20:26 (6)	05:24	20:35 (6)	06:37	20:90	08:17	08:11	08:46					
	17:12	18:08	18:57	18:57	20:49	21:37	20:59 (6)	22:04	27	21:02 (6)	21:47	32	21:09 (6)	20:52	19:43	18:36	16:44	16:34	
23	08:35	07:42	06:40	06:31	05:40	05:24	20:26 (6)	05:24	20:35 (6)	06:38	20:91	08:19	08:13	08:47					
	17:14	18:10	18:59	18:59	20:51	21:38	20:59 (6)	22:04	27	21:02 (6)	21:45	31	21:08 (6)	20:50	19:40	18:34	16:43	16:35	
24	08:33	07:40	06:38	06:29	05:39	05:24	20:26 (6)	05:24	20:35 (6)	06:40	20:92	08:20	08:14	08:47					
	17:15	18:12	19:01	19:01	20:53	21:40	20:59 (6)	22:04	28	21:03 (6)	21:44	31	21:08 (6)	20:48	19:38	18:32	16:42	16:35	
25	08:32	07:38	06:35	06:27	05:37	05:25	20:26 (6)	05:25	20:35 (6)	06:42	20:93	08:22	08:16	08:48					
	17:17	18:13	19:02	19:02	20:54	21:41	21:00 (6)	22:04	27	21:02 (6)	21:43	30	21:08 (6)	20:46	19:36	18:30	16:41	16:36	
26	08:31	07:36	06:33	06:25	05:36	05:25	20:27 (6)	05:25	20:35 (6)	06:43	20:94	08:24	08:17	08:48					
	17:19	18:15	19:04	19:04	20:56	21:42	21:00 (6)	22:04	27	21:02 (6)	21:41	29	21:07 (6)	20:44	19:33	18:28	16:40	16:37	
27	08:29	07:34	06:31	06:23	05:35	05:25	20:27 (6)	05:25	20:36 (6)	06:45	20:95	08:26	08:19	08:48					
	17:21	18:17	19:06	19:06	20:58	21:44	21:00 (6)	22:04	27	21:03 (6)	21:40	27	21:06 (6)	20:42	19:31	18:26	16:39	16:37	
28	08:28	07:32	06:29	06:21	05:34	05:26	20:27 (6)	05:26	20:35 (6)	06:46	20:96	08:27	08:21	08:48					
	17:22	18:19	19:07	19:07	20:59	21:45	21:00 (6)	22:04	28	21:03 (6)	21:38	26	21:06 (6)	20:40	19:29	18:24	16:39	16:38	
29	08:27	07:26	06:19	05:33	05:33	05:26	20:27 (6)	05:26	20:36 (6)	06:48	20:97	08:29	08:22	08:49					
	17:24	18:20	19:09	19:09	21:01	21:46	21:00 (6)	22:04	28	21:04 (6)	21:37	25	21:05 (6)	20:37	19:26	18:22	16:38	16:39	
30	08:25	07:24	06:17	05:32	05:32	05:27	20:27 (6)	05:27	20:35 (6)	06:50	20:98	08:31	08:23	08:49					
	17:26	18:22	19:11	19:11	21:03	21:47	21:00 (6)	22:04	29	21:04 (6)	21:35	22	21:03 (6)	20:35	19:24	18:20	16:37	16:40	
31	08:24	07:22	06:10	05:28	05:31	05:28	20:28 (6)	05:28	20:36 (6)	06:51	20:99	08:32	08:24	08:49					
	17:28	18:24	19:13	19:13	21:05	21:49	21:00 (6)	22:04	30	21:05 (6)	21:34	20	21:03 (6)	20:33	19:24	18:19	16:37	16:41	
Potential sun hours	260	278	367	416	484	497	861	501	453	381	332	267	245						
Total, worst case					622		861		939										
Sun reduction					0.40		0.35		0.38										
Oper. time red.					0.95		0.95		0.95										
Wind dir. red.					0.54		0.54		0.54										
Total reduction					0.21		0.18		0.20				</						

SHADOW - Calendar

Calculation: Receptors layout 2Shadow receptor: D - Krukgweg 4

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:49 16:42	08:22 17:30	07:29 18:21	07:19 20:14	06:15 21:04	20:07 (6) 20:28 (6)	05:30 21:50	05:28 22:04	06:04 21:32	06:53 20:31	07:41 19:22	07:34 17:16	08:25 16:36	
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	06:13 21:06	20:08 (6) 20:28 (6)	05:30 21:51	05:28 22:03	06:05 21:30	06:54 20:28	07:43 19:19	07:36 17:14	08:26 16:36	
3	08:48 16:44	08:19 17:33	07:25 18:24	07:15 20:17	06:11 21:08	20:09 (6) 20:27 (6)	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	07:45 19:17	07:38 17:13	08:28 16:35	
4	08:48 16:45	08:18 17:35	07:23 18:26	07:13 20:19	06:10 21:09	20:10 (6) 20:25 (6)	05:28 21:53	05:30 22:02	06:08 21:27	06:58 20:24	07:46 19:15	07:40 17:11	08:29 16:35	
5	08:48 16:47	08:16 17:37	07:21 18:28	07:10 20:21	06:08 21:11	20:11 (6) 20:23 (6)	05:27 21:54	05:30 22:02	06:10 21:25	06:59 20:22	07:48 19:13	07:42 17:09	08:30 16:34	
6	08:48 16:48	08:14 17:39	07:19 18:29	07:08 20:22	06:06 21:13	20:14 (6) 20:22 (6)	05:27 21:55	05:31 22:01	06:11 21:24	20:26 (6) 20:28 (6)	07:01 20:19	07:49 19:10	07:43 17:07	08:32 16:34
7	08:47 16:49	08:13 17:41	07:16 18:31	07:06 20:24	06:04 21:14	20:14 (6) 20:22 (6)	05:26 21:56	05:32 22:01	06:13 21:22	2 20:28 (6)	07:02 20:19	07:51 19:10	07:45 17:07	08:33 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	07:04 20:26	06:02 21:16	20:14 (6) 20:22 (6)	05:26 21:57	05:33 22:00	06:14 21:20	10 20:32 (6)	07:04 20:15	07:53 19:06	07:47 17:04	08:34 16:33
9	08:46 16:52	08:09 17:44	07:12 18:35	07:01 20:28	06:01 21:17	20:14 (6) 20:22 (6)	05:25 21:57	05:34 22:00	06:16 21:18	13 20:33 (6)	07:06 20:15	07:55 19:04	07:49 17:02	08:35 16:33
10	08:46 16:53	08:07 17:46	07:10 18:36	06:59 20:29	05:59 21:19	20:14 (6) 20:22 (6)	05:25 21:58	05:35 21:59	06:18 21:16	16 20:35 (6)	07:07 20:10	07:56 19:01	07:50 17:01	08:36 16:32
11	08:45 16:55	08:06 17:48	07:07 18:38	06:57 20:31	05:57 21:21	20:14 (6) 20:22 (6)	05:24 21:59	05:36 21:58	06:19 21:14	18 20:37 (6)	07:09 20:08	07:58 18:59	07:52 16:59	08:37 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	05:56 21:22	20:14 (6) 20:22 (6)	05:24 21:57	05:37 21:13	06:21 21:13	21 20:36 (6)	07:10 20:06	08:00 18:57	07:54 16:58	08:39 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	06:52 20:34	05:54 21:24	20:14 (6) 20:22 (6)	05:24 21:56	05:38 21:11	06:22 21:11	22 20:37 (6)	07:12 20:03	08:01 18:55	07:56 16:56	08:40 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	06:50 20:36	05:52 21:25	20:14 (6) 20:22 (6)	05:24 21:56	05:39 21:09	06:24 21:09	23 20:37 (6)	07:14 20:01	08:03 18:53	07:57 16:55	08:40 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	06:48 20:38	05:51 21:27	20:14 (6) 20:22 (6)	05:23 21:55	05:40 21:07	06:25 21:07	22 20:37 (6)	07:15 19:59	08:05 18:50	07:59 16:53	08:41 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:39	05:49 21:28	20:14 (6) 20:22 (6)	05:23 21:54	05:42 21:05	06:27 21:05	22 20:36 (6)	07:17 19:56	08:06 18:48	08:01 16:52	08:42 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	05:48 21:30	20:14 (6) 20:22 (6)	05:23 21:53	05:43 21:03	06:29 21:03	21 20:35 (6)	07:18 19:54	08:08 18:46	08:03 16:51	08:43 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	06:42 20:43	05:46 21:31	20:14 (6) 20:22 (6)	05:23 21:51	05:44 21:01	06:30 21:01	19 20:34 (6)	07:20 19:52	08:10 18:44	08:04 16:49	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	06:39 20:44	05:45 21:33	20:14 (6) 20:22 (6)	05:23 21:50	05:45 20:59	06:32 20:59	16 20:31 (6)	07:22 19:49	08:12 18:42	08:06 16:48	08:44 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	06:37 20:46	05:44 21:34	20:14 (6) 20:22 (6)	05:23 21:49	05:47 20:57	06:33 20:57	14 20:29 (6)	07:23 19:47	08:13 18:40	08:08 16:47	08:45 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	06:35 20:48	05:42 21:36	20:14 (6) 20:22 (6)	05:23 21:48	05:48 20:54	06:35 20:54	11 20:27 (6)	07:25 19:45	08:15 18:38	08:09 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	06:33 20:49	05:41 21:37	20:14 (6) 20:22 (6)	05:24 21:47	05:49 20:52	06:37 20:52	8 20:25 (6)	07:27 19:43	08:17 18:36	08:11 16:44	08:46 16:34
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:38	20:14 (6) 20:22 (6)	05:24 21:45	05:51 20:50	06:38 20:50	3 20:23 (6)	07:28 19:40	08:19 18:34	08:13 16:43	08:47 16:35
24	08:33 17:15	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	20:14 (6) 20:22 (6)	05:24 21:44	05:52 20:48	06:40 20:48	3 20:23 (6)	07:30 19:38	08:20 18:32	08:14 16:42	08:47 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	05:37 21:41	20:14 (6) 20:22 (6)	05:24 21:43	05:53 20:46	06:42 20:46	19 20:27 (6)	07:31 19:36	07:22 17:30	08:16 16:41	08:48 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	05:36 21:42	20:14 (6) 20:22 (6)	05:25 21:41	05:55 20:44	06:43 20:44	19 20:27 (6)	07:33 19:33	07:24 17:28	08:17 16:40	08:48 16:37
27	08:29 17:21	07:34 18:17	06:31 19:06	06:23 20:58	05:35 21:44	20:14 (6) 20:22 (6)	05:25 21:40	05:56 20:42	06:45 20:42	21 20:28 (6)	07:35 19:31	07:26 17:26	08:19 16:39	08:48 16:37
28	08:28 17:22	07:32 18:19	06:29 19:07	06:21 20:59	05:34 21:45	20:14 (6) 20:22 (6)	05:26 21:38	05:58 20:40	06:46 20:40	23 20:30 (6)	07:36 19:29	07:27 17:24	08:20 16:39	08:48 16:38
29	08:27 17:24	07:30 18:20	06:26 19:09	06:19 21:01	05:33 21:46	20:14 (6) 20:22 (6)	05:26 21:37	05:59 20:37	06:48 20:37	22 20:29 (6)	07:38 19:26	07:29 17:22	08:22 16:38	08:49 16:39
30	08:25 17:26	07:24 18:22	06:17 19:03	06:12 21:03	05:32 21:47	20:14 (6) 20:22 (6)	05:27 21:35	06:01 20:35	06:50 20:35	22 20:29 (6)	07:40 19:24	07:31 17:20	08:23 16:37	08:49 16:40
31	08:24 17:28	07:22 18:24	06:15 19:05	06:10 21:05	05:31 21:49	20:14 (6) 20:22 (6)	05:28 21:34	06:02 20:33	06:51 20:33	23 20:30 (6)	07:42 19:24	07:33 17:18	08:24 16:37	08:49 16:41
Potential sun hours	260	278	367	416	484		497	501	453		381	332	267	245
Total, worst case				184	94				281					
Sun reduction				0,35	0,40				0,41					
Oper. time red.				0,95	0,95				0,95					
Wind dir. red.				0,52	0,52				0,52					
Total reduction				0,17	0,20				0,20					
Total, real				32	19				57					

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: Receptors layout 2Shadow receptor: E - Koekoekendijk 15

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:22	07:29	07:19	06:15	05:30	05:28	06:04	06:53	07:41	07:34	08:25
	16:42	17:30	18:21	20:14	21:04	21:50	22:04	21:32	20:31	19:22	17:16	16:36
2	08:49	08:21	07:27	07:17	06:13	05:30	05:28	06:05	06:54	07:43	07:36	08:26
	16:43	17:31	18:22	20:16	21:06	21:51	22:03	21:31	20:28	19:20	17:14	16:36
3	08:49	08:19	07:25	07:15	06:11	05:29	05:29	06:07	06:56	07:45	07:38	08:28
	16:44	17:33	18:24	20:17	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
4	08:48	08:18	07:23	07:13	06:10	05:28	05:30	06:08	06:58	07:46	07:40	08:29
	16:45	17:35	18:26	20:19	21:09	21:53	22:02	21:27	20:24	19:15	17:11	16:35
5	08:48	08:16	07:21	07:10	06:08	05:27	05:31	06:10	06:59	07:48	07:42	08:30
	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:25	20:22	19:13	17:09	16:34
6	08:48	08:14	07:19	07:08	06:06	05:27	05:31	06:11	07:01	07:50	07:43	08:32
	16:48	17:39	18:30	20:23	21:13	21:55	22:02	21:24	20:19	19:10	17:07	16:34
7	08:47	08:13	07:16	07:06	06:04	05:26	05:32	06:13	07:02	07:51	07:45	08:33
	16:49	17:41	18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:33
8	08:47	08:11	07:14	07:04	06:02	05:26	05:33	06:14	07:04	07:53	07:47	08:34
	16:50	17:42	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
9	08:46	08:09	07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:55	07:49	08:35
	16:52	17:44	18:35	20:28	21:17	21:57	22:00	21:18	20:13	19:04	17:02	16:33
10	08:46	08:07	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:50	08:36
	16:53	17:46	18:37	20:29	21:19	21:58	21:59	21:16	20:10	19:01	17:01	16:32
11	08:45	08:06	07:07	06:57	05:57	05:24	05:36	06:19	07:09	07:58	07:52	08:38
	16:55	17:48	18:38	20:31	21:21	21:59	21:58	21:15	20:08	18:59	16:59	16:32
12	08:45	08:04	07:05	06:55	05:56	05:24	05:37	06:21	07:10	08:00	07:54	08:39
	16:56	17:50	18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:52	05:54	05:24	05:38	06:22	07:12	08:01	07:56	08:40
	16:57	17:52	18:42	20:34	21:24	22:00	21:56	21:11	20:03	18:55	16:56	16:32
14	08:43	08:00	07:01	06:50	05:53	05:24	05:39	06:24	07:14	08:03	07:57	08:40
	16:59	17:53	18:43	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:43	07:58	06:58	06:48	05:51	05:23	05:41	06:26	07:15	08:05	07:59	08:41
	17:01	17:55	18:45	20:38	21:27	22:02	21:55	21:07	19:59	18:51	16:53	16:32
16	08:42	07:56	06:56	06:46	05:49	05:23	05:42	06:27	07:17	08:06	08:01	08:42
	17:02	17:57	18:47	20:39	21:28	22:02	21:54	21:05	19:56	18:48	16:52	16:32
17	08:41	07:54	06:54	06:44	05:48	05:23	05:43	06:29	07:19	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:02	21:53	21:03	19:54	18:46	16:51	16:33
18	08:40	07:52	06:52	06:42	05:47	05:23	05:44	06:30	07:20	08:10	08:04	08:44
	17:05	18:01	18:50	20:43	21:31	22:03	21:51	21:01	19:52	18:44	16:49	16:33
19	08:39	07:50	06:49	06:40	05:45	05:23	05:45	06:32	07:22	08:12	08:06	08:44
	17:07	18:03	18:52	20:44	21:33	22:03	21:50	20:59	19:50	18:42	16:48	16:33
20	08:38	07:48	06:47	06:37	05:44	05:23	05:47	06:34	07:23	08:13	08:08	08:45
	17:09	18:04	18:54	20:46	21:34	22:04	21:49	20:57	19:47	18:40	16:47	16:33
21	08:37	07:46	06:45	06:35	05:42	05:23	05:48	06:35	07:25	08:15	08:09	08:46
	17:10	18:06	18:55	20:48	21:36	22:04	21:48	20:55	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	05:41	05:24	05:49	06:37	07:27	08:17	08:11	08:46
	17:12	18:08	18:57	20:49	21:37	22:04	21:47	20:52	19:43	18:36	16:45	16:34
23	08:35	07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:19	08:13	08:47
	17:14	18:10	18:59	20:51	21:38	22:04	21:45	20:50	19:40	18:34	16:43	16:35
24	08:33	07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	08:14	08:47
	17:15	18:12	19:01	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:42	16:35
25	08:32	07:38	06:35	06:27	05:37	05:25	05:53	06:42	07:31	08:22	08:16	08:48
	17:17	18:14	19:02	20:54	21:41	22:04	21:43	20:46	19:36	18:30	16:41	16:36
26	08:31	07:36	06:33	06:25	05:36	05:25	05:55	06:43	07:33	08:24	08:17	08:48
	17:19	18:15	19:04	20:56	21:42	22:04	21:41	20:44	19:33	18:28	16:40	16:37
27	08:30	07:34	06:31	06:23	05:35	05:25	05:56	06:45	07:35	08:26	08:19	08:48
	17:21	18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	18:26	16:40	16:37
28	08:28	07:32	06:29	06:21	05:34	05:26	05:58	06:46	07:36	08:27	08:21	08:48
	17:22	18:19	19:07	20:59	21:45	22:04	21:38	20:40	19:29	18:24	16:39	16:38
29	08:27	07:26	06:19	06:19	05:33	05:26	05:59	06:48	07:38	08:29	08:22	08:49
	17:24	18:20	19:09	21:01	21:46	22:04	21:37	20:37	19:26	18:22	16:38	16:39
30	08:25	07:24	06:17	06:17	05:32	05:27	06:01	06:50	07:40	08:31	08:23	08:49
	17:26	18:21	19:10	21:03	21:47	22:04	21:35	20:35	19:24	18:20	16:37	16:40
31	08:24	07:22	06:15	06:15	05:31	05:27	06:02	06:51	07:41	08:32	08:24	08:49
	17:28	18:22	19:11	21:05	21:49	22:04	21:34	20:33	19:22	18:18	16:36	16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
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: Receptors layout 2Shadow receptor: F - Arenbergse Singeldijk 4, 5

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:22	07:29	07:19	06:15	05:30	05:28	06:04	06:53	07:41	07:34	08:25
	16:42	17:29	18:21	20:14	21:04	21:50	22:04	21:32	20:31	19:22	17:16	16:36
2	08:49	08:21	07:27	07:17	06:13	05:30	05:28	06:05	06:54	07:43	07:36	08:26
	16:43	17:31	18:22	20:16	21:06	21:51	22:03	21:30	20:28	19:19	17:14	16:36
3	08:48	08:19	07:25	07:15	06:11	05:29	05:29	06:07	06:56	07:44	07:38	08:28
	16:44	17:33	18:24	20:17	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
4	08:48	08:18	07:23	07:13	06:09	05:28	05:30	06:08	06:58	07:46	07:40	08:29
	16:45	17:35	18:26	20:19	21:09	21:53	22:02	21:27	20:24	19:15	17:11	16:34
5	08:48	08:16	07:21	07:10	06:08	05:27	05:30	06:10	06:59	07:48	07:42	08:30
	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:25	20:22	19:13	17:09	16:34
6	08:48	08:14	07:18	07:08	06:06	05:27	05:31	06:11	07:01	07:49	07:43	08:32
	16:48	17:39	18:29	20:22	21:13	21:55	22:01	21:24	20:19	19:10	17:07	16:34
7	08:47	08:13	07:16	07:06	06:04	05:26	05:32	06:13	07:02	07:51	07:45	08:33
	16:49	17:40	18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:33
8	08:47	08:11	07:14	07:04	06:02	05:26	05:33	06:14	07:04	07:53	07:47	08:34
	16:50	17:42	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
9	08:46	08:09	07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:54	07:49	08:35
	16:52	17:44	18:35	20:28	21:17	21:57	22:00	21:18	20:13	19:04	17:02	16:33
10	08:46	08:07	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:50	08:36
	16:53	17:46	18:36	20:29	21:19	21:58	21:59	21:16	20:10	19:01	17:01	16:32
11	08:45	08:05	07:07	06:57	05:57	05:24	05:36	06:19	07:09	07:58	07:52	08:37
	16:54	17:48	18:38	20:31	21:21	21:59	21:58	21:14	20:08	18:59	16:59	16:32
12	08:45	08:04	07:05	06:55	05:56	05:24	05:37	06:21	07:10	08:00	07:54	08:38
	16:56	17:50	18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:52	05:54	05:24	05:38	06:22	07:12	08:01	07:56	08:39
	16:57	17:52	18:42	20:34	21:24	22:00	21:56	21:11	20:03	18:55	16:56	16:32
14	08:43	08:00	07:01	06:50	05:52	05:24	05:39	06:24	07:14	08:03	07:57	08:40
	16:59	17:53	18:43	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:42	07:58	06:58	06:48	05:51	05:23	05:40	06:25	07:15	08:05	07:59	08:41
	17:00	17:55	18:45	20:38	21:27	22:01	21:55	21:07	19:59	18:50	16:53	16:32
16	08:42	07:56	06:56	06:46	05:49	05:23	05:42	06:27	07:17	08:06	08:01	08:42
	17:02	17:57	18:47	20:39	21:28	22:02	21:54	21:05	19:56	18:48	16:52	16:32
17	08:41	07:54	06:54	06:44	05:48	05:23	05:43	06:29	07:18	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:02	21:53	21:03	19:54	18:46	16:51	16:32
18	08:40	07:52	06:51	06:42	05:46	05:23	05:44	06:30	07:20	08:10	08:04	08:44
	17:05	18:01	18:50	20:43	21:31	22:03	21:51	21:01	19:52	18:44	16:49	16:33
19	08:39	07:50	06:49	06:39	05:45	05:23	05:45	06:32	07:22	08:12	08:06	08:44
	17:07	18:03	18:52	20:44	21:33	22:03	21:50	20:59	19:49	18:42	16:48	16:33
20	08:38	07:48	06:47	06:37	05:44	05:23	05:47	06:33	07:23	08:13	08:08	08:45
	17:08	18:04	18:54	20:46	21:34	22:03	21:49	20:57	19:47	18:40	16:47	16:33
21	08:37	07:46	06:45	06:35	05:42	05:23	05:48	06:35	07:25	08:15	08:09	08:46
	17:10	18:06	18:55	20:48	21:36	22:04	21:48	20:54	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	05:41	05:24	05:49	06:37	07:26	08:17	08:11	08:46
	17:12	18:08	18:57	20:49	21:37	22:04	21:47	20:52	19:42	18:36	16:44	16:34
23	08:34	07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:18	08:13	08:47
	17:14	18:10	18:59	20:51	21:38	22:04	21:45	20:50	19:40	18:34	16:43	16:35
24	08:33	07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	08:14	08:47
	17:15	18:12	19:00	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:42	16:35
25	08:32	07:38	06:35	06:27	05:37	05:24	05:53	06:41	07:31	08:22	08:16	08:48
	17:17	18:13	19:02	20:54	21:41	22:04	21:43	20:46	19:36	17:30	16:41	16:36
26	08:31	07:36	06:33	06:25	05:36	05:25	05:55	06:43	07:33	08:24	08:17	08:48
	17:19	18:15	19:04	20:56	21:42	22:04	21:41	20:44	19:33	17:28	16:40	16:37
27	08:29	07:34	06:31	06:23	05:35	05:25	05:56	06:45	07:35	08:26	08:19	08:48
	17:21	18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	17:26	16:39	16:37
28	08:28	07:32	06:28	06:21	05:34	05:26	05:58	06:46	07:36	08:27	08:20	08:48
	17:22	18:19	19:07	20:59	21:45	22:04	21:38	20:39	19:29	17:24	16:39	16:38
29	08:27	07:26	06:19	06:19	05:33	05:26	05:59	06:48	07:38	08:29	08:22	08:49
	17:24	18:20	19:09	21:01	21:46	22:04	21:37	20:37	19:26	17:22	16:38	16:39
30	08:25	07:24	06:17	06:17	05:32	05:27	06:01	06:50	07:40	08:31	08:23	08:49
	17:26	18:21	19:10	21:03	21:47	22:04	21:35	20:35	19:24	17:20	16:37	16:40
31	08:24	07:22	06:15	06:15	05:31	05:26	06:02	06:51	07:41	08:32	08:24	08:49
	17:28	18:22	19:11	21:05	21:49	22:04	21:34	20:33	19:22	17:18	16:35	16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
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: Receptors layout 2Shadow receptor: G - Arenbergse Singeldijk 3

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:22	07:29	07:19	06:15	05:30	05:27	06:04	06:53	07:41	07:34	08:25
	16:42	17:29	18:21	20:14	21:04	21:50	22:04	21:32	20:31	19:22	17:16	16:36
2	08:49	08:21	07:27	07:17	06:13	05:30	05:28	06:05	06:54	07:43	07:36	08:26
	16:43	17:31	18:22	20:16	21:06	21:51	22:03	21:30	20:28	19:19	17:14	16:36
3	08:48	08:19	07:25	07:15	06:11	05:29	05:29	06:07	06:56	07:44	07:38	08:28
	16:44	17:33	18:24	20:17	21:08	21:52	22:03	21:29	20:26	19:17	17:13	16:35
4	08:48	08:18	07:23	07:13	06:09	05:28	05:30	06:08	06:58	07:46	07:40	08:29
	16:45	17:35	18:26	20:19	21:09	21:53	22:02	21:27	20:24	19:15	17:11	16:34
5	08:48	08:16	07:21	07:10	06:08	05:27	05:30	06:10	06:59	07:48	07:42	08:30
	16:47	17:37	18:28	20:21	21:11	21:54	22:02	21:25	20:22	19:13	17:09	16:34
6	08:48	08:14	07:18	07:08	06:06	05:27	05:31	06:11	07:01	07:49	07:43	08:32
	16:48	17:39	18:29	20:22	21:13	21:55	22:01	21:24	20:19	19:10	17:07	16:34
7	08:47	08:13	07:16	07:06	06:04	05:26	05:32	06:13	07:02	07:51	07:45	08:33
	16:49	17:40	18:31	20:24	21:14	21:56	22:01	21:22	20:17	19:08	17:06	16:33
8	08:47	08:11	07:14	07:04	06:02	05:26	05:33	06:14	07:04	07:53	07:47	08:34
	16:50	17:42	18:33	20:26	21:16	21:57	22:00	21:20	20:15	19:06	17:04	16:33
9	08:46	08:09	07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:54	07:49	08:35
	16:52	17:44	18:35	20:28	21:17	21:57	22:00	21:18	20:13	19:04	17:02	16:33
10	08:46	08:07	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56	07:50	08:36
	16:53	17:46	18:36	20:29	21:19	21:58	21:59	21:16	20:10	19:01	17:01	16:32
11	08:45	08:05	07:07	06:57	05:57	05:24	05:36	06:19	07:09	07:58	07:52	08:37
	16:54	17:48	18:38	20:31	21:21	21:59	21:58	21:14	20:08	18:59	16:59	16:32
12	08:45	08:04	07:05	06:55	05:56	05:24	05:37	06:21	07:10	08:00	07:54	08:38
	16:56	17:50	18:40	20:33	21:22	22:00	21:57	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:52	05:54	05:24	05:38	06:22	07:12	08:01	07:56	08:39
	16:57	17:52	18:42	20:34	21:24	22:00	21:56	21:11	20:03	18:55	16:56	16:32
14	08:43	08:00	07:01	06:50	05:52	05:24	05:39	06:24	07:14	08:03	07:57	08:40
	16:59	17:53	18:43	20:36	21:25	22:01	21:56	21:09	20:01	18:53	16:55	16:32
15	08:42	07:58	06:58	06:48	05:51	05:23	05:40	06:25	07:15	08:05	07:59	08:41
	17:00	17:55	18:45	20:38	21:27	22:01	21:55	21:07	19:59	18:50	16:53	16:32
16	08:42	07:56	06:56	06:46	05:49	05:23	05:42	06:27	07:17	08:06	08:01	08:42
	17:02	17:57	18:47	20:39	21:28	22:02	21:54	21:05	19:56	18:48	16:52	16:32
17	08:41	07:54	06:54	06:44	05:48	05:23	05:43	06:29	07:18	08:08	08:03	08:43
	17:04	17:59	18:49	20:41	21:30	22:02	21:53	21:03	19:54	18:46	16:51	16:32
18	08:40	07:52	06:51	06:42	05:46	05:23	05:44	06:30	07:20	08:10	08:04	08:44
	17:05	18:01	18:50	20:43	21:31	22:03	21:51	21:01	19:52	18:44	16:49	16:33
19	08:39	07:50	06:49	06:39	05:45	05:23	05:45	06:32	07:22	08:12	08:06	08:44
	17:07	18:03	18:52	20:44	21:33	22:03	21:50	20:59	19:49	18:42	16:48	16:33
20	08:38	07:48	06:47	06:37	05:44	05:23	05:47	06:33	07:23	08:13	08:08	08:45
	17:08	18:04	18:54	20:46	21:34	22:03	21:49	20:57	19:47	18:40	16:47	16:33
21	08:37	07:46	06:45	06:35	05:42	05:23	05:48	06:35	07:25	08:15	08:09	08:46
	17:10	18:06	18:55	20:48	21:36	22:04	21:48	20:54	19:45	18:38	16:46	16:34
22	08:36	07:44	06:42	06:33	05:41	05:24	05:49	06:37	07:26	08:17	08:11	08:46
	17:12	18:08	18:57	20:49	21:37	22:04	21:47	20:52	19:42	18:36	16:44	16:34
23	08:34	07:42	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:18	08:13	08:47
	17:14	18:10	18:59	20:51	21:38	22:04	21:45	20:50	19:40	18:34	16:43	16:35
24	08:33	07:40	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20	08:14	08:47
	17:15	18:12	19:00	20:53	21:40	22:04	21:44	20:48	19:38	18:32	16:42	16:35
25	08:32	07:38	06:35	06:27	05:37	05:24	05:53	06:41	07:31	08:22	08:16	08:48
	17:17	18:13	19:02	20:54	21:41	22:04	21:43	20:46	19:36	18:30	16:41	16:36
26	08:31	07:36	06:33	06:25	05:36	05:25	05:55	06:43	07:33	08:24	08:17	08:48
	17:19	18:15	19:04	20:56	21:42	22:04	21:41	20:44	19:33	18:28	16:40	16:37
27	08:29	07:34	06:31	06:23	05:35	05:25	05:56	06:45	07:35	08:26	08:19	08:48
	17:21	18:17	19:06	20:58	21:44	22:04	21:40	20:42	19:31	18:26	16:39	16:37
28	08:28	07:32	06:28	06:21	05:34	05:26	05:58	06:46	07:36	08:27	08:20	08:48
	17:22	18:19	19:07	20:59	21:45	22:04	21:38	20:39	19:29	18:24	16:39	16:38
29	08:27	07:26	06:19	06:19	05:33	05:26	05:59	06:48	07:38	08:29	08:22	08:49
	17:24	18:21	19:09	21:01	21:46	22:04	21:37	20:37	19:26	18:22	16:38	16:39
30	08:25	07:24	06:17	06:17	05:32	05:27	06:01	06:50	07:40	08:31	08:23	08:49
	17:26	18:23	19:11	21:03	21:47	22:04	21:35	20:35	19:24	18:20	16:37	16:40
31	08:24	07:22	06:15	06:15	05:31	05:24	06:02	06:51	07:41	08:32	08:24	08:49
	17:28	18:25	19:12	21:05	21:49	22:04	21:34	20:33	19:22	18:18	16:36	16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
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: Receptors layout 2Shadow receptor: H - Arenbergsesingeldijk 1

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49 16:42	08:22 17:29	07:29 18:21	07:19 20:14	19:41 (7) 21:04	06:15 21:50	05:30 22:04	05:27 21:32	06:04 20:31	19:31 (7) 19:55 (7)	07:41 19:22	07:34 17:16	08:25 16:36
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	19:39 (7) 21:06	06:13 21:51	05:29 22:03	05:28 21:30	06:05 20:28	24 19:54 (7)	19:30 (7) 19:19	17:16 17:14	08:26 16:36
3	08:48 16:44	08:19 17:33	07:25 18:24	07:15 20:17	19:36 (7) 21:08	06:11 21:52	05:29 22:03	05:29 21:29	06:07 20:26	24 19:55 (7)	19:30 (7) 19:17	17:14 17:12	08:28 16:35
4	08:48 16:45	08:18 17:35	07:23 18:26	07:13 20:19	19:35 (7) 21:09	06:09 21:53	05:28 22:02	05:28 21:27	06:08 20:24	25 19:54 (7)	19:29 (7) 19:15	07:40 17:11	08:29 16:34
5	08:48 16:47	08:16 17:37	07:21 18:28	07:10 20:21	19:34 (7) 21:11	06:08 21:54	05:27 22:02	05:27 21:25	06:10 20:22	25 19:54 (7)	19:29 (7) 19:13	07:42 17:09	08:30 16:34
6	08:48 16:48	08:14 17:39	07:18 18:29	07:08 20:22	19:33 (7) 21:13	06:06 21:55	05:27 22:01	05:27 21:24	06:11 20:19	24 19:52 (7)	19:28 (7) 19:10	07:43 17:07	08:32 16:34
7	08:47 16:49	08:13 17:40	07:16 18:31	07:06 20:24	19:32 (7) 21:14	06:04 21:56	05:26 22:01	05:32 21:22	06:13 20:17	24 19:52 (7)	19:29 (7) 19:08	07:51 17:06	08:33 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	07:03 20:26	19:32 (7) 21:16	06:02 21:57	05:26 22:00	05:33 21:20	06:14 20:15	21 19:50 (7)	19:29 (7) 19:06	07:53 17:04	08:34 16:33
9	08:46 16:52	08:09 17:44	07:12 18:35	07:01 20:28	19:31 (7) 21:17	06:01 21:57	05:25 22:00	05:34 21:18	06:16 20:13	19 19:48 (7)	19:30 (7) 19:04	07:54 17:02	08:35 16:33
10	08:46 16:53	08:07 17:46	07:10 18:36	06:59 20:29	19:32 (7) 21:19	05:59 21:58	05:25 21:59	05:35 21:16	06:17 20:10	16 19:44 (7)	19:32 (7) 19:01	07:56 17:01	08:36 16:32
11	08:45 16:54	08:06 17:48	07:07 18:38	06:57 20:31	19:32 (7) 21:21	05:57 21:59	05:24 21:58	05:36 21:14	06:19 20:08	12 19:41 (7)	19:33 (7) 18:59	07:58 16:59	08:37 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	19:32 (7) 21:22	05:56 22:00	05:24 21:57	05:37 21:13	06:21 20:06	10 19:42 (7)	19:33 (7) 18:57	07:54 16:58	08:39 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	06:52 20:34	19:32 (7) 21:24	05:54 22:00	05:24 21:56	05:38 21:11	06:22 20:03	10 19:42 (7)	19:33 (7) 18:55	07:56 16:56	08:40 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	06:50 20:36	19:34 (7) 21:25	05:52 22:01	05:23 21:56	05:39 21:09	06:24 20:01	10 19:42 (7)	19:33 (7) 18:53	07:57 16:55	08:40 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	06:48 20:38	19:35 (7) 21:27	05:51 22:01	05:23 21:55	05:40 21:07	06:25 20:07	10 19:42 (7)	19:33 (7) 18:50	07:59 16:53	08:41 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:39	19:37 (7) 21:28	05:49 22:02	05:23 21:54	05:42 21:05	06:27 19:56	11 19:42 (7)	19:33 (7) 18:48	08:01 16:52	08:42 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	19:38 (7) 21:30	05:48 22:02	05:23 21:53	05:43 21:03	06:29 20:03	10 19:42 (7)	19:33 (7) 18:46	08:03 16:50	08:43 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	06:42 20:43	19:39 (7) 21:31	05:46 22:03	05:23 21:51	05:44 21:01	06:30 19:52	10 19:42 (7)	19:33 (7) 18:44	08:04 16:49	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	06:39 20:44	19:40 (7) 21:33	05:45 22:03	05:23 21:50	05:45 20:59	06:32 19:49	10 19:42 (7)	19:33 (7) 18:42	08:06 16:48	08:44 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	06:37 20:46	19:41 (7) 21:34	05:44 22:04	05:23 21:49	05:47 20:57	06:33 19:47	10 19:42 (7)	19:33 (7) 18:40	08:08 16:47	08:45 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	06:35 20:48	19:42 (7) 21:36	05:42 22:04	05:23 21:48	05:48 20:54	06:35 19:45	10 19:42 (7)	19:33 (7) 18:38	08:09 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	06:33 20:49	19:43 (7) 21:37	05:41 22:04	05:24 21:47	05:49 20:52	06:37 19:42	10 19:42 (7)	19:33 (7) 18:36	08:11 16:44	08:46 16:34
23	08:35 17:13	07:42 18:10	06:40 18:59	06:31 20:51	19:44 (7) 21:38	05:40 22:04	05:24 21:45	05:51 20:50	06:38 19:40	10 19:42 (7)	19:33 (7) 18:34	08:13 16:43	08:47 16:35
24	08:33 17:15	07:40 18:12	06:38 19:00	06:29 20:53	19:45 (7) 21:40	05:39 22:04	05:24 21:44	05:52 20:48	06:40 19:38	10 19:42 (7)	19:33 (7) 18:32	08:14 16:42	08:47 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	19:46 (7) 21:41	05:37 22:04	05:24 21:43	05:53 20:46	06:41 19:36	10 19:42 (7)	19:33 (7) 18:30	08:16 16:41	08:48 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	19:47 (7) 21:42	05:36 22:04	05:25 21:41	05:55 20:44	06:43 19:33	10 19:42 (7)	19:33 (7) 18:28	08:17 16:40	08:48 16:37
27	08:29 17:20	07:34 18:17	06:31 19:06	06:23 20:58	19:48 (7) 21:44	05:35 22:04	05:25 21:40	05:56 20:42	06:45 19:31	10 19:42 (7)	19:33 (7) 18:26	08:19 16:39	08:48 16:37
28	08:28 17:22	07:32 18:19	06:28 19:07	06:21 20:59	19:49 (7) 21:45	05:34 22:04	05:26 21:38	05:58 20:39	06:46 19:29	11 19:42 (7)	19:33 (7) 18:24	08:20 16:39	08:48 16:38
29	08:27 17:24	07:30 18:26	06:26 19:09	06:19 21:01	19:50 (7) 21:46	05:33 22:04	05:26 21:37	05:59 20:37	06:48 19:26	15 19:42 (7)	19:33 (7) 18:22	08:22 16:38	08:49 16:39
30	08:25 17:26	07:28 19:00	06:24 19:58	06:17 21:03	19:51 (7) 21:47	05:32 22:04	05:27 21:35	06:01 21:35	06:49 20:35	21 19:42 (7)	19:33 (7) 19:24	08:23 16:40	08:49 16:40
31	08:24 17:28	07:22 19:02	06:22 19:56	06:15 21:05	19:52 (7) 21:49	05:31 22:04	06:02 21:34	06:51 20:33	06:51 19:24	23 19:42 (7)	19:33 (7) 19:18	08:24 16:41	08:49 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245	
Total, worst case				307				91	223				
Sun reduction				0,35				0,41	0,33				
Oper. time red.				0,95				0,95	0,95				
Wind dir. red.				0,58				0,58	0,58				
Total reduction				0,19				0,23	0,18				
Total, real				60				21	41				

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: Receptors layout 2Shadow receptor: I - Koekoekendijk 10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:42	08:22 17:30	07:29 18:21	07:19 20:14	06:15 21:04	05:30 21:50	05:28 22:04	06:04 21:32	06:53 20:31	07:41 19:22	18:22 (6) 17:16	07:34 16:36
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	06:13 21:06	05:30 21:51	05:28 22:03	06:05 21:31	06:54 20:28	07:43 19:19	18:22 (6) 17:14	07:36 16:36
3	08:49 16:44	08:19 17:33	07:25 18:24	07:15 20:17	06:11 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	07:45 19:17	18:22 (6) 17:13	07:38 16:35
4	08:48 16:45	08:18 17:35	07:23 18:26	17:55 (6) 20:19	07:13 21:09	06:10 21:53	05:28 22:03	06:08 21:27	06:58 20:24	07:46 19:15	18:21 (6) 17:11	07:40 16:35
5	08:48 16:47	08:16 17:37	07:21 18:28	17:51 (6) 20:21	07:10 21:11	06:08 21:54	05:27 22:02	06:10 21:25	06:59 20:22	07:48 19:13	18:22 (6) 17:09	07:42 16:34
6	08:48 16:48	08:14 17:39	07:19 18:29	17:49 (6) 20:23	07:08 21:13	06:06 21:55	05:27 22:02	06:11 21:24	07:01 20:19	07:50 19:10	18:25 (6) 17:07	07:43 16:34
7	08:47 16:49	08:13 17:41	07:16 18:31	17:47 (6) 20:24	07:06 21:14	06:04 21:56	05:26 22:01	06:13 21:22	07:02 20:17	07:51 19:08	18:21 (6) 17:06	07:45 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	17:46 (6) 20:26	07:04 21:16	06:02 21:57	05:26 22:00	06:14 21:20	07:04 20:15	07:53 19:06	18:25 (6) 17:04	07:47 16:33
9	08:47 16:52	08:09 17:44	07:12 18:35	17:45 (6) 20:28	07:01 21:17	06:01 21:57	05:25 22:00	06:16 21:18	07:06 20:13	07:55 19:04	18:28 (6) 17:02	07:49 16:33
10	08:46 16:53	08:07 17:46	07:10 18:37	17:43 (6) 20:29	06:59 21:19	05:25 21:58	05:35 21:59	06:18 21:16	07:07 20:10	07:56 19:01	18:36 (6) 17:01	07:50 16:32
11	08:45 16:55	08:06 17:48	07:07 18:38	17:43 (6) 20:31	06:57 21:21	05:24 21:59	05:36 21:58	06:19 21:15	07:09 20:08	07:58 18:59	18:36 (6) 16:59	07:52 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	17:43 (6) 20:33	06:55 21:22	05:56 22:00	05:37 21:57	06:21 21:13	07:10 20:06	08:00 18:57	18:36 (6) 16:58	07:54 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	17:43 (6) 20:34	06:52 21:24	05:54 22:00	05:38 21:57	06:22 21:11	07:12 20:03	08:01 18:55	18:36 (6) 16:56	07:56 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	17:42 (6) 20:36	06:50 21:25	05:52 22:01	05:39 21:56	06:24 21:09	07:14 20:01	08:03 18:53	18:36 (6) 16:55	07:57 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	17:43 (6) 20:38	06:48 21:27	05:51 22:02	05:40 21:55	06:25 21:07	07:15 19:59	08:05 18:50	18:36 (6) 16:53	07:59 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	17:44 (6) 20:39	06:46 21:28	05:49 22:02	05:42 21:54	06:27 21:05	07:17 19:56	08:06 18:48	18:36 (6) 16:52	08:01 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	17:44 (6) 20:41	06:44 21:30	05:48 22:02	05:43 21:53	06:29 21:03	07:18 19:54	08:08 18:46	18:36 (6) 16:51	08:03 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	17:45 (6) 20:43	06:42 21:31	05:46 22:03	05:44 21:52	06:30 21:01	07:20 19:52	08:10 18:44	18:36 (6) 16:49	08:04 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	17:47 (6) 20:44	06:39 21:33	05:45 22:03	05:45 21:50	06:32 20:59	07:22 19:49	08:12 18:42	18:36 (6) 16:48	08:05 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	17:49 (6) 20:46	06:37 21:34	05:44 22:04	05:47 21:49	06:33 20:57	07:23 19:47	08:13 18:40	18:36 (6) 16:47	08:08 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	17:59 (6) 20:48	06:35 21:36	05:42 22:04	05:48 21:48	06:35 20:55	07:25 19:45	08:15 18:38	18:36 (6) 16:46	08:09 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	06:33 20:49	05:41 21:37	05:24 22:04	05:49 21:47	06:37 20:52	07:27 19:43	08:17 18:36	18:36 (6) 16:44	08:11 16:34
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:38	05:24 22:04	05:51 21:45	06:38 20:50	07:28 19:40	18:35 (6) 18:42 (6)	18:19 18:34	08:13 16:35
24	08:33 17:15	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	05:24 22:04	05:52 21:44	06:40 20:48	07:30 19:38	18:31 (6) 18:45 (6)	18:20 18:32	08:14 16:42
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	05:37 21:41	05:24 22:04	05:53 21:43	06:42 20:46	07:31 19:33	18:28 (6) 18:46 (6)	18:22 17:30	08:16 16:41
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	05:36 21:42	05:25 22:04	05:55 21:41	06:43 20:44	07:33 19:33	18:27 (6) 18:48 (6)	18:24 (6) 17:28	08:17 16:40
27	08:30 17:21	07:34 18:17	06:31 19:06	06:23 20:58	05:35 21:44	05:25 22:04	05:56 21:40	06:45 20:42	07:35 19:31	18:26 (6) 18:49 (6)	18:26 (6) 17:26	08:19 16:37
28	08:28 17:22	07:32 18:19	06:29 19:07	06:21 20:59	05:34 21:45	05:26 22:04	05:58 21:38	06:46 20:40	07:36 19:29	18:24 (6) 18:48 (6)	18:24 (6) 17:24	08:21 16:39
29	08:27 17:24	07:26 18:09	06:26 20:09	06:19 21:01	05:33 21:46	05:26 22:04	05:59 21:37	06:48 20:37	07:38 19:26	18:23 (6) 18:49 (6)	18:23 (6) 17:22	08:22 16:38
30	08:25 17:26	07:24 18:06	06:24 20:11	06:17 21:03	05:32 21:47	05:27 22:04	06:01 21:35	06:50 20:35	07:40 19:24	18:23 (6) 18:49 (6)	18:23 (6) 17:20	08:23 16:40
31	08:24 17:28	07:22 18:02	06:22 20:12	06:15 21:03	05:31 21:49	05:24 22:04	06:02 21:34	06:51 20:33	07:40 19:24	18:23 (6) 17:18	18:23 (6) 17:02	08:24 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
Total, worst case			337									
Sun reduction			0,26						0,33		0,29	
Oper. time red.			0,95						0,95		0,95	
Wind dir. red.			0,63						0,63		0,63	
Total reduction			0,16						0,20		0,17	
Total, real			53						31		32	

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: Receptors layout 2Shadow receptor: J - Lapdijk 14

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:49 16:42	08:22 17:29	07:29 18:21	07:19 20:14	06:15 21:04	05:30 21:50	05:27 22:04	06:04 21:32	06:53 20:31	07:41 19:22	18:13 (7) 32 18:45 (7)	07:34 17:16	08:25 16:36	
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	06:13 21:06	05:29 21:51	05:28 22:03	06:05 21:31	06:54 20:28	07:43 19:19	18:14 (7) 30 18:44 (7)	07:36 17:14	08:26 16:36	
3	08:49 16:44	08:19 17:33	07:25 18:24	17:49 (7) 17:53 (7)	07:15 20:17	06:11 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	07:44 19:17	18:14 (7) 30 18:44 (7)	07:38 17:13	08:28 16:35
4	08:48 16:45	08:18 17:35	07:23 18:26	17:45 (7) 17:58 (7)	07:13 20:19	06:09 21:09	05:28 21:53	05:30 22:03	06:08 21:27	06:58 20:24	07:46 19:15	18:13 (7) 30 18:43 (7)	07:40 17:11	08:29 16:34
5	08:48 16:47	08:16 17:37	07:21 18:28	17:42 (7) 18:01 (7)	07:10 20:21	06:08 21:11	05:27 21:54	05:30 22:02	06:10 21:25	06:59 20:22	07:48 19:13	18:43 (7) 28 18:42 (7)	07:42 17:09	08:30 16:34
6	08:48 16:48	08:14 17:39	07:18 18:29	17:41 (7) 18:03 (7)	07:08 20:22	06:06 21:13	05:27 21:55	05:31 22:02	06:11 21:24	07:01 20:19	07:49 19:10	18:15 (7) 26 18:41 (7)	07:43 17:07	08:32 16:34
7	08:47 16:49	08:13 17:40	07:16 18:31	17:38 (7) 18:03 (7)	07:06 20:24	06:04 21:14	05:26 21:56	05:32 22:01	06:13 21:22	07:02 20:17	07:51 19:08	18:15 (7) 24 18:39 (7)	07:45 17:06	08:33 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	17:37 (7) 18:04 (7)	07:03 20:26	06:02 21:16	05:26 21:57	05:33 22:00	06:14 21:20	07:04 20:15	07:53 19:06	18:16 (7) 21 18:37 (7)	07:47 17:04	08:34 16:33
9	08:46 16:52	08:09 17:44	07:12 18:35	17:37 (7) 18:05 (7)	07:01 20:28	06:01 21:17	05:25 21:57	05:34 22:00	06:16 21:18	07:06 20:13	07:54 19:04	18:18 (7) 17 18:35 (7)	07:49 17:02	08:35 16:33
10	08:46 16:53	08:07 17:46	07:10 18:36	17:35 (7) 18:05 (7)	06:59 20:29	05:25 21:19	05:35 21:58	05:35 21:59	06:17 21:16	07:07 20:10	07:56 19:01	18:20 (7) 11 18:31 (7)	07:50 17:01	08:36 16:32
11	08:45 16:54	08:06 17:48	07:07 18:38	17:35 (7) 18:05 (7)	06:57 20:31	05:57 21:21	05:24 21:59	05:36 21:58	06:19 21:14	07:09 20:08	07:58 18:59	18:31 (7) 08:00	07:52 16:59	08:38 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	17:35 (7) 18:06 (7)	06:55 20:33	05:56 21:22	05:24 22:00	05:37 21:57	06:21 21:13	07:10 20:06	08:00 18:57	18:31 (7) 08:01	07:54 16:58	08:39 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	17:35 (7) 18:06 (7)	06:52 20:34	05:54 21:24	05:24 22:00	05:38 21:56	06:22 21:11	07:12 20:03	08:01 18:55	18:31 (7) 08:03	07:56 16:56	08:40 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	17:34 (7) 18:05 (7)	06:50 20:36	05:52 21:25	05:23 22:01	05:39 21:56	06:24 21:09	07:14 20:01	08:03 18:53	18:31 (7) 08:05	07:57 16:55	08:40 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	17:34 (7) 18:05 (7)	06:48 20:38	05:51 21:27	05:23 22:02	05:40 21:55	06:25 21:07	07:15 19:59	08:05 18:50	18:31 (7) 08:06	07:59 16:53	08:41 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	17:35 (7) 18:04 (7)	06:46 20:39	05:49 21:28	05:23 22:02	05:42 21:54	06:27 21:05	07:17 19:56	08:06 18:48	18:31 (7) 08:08	07:59 16:52	08:42 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	17:34 (7) 18:03 (7)	06:44 20:41	05:48 21:30	05:23 22:02	05:43 21:53	06:29 21:03	07:18 19:54	08:08 18:46	18:31 (7) 08:10	07:59 16:51	08:43 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	17:36 (7) 18:02 (7)	06:42 20:43	05:46 21:31	05:23 22:03	05:44 21:51	06:30 21:01	07:20 19:52	08:10 18:44	18:31 (7) 08:12	07:59 16:49	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	17:37 (7) 18:01 (7)	06:39 20:44	05:45 21:33	05:23 22:03	05:45 21:50	06:32 20:59	07:22 19:49	08:12 18:42	18:31 (7) 08:13	07:59 16:48	08:45 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	17:38 (7) 17:58 (7)	06:37 20:46	05:44 21:34	05:23 22:04	05:47 21:49	06:33 20:57	07:23 19:47	08:13 18:40	18:31 (7) 08:14	07:59 16:47	08:45 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	17:40 (7) 17:56 (7)	06:35 20:48	05:42 21:36	05:23 22:04	05:48 21:48	06:35 20:54	07:25 19:45	08:15 18:38 (7)	18:31 (7) 08:15	07:59 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	17:43 (7) 17:53 (7)	06:33 20:49	05:41 21:37	05:24 22:04	05:49 21:47	06:37 20:52	07:26 19:42	08:17 18:40 (7)	18:31 (7) 08:19	07:59 16:44	08:46 16:34
23	08:35 17:13	07:42 18:10	06:40 18:59	17:53 (7) 20:51	06:31 21:38	05:40 21:38	05:24 22:04	05:51 21:45	06:38 20:50	07:28 19:40	08:19 18:42 (7)	18:31 (7) 08:20	07:59 16:43	08:47 16:35
24	08:33 17:15	07:40 18:12	06:38 19:00	20:52 20:53	06:29 21:40	05:39 21:40	05:24 22:04	05:52 21:44	06:40 20:48	07:30 19:38	08:20 18:44 (7)	18:31 (7) 08:21	07:59 16:42	08:47 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	06:27 21:41	05:37 21:41	05:24 22:04	05:53 21:43	06:41 20:46	07:31 19:36	08:21 18:44 (7)	18:31 (7) 08:22	07:59 16:41	08:48 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	06:25 21:42	05:36 21:42	05:25 22:04	05:55 21:41	06:43 20:44	07:33 19:33	08:22 18:45 (7)	18:31 (7) 08:23	07:59 16:40	08:48 16:37
27	08:29 17:20	07:34 18:17	06:31 19:06	06:23 20:58	06:23 21:44	05:35 21:44	05:25 22:04	05:56 21:40	06:45 20:42	07:35 19:31	08:23 18:46 (7)	18:31 (7) 08:24	07:59 16:39	08:48 16:37
28	08:28 17:22	07:32 18:19	06:28 19:07	06:21 20:59	06:21 21:45	05:34 21:45	05:26 22:04	05:58 21:38	06:46 20:40	07:36 19:29	08:24 18:45 (7)	18:31 (7) 08:25	07:59 16:38	08:48 16:38
29	08:27 17:24	07:26 18:09	06:26 20:09	06:19 21:01	06:19 21:46	05:33 21:46	05:26 22:04	05:59 21:37	06:48 20:37	07:38 19:26	08:25 18:45 (7)	18:31 (7) 08:26	07:59 16:37	08:49 16:39
30	08:25 17:26	07:24 20:11	06:24 20:11	06:17 21:03	06:17 21:47	05:32 21:47	05:27 22:04	06:01 21:35	06:50 20:35	07:40 19:24	08:26 18:45 (7)	18:31 (7) 08:27	07:59 16:40	08:49 16:40
31	08:24 17:28	07:22 20:12	06:22 20:12	06:16 21:03	06:16 21:49	05:31 21:49	05:27 22:04	06:02 21:34	06:51 20:33	07:39 17:18	08:27 18:45 (7)	18:31 (7) 08:28	07:59 16:41	08:49 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381			267	245	
Total, worst case			476							239	249			
Sun reduction			0,26							0,33	0,29			
Oper. time red.			0,95							0,95	0,95			
Wind dir. red.			0,63							0,63	0,63			
Total reduction			0,16							0,20	0,17			
Total, real			75						47		43			

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: Receptors layout 2Shadow receptor: K - Arenbergsesingeldijk 4

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49 16:42	08:22 17:29	07:29 18:21	07:19 20:14	06:15 21:04	05:30 21:50	05:27 22:04	06:04 21:32	06:53 20:31	19:39 (7) 20:03 (7)	07:41 19:22	07:34 17:16	08:25 16:36
2	08:49 16:43	08:21 17:31	07:27 18:22	07:17 20:16	06:13 21:06	05:29 21:51	05:28 22:03	06:05 21:30	06:54 20:28	19:38 (7) 20:01 (7)	07:43 19:19	07:36 17:14	08:26 16:36
3	08:48 16:44	08:19 17:33	07:25 18:24	07:15 20:17	06:11 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	19:39 (7) 20:00 (7)	07:44 19:17	07:38 17:12	08:28 16:35
4	08:48 16:45	08:18 17:35	07:23 18:26	07:13 20:19	19:51 (7) 19:53 (7)	06:09 21:09	05:28 21:53	05:30 22:02	06:08 21:27	19:38 (7) 19:57 (7)	07:46 19:15	07:40 17:11	08:29 16:34
5	08:48 16:47	08:16 17:37	07:21 18:28	07:10 20:21	19:47 (7) 19:55 (7)	06:08 21:11	05:27 21:54	05:30 22:02	06:10 21:25	19:39 (7) 19:55 (7)	07:48 19:13	07:42 17:09	08:30 16:34
6	08:48 16:48	08:14 17:39	07:18 18:29	07:08 20:22	19:45 (7) 19:57 (7)	06:06 21:13	05:27 21:55	05:31 22:01	06:11 21:24	19:40 (7) 19:52 (7)	07:49 19:10	07:43 17:07	08:32 16:34
7	08:47 16:49	08:13 17:40	07:16 18:31	07:06 20:24	19:42 (7) 19:58 (7)	06:04 21:14	05:26 21:56	05:32 22:01	06:13 21:22	19:42 (7) 19:50 (7)	07:51 19:08	07:45 17:06	08:33 16:33
8	08:47 16:50	08:11 17:42	07:14 18:33	07:03 20:26	19:41 (7) 19:57 (7)	06:02 21:16	05:26 21:57	05:33 22:00	06:14 21:20	19:44 (7) 19:48 (7)	07:53 19:06	07:47 17:04	08:34 16:33
9	08:46 16:52	08:09 17:44	07:12 18:35	07:01 20:28	19:41 (7) 20:02 (7)	06:01 21:17	05:25 21:57	05:34 22:00	06:16 21:18	19:48 (7) 20:13	07:54 19:04	07:49 17:02	08:35 16:33
10	08:46 16:53	08:07 17:46	07:10 18:36	06:59 20:29	19:40 (7) 20:03 (7)	05:59 21:19	05:25 21:58	05:35 21:59	06:17 21:16	19:47 (7) 20:10	07:56 19:01	07:50 17:01	08:36 16:32
11	08:45 16:54	08:06 17:48	07:07 18:38	06:57 20:31	19:39 (7) 20:03 (7)	05:57 21:21	05:24 21:59	05:36 21:58	06:19 21:14	19:49 (7) 20:08	07:58 18:59	07:52 16:59	08:37 16:32
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	19:39 (7) 20:03 (7)	05:56 21:22	05:24 22:00	05:37 21:57	06:21 21:13	19:49 (7) 20:06	08:00 18:57	07:54 16:58	08:39 16:32
13	08:44 16:57	08:02 17:52	07:03 18:42	06:52 20:34	19:39 (7) 20:02 (7)	05:54 21:24	05:24 22:00	05:38 21:56	06:22 21:11	19:49 (7) 20:03	08:01 18:55	07:56 16:56	08:40 16:32
14	08:43 16:59	08:00 17:53	07:01 18:43	06:50 20:36	19:39 (7) 20:02 (7)	05:52 21:25	05:23 22:01	05:39 21:56	06:24 21:09	19:48 (7) 20:01	08:03 18:53	07:57 16:55	08:40 16:32
15	08:43 17:00	07:58 17:55	06:58 18:45	06:48 20:38	19:39 (7) 20:01 (7)	05:51 21:27	05:23 22:01	05:40 21:55	06:25 21:07	19:49 (7) 20:15	08:05 18:50	07:59 16:53	08:41 16:32
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:39	19:40 (7) 20:00 (7)	05:49 21:28	05:23 22:02	05:42 21:54	06:27 21:05	19:51 (7) 20:18	08:06 18:48	08:01 16:52	08:42 16:32
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	19:41 (7) 20:00 (7)	05:48 21:30	05:23 22:02	05:43 21:53	06:29 21:03	19:54 (7) 20:18	08:08 18:46	08:03 16:50	08:43 16:32
18	08:40 17:05	07:52 18:01	06:51 18:50	06:42 20:43	19:42 (7) 20:00 (7)	05:46 21:31	05:23 22:03	05:44 21:51	06:30 21:01	19:52 (7) 20:20	08:10 18:44	08:04 16:49	08:44 16:33
19	08:39 17:07	07:50 18:03	06:49 18:52	06:39 20:44	19:44 (7) 20:00 (7)	05:45 21:33	05:23 22:03	05:45 21:50	06:32 20:59	19:59 (7) 20:22	08:12 18:42	08:06 16:48	08:44 16:33
20	08:38 17:08	07:48 18:04	06:47 18:54	06:37 20:46	19:47 (7) 20:00 (7)	05:44 21:34	05:23 22:04	05:47 21:49	06:33 20:57	20:23 (7) 21:47	08:13 18:40	08:08 16:47	08:45 16:33
21	08:37 17:10	07:46 18:06	06:45 18:55	06:35 20:48	19:51 (7) 21:36	05:42 22:04	05:23 21:48	05:48 20:54	06:35 20:54	19:47 (7) 20:26	08:15 18:38	08:09 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:42 18:57	06:33 20:49	21:36	05:41 22:04	05:24 21:47	05:49 20:52	06:37 20:52	19:42 (7) 20:28	08:17 18:36	08:11 16:44	08:46 16:34
23	08:35 17:13	07:42 18:10	06:40 18:59	06:31 20:51	21:37	05:40 22:04	05:24 21:45	05:51 20:50	06:38 20:50	19:42 (7) 19:40	18:36 18:34	16:44 16:43	16:34 16:35
24	08:33 17:15	07:40 18:12	06:38 19:00	06:29 20:53	21:38	05:39 22:04	05:24 21:44	05:52 20:48	06:40 20:48	19:47 (7) 19:59 (7)	08:20 18:32	08:14 16:42	08:47 16:35
25	08:32 17:17	07:38 18:13	06:35 19:02	06:27 20:54	21:39	05:37 22:04	05:24 21:43	05:53 20:46	06:41 20:46	19:45 (7) 20:01 (7)	08:22 18:32	08:16 16:41	08:48 16:36
26	08:31 17:19	07:36 18:15	06:33 19:04	06:25 20:56	21:41	05:36 22:04	05:25 21:41	05:55 20:44	06:43 20:44	19:43 (7) 20:01 (7)	08:23 18:33	08:17 16:40	08:48 16:37
27	08:29 17:20	07:34 18:17	06:31 19:06	06:23 20:58	21:42	05:35 22:04	05:25 21:40	05:56 20:42	06:45 20:42	19:42 (7) 20:02 (7)	08:24 18:33	08:19 16:39	08:48 16:37
28	08:28 17:22	07:32 18:19	06:28 19:07	06:21 20:59	21:44	05:34 22:04	05:26 21:38	05:58 20:39	06:46 20:39	19:40 (7) 20:02 (7)	08:25 18:33	08:20 16:39	08:48 16:38
29	08:27 17:24	07:26 18:09	06:19 21:01	06:19 21:01	21:45	05:33 22:04	05:26 21:37	05:59 20:37	06:48 20:37	19:40 (7) 20:03 (7)	08:26 18:33	08:22 16:38	08:49 16:39
30	08:25 17:26	07:24 20:11	06:17 21:03	06:17 21:03	21:46	05:32 22:04	05:27 21:35	06:01 21:35	06:49 20:35	19:39 (7) 20:03 (7)	08:27 18:33	08:23 16:37	08:49 16:40
31	08:24 17:28	07:22 20:12	06:17 21:03	06:17 21:03	21:47	05:31 21:49	06:02 21:34	06:51 20:33	06:51 20:33	19:38 (7) 20:02 (7)	08:28 18:33	08:24 16:37	08:49 16:41
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245	
Total, worst case				287				164	127				
Sun reduction				0,35				0,41	0,33				
Oper. time red.				0,95				0,95	0,95				
Wind dir. red.				0,57				0,57	0,57				
Total reduction				0,19				0,22	0,18				
Total, real				55				36	23				

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

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

SHADOW - Calendar

Calculation: Receptors layout 2Shadow receptor: L - woning Gorsdijk 1 - wegbestemd

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	15:02 (7)	08:22	14:57 (7)	07:29	07:19	06:15	05:30	05:27	06:04	06:53	07:41
2	08:49	15:02 (7)	08:21	14:58 (7)	07:27	07:17	06:13	05:30	05:28	06:05	06:54	07:43
3	08:49	15:01 (7)	08:19	14:58 (7)	07:25	07:15	06:11	05:29	05:29	06:07	06:56	07:45
4	08:48	15:01 (7)	08:18	14:58 (7)	07:23	07:13	06:09	05:28	05:30	06:08	06:58	07:46
5	08:48	15:01 (7)	08:16	14:58 (7)	07:21	07:10	06:08	05:27	05:30	06:10	06:59	07:48
6	08:48	15:01 (7)	08:14	14:59 (7)	07:19	07:08	06:06	05:27	05:31	06:11	07:01	07:50
7	08:47	15:01 (7)	08:13	14:59 (7)	07:16	07:06	06:04	05:26	05:32	06:13	07:02	07:51
8	08:47	15:00 (7)	08:11	14:59 (7)	07:14	07:04	06:02	05:26	05:33	06:14	07:04	07:53
9	08:47	15:00 (7)	08:09	15:00 (7)	07:12	07:01	06:01	05:25	05:34	06:16	07:06	07:55
10	08:46	15:00 (7)	08:07	15:00 (7)	07:10	06:59	05:59	05:25	05:35	06:18	07:07	07:56
11	08:45	15:00 (7)	08:06	15:01 (7)	07:07	06:57	05:57	05:24	05:36	06:19	07:09	07:58
12	08:45	15:00 (7)	08:04	15:01 (7)	07:05	06:55	05:56	05:24	05:37	06:21	07:10	08:00
13	08:44	15:00 (7)	08:02	15:02 (7)	07:03	06:52	05:54	05:24	05:38	06:22	07:12	08:01
14	08:43	15:00 (7)	08:00	15:03 (7)	07:01	06:50	05:52	05:23	05:39	06:24	07:14	08:03
15	08:43	15:00 (7)	07:58	15:04 (7)	06:58	06:48	05:51	05:23	05:40	06:25	07:15	08:05
16	08:42	15:00 (7)	07:56	15:06 (7)	06:56	06:46	05:49	05:23	05:42	06:27	07:17	08:06
17	08:41	15:00 (7)	07:54	15:07 (7)	06:54	06:44	05:48	05:23	05:43	06:29	07:18	08:08
18	08:40	15:00 (7)	07:52	15:09 (7)	06:51	06:42	05:46	05:23	05:44	06:30	07:20	08:10
19	08:39	15:00 (7)	07:50	15:10 (7)	06:49	06:39	05:45	05:23	05:45	06:32	07:22	08:12
20	08:38	15:00 (7)	07:48	15:13 (7)	06:47	06:37	05:44	05:23	05:47	06:33	07:23	08:13
21	08:37	15:00 (7)	07:46	15:15 (7)	06:45	06:35	05:42	05:23	05:48	06:35	07:25	08:15
22	08:36	15:00 (7)	07:44	15:19 (7)	06:42	06:33	05:41	05:24	05:49	06:37	07:27	08:17
23	08:35	15:00 (7)	07:42	15:23 (7)	06:40	06:31	05:40	05:24	05:51	06:38	07:28	08:19
24	08:33	15:00 (7)	07:40	15:27 (7)	06:38	06:29	05:39	05:24	05:52	06:40	07:30	08:20
25	08:32	15:00 (7)	07:38	15:31 (7)	06:36	06:27	05:37	05:24	05:53	06:41	07:31	08:21
26	08:31	15:00 (7)	07:36	15:35 (7)	06:34	06:25	05:36	05:25	05:55	06:43	07:33	08:23
27	08:30	15:00 (7)	07:34	15:39 (7)	06:32	06:23	05:35	05:25	05:56	06:45	07:35	08:25
28	08:28	15:00 (7)	07:32	15:43 (7)	06:30	06:21	05:34	05:26	05:58	06:46	07:36	08:27
29	08:27	15:00 (7)	07:30	15:47 (7)	06:28	06:19	05:33	05:27	05:59	06:48	07:38	08:29
30	08:25	15:00 (7)	07:28	15:51 (7)	06:26	06:17	05:32	05:27	06:01	06:50	07:40	08:31
31	08:24	15:00 (7)	07:26	15:55 (7)	06:24	06:15	05:31	05:27	06:03	06:51	07:41	08:33
Potential sun hours	1728	1601 (7)	1482	1363	1244	1125	1006	887	768	649	530	411
Total, worst case	1961	278	1215	677	416	265	156	105	59	33	267	245
Sun reduction	0,19		0,28								0,29	
Oper. time red.	0,95		0,95								0,95	
Wind dir. red.	0,73		0,73								0,73	
Total reduction	0,13		0,19								0,20	
Total, real	259	234	1029	657	409	260	150	102	59	33	121	115

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: Receptors layout 2Shadow receptor: M - Brandweerkazerne

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December					
1	08:49	08:22	07:29	16:30 (6)	07:19	06:15	05:30	05:28	06:04	06:53	07:41	17:08 (6)	07:34	08:25			
	16:42	17:30	18:21	17:26 (6)	20:14	21:04	21:50	22:04	21:32	20:31	19:22	18:03 (6)	17:16	16:36			
2	08:49	08:21	07:27	16:30 (6)	07:17	06:13	05:30	05:28	06:05	06:54	07:43	17:07 (6)	07:36	08:26			
	16:43	17:31	18:22	17:27 (6)	20:16	21:06	21:51	22:03	21:31	20:28	19:20	18:03 (6)	17:14	16:36			
3	08:49	08:19	07:25	16:28 (6)	07:15	06:11	05:29	05:29	06:07	06:56	07:45	17:06 (6)	07:38	08:28			
	16:44	17:33	18:24	17:26 (6)	20:17	21:08	21:52	22:03	21:29	20:26	19:17	18:03 (6)	17:13	16:35			
4	08:48	08:18	07:23	16:28 (6)	07:13	06:10	05:28	05:30	06:08	06:58	07:46	17:05 (6)	07:40	08:29			
	16:45	17:35	18:26	17:27 (6)	20:19	21:09	21:53	22:03	21:27	20:24	19:15	18:03 (6)	17:11	16:35			
5	08:48	08:16	07:21	16:28 (6)	07:10	06:08	05:27	05:30	06:10	06:59	07:48	17:05 (6)	07:42	08:30			
	16:47	17:37	18:28	17:27 (6)	20:21	21:11	21:54	22:02	21:25	20:22	19:13	18:03 (6)	17:09	16:34			
6	08:48	08:14	07:19	16:28 (6)	07:08	06:06	05:27	05:31	06:11	07:01	07:50	17:04 (6)	07:43	08:32			
	16:48	17:39	18:30	17:27 (6)	20:23	21:13	21:55	22:02	21:24	20:19	19:10	18:03 (6)	17:07	16:34			
7	08:47	08:13	07:16	16:27 (6)	07:06	06:04	05:26	05:32	06:13	07:02	07:51	17:03 (6)	07:45	08:33			
	16:49	17:41	18:31	17:26 (6)	20:24	21:14	21:56	22:01	21:22	20:17	19:08	18:02 (6)	17:06	16:33			
8	08:47	08:11	07:14	16:28 (6)	07:04	06:02	05:26	05:33	06:14	07:04	07:53	17:03 (6)	07:47	08:34			
	16:50	17:42	18:33	17:26 (6)	20:26	21:16	21:57	22:00	21:20	20:15	19:06	18:02 (6)	17:04	16:33			
9	08:47	08:09	07:12	16:28 (6)	07:01	06:01	05:25	05:34	06:16	07:06	07:55	17:03 (6)	07:49	08:35			
	16:52	17:44	18:35	17:26 (6)	20:28	21:18	21:58	22:00	21:18	20:13	19:04	18:02 (6)	17:02	16:33			
10	08:46	08:07	07:10	16:28 (6)	06:59	05:59	05:25	05:35	06:18	07:07	07:56	17:03 (6)	07:50	08:36			
	16:53	17:46	18:37	17:26 (6)	20:29	21:19	21:58	21:59	21:16	20:10	19:01	18:01 (6)	17:01	16:32			
11	08:45	08:06	07:07	16:28 (6)	06:57	05:57	05:24	05:36	06:19	07:09	07:58	17:03 (6)	07:52	08:38			
	16:55	17:48	18:38	17:24 (6)	20:31	21:21	21:59	21:58	21:15	20:08	18:59	18:00 (6)	16:59	16:32			
12	08:45	08:04	07:05	16:28 (6)	06:55	05:56	05:24	05:37	06:21	07:10	08:00	17:03 (6)	07:54	08:39			
	16:56	17:50	18:40	17:24 (6)	20:33	21:22	22:00	21:57	21:13	20:06	18:57	18:00 (6)	16:58	16:32			
13	08:44	08:02	07:03	16:29 (6)	06:52	05:54	05:24	05:38	06:22	07:12	08:01	17:03 (6)	07:56	08:40			
	16:57	17:52	18:42	17:23 (6)	20:34	21:24	22:00	21:57	21:11	20:03	18:55	18:02 (6)	16:56	16:32			
14	08:43	08:00	07:01	16:29 (6)	06:50	05:52	05:24	05:39	06:24	07:14	08:03	17:04 (6)	07:57	08:41			
	16:59	17:53	18:43	17:22 (6)	20:36	21:25	22:01	21:56	21:09	20:01	18:53	18:02 (6)	16:55	16:32			
15	08:43	07:58	16:56 (6)	06:58	16:30 (6)	06:48	05:51	05:23	06:40	06:26	07:15	18:05	17:03 (6)	07:59	08:41		
	17:00	17:55	4	17:00 (6)	18:45	17:21 (6)	20:38	21:27	22:02	21:55	21:07	19:59	18:51	17:57 (6)	16:53	16:32	
16	08:42	07:56	16:49 (6)	06:56	16:31 (6)	06:46	05:49	05:23	06:42	06:27	07:17	18:06	17:04 (6)	08:01	08:42		
	17:02	17:57	18	17:07 (6)	18:47	17:20 (6)	20:39	21:28	22:02	21:54	21:05	19:56	18:48	17:56 (6)	16:52	16:32	
17	08:41	07:54	16:45 (6)	06:54	16:32 (6)	06:44	05:48	05:23	06:43	06:29	07:19	18:08	17:05 (6)	08:03	08:43		
	17:04	17:59	25	17:10 (6)	18:49	17:18 (6)	20:41	21:30	22:03	21:53	21:03	19:54	18:46	17:55 (6)	16:51	16:32	
18	08:40	07:52	16:43 (6)	06:52	16:33 (6)	06:42	05:47	05:23	06:44	06:30	07:20	18:10	17:06 (6)	08:04	08:44		
	17:05	18:01	30	17:13 (6)	18:50	17:17 (6)	20:43	21:31	22:03	21:52	21:01	19:52	18:44	17:54 (6)	16:49	16:33	
19	08:39	07:50	16:41 (6)	06:49	16:35 (6)	06:40	05:45	05:23	06:45	06:32	07:22	18:12	17:07 (6)	08:06	08:45		
	17:07	18:03	34	17:15 (6)	18:52	17:16 (6)	20:44	21:33	22:03	21:50	20:59	19:50	17:47 (6)	18:42	16:48	16:33	
20	08:38	07:48	16:39 (6)	06:47	16:36 (6)	06:37	05:44	05:23	06:47	06:34	07:23	17:30 (6)	18:13	17:07 (6)	08:08	08:45	
	17:09	18:04	38	17:17 (6)	18:54	17:13 (6)	20:46	21:34	22:04	21:49	20:57	19:47	18:40	17:50 (6)	16:47	16:33	
21	08:37	07:46	16:38 (6)	06:45	16:38 (6)	06:35	05:42	05:23	06:48	06:35	07:25	17:27 (6)	18:15	17:08 (6)	08:09	08:46	
	17:10	18:06	41	17:19 (6)	18:55	17:12 (6)	20:48	21:36	22:04	21:48	20:55	19:45	18:38	17:49 (6)	16:46	16:34	
22	08:36	07:44	16:36 (6)	06:42	16:41 (6)	06:33	05:41	05:24	06:49	06:37	07:27	17:25 (6)	18:17	17:10 (6)	08:11	08:46	
	17:12	18:08	45	17:21 (6)	18:57	17:09 (6)	20:49	21:37	22:04	21:47	20:52	19:43	18:36	17:47 (6)	16:44	16:34	
23	08:35	07:42	16:35 (6)	06:40	16:44 (6)	06:31	05:40	05:24	06:51	06:38	07:28	17:21 (6)	18:19	17:12 (6)	08:13	08:47	
	17:14	18:10	47	17:22 (6)	18:59	17:07 (6)	20:51	21:39	22:04	21:45	20:50	19:40	18:34	17:45 (6)	16:43	16:35	
24	08:33	07:40	16:34 (6)	06:38	16:47 (6)	06:29	05:39	05:24	06:52	06:40	07:30	17:19 (6)	18:20	17:14 (6)	08:14	08:47	
	17:15	18:12	49	17:23 (6)	19:01	14	17:01 (6)	20:53	21:40	22:04	21:44	20:48	19:38	18:32	17:43 (6)	16:42	16:35
25	08:32	07:38	16:33 (6)	06:35	16:47 (6)	06:27	05:37	05:25	06:53	06:42	07:31	17:16 (6)	18:22	17:11 (6)	08:16	08:48	
	17:17	18:14	51	17:24 (6)	19:02	20:54	21:41	22:04	21:43	20:46	19:36	18:32	17:30	16:40 (6)	16:41	16:36	
26	08:31	07:36	16:32 (6)	06:33	16:48 (6)	06:25	05:36	05:25	06:55	06:43	07:33	17:15 (6)	18:24	17:10 (6)	08:17	08:48	
	17:19	18:15	52	17:24 (6)	19:04	20:56	21:43	22:04	21:41	20:44	19:33	18:30 (6)	17:28	16:36 (6)	16:40	16:37	
27	08:30	07:34	16:31 (6)	06:31	16:49 (6)	06:23	05:35	05:25	06:56	06:45	07:35	17:13 (6)	18:26	17:13 (6)	08:19	08:48	
	17:21	18:17	54	17:25 (6)	19:06	20:58	21:44	22:04	21:40	20:42	19:31	18:28 (6)	17:26	16:39	16:37	16:37	
28	08:28	07:32	16:30 (6)	06:29	16:52 (6)	06:21	05:34	05:26	06:58	06:46	07:36	17:11 (6)	18:27	17:11 (6)	08:21	08:48	
	17:22	18:19	56	17:26 (6)	19:07	20:59	21:45	22:04	21:38	20:40	19:29	18:26 (6)	17:24	16:39	16:38	16:38	
29	08:27			07:26	16:59 (6)	06:19	05:33	05:26	06:59	06:48	07:38	17:10 (6)	18:29	17:10 (6)	08:22	08:49	
	17:24			20:09	21:01	21:46	22:04	21:37	20:37	19:26	18:16 (6)	17:22	16:38	16:39	16:39	16:39	
30	08:25			07:24	16:57 (6)	06:17	05:32	05:27	06:01	06:50	07:40	17:09 (6)	18:31	17:09 (6)	08:24	08:49	
	17:26			20:11	21:03	21:47	22:04	21:35	20:35	19:24	18:16 (6)	17:20	16:37	16:40	16:40	16:40	
31	08:24			07:22	16:58 (6)	06:15	05:31	05:24	06:02	06:51	07:40	17:08 (6)	18:33	17:08 (6)	08:25	08:49	
	17:28			20:12	21:04	21:49	22:06	21:34	20:33	19:22	18:11 (6)	17:18	16:35	16:41	16:41	16:41	
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245					
Total, worst case		544	1167						460	1275							
Sun reduction		0,28	0,26						0,33	0,29							
Oper. time red.		0,95	0,95						0,95	0,95							
Wind dir. red.		0,69	0,69						0,69	0,69							
Total reduction		0,18	0,17						0,22	0,19							
Total, real		99	200						100	241							

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: Receptors layout 2Shadow receptor: N - Van Polanenpark 23

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:23	08:23	08:49 (5)	07:30	07:20	06:15	05:28	06:04	07:06 (3)	06:53	07:42	08:25	
2	16:42	17:30	14 09:03 (5)	18:21	20:14	21:05	33 07:25 (3)	21:50	22:04	21:32	21 07:27 (3)	20:31	19:22
3	08:49	08:21	08:47 (5)	07:28	07:17	06:14	06:52 (3)	06:30	06:29	06:05	07:06 (3)	06:55	07:43
4	16:44	17:32	18 09:05 (5)	18:23	20:16	21:06	32 07:24 (3)	21:51	22:04	21:31	23 07:29 (3)	20:29	19:20
5	08:49	08:19	08:46 (5)	07:25	07:15	06:12	06:52 (3)	06:29	06:29	06:07	07:04 (3)	06:56	07:45
6	16:45	17:33	20 09:06 (5)	18:25	20:18	21:08	32 07:24 (3)	21:52	22:03	21:29	25 07:29 (3)	20:26	19:17
7	08:49	08:18	08:44 (5)	07:23	07:13	06:10	06:51 (3)	06:28	06:30	06:09	07:04 (3)	06:58	07:46
8	16:46	17:35	23 09:07 (5)	18:26	20:19	21:10	32 07:23 (3)	21:53	22:03	21:27	27 07:31 (3)	20:24	19:15
9	08:48	08:16	08:44 (5)	07:21	07:11	06:08	06:52 (3)	06:28	06:31	06:10	07:03 (3)	07:00	07:48
10	16:47	17:37	24 09:08 (5)	18:28	20:21	21:11	31 07:23 (3)	21:54	22:02	21:26	28 07:31 (3)	20:22	19:13
11	08:48	08:15	08:44 (5)	07:19	07:08	06:06	06:52 (3)	06:27	06:32	06:12	07:05 (3)	07:01	07:50
12	16:48	17:39	25 09:09 (5)	18:30	20:23	21:13	30 07:22 (3)	21:55	22:02	21:24	29 07:32 (3)	20:20	19:11
13	08:48	08:13	08:43 (5)	07:17	07:06	06:04	06:52 (3)	06:27	06:33	06:13	07:02 (3)	07:03	07:51
14	16:49	17:41	26 09:09 (5)	18:32	20:24	21:15	29 07:21 (3)	21:56	22:01	21:22	30 07:32 (3)	20:17	19:08
15	08:47	08:11	08:43 (5)	07:14	07:04	06:03	06:54 (3)	06:26	06:33	06:15	07:02 (3)	07:04	07:53
16	16:51	17:43	27 09:10 (5)	18:33	20:26	21:16	27 07:21 (3)	21:57	22:01	21:20	31 07:33 (3)	20:15	19:06
17	08:47	08:09	08:42 (5)	07:12	07:02	06:01	06:54 (3)	06:26	06:34	06:16	07:01 (3)	07:06	07:55
18	16:52	17:45	28 09:10 (5)	18:35	20:28	21:18	26 07:20 (3)	21:58	22:00	21:19	32 07:33 (3)	20:13	19:04
19	08:46	08:08	08:43 (5)	07:10	06:59	06:59	06:55 (3)	06:25	06:35	06:18	07:01 (3)	07:08	07:56
20	16:53	17:46	28 09:11 (5)	18:37	20:30	21:19	24 07:19 (3)	21:59	21:59	21:17	32 07:33 (3)	20:11	19:02
21	08:46	08:06	08:43 (5)	07:08	06:57	06:56	06:56 (3)	06:25	06:36	06:19	07:00 (3)	07:09	07:58
22	16:55	17:48	28 09:11 (5)	18:39	20:31	21:21	22 07:18 (3)	21:59	21:58	21:15	33 07:33 (3)	20:08	19:00
23	08:45	08:04	08:43 (5)	07:05	06:55	06:56	06:56 (3)	06:24	06:37	06:21	07:01 (3)	07:11	08:00
24	16:56	17:50	27 09:10 (5)	18:40	20:33	21:22	20 07:16 (3)	22:00	21:58	21:13	32 07:33 (3)	20:06	18:57
25	08:44	08:02	08:44 (5)	07:03	06:54	06:54	06:58 (3)	06:24	06:39	06:23	07:00 (3)	07:12	08:02
26	16:58	17:52	26 09:10 (5)	18:42	20:35	21:24	17 07:15 (3)	22:01	21:57	21:11	33 07:33 (3)	20:04	18:55
27	08:44	08:00	08:44 (5)	07:01	06:51	06:53	07:01 (3)	06:24	06:40	06:24	07:01 (3)	07:14	08:04
28	16:59	17:54	25 09:09 (5)	18:44	20:36	21:26	12 07:13 (3)	22:01	21:56	21:09	32 07:33 (3)	20:01	18:53
29	08:43	07:58	08:45 (5)	06:59	07:21 (4)	06:48	07:03 (3)	06:24	06:41	06:26	07:00 (3)	07:16	08:07 (4)
30	17:01	17:56	23 09:08 (5)	18:45	20:38	21:27	7 07:10 (3)	22:02	21:55	21:07	32 07:32 (3)	20:09	18:51
31	08:42	07:56	08:46 (5)	06:56	07:20 (4)	06:46	06:50	06:54	06:42	06:27	07:01 (3)	07:17	08:05 (4)
1	17:02	17:57	21 09:07 (5)	18:47	20:40	21:29	22:02	21:54	21:54	21:05	31 07:32 (3)	20:07	18:49
2	08:41	07:54	08:47 (5)	06:54	07:18 (4)	06:44	06:54	06:43	06:29	06:29	07:01 (3)	07:19	08:04 (4)
3	17:04	17:59	19 09:06 (5)	18:49	20:41	21:30	22:03	21:53	21:53	21:03	30 07:31 (3)	20:04	18:46
4	08:40	07:53	08:48 (5)	06:52	07:17 (4)	06:42	06:54	06:44	06:31	06:31	07:02 (3)	07:20	08:02 (4)
5	17:06	18:01	16 09:04 (5)	18:51	20:43	21:32	22:03	21:52	21:52	21:01	28 07:30 (3)	20:02	18:44
6	08:39	07:51	08:51 (5)	06:49	07:16 (4)	06:40	06:54	06:46	06:32	06:32	07:02 (3)	07:22	08:01 (4)
7	17:07	18:03	10 09:01 (5)	18:52	20:44	21:33	22:04	21:51	21:51	21:09	26 07:29 (3)	20:00	18:42
8	08:38	07:49	06:47	06:38	07:16 (4)	06:38	07:04 (3)	06:44	06:34	06:34	07:04 (3)	07:24	08:01 (4)
9	17:09	18:05	07:44	06:46	14 07:18 (3)	21:35	22:04	21:49	20:57	20:57	24 07:28 (3)	20:04	18:40
10	08:37	07:47	06:45	06:36	07:01 (3)	06:43	06:54	06:48	06:35	06:35	07:04 (3)	07:25	08:00 (4)
11	17:10	18:07	18:56	29 07:43 (4)	20:48	19 07:20 (3)	21:48	22:04	21:48	20:55	27 07:26 (3)	20:04	18:38
12	08:36	07:44	06:43	06:33	07:14 (4)	06:33	06:59 (3)	06:41	06:37	06:37	07:06 (3)	07:27	08:00 (4)
13	17:12	18:08	18:57	29 07:43 (4)	20:50	22 07:21 (3)	21:37	22:04	21:47	20:53	18 07:24 (3)	20:03	18:36
14	08:35	07:42	06:40	06:31	06:58 (3)	06:40	06:54	06:51	06:39	06:39	07:08 (3)	07:28	08:01 (4)
15	17:14	18:10	18:59	29 07:43 (4)	20:51	24 07:22 (3)	21:39	22:04	21:46	20:51	13 07:21 (3)	20:04	18:34
16	08:34	07:40	06:38	07:14 (4)	06:29	06:56 (3)	06:59	06:52	06:40	06:40	07:13 (3)	07:30	07:59 (4)
17	17:16	18:12	19:01	27 07:41 (4)	20:53	27 07:23 (3)	21:40	22:05	21:44	20:48	3 07:16 (3)	20:08	18:32
18	08:32	07:38	06:36	07:14 (4)	06:27	06:55 (3)	06:58	06:52	06:42	06:42	07:32	08:00 (4)	07:22
19	17:17	18:14	19:03	27 07:41 (4)	20:55	29 07:24 (3)	21:41	22:05	21:43	20:46	19 07:21 (3)	20:07 (4)	17:30
20	08:31	07:36	06:33	07:15 (4)	06:25	06:54 (3)	06:57	06:55	06:43	06:43	07:33	08:00 (4)	07:24
21	17:19	18:16	19:04	25 07:40 (4)	20:56	30 07:24 (3)	21:43	22:05	21:42	20:44	24 07:25	25 08:25 (4)	17:28
22	08:30	07:34	06:31	07:16 (4)	06:23	06:53 (3)	06:56	06:56	06:45	06:45	07:35	08:01 (4)	07:26
23	17:21	18:17	19:06	23 07:39 (4)	20:58	31 07:24 (3)	21:44	22:05	21:40	20:42	19 07:21 (3)	20:04	17:26
24	08:28	07:32	06:29	07:16 (4)	06:21	06:56 (3)	06:54	06:58	06:47	06:47	07:37	08:02 (4)	07:28
25	17:23	18:19	19:08	20 07:36 (4)	21:00	31 07:24 (3)	21:45	22:04	21:39	20:40	19 07:21 (3)	20:04	17:24
26	08:27	07:27	06:28	07:12 (4)	06:19	06:52 (3)	06:53	06:57	06:48	06:48	07:38	08:03 (4)	07:29
27	17:24	18:20	19:09	16 08:34 (4)	21:01	32 07:24 (3)	21:46	22:04	21:37	20 07:22 (3)	10 07:22 (3)	20:38	17:22
28	08:26	07:24	06:21 (4)	06:17	06:51 (3)	06:53	06:57	06:01	06:01	06:01	07:40	08:06 (4)	07:31
29	17:26	18:22	19:11	08:31 (4)	21:03	33 07:24 (3)	21:48	22:04	21:36	20 07:25 (3)	15 07:25 (3)	20:35	17:20
30	08:24	07:22	06:19	06:12	06:52	06:52	06:52	06:02	06:02	06:02	07:08 (3)	06:51	07:33
31	17:28	18:24	19:13	08:31 (4)	21:05	33 07:24 (3)	21:50	22:06	21:34	20 07:26 (3)	18 07:26 (3)	20:33	17:18
Potential sun hours	260	9	08:51 (5)	20:13	21:49	484	497	501	453	381	352	267	245
Total, worst case	9	278	367	410	298	374	43	43	635	410	206	240	240
Sun reduction	0,19	0,28	0,26	0,35	0,35	0,40	0,38	0,41	0,41	0,33	0,29	0,21	0,21
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.	0,55	0,55	0,57	0,64	0,64	0,64	0,64	0,64	0,64	0,57	0,55	0,55	0,55
Total reduction	0,10	0,14	0,14	0,21	0,21	0,24	0,23	0,23	0,24	0,18	0,15	0,11	0,11
Total, real	1	61	57	63	63	89	10	10	155	73	31	26	26

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

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

SHADOW - Calendar

Calculation: Receptors layout 2Shadow receptor: O - Kerkweg 79
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	09:05 (5) 07:30	08:02 (4) 07:20	06:15	06:50 (2) 05:31	05:28	06:04	07:07 (2) 06:53	07:42	07:35	08:25
2	08:49	08:21	09:05 (5) 07:28	08:03 (4) 07:17	06:14	06:50 (2) 05:30	05:29	06:05	07:06 (2) 06:55	07:43	07:37	08:27
3	08:49	08:20	09:18 (5) 07:25	08:04 (4) 07:15	06:12	06:49 (2) 05:29	05:29	06:07	07:04 (2) 06:56	07:45	07:38	08:28
4	08:49	08:18	09:15 (5) 07:23	08:05 (4) 07:13	06:10	06:49 (2) 05:28	05:30	06:09	07:03 (2) 06:58	07:46	07:40	08:29
5	08:48	08:16	09:15 (5) 07:21	08:16 (4) 07:11	06:08	06:51 (2) 05:28	05:31	06:10	07:02 (2) 07:00	07:48	07:42	08:31
6	08:48	08:15	09:15 (5) 07:19	08:12 (4) 07:08	06:06	06:51 (2) 05:27	05:32	06:12	07:01 (2) 07:01	07:50	07:44	08:32
7	08:48	08:13	09:15 (5) 07:17	08:12 (4) 07:06	06:04	06:51 (2) 05:27	05:33	06:13	07:00 (2) 07:03	07:51	07:45	08:33
8	08:47	08:11	09:15 (5) 07:14	08:12 (4) 07:04	06:03	06:53 (2) 05:26	05:33	06:15	07:00 (2) 07:04	07:53	07:47	08:34
9	08:47	08:09	09:15 (5) 07:12	08:12 (4) 07:02	06:01	06:53 (2) 05:26	05:34	06:16	06:59 (2) 07:06	07:55	08:42 (4) 07:49	08:37 (5) 08:36
10	08:46	08:08	09:15 (5) 07:10	08:12 (4) 07:00	05:59	06:55 (2) 05:25	05:35	06:18	06:59 (2) 07:08	07:57	08:39 (4) 07:51	08:36 (5) 08:37
11	08:46	08:06	09:15 (5) 07:08	08:12 (4) 06:58	05:58	06:56 (2) 05:25	05:36	06:19	06:58 (2) 07:09	07:58	08:38 (4) 07:52	08:35 (5) 08:38
12	08:45	08:04	09:15 (5) 07:06	08:12 (4) 06:56	05:56	06:59 (2) 05:24	05:37	06:21	06:58 (2) 07:11	07:59	08:38 (4) 07:54	08:35 (5) 08:39
13	08:44	08:02	09:15 (5) 07:04	08:12 (4) 06:54	05:54	07:02 (2) 05:23	05:38	06:23	06:58 (2) 07:14	08:00 (3) 08:02	08:35 (4) 07:56	08:35 (5) 08:40
14	08:44	08:00	09:15 (5) 07:02	08:12 (4) 06:52	05:52	07:05 (2) 05:22	05:39	06:24	06:58 (2) 07:17	08:01 (3) 08:03	08:35 (4) 07:58	08:35 (5) 08:41
15	08:43	07:58	09:15 (5) 06:59	08:12 (4) 06:50	05:51	07:08 (2) 05:21	05:40	06:26	06:58 (2) 07:20	08:02 (3) 08:04	08:34 (4) 07:59	08:35 (5) 08:42
16	08:42	07:56	09:15 (5) 06:57	08:12 (4) 06:48	05:50	07:11 (2) 05:20	05:41	06:27	06:58 (2) 07:23	08:03 (3) 08:05	08:34 (4) 07:59	08:35 (5) 08:43
17	08:41	07:55	09:15 (5) 06:55	08:12 (4) 06:46	05:48	07:14 (2) 05:19	05:42	06:28	06:58 (2) 07:26	08:04 (3) 08:06	08:34 (4) 07:59	08:35 (5) 08:43
18	08:40	07:53	09:15 (5) 06:53	08:12 (4) 06:44	05:47	07:17 (2) 05:18	05:43	06:29	06:58 (2) 07:29	08:05 (3) 08:07	08:34 (4) 07:59	08:35 (5) 08:44
19	08:39	07:51	09:15 (5) 06:51	08:12 (4) 06:42	05:45	07:20 (2) 05:17	05:44	06:30	06:58 (2) 07:32	08:06 (3) 08:08	08:34 (4) 07:59	08:35 (5) 08:45
20	08:38	07:49	09:15 (5) 06:49	08:12 (4) 06:40	05:44	07:23 (2) 05:16	05:45	06:31	06:58 (2) 07:35	08:07 (3) 08:09	08:34 (4) 07:59	08:35 (5) 08:46
21	08:37	07:47	09:15 (5) 06:47	08:12 (4) 06:38	05:43	07:26 (2) 05:15	05:46	06:32	06:58 (2) 07:38	08:08 (3) 08:10	08:34 (4) 07:59	08:35 (5) 08:47
22	08:36	07:45	09:15 (5) 06:45	08:12 (4) 06:36	05:42	07:29 (2) 05:14	05:47	06:33	06:58 (2) 07:41	08:09 (3) 08:11	08:34 (4) 07:59	08:35 (5) 08:48
23	08:35	07:43	09:15 (5) 06:43	08:12 (4) 06:34	05:41	07:32 (2) 05:13	05:48	06:34	06:58 (2) 07:44	08:10 (3) 08:12	08:34 (4) 07:59	08:35 (5) 08:49
24	08:34	07:41	09:15 (5) 06:41	08:12 (4) 06:32	05:40	07:35 (2) 05:12	05:49	06:35	06:58 (2) 07:47	08:11 (3) 08:13	08:34 (4) 07:59	08:35 (5) 08:50
25	08:33	07:39	09:15 (5) 06:39	08:12 (4) 06:30	05:39	07:38 (2) 05:11	05:50	06:36	06:58 (2) 07:50	08:12 (3) 08:14	08:34 (4) 07:59	08:35 (5) 08:51
26	08:31	07:37	09:15 (5) 06:37	08:12 (4) 06:28	05:38	07:41 (2) 05:10	05:51	06:37	06:58 (2) 07:53	08:13 (3) 08:15	08:34 (4) 07:59	08:35 (5) 08:52
27	08:30	07:35	09:15 (5) 06:35	08:12 (4) 06:26	05:37	07:44 (2) 05:09	05:52	06:38	06:58 (2) 07:56	08:14 (3) 08:16	08:34 (4) 07:59	08:35 (5) 08:53
28	08:29	07:33	09:15 (5) 06:33	08:12 (4) 06:24	05:36	07:47 (2) 05:08	05:53	06:39	06:58 (2) 07:59	08:15 (3) 08:17	08:34 (4) 07:59	08:35 (5) 08:54
29	08:27	07:31	09:15 (5) 06:31	08:12 (4) 06:22	05:35	07:50 (2) 05:07	05:54	06:40	06:58 (2) 08:02	08:16 (3) 08:18	08:34 (4) 07:59	08:35 (5) 08:55
30	08:26	07:29	09:15 (5) 06:29	08:12 (4) 06:20	05:34	07:53 (2) 05:06	05:55	06:41	06:58 (2) 08:05	08:17 (3) 08:19	08:34 (4) 07:59	08:35 (5) 08:56
31	08:24	07:27	09:15 (5) 06:27	08:12 (4) 06:18	05:33	07:56 (2) 05:05	05:56	06:42	06:58 (2) 08:08	08:18 (3) 08:20	08:34 (4) 07:59	08:35 (5) 08:57
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
Total, worst case	240	193	379	253	265	497	501	453	381	332	267	245
Sun reduction	0,19	0,28	0,26	0,35	0,40	0,00	0,00	0,00	0,11	0,33	0,29	0,21
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.	0,55	0,54	0,56	0,64	0,64	0,64	0,64	0,64	0,58	0,58	0,53	0,53
Total reduction	0,10	0,14	0,14	0,21	0,24	0,00	0,00	0,00	0,24	0,18	0,14	0,11
Total, real	23	27	53	53	63	128	128	128	128	128	33	30

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

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

SHADOW - Calendar

Calculation: Receptors layout 2Shadow receptor: P - Moye Keene 130

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December							
1	08:49	08:23	07:30		06:15	21:05	21:50	06:34 (3) 22:04	29	06:11 (3) 06:04	06:53	07:20 (4) 07:42	20:31	25	07:45 (4) 19:22	21	08:32 (5) 07:35	08:25	08:25
2	08:49	08:21	07:28	23	08:18 (5) 20:14	07:28	07:54 (5) 07:17	06:14	06:50	06:11 (3) 06:05	06:55	07:21 (4) 07:43	20:31	25	07:45 (4) 19:22	21	08:32 (5) 07:35	08:25	08:27
3	08:49	08:19	07:25	27	08:19 (5) 20:16	21:06	21:51	29	06:34 (3) 22:04	29	06:40 (3) 21:31	20:29	23	07:44 (4) 19:20	23	08:54 (5) 17:15	16:36	16:36	16:36
4	08:49	08:18	07:23	27	07:53 (5) 07:15	06:12	05:29	06:06 (3) 05:29	29	06:12 (3) 06:07	06:56	07:22 (4) 07:45	20:31	25	07:45 (4) 19:22	21	08:32 (5) 07:35	08:25	08:28
5	08:48	08:16	07:21	27	08:20 (5) 20:18	21:08	21:52	29	06:35 (3) 22:03	29	06:41 (3) 21:29	20:26	20	07:42 (4) 19:17	25	08:55 (5) 17:13	16:35	16:35	16:35
6	08:48	08:15	07:19	29	07:51 (5) 07:08	06:10	05:28	06:05 (3) 05:30	29	06:11 (3) 06:09	06:58	07:24 (4) 07:46	20:31	25	07:45 (4) 19:22	21	08:32 (5) 07:35	08:29	08:29
7	08:48	08:13	07:17	29	08:19 (5) 20:19	21:10	21:53	30	06:35 (3) 22:03	29	06:40 (3) 21:27	20:24	17	07:41 (4) 19:15	27	08:56 (5) 17:11	16:35	16:35	16:35
8	08:47	08:11	07:14	29	07:51 (5) 07:06	06:08	05:27	06:06 (3) 05:33	29	06:12 (3) 06:10	07:00	07:25 (4) 07:48	20:31	25	07:45 (4) 19:22	21	08:32 (5) 07:35	08:28	08:31
9	08:47	08:09	07:12	29	08:20 (5) 20:24	21:11	21:54	29	06:35 (3) 22:02	29	06:41 (3) 21:26	20:22	13	07:38 (4) 19:13	28	08:56 (5) 17:09	16:34	16:34	16:34
10	08:46	08:08	07:10	29	08:20 (5) 20:23	21:13	21:55	29	06:35 (3) 22:02	29	06:41 (3) 21:24	20:20	7	07:35 (4) 19:11	29	08:56 (5) 17:08	16:34	16:34	16:34
11	08:46	08:07	07:09	29	08:19 (5) 20:26	21:16	21:57	29	06:35 (3) 22:01	29	06:41 (3) 21:21	20:17	19	07:28 (4) 19:08	29	08:56 (5) 17:04	16:33	16:33	16:33
12	08:45	08:04	07:07	29	08:18 (5) 20:30	21:19	21:59	29	06:36 (3) 21:59	29	06:42 (3) 21:17	20:11	19	07:27 (4) 19:07	29	08:56 (5) 17:01	16:33	16:33	16:33
13	08:44	08:02	07:03	27	08:18 (5) 20:32	21:21	22:00	29	06:36 (3) 21:58	29	06:43 (3) 21:15	20:08	19	07:26 (4) 19:06	29	08:56 (5) 17:00	16:33	16:33	16:33
14	08:44	08:00	07:01	27	08:17 (5) 20:35	21:24	22:01	29	06:37 (3) 21:57	29	06:43 (3) 21:11	20:04	18	07:25 (4) 19:05	29	08:56 (5) 16:59	16:32	16:32	16:32
15	08:43	07:58	06:59	27	08:16 (5) 20:31	21:27	22:02	29	06:37 (3) 21:56	28	06:42 (3) 21:07	19:59	18	07:24 (4) 19:04	29	08:56 (5) 16:54	16:32	16:32	16:32
16	08:42	07:56	06:56	28	08:15 (5) 20:34	21:30	22:03	29	06:38 (3) 21:55	28	06:41 (3) 21:06	19:54	17	07:23 (4) 19:03	29	08:56 (5) 16:53	16:32	16:32	16:32
17	08:42	07:54	06:54	28	08:14 (5) 20:37	21:33	22:04	29	06:38 (3) 21:54	27	06:40 (3) 21:05	19:51	16	07:22 (4) 19:02	29	08:56 (5) 16:52	16:32	16:32	16:32
18	08:40	07:53	06:52	27	08:13 (5) 20:40	21:36	22:05	29	06:39 (3) 21:53	27	06:41 (3) 21:04	19:48	15	07:21 (4) 19:01	29	08:56 (5) 16:51	16:32	16:32	16:32
19	08:39	07:51	06:49	27	08:12 (5) 20:43	21:39	22:06	29	06:39 (3) 21:52	26	06:41 (3) 21:03	19:45	14	07:20 (4) 19:00	29	08:56 (5) 16:50	16:32	16:32	16:32
20	08:38	07:49	06:47	27	08:11 (5) 20:46	21:42	22:07	29	06:40 (3) 21:51	25	06:41 (3) 21:02	19:42	13	07:19 (4) 18:59	29	08:56 (5) 16:49	16:32	16:32	16:32
21	08:37	07:46	06:45	27	08:10 (5) 20:49	21:45	22:08	29	06:40 (3) 21:50	24	06:41 (3) 21:01	19:39	12	07:18 (4) 18:58	29	08:56 (5) 16:48	16:32	16:32	16:32
22	08:36	07:44	06:43	27	08:09 (5) 20:52	21:48	22:09	29	06:41 (3) 21:49	23	06:41 (3) 21:00	19:36	11	07:17 (4) 18:57	29	08:56 (5) 16:47	16:32	16:32	16:32
23	08:35	07:42	06:41	27	08:08 (5) 20:55	21:51	22:10	29	06:41 (3) 21:48	22	06:41 (3) 21:00	19:33	10	07:16 (4) 18:56	29	08:56 (5) 16:46	16:32	16:32	16:32
24	08:34	07:40	06:39	27	08:07 (5) 20:58	21:54	22:11	29	06:42 (3) 21:47	21	06:41 (3) 21:00	19:30	9	07:15 (4) 18:55	29	08:56 (5) 16:45	16:32	16:32	16:32
25	08:32	07:38	06:36	27	08:06 (5) 21:01	21:57	22:12	29	06:42 (3) 21:46	20	06:41 (3) 21:00	19:27	8	07:14 (4) 18:54	29	08:56 (5) 16:44	16:32	16:32	16:32
26	08:31	07:36	06:33	27	08:05 (5) 21:04	22:00	22:13	29	06:43 (3) 21:45	19	06:41 (3) 21:00	19:24	7	07:13 (4) 18:53	29	08:56 (5) 16:43	16:32	16:32	16:32
27	08:30	07:34	06:31	27	08:04 (5) 21:07	22:03	22:14	29	06:43 (3) 21:44	18	06:41 (3) 21:00	19:21	6	07:12 (4) 18:52	29	08:56 (5) 16:42	16:32	16:32	16:32
28	08:29	07:32	06:29	27	08:03 (5) 21:10	22:06	22:15	29	06:44 (3) 21:43	17	06:41 (3) 21:00	19:18	5	07:11 (4) 18:51	29	08:56 (5) 16:41	16:32	16:32	16:32
29	08:27	07:27	06:27	27	08:02 (5) 21:13	22:09	22:16	29	06:44 (3) 21:42	16	06:41 (3) 21:00	19:15	4	07:10 (4) 18:50	29	08:56 (5) 16:40	16:32	16:32	16:32
30	08:26	07:24	06:24	27	08:01 (5) 21:16	22:12	22:17	29	06:45 (3) 21:41	15	06:41 (3) 21:00	19:12	3	07:09 (4) 18:49	29	08:56 (5) 16:39	16:32	16:32	16:32
31	08:24	07:22	06:22	27	08:00 (5) 21:19	22:15	22:18	29	06:45 (3) 21:40	14	06:41 (3) 21:00	19:09	2	07:08 (4) 18:48	29	08:56 (5) 16:38	16:32	16:32	16:32
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245							
Total, worst case	47	363	412	484	497	501	501	453	381	332	267	245							
Sun reduction	0,28	0,26	0,35	0,40	0,40	0,35	0,38	0,41	0,33	0,29									
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95									
Wind dir. red.	0,53	0,62	0,70	0,70	0,70	0,70	0,70	0,70	0,60	0,53									
Total reduction	0,14	0,13	0,21	0,26	0,23	0,25	0,25	0,24	0,19	0,14									
Total, real	6	47	85	87	196	166	166	75	27	54									

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: Receptors layout 2Shadow receptor: Q - Zevenbergseweg 23

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December				
1	08:49	08:23	07:30	07:20	06:16	05:31	06:36 (5)	05:28	06:04	06:39 (5)	06:53	07:42	07:35	08:25		
	16:43	17:30	18:21	20:14	21:05	21:50	06:49 (5)	22:04	21:32	29	07:08 (5)	20:31	19:22	17:17	16:37	
2	08:49	08:21	07:28	07:17	06:14	05:30	06:37 (5)	05:29	06:05	06:39 (5)	06:55	07:43	07:36	08:27		
	16:44	17:32	18:23	20:16	21:06	21:51	11	06:48 (5)	22:03	21:31	28	07:07 (5)	20:29	19:20	17:15	16:36
3	08:49	08:19	07:25	07:15	06:12	06:38 (5)	05:29	05:29	06:07	06:39 (5)	06:56	07:45	07:38	08:28		
	16:45	17:34	18:25	20:18	21:08	10	06:48 (5)	21:52	21:29	27	07:06 (5)	20:26	19:17	17:13	16:35	
4	08:49	08:18	07:23	07:13	06:10	06:35 (5)	05:28	05:30	06:09	06:40 (5)	06:58	07:46	07:40	08:29		
	16:46	17:35	18:26	20:19	21:10	15	06:50 (5)	21:53	21:27	26	07:06 (5)	20:24	19:15	17:11	16:35	
5	08:48	08:16	07:21	07:11	06:08	06:34 (5)	05:28	05:31	06:10	06:40 (5)	07:00	07:48	07:42	08:31		
	16:47	17:37	18:28	20:21	21:11	19	06:53 (5)	21:54	22:02	25	07:05 (5)	20:22	19:13	17:09	16:34	
6	08:48	08:15	07:19	07:08	06:06	06:32 (5)	05:27	05:32	06:12	06:42 (5)	07:01	07:50	07:44	08:32		
	16:48	17:39	18:30	20:23	21:13	21	06:53 (5)	21:55	21:24	22	07:04 (5)	20:20	19:11	17:08	16:34	
7	08:48	08:13	07:17	07:06	06:04	06:31 (5)	05:27	05:33	06:13	06:42 (5)	07:03	07:51	07:45	08:33		
	16:49	17:41	18:32	20:24	21:14	23	06:54 (5)	21:56	22:01	21	07:03 (5)	20:17	19:08	17:06	16:34	
8	08:47	08:11	07:14	07:04	06:03	06:30 (5)	05:26	05:33	06:15	06:44 (5)	07:04	07:53	07:47	08:34		
	16:51	17:43	18:33	20:26	21:16	25	06:55 (5)	21:57	22:01	18	07:02 (5)	20:15	19:06	17:04	16:33	
9	08:47	08:09	07:12	07:02	06:01	06:29 (5)	05:26	05:34	06:16	06:45 (5)	07:06	07:55	07:49	08:36		
	16:52	17:45	18:35	20:28	21:18	27	06:56 (5)	21:58	22:00	6	06:54 (5)	21:18	19:04	17:03	16:33	
10	08:46	08:08	07:10	06:59	05:59	06:29 (5)	05:25	05:35	06:18	14	06:59 (5)	20:18	19:06	17:01	16:33	
	16:53	17:46	18:37	20:30	21:19	28	06:57 (5)	21:58	21:59	10	06:56 (5)	21:17	19:02	17:01	16:33	
11	08:46	08:06	07:08	06:57	05:58	06:28 (5)	05:25	05:36	06:19	8	06:57 (5)	20:18	19:02	17:01	16:33	
	16:55	17:48	18:39	20:31	21:21	29	06:57 (5)	21:59	21:58	12	06:57 (5)	21:15	20:08	19:00	17:00	16:33
12	08:45	08:04	07:05	06:55	05:56	06:28 (5)	05:24	05:37	06:21	06:44 (5)	07:01	08:00	07:54	08:39		
	16:56	17:50	18:40	20:33	21:22	29	06:57 (5)	22:00	21:58	15	06:59 (5)	21:13	20:06	18:57	16:58	16:32
13	08:44	08:02	07:03	06:53	05:54	06:28 (5)	05:24	05:39	06:13	06:44 (5)	07:03	07:12	08:02	07:56	08:40	
	16:58	17:52	18:42	20:35	21:24	29	06:57 (5)	22:01	21:57	16	07:00 (5)	21:11	20:04	18:55	16:57	16:32
14	08:44	08:00	07:01	06:51	05:53	06:28 (5)	05:24	05:40	06:13	06:43 (5)	07:04	07:14	08:03	07:58	08:41	
	16:59	17:54	18:44	20:36	21:26	30	06:58 (5)	22:01	21:56	18	07:01 (5)	21:09	20:01	18:53	16:55	16:32
15	08:43	07:58	06:59	06:48	05:51	06:27 (5)	05:24	05:41	06:15	19	07:01 (5)	21:07	20:00	18:51	16:54	16:33
	17:01	17:56	18:45	20:38	21:27	30	06:57 (5)	22:02	21:55	19	07:01 (5)	21:07	19:59	18:51	16:54	16:33
16	08:42	07:56	06:56	06:46	05:50	06:28 (5)	05:24	05:42	06:15	21	07:02 (5)	21:05	20:00	18:47	16:52	16:33
	17:02	17:57	18:47	20:40	21:29	29	06:57 (5)	22:02	21:54	21	07:02 (5)	21:05	19:57	18:49	16:52	16:33
17	08:41	07:54	06:54	06:44	05:48	06:28 (5)	05:24	05:43	06:17	22	07:03 (5)	21:03	20:00	18:47	16:51	16:33
	17:04	17:59	18:49	20:41	21:30	30	06:58 (5)	22:03	21:53	22	07:03 (5)	21:03	19:54	18:47	16:51	16:33
18	08:40	07:53	06:52	06:42	05:47	06:27 (5)	05:24	05:44	06:18	24	07:04 (5)	21:01	20:00	18:44	16:50	16:33
	17:06	18:01	18:51	20:43	21:32	30	06:57 (5)	22:03	21:52	24	07:04 (5)	21:01	19:52	18:44	16:50	16:33
19	08:39	07:51	06:49	06:40	05:45	06:28 (5)	05:24	05:46	06:19	26	07:05 (5)	20:59	20:00	18:42	16:48	16:33
	17:07	18:03	18:52	20:45	21:33	29	06:57 (5)	22:03	21:51	25	07:04 (5)	20:59	19:50	18:42	16:48	16:33
20	08:38	07:49	06:47	06:38	05:44	06:28 (5)	05:24	05:47	06:20	28	07:06 (5)	20:57	20:00	18:40	16:47	16:34
	17:09	18:05	18:54	20:46	21:34	29	06:57 (5)	22:04	21:49	26	07:06 (5)	20:57	19:47	18:40	16:47	16:34
21	08:37	07:46	06:45	06:36	05:43	06:29 (5)	05:24	05:48	06:21	30	07:07 (5)	20:55	20:00	18:38	16:46	16:34
	17:11	18:07	18:56	20:48	21:36	28	06:57 (5)	22:04	21:48	27	07:06 (5)	20:55	19:45	18:38	16:46	16:34
22	08:36	07:44	06:43	06:33	05:41	06:28 (5)	05:24	05:50	06:23	30	07:07 (5)	20:53	20:00	18:36	16:45	16:35
	17:12	18:08	18:57	20:50	21:37	28	06:56 (5)	22:04	21:47	27	07:06 (5)	20:53	19:43	18:36	16:45	16:35
23	08:35	07:42	06:40	06:31	05:40	06:29 (5)	05:24	05:51	06:24	30	07:08 (5)	20:51	20:00	18:34	16:44	16:35
	17:14	18:10	18:59	20:51	21:39	26	06:55 (5)	22:04	21:46	28	07:06 (5)	20:51	19:41	18:34	16:44	16:35
24	08:34	07:40	06:38	06:29	05:39	06:30 (5)	05:25	05:52	06:25	30	07:07 (5)	20:49	20:00	18:32	16:43	16:36
	17:16	18:12	19:01	20:53	21:40	25	06:55 (5)	22:05	21:44	28	07:07 (5)	20:48	19:38	18:32	16:43	16:36
25	08:32	07:38	06:36	06:27	05:38	06:30 (5)	05:25	05:54	06:28	30	07:08 (5)	20:46	20:00	18:30	16:42	16:36
	17:17	18:14	19:03	20:55	21:41	24	06:54 (5)	22:05	21:43	29	07:07 (5)	20:46	19:36	18:30	16:42	16:36
26	08:31	07:36	06:33	06:25	05:37	06:31 (5)	05:25	05:55	06:29	30	07:08 (5)	20:44	20:00	18:28	16:41	16:37
	17:19	18:16	19:04	20:56	21:43	23	06:54 (5)	22:05	21:42	29	07:07 (5)	20:44	19:34	18:28	16:41	16:37
27	08:30	07:34	06:31	06:23	05:36	06:32 (5)	05:26	05:57	06:31	30	07:08 (5)	20:42	20:00	18:26	16:40	16:38
	17:21	18:17	19:06	20:58	21:44	21	06:53 (5)	22:05	21:40	30	07:08 (5)	20:42	19:31	18:26	16:40	16:38
28	08:28	07:32	06:29	06:21	05:35	06:32 (5)	05:26	05:58	06:34	30	07:09 (5)	20:40	20:00	18:24	16:39	16:39
	17:23	18:19	19:08	21:00	21:45	20	06:52 (5)	22:04	21:39	30	07:08 (5)	20:40	19:29	18:24	16:39	16:39
29	08:27	07:27	06:19	05:34	05:34	06:33 (5)	05:27	06:00	06:35	30	07:09 (5)	20:38	20:00	18:22	16:38	16:39
	17:24	18:20	19:09	21:01	21:46	18	06:51 (5)	22:04	21:37	29	07:07 (5)	20:38	19:27	18:22	16:38	16:39
30	08:26	07:24	06:17	05:33	05:33	06:35 (5)	05:27	06:01	06:36	30	07:09 (5)	20:36	20:00	18:20	16:37	16:40
	17:26	18:22	19:11	21:03	21:48	17	06:52 (5)	22:04	21:36	30	07:08 (5)	20:35	19:24	18:20	16:37	16:40
31	08:24	07:22	06:15	05:30	05:30	06:35 (5)	05:27	06:02	06:37	30	07:09 (5)	20:34	20:00	18:18	16:36	16:41
	17:28	18:24	19:13	21:05	21:49	16	06:51 (5)	22:04	21:34	29	07:07 (5)	20:33	19:18	18:18	16:36	16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245				
Total, worst case					708	31	530	218								
Sun reduction					0.40	0.35	0.38	0.41								
Oper. time red.					0.95	0.95	0.95	0.95								
Wind dir. red.					0.67	0.67	0.67	0.67								
Total reduction					0.25	0.22	0.24	0.26								
Total, real					180	7	129	57								

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: Receptors layout 2Shadow receptor: R - Zevenbergseweg 22

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:49 16:43	08:23 17:30	07:30 18:21	07:20 20:14	06:16 21:05	05:31 21:50	06:09 (5) 05:28	06:15 (5) 06:04	06:04 21:32	06:53 20:31	07:42 19:22	07:35 17:17	08:25 16:37
2	08:49 16:44	08:21 17:32	07:28 18:23	07:17 20:16	06:14 21:06	05:30 21:51	06:09 (5) 05:29	06:16 (5) 06:06	06:06 21:31	06:55 20:29	07:43 19:20	07:36 17:15	08:27 16:36
3	08:49 16:45	08:19 17:34	07:25 18:25	07:15 20:18	06:12 21:08	05:29 21:52	06:10 (5) 05:28	06:16 (5) 06:07	06:07 21:31	06:56 20:26	07:45 19:18	07:38 17:13	08:28 16:35
4	08:49 16:46	08:18 17:35	07:23 18:26	07:13 20:19	06:10 21:10	05:28 21:53	06:09 (5) 05:28	06:16 (5) 06:09	06:09 21:31	06:58 20:24	07:46 19:15	07:40 17:11	08:29 16:35
5	08:48 16:47	08:16 17:37	07:21 18:28	07:11 20:21	06:08 21:11	05:28 21:54	06:10 (5) 05:28	06:16 (5) 06:10	06:10 21:26	07:00 20:22	07:48 19:13	07:42 17:09	08:31 16:34
6	08:48 16:48	08:15 17:39	07:19 18:30	07:08 20:23	06:06 21:13	05:27 21:55	06:10 (5) 05:27	06:16 (5) 06:12	06:12 21:24	07:01 20:20	07:50 19:11	07:44 17:08	08:32 16:34
7	08:48 16:49	08:13 17:41	07:17 18:32	07:06 20:24	06:04 21:14	05:27 21:56	06:11 (5) 05:26	06:16 (5) 06:13	06:13 21:22	07:03 20:17	07:51 19:08	07:45 17:06	08:33 16:34
8	08:47 16:51	08:11 17:43	07:14 18:33	07:04 20:26	06:03 21:16	05:26 21:57	06:10 (5) 05:26	06:17 (5) 06:15	06:15 21:22	07:04 20:15	07:53 19:06	07:47 17:04	08:34 16:33
9	08:47 16:52	08:09 17:45	07:12 18:35	07:02 20:28	06:01 21:18	05:26 21:58	06:11 (5) 05:26	06:17 (5) 06:18	06:16 21:20	07:06 20:13	07:55 19:04	07:49 17:03	08:36 16:33
10	08:46 16:53	08:08 17:46	07:10 18:37	06:59 20:30	05:59 21:19	05:25 21:58	06:12 (5) 05:25	06:17 (5) 06:18	06:18 21:17	07:08 20:11	07:56 19:02	07:51 17:01	08:37 16:33
11	08:46 16:55	08:06 17:48	07:08 18:39	06:57 20:31	05:58 21:21	05:25 21:59	06:11 (5) 05:26	06:17 (5) 06:19	06:19 21:15	07:09 20:08	07:58 19:00	07:52 17:00	08:38 16:33
12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	05:56 21:22	05:24 22:00	06:12 (5) 05:24	06:17 (5) 06:21	06:21 21:13	07:11 20:06	08:00 18:57	07:54 16:58	08:39 16:33
13	08:44 16:58	08:02 17:52	07:03 18:42	06:53 20:35	05:54 21:24	05:24 22:01	06:12 (5) 05:24	06:18 (5) 06:23	06:23 21:11	07:12 20:04	08:02 18:55	07:56 16:52	08:40 16:32
14	08:44 16:59	08:00 17:54	07:01 18:44	06:51 20:36	05:53 21:26	05:24 22:01	06:13 (5) 05:24	06:18 (5) 06:24	06:24 21:09	07:14 20:01	08:03 18:53	07:58 16:55	08:41 16:32
15	08:43 17:01	07:58 17:56	06:59 18:45	06:48 20:38	05:51 21:27	05:24 22:02	06:13 (5) 05:24	06:18 (5) 06:26	06:26 21:07	07:16 19:59	08:05 18:51	07:59 16:54	08:42 16:33
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:40	05:50 21:29	05:24 22:02	06:13 (5) 05:24	06:18 (5) 06:27	06:27 21:05	07:17 19:57	08:07 18:49	08:01 16:52	08:42 16:33
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	05:48 21:30	05:24 22:03	06:14 (5) 05:24	06:18 (5) 06:29	06:29 21:03	07:19 19:54	08:08 18:47	08:03 16:51	08:43 16:33
18	08:40 17:06	07:52 18:01	06:52 18:51	06:42 20:43	05:47 21:32	05:24 22:03	06:14 (5) 05:24	06:18 (5) 06:31	06:31 21:01	07:20 19:52	08:10 18:44	08:05 16:50	08:44 16:33
19	08:39 17:07	07:51 18:03	06:49 18:52	06:40 20:45	05:45 21:33	05:24 22:03	06:12 (5) 05:24	06:18 (5) 06:32	06:32 20:59	07:22 19:50	08:12 18:42	08:06 16:48	08:45 16:33
20	08:38 17:09	07:49 18:05	06:47 18:54	06:38 20:46	05:44 21:34	05:24 22:04	06:11 (5) 05:24	06:14 (5) 06:34	06:34 20:57	07:24 19:47	08:14 18:40	08:08 16:47	08:45 16:34
21	08:37 17:11	07:46 18:07	06:45 18:56	06:36 20:48	05:43 21:36	05:24 22:04	06:11 (5) 05:24	06:20 (5) 06:35	06:35 20:55	07:25 19:45	08:15 18:38	08:10 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:43 18:57	06:34 20:50	05:41 21:37	05:24 22:04	06:10 (5) 05:24	06:20 (5) 06:37	06:37 20:53	07:27 19:43	08:17 18:36	08:11 16:45	08:46 16:35
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:39	05:24 22:04	06:09 (5) 05:24	06:21 (5) 06:39	06:39 20:51	07:28 19:41	08:19 18:34	08:13 16:44	08:47 16:35
24	08:34 17:16	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	05:25 22:04	06:09 (5) 05:25	06:22 (5) 06:40	06:40 20:48	07:30 19:38	08:21 18:32	08:14 16:43	08:47 16:36
25	08:32 17:17	07:38 18:14	06:36 19:03	06:27 20:55	05:38 21:41	05:25 22:05	06:09 (5) 05:25	06:23 (5) 06:42	06:42 20:42	07:32 19:36	08:22 18:30	08:16 16:42	08:48 16:36
26	08:31 17:19	07:36 18:16	06:33 19:04	06:25 20:56	05:37 21:43	05:25 22:05	06:09 (5) 05:25	06:24 (5) 06:43	06:43 20:44	07:33 19:34	08:24 18:28	08:18 16:41	08:48 16:37
27	08:30 17:21	07:34 18:17	06:31 19:06	06:23 20:58	06:23 21:44	05:26 22:05	06:09 (5) 05:26	06:26 (5) 06:45	06:45 20:44	07:35 19:31	08:26 18:26	08:19 16:40	08:48 16:38
28	08:28 17:23	07:32 18:19	06:29 19:08	06:21 21:00	05:35 21:45	05:26 22:06	06:08 (5) 05:26	06:27 (5) 06:47	06:47 20:44	07:37 19:29	08:28 18:24	08:21 16:39	08:49 16:39
29	08:27 17:24	07:27 20:09	06:19 21:01	06:19 21:01	05:34 21:46	05:27 22:04	06:08 (5) 05:27	06:15 (5) 06:00	06:00 20:38	07:38 19:27	08:29 18:22	08:22 16:38	08:49 16:39
30	08:26 17:26	07:24 20:11	06:17 21:03	06:17 21:03	05:33 21:48	05:27 22:04	06:09 (5) 05:27	06:16 (5) 06:01	06:01 20:35	07:40 19:24	08:31 18:20	08:24 16:37	08:49 16:40
31	08:24 17:28	07:22 20:13	06:15 21:03	06:15 21:03	05:32 21:49	05:27 22:04	06:09 (5) 05:27	06:02 21:34	06:02 20:33	07:33 19:24	08:24 18:18	08:24 16:41	08:49 16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245	
Total, worst case					392	800	718						
Sun reduction					0.40	0.35	0.38						
Oper. time red.					0.95	0.95	0.95						
Wind dir. red.					0.69	0.69	0.69						
Total reduction					0.26	0.23	0.25						
Total, real					103	182	180						

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: Receptors layout 2Shadow receptor: S - Zevenbergseweg 21

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December						
1	08:49	08:23	07:30	07:20	06:16	05:31	06:04 (5)	05:28	06:10 (5)	06:04	06:53	07:42	07:35	08:25				
	16:43	17:30	18:21	20:14	21:05	21:50	28	06:32 (5)	22:04	28	06:38 (5)	21:32	20:31	19:22	17:17	16:37		
2	08:49	08:21	07:28	07:17	06:14	05:30	06:04 (5)	05:29	06:10 (5)	06:06	06:55	07:43	07:36	08:27				
	16:44	17:32	18:23	20:16	21:06	21:51	28	06:32 (5)	22:03	28	06:38 (5)	21:31	20:29	19:20	17:15	16:36		
3	08:49	08:19	07:25	07:15	06:12	05:29	06:05 (5)	05:29	06:11 (5)	06:07	06:56	07:45	07:38	08:28				
	16:45	17:34	18:25	20:18	21:08	21:52	28	06:33 (5)	22:03	28	06:39 (5)	21:29	20:26	19:18	17:13	16:35		
4	08:49	08:18	07:23	07:13	06:10	05:28	06:04 (5)	05:30	06:10 (5)	06:09	06:58	07:46	07:40	08:29				
	16:46	17:35	18:26	20:19	21:10	21:53	28	06:32 (5)	22:03	28	06:38 (5)	21:27	20:24	19:15	17:11	16:35		
5	08:48	08:16	07:21	07:11	06:08	05:28	06:05 (5)	05:31	06:10 (5)	06:10	07:00	07:48	07:42	08:31				
	16:47	17:37	18:28	20:21	21:11	21:54	28	06:33 (5)	22:02	29	06:39 (5)	21:26	20:22	19:13	17:09	16:34		
6	08:48	08:15	07:19	07:08	06:06	05:27	06:05 (5)	05:32	06:11 (5)	06:12	07:01	07:50	07:44	08:32				
	16:48	17:39	18:30	20:23	21:13	21:55	28	06:33 (5)	22:02	28	06:39 (5)	21:24	20:20	19:11	17:08	16:34		
7	08:48	08:13	07:17	07:06	06:04	05:27	06:05 (5)	05:33	06:11 (5)	06:13	07:03	07:51	07:45	08:33				
	16:49	17:41	18:32	20:24	21:14	21:56	28	06:33 (5)	22:01	28	06:39 (5)	21:22	20:17	19:08	17:06	16:34		
8	08:47	08:11	07:14	07:04	06:03	05:26	06:05 (5)	05:33	06:12 (5)	06:15	07:04	07:53	07:47	08:34				
	16:51	17:43	18:33	20:26	21:16	21:57	28	06:33 (5)	22:01	28	06:40 (5)	21:20	20:15	19:06	17:04	16:33		
9	08:47	08:09	07:12	07:02	06:01	05:26	06:05 (5)	05:34	06:12 (5)	06:16	07:06	07:55	07:49	08:36				
	16:52	17:45	18:35	20:28	21:18	21:58	29	06:34 (5)	22:00	28	06:40 (5)	21:18	20:13	19:04	17:03	16:33		
10	08:46	08:08	07:10	06:59	05:59	05:25	06:06 (5)	05:35	06:12 (5)	06:18	07:08	07:56	07:51	08:37				
	16:53	17:46	18:37	20:30	21:19	21:58	28	06:34 (5)	21:59	28	06:40 (5)	21:17	20:11	19:02	17:01	16:33		
11	08:46	08:06	07:08	06:57	05:58	05:25	06:05 (5)	05:36	06:12 (5)	06:19	07:09	07:58	07:52	08:38				
	16:55	17:48	18:39	20:31	21:21	21:59	29	06:34 (5)	21:58	28	06:40 (5)	21:15	20:08	19:00	17:00	16:33		
12	08:45	08:04	07:05	06:55	05:56	05:24	06:06 (5)	05:38	06:13 (5)	06:21	07:11	08:00	07:54	08:39				
	16:56	17:50	18:40	20:33	21:22	22:00	28	06:34 (5)	21:58	27	06:40 (5)	21:13	20:06	18:57	16:58	16:33		
13	08:44	08:02	07:03	06:53	05:54	05:24	06:06 (5)	05:39	06:13 (5)	06:23	07:12	08:02	07:56	08:40				
	16:58	17:52	18:42	20:35	21:24	22:01	28	06:34 (5)	21:57	27	06:40 (5)	21:11	20:04	18:55	16:57	16:32		
14	08:44	08:00	07:01	06:51	05:53	05:24	06:07 (5)	05:40	06:13 (5)	06:24	07:14	08:03	07:58	08:41				
	16:59	17:54	18:44	20:36	21:26	22:01	28	06:35 (5)	21:56	27	06:40 (5)	21:09	20:01	18:53	16:55	16:32		
15	08:43	07:58	06:59	06:48	05:51	05:24	06:07 (5)	05:41	06:14 (5)	06:26	07:16	08:05	07:59	08:42				
	17:01	17:56	18:45	20:38	21:27	22:02	28	06:35 (5)	21:55	26	06:40 (5)	21:07	19:59	18:51	16:54	16:33		
16	08:42	07:56	06:56	06:46	05:50	05:24	06:07 (5)	05:42	06:14 (5)	06:27	07:17	08:07	08:01	08:42				
	17:02	17:57	18:47	20:40	21:29	22:02	28	06:35 (5)	21:54	25	06:39 (5)	21:05	19:57	18:49	16:52	16:33		
17	08:41	07:54	06:54	06:44	05:48	05:24	06:07 (5)	05:43	06:14 (5)	06:29	07:19	08:08	08:03	08:43				
	17:04	17:59	18:49	20:41	21:30	22:03	28	06:35 (5)	21:53	25	06:39 (5)	21:03	19:54	18:47	16:51	16:33		
18	08:40	07:52	06:52	06:42	05:47	05:24	06:08 (5)	05:44	06:15 (5)	06:31	07:20	08:10	08:05	08:44				
	17:06	18:01	18:51	20:43	21:32	2	06:18 (5)	22:03	27	06:35 (5)	21:52	23	06:38 (5)	21:01	19:52	18:44	16:50	16:33
19	08:39	07:51	06:49	06:40	05:45	05:24	06:08 (5)	05:46	06:15 (5)	06:32	07:22	08:12	08:06	08:45				
	17:07	18:03	18:52	20:45	21:33	10	06:22 (5)	22:03	28	06:36 (5)	21:51	23	06:38 (5)	20:59	19:50	18:42	16:48	16:33
20	08:38	07:49	06:47	06:38	05:44	05:24	06:11 (5)	05:24	06:08 (5)	05:47	06:17 (5)	06:34	07:24	08:14	08:08	08:45		
	17:09	18:05	18:54	20:46	21:34	13	06:24 (5)	22:04	28	06:36 (5)	21:49	21	06:38 (5)	20:57	19:47	18:40	16:47	16:34
21	08:37	07:46	06:45	06:36	05:43	05:24	06:10 (5)	05:24	06:08 (5)	05:48	06:18 (5)	06:35	07:25	08:15	08:10	08:46		
	17:11	18:07	18:56	20:48	21:36	16	06:26 (5)	22:04	28	06:36 (5)	21:48	19	06:37 (5)	20:55	19:45	18:38	16:46	16:34
22	08:36	07:44	06:43	06:34	05:41	05:24	06:08 (5)	05:24	06:08 (5)	05:50	06:19 (5)	06:37	07:27	08:17	08:11	08:46		
	17:12	18:08	18:57	20:50	21:37	18	06:26 (5)	22:04	28	06:36 (5)	21:47	17	06:36 (5)	20:53	19:43	18:36	16:45	16:35
23	08:35	07:42	06:40	06:31	05:40	05:24	06:07 (5)	05:24	06:09 (5)	05:51	06:20 (5)	06:39	07:28	08:19	08:13	08:47		
	17:14	18:10	18:59	20:51	21:39	20	06:27 (5)	22:04	28	06:37 (5)	21:46	15	06:35 (5)	20:51	19:41	18:34	16:44	16:35
24	08:34	07:40	06:38	06:29	05:39	05:25	06:06 (5)	05:25	06:09 (5)	05:52	06:22 (5)	06:40	07:30	08:21	08:14	08:47		
	17:16	18:12	19:01	20:53	21:40	22	06:28 (5)	22:04	27	06:36 (5)	21:44	12	06:34 (5)	20:48	19:38	18:32	16:43	16:36
25	08:32	07:38	06:36	06:27	05:38	05:25	06:06 (5)	05:25	06:09 (5)	05:54	06:24 (5)	06:42	07:32	07:22	08:16	08:48		
	17:17	18:14	19:03	20:55	21:41	23	06:29 (5)	22:05	27	06:36 (5)	21:43	7	06:31 (5)	20:46	19:36	17:30	16:42	16:36
26	08:31	07:36	06:33	06:25	05:37	05:25	06:05 (5)	05:25	06:09 (5)	05:55	06:43	07:33	07:24	08:18	08:48			
	17:19	18:16	19:04	20:56	21:43	24	06:29 (5)	22:05	28	06:37 (5)	21:42	20:44	19:34	17:28	16:41	16:37		
27	08:30	07:34	06:31	06:23	05:36	05:26	06:05 (5)	05:26	06:09 (5)	05:57	06:45	07:35	07:26	08:19	08:48			
	17:21	18:17	19:06	20:58	21:44	25	06:30 (5)	22:05	28	06:37 (5)	21:40	20:42	19:31	17:26	16:40	16:38		
28	08:28	07:32	06:29	06:21	05:35	05:26	06:04 (5)	05:26	06:10 (5)	05:58	06:47	07:37	07:28	08:21	08:49			
	17:23	18:19	19:08	21:00	21:45	26	06:30 (5)	22:04	28	06:38 (5)	21:39	20:40	19:29	17:24	16:39	16:39		
29	08:27	07:31	06:28	06:19	05:34	05:27	06:04 (5)	05:27	06:09 (5)	06:00	06:48	07:38	07:29	08:22	08:49			
	17:24	18:20	19:09	21:01	21:46	26	06:30 (5)	22:04	28	06:37 (5)	21:37	20:38	19:27	17:22	16:38	16:39		
30	08:26	07:24	06:17	06:17	05:33	05:27	06:05 (5)	05:27	06:10 (5)	06:01	06:50	07:40	07:31	08:24	08:49			
	17:26	18:22	19:11	21:03	21:48	27	06:32 (5)	22:04	28	06:38 (5)	21:36	20:35	19:24	17:20	16:37	16:40		
31	08:24	07:22	06:15	06:15	05:32	05:28	06:04 (5)	05:28	06:10 (5)	06:02	06:52	07:42	07:33	08:24	08:49			
	17:28	18:24	19:13	21:05	21:49	28	06:32 (5)	22:05		21:34	20:33	17:18	16:37	16:41				
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245						
Total, worst case					280	839	603											
Sun reduction					0.40	0.35	0.38											
Oper. time red.					0.95	0.95	0.95											
Wind dir. red.					0.70	0.70	0.70											
Total reduction					0.26	0.23	0.25											
Total, real					74	192	152											

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

Day in month	Sun rise (hh:mm)	Sun set (hh:mm)	Minutes with flicker	First time (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: Receptors layout 2Shadow receptor: T - Zevenbergseweg 19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,60	2,75	3,10	4,87	6,22	5,72	6,14	5,96	4,20	3,09	1,89	1,22

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
469	688	556	384	481	441	747	1.491	1.263	905	557	338	8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:43	08:23 17:30	07:30 18:21	07:20 20:14	06:16 21:05	05:31 21:50	05:28 22:04	06:04 06:16 (5)	06:53 20:31	07:42 19:22	07:35 17:17	08:25 16:37
2	08:49 16:44	08:21 17:32	07:28 18:23	07:17 20:16	06:14 21:06	05:30 21:51	05:29 22:03	06:06 06:17 (5)	06:55 20:31	07:43 19:20	07:36 17:15	08:27 16:36
3	08:49 16:45	08:19 17:34	07:25 18:25	07:15 20:18	06:12 21:08	05:29 21:52	05:29 22:03	06:07 06:17 (5)	06:56 20:26	07:45 19:18	07:38 17:13	08:28 16:35
4	08:49 16:46	08:18 17:35	07:23 18:26	07:13 20:19	06:10 21:10	05:28 21:53	05:30 22:03	06:00 06:16 (5)	06:58 20:24	07:46 19:15	07:40 17:11	08:29 16:35
5	08:48 16:47	08:16 17:37	07:21 18:28	07:11 20:21	06:08 21:11	05:28 21:54	05:31 22:02	06:01 06:16 (5)	07:00 20:22	07:48 19:13	07:42 17:09	08:31 16:34
6	08:48 16:48	08:15 17:39	07:19 18:30	07:08 20:23	06:06 21:13	05:27 21:55	05:32 22:02	06:02 06:16 (5)	07:01 20:20	07:50 19:11	07:44 17:08	08:32 16:34
7	08:48 16:49	08:13 17:41	07:17 18:32	07:06 20:24	06:04 21:14	05:27 21:56	05:33 22:01	06:03 06:15 (5)	07:03 20:17	07:51 19:08	07:45 17:06	08:33 16:34
8	08:47 16:51	08:11 17:43	07:12 18:33	07:04 20:26	06:03 21:16	05:26 21:57	05:33 22:01	06:04 06:15 (5)	07:04 20:15	07:53 19:06	07:47 17:04	08:34 16:33
9	08:47 16:52	08:09 17:45	07:12 18:35	07:02 20:28	06:01 21:18	05:26 21:58	05:34 22:00	06:05 06:14 (5)	07:06 20:13	07:55 19:04	07:49 17:03	08:36 16:33
10	08:46 16:54	08:08 17:46	07:10 18:37	06:59 20:30	05:59 21:19	05:25 21:58	05:35 21:59	06:06 06:13 (5)	07:08 20:11	07:56 19:02	07:51 17:01	08:37 16:33
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12	08:45 16:56	08:04 17:50	07:05 18:40	06:55 20:33	05:56 21:22	05:24 22:00	05:38 21:58	06:21 20:06	07:11 18:57	08:00 18:57	07:54 16:58	08:39 16:33
13	08:44 16:58	08:02 17:52	07:03 18:42	06:53 20:35	05:54 21:24	05:24 22:01	05:39 21:57	06:13 20:04	06:23 18:55	07:12 18:55	08:02 16:57	08:40 16:32
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15	08:43 17:01	07:58 17:56	06:59 18:45	06:48 20:38	05:51 21:27	05:24 22:02	05:41 21:55	06:26 20:07	07:16 18:51	08:05 18:51	07:59 16:54	08:42 16:33
16	08:42 17:02	07:56 17:57	06:56 18:47	06:46 20:40	05:50 21:29	05:24 22:02	05:42 21:54	06:27 20:05	07:17 19:57	08:07 18:49	08:01 16:52	08:42 16:33
17	08:41 17:04	07:54 17:59	06:54 18:49	06:44 20:41	05:48 21:30	05:24 22:03	05:43 21:53	06:29 20:03	07:19 19:54	08:08 18:47	08:03 16:51	08:43 16:33
18	08:40 17:06	07:52 18:01	06:52 18:51	06:42 20:43	05:47 21:32	05:24 22:03	05:44 21:52	06:31 20:01	07:20 19:52	08:10 18:44	08:05 16:50	08:44 16:33
19	08:39 17:07	07:51 18:03	06:49 18:52	06:40 20:45	05:45 21:33	05:24 22:03	05:46 21:51	06:32 20:59	07:22 19:50	08:12 18:42	08:06 16:48	08:45 16:33
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31	08:24 17:28	07:22 18:03	06:15 20:13	06:15 21:03	05:32 21:49	05:28 22:04	06:02 21:34	06:52 20:33	07:33 17:18	08:33 17:18	08:49 16:41	08:49 16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
Total, worst case							516		137			
Sun reduction							0,35		0,38			
Oper. time red.							0,95		0,95			
Wind dir. red.							0,71		0,71			
Total reduction							0,23		0,26			
Total, real							120		35			

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: Receptors layout 2Shadow receptor: U - Zevenbergseweg 25

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:43	08:23 17:30	07:30 18:21	07:20 20:14	06:15 21:05	05:31 21:50	05:28 22:04	06:04 21:32	06:53 20:31	07:41 19:22	07:35 17:17	08:25 16:37
2	08:49 16:44	08:21 17:32	07:28 18:23	07:17 20:16	06:14 21:06	05:30 21:51	05:29 22:03	06:05 21:31	06:55 20:29	07:43 19:20	07:36 17:15	08:27 16:36
3	08:49 16:45	08:19 17:34	07:25 18:24	07:15 20:18	06:12 21:08	05:29 21:52	05:29 22:03	06:07 21:29	06:56 20:26	07:45 19:17	07:38 17:13	08:28 16:35
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Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
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: Receptors layout 2Shadow receptor: V - Zevenbergseweg 30

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320

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

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49 16:43	08:22 17:30	07:30 18:21	07:20 20:14	06:15 21:05	05:31 21:50	05:28 22:04	06:04 21:32	06:53 20:31	07:41 19:22	07:35 17:16	08:25 16:37
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20	08:38 17:09	07:48 18:05	06:47 18:54	06:38 20:46	05:44 21:34	05:24 22:04	05:47 21:49	06:34 20:57	07:24 19:47	08:14 18:40	08:08 16:47	08:45 16:34
21	08:37 17:10	07:46 18:07	06:45 18:56	06:36 20:48	05:43 21:36	05:24 22:04	05:48 21:48	06:35 20:55	07:25 19:45	08:15 18:38	08:10 16:46	08:46 16:34
22	08:36 17:12	07:44 18:08	06:43 18:57	06:33 20:50	05:41 21:37	05:24 22:04	05:50 21:47	06:37 20:53	07:27 19:43	08:17 18:36	08:11 16:45	08:46 16:35
23	08:35 17:14	07:42 18:10	06:40 18:59	06:31 20:51	05:40 21:39	05:24 22:04	05:51 21:46	06:39 20:50	07:28 19:40	08:19 18:34	08:13 16:44	08:47 16:35
24	08:33 17:16	07:40 18:12	06:38 19:01	06:29 20:53	05:39 21:40	05:25 22:04	05:52 21:44	06:40 20:48	07:30 19:38	08:20 18:32	08:14 16:43	08:47 16:36
25	08:32 17:17	07:38 18:14	06:36 19:02	06:27 20:55	05:38 21:41	05:25 22:04	05:54 21:43	06:42 20:46	07:32 19:36	08:22 17:30	08:16 16:42	08:48 16:36
26	08:31 17:19	07:36 18:16	06:33 19:04	06:25 20:56	05:37 21:43	05:25 22:04	05:55 21:41	06:43 20:44	07:33 19:34	08:24 17:28	08:18 16:41	08:48 16:37
27	08:30 17:21	07:34 18:17	06:31 19:06	06:23 20:58	05:36 21:44	05:26 22:04	05:57 21:40	06:45 20:42	07:35 19:31	08:26 17:26	08:19 16:40	08:48 16:38
28	08:28 17:23	07:32 18:19	06:29 19:08	06:21 21:00	05:35 21:45	05:26 22:04	05:58 21:39	06:47 20:40	07:37 19:29	08:28 17:24	08:21 16:39	08:49 16:39
29	08:27 17:24	07:27 18:09	06:27 19:01	06:19 21:01	05:34 21:46	05:27 22:04	05:59 21:37	06:48 20:38	07:38 19:27	08:29 17:22	08:22 16:38	08:49 16:39
30	08:25 17:26	07:24 18:07	06:24 19:01	06:17 21:03	05:33 21:48	05:27 22:04	06:01 21:36	06:50 20:35	07:40 19:24	08:31 17:20	08:24 16:37	08:49 16:40
31	08:24 17:28	07:22 18:03	06:22 19:03	06:15 21:03	05:32 21:49	05:27 22:04	06:02 21:34	06:51 20:33	07:33 19:24	08:33 17:18	08:49 16:41	08:49 16:41
Potential sun hours	260	278	367	415	484	497	501	453	381	332	267	245
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: Receptors layout 2Shadow receptor: W - van Vlaanderenstraat 28

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	07:30	08:12 (4)	07:20	06:15	05:31	06:02 (1)	05:28	06:06 (1)	06:04	06:53
2	08:49	08:21	07:28	08:20 (4)	07:17	06:14	05:30	06:01 (1)	05:29	06:06 (1)	06:05	06:55
3	08:49	08:20	07:25	08:20 (4)	07:15	06:12	05:29	06:02 (1)	05:29	06:07 (1)	06:07	06:56
4	08:49	08:18	07:23	08:20 (4)	07:13	06:10	05:28	06:01 (1)	05:30	06:06 (1)	06:09	06:58
5	08:48	08:16	07:21	08:20 (4)	07:11	06:08	05:28	06:02 (1)	05:31	06:07 (1)	06:10	07:00
6	08:48	08:15	07:19	08:20 (4)	07:08	06:06	05:27	06:01 (1)	05:32	06:07 (1)	06:12	07:01
7	08:48	08:13	07:17	08:20 (4)	07:06	06:04	05:27	06:02 (1)	05:33	06:08 (1)	06:13	07:03
8	08:47	08:11	07:14	08:20 (4)	07:04	06:03	05:26	06:01 (1)	05:33	06:08 (1)	06:15	07:04
9	08:47	08:09	07:12	08:20 (4)	07:02	06:01	05:26	06:02 (1)	05:34	06:09 (1)	06:16	07:06
10	08:46	08:08	07:10	08:20 (4)	06:59	05:59	05:25	06:01 (1)	05:35	06:09 (1)	06:18	07:08
11	08:46	08:06	07:08	08:20 (4)	06:57	05:58	05:25	06:01 (1)	05:36	06:10 (1)	06:19	07:09
12	08:45	08:04	07:05	08:20 (4)	06:55	05:56	05:24	06:02 (1)	05:37	06:11 (1)	06:21	07:11
13	08:44	08:02	07:03	08:20 (4)	06:53	05:54	05:24	06:03 (1)	05:39	06:11 (1)	06:23	07:12
14	08:44	08:00	07:01	08:20 (4)	06:51	05:52	05:24	06:04 (1)	05:41	06:12 (1)	06:24	07:14
15	08:43	07:58	06:59	08:20 (4)	06:48	05:51	05:24	06:03 (1)	05:42	06:12 (1)	06:26	07:16
16	08:42	07:56	06:56	08:20 (4)	06:46	05:50	05:24	06:03 (1)	05:42	06:13 (1)	06:27	07:17
17	08:41	07:55	06:54	08:20 (4)	06:44	05:48	05:24	06:03 (1)	05:43	06:14 (1)	06:29	07:19
18	08:40	07:53	06:52	08:20 (4)	06:42	05:47	05:24	06:03 (1)	05:44	06:15 (1)	06:31	07:20
19	08:39	07:51	06:50	08:20 (4)	06:40	05:46	05:24	06:03 (1)	05:46	06:16 (1)	06:32	07:22
20	08:38	07:49	06:48	08:20 (4)	06:38	05:45	05:24	06:03 (1)	05:47	06:17 (1)	06:33	07:23
21	08:37	07:47	06:46	08:20 (4)	06:36	05:44	05:24	06:03 (1)	05:48	06:18 (1)	06:34	07:24
22	08:36	07:44	06:43	08:20 (4)	06:33	05:43	05:24	06:03 (1)	05:50	06:19 (1)	06:35	07:25
23	08:35	07:42	06:40	08:20 (4)	06:30	05:42	05:24	06:03 (1)	05:51	06:20 (1)	06:36	07:26
24	08:34	07:40	06:38	08:20 (4)	06:27	05:41	05:24	06:03 (1)	05:52	06:21 (1)	06:37	07:27
25	08:32	07:38	06:36	08:20 (4)	06:24	05:40	05:24	06:03 (1)	05:53	06:22 (1)	06:38	07:28
26	08:31	07:36	06:33	08:20 (4)	06:21	05:39	05:24	06:03 (1)	05:54	06:23 (1)	06:39	07:29
27	08:30	07:34	06:31	08:20 (4)	06:18	05:38	05:24	06:03 (1)	05:55	06:24 (1)	06:40	07:30
28	08:29	07:32	06:29	08:20 (4)	06:15	05:37	05:24	06:03 (1)	05:56	06:25 (1)	06:41	07:31
29	08:27	07:30	06:27	08:20 (4)	06:12	05:36	05:24	06:03 (1)	05:57	06:26 (1)	06:42	07:32
30	08:26	07:28	06:25	08:20 (4)	06:09	05:35	05:24	06:03 (1)	05:58	06:27 (1)	06:43	07:33
31	08:24	07:26	06:23	08:20 (4)	06:06	05:34	05:24	06:03 (1)	05:59	06:28 (1)	06:44	07:34
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
Total, worst case	185	185	271	408	493	544	544	417	255	212	164	141
Sun reduction	0,28	0,28	0,26	0,35	0,40	0,35	0,38	0,41	0,33	0,29	0,23	0,20
Oper time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.	0,54	0,54	0,57	0,63	0,70	0,70	0,70	0,63	0,57	0,54	0,46	0,42
Total reduction	0,14	0,14	0,14	0,21	0,26	0,23	0,25	0,24	0,18	0,15	0,11	0,09
Total, real	26	26	38	85	113	123	126	101	45	31	20	15

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

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

SHADOW - Calendar

Calculation: Receptors layout 2Shadow receptor: X - van Vlaanderenstraat 54
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	07:30	07:20	06:15	05:31	05:14	05:28	06:21	07:19	08:07	08:25
2	08:49	08:21	07:28	07:17	06:14	05:30	05:14	05:29	06:22	07:21	08:08	08:27
3	08:49	08:20	07:25	07:15	06:12	05:29	05:15	05:29	06:22	07:22	08:08	08:28
4	08:49	08:18	07:23	07:13	06:10	05:28	05:15	05:30	06:21	07:20	08:07	08:29
5	08:48	08:16	07:21	07:11	06:08	05:28	05:16	05:31	06:22	07:21	08:08	08:31
6	08:48	08:15	07:19	07:09	06:06	05:27	05:15	05:32	06:21	07:20	08:07	08:32
7	08:48	08:13	07:17	07:06	06:04	05:27	05:16	05:33	06:22	07:21	08:08	08:33
8	08:47	08:11	07:14	07:04	06:03	05:26	05:16	05:33	06:22	07:21	08:08	08:34
9	08:47	08:09	07:12	07:02	06:01	05:26	05:17	05:34	06:22	07:21	08:08	08:36
10	08:46	08:08	07:10	07:00	05:59	05:25	05:18	05:35	06:22	07:21	08:08	08:37
11	08:46	08:06	07:08	07:00	05:57	05:25	05:17	05:36	06:22	07:21	08:08	08:38
12	08:45	08:04	07:05	07:00	05:55	05:25	05:18	05:37	06:22	07:21	08:08	08:39
13	08:44	08:02	07:03	07:00	05:53	05:24	05:19	05:39	06:22	07:21	08:08	08:40
14	08:44	08:00	07:01	07:00	05:51	05:24	05:19	05:40	06:23	07:21	08:08	08:41
15	08:43	07:58	06:59	07:24	06:48	05:51	06:18	05:41	06:23	07:21	08:08	08:42
16	08:42	07:56	06:56	07:25	06:46	05:50	06:17	05:42	06:23	07:21	08:08	08:43
17	08:41	07:55	06:54	07:27	06:44	05:49	06:20	05:44	06:23	07:21	08:08	08:44
18	08:40	07:53	06:52	07:25	06:43	05:48	06:15	05:44	06:23	07:21	08:08	08:45
19	08:39	07:51	06:50	07:26	06:40	05:47	06:15	05:44	06:23	07:21	08:08	08:46
20	08:38	07:49	06:48	07:27	06:38	05:46	06:15	05:44	06:24	07:21	08:08	08:47
21	08:37	07:47	06:46	07:28	06:36	05:45	06:14	05:44	06:24	07:21	08:08	08:48
22	08:36	07:44	06:43	07:27	06:35	05:44	06:14	05:44	06:24	07:21	08:08	08:49
23	08:35	07:42	06:40	07:26	06:34	05:43	06:13	05:44	06:24	07:21	08:08	08:50
24	08:34	07:40	06:38	07:25	06:33	05:42	06:13	05:44	06:24	07:21	08:08	08:51
25	08:33	07:38	06:36	07:24	06:32	05:41	06:12	05:44	06:24	07:21	08:08	08:52
26	08:31	07:36	06:33	07:23	06:31	05:40	06:11	05:44	06:24	07:21	08:08	08:53
27	08:30	07:34	06:31	07:22	06:30	05:39	06:10	05:44	06:24	07:21	08:08	08:54
28	08:29	07:32	06:29	07:21	06:29	05:38	06:09	05:44	06:24	07:21	08:08	08:55
29	08:27	07:27	06:24	07:20	06:28	05:37	06:08	05:44	06:24	07:21	08:08	08:56
30	08:26	07:24	06:21	07:19	06:27	05:36	06:07	05:44	06:24	07:21	08:08	08:57
31	08:24	07:17	06:14	07:18	06:26	05:35	06:06	05:44	06:24	07:21	08:08	08:58
Potential sun hours	260	278	367	416	484	542	501	453	381	332	267	245
Total, worst case		174	240	360	484	608	734	860	986	1112	1238	1364
Sun reduction		0,28	0,26	0,35	0,40	0,45	0,50	0,55	0,60	0,65	0,70	0,75
Oper time red.		0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.		0,54	0,56	0,62	0,69	0,76	0,83	0,90	0,97	1,04	1,11	1,18
Total reduction		0,14	0,14	0,21	0,26	0,32	0,38	0,45	0,52	0,59	0,66	0,73
Total, real		25	33	74	140	185	216	216	49	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: Receptors layout 2Shadow receptor: Y - Molenvliet 54
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	07:30	07:20	06:15	05:31	06:22 (1) 05:28	06:32 (1) 06:04	06:33 (1) 06:53	07:23 (2) 07:42	08:09 (3) 07:35	08:25
2	08:49	08:21	07:28	07:17	06:14	05:30	06:22 (1) 05:29	06:32 (1) 06:05	06:35 (1) 06:55	07:24 (2) 07:43	08:08 (3) 07:37	08:27
3	08:49	08:20	07:25	07:15	06:12	05:29	06:23 (1) 05:29	06:32 (1) 06:07	06:36 (1) 06:56	07:23 (2) 07:45	08:10 (3) 07:38	08:28
4	08:49	08:18	07:23	07:13	06:10	05:28	06:24 (1) 05:30	06:31 (1) 06:09	06:38 (1) 06:58	07:24 (2) 07:47	08:12 (3) 07:40	08:29
5	08:48	08:16	07:21	07:11	06:08	05:28	06:25 (1) 05:31	06:31 (1) 06:10	06:39 (1) 07:00	07:25 (2) 07:48	08:13 (3) 07:42	08:31
6	08:48	08:15	07:19	07:12	06:06	05:27	06:25 (1) 05:32	06:31 (1) 06:12	06:44 (1) 07:01	07:27 (2) 07:50	08:15 (3) 07:44	08:32
7	08:48	08:13	07:17	07:10	06:04	05:26	06:26 (1) 05:33	06:31 (1) 06:13	07:05	07:28 (2) 07:51	08:17 (3) 07:45	08:33
8	08:47	08:11	07:14	07:07	06:03	05:25	06:27 (1) 05:34	06:31 (1) 06:16	07:06	07:30 (2) 07:53	08:18 (3) 07:47	08:34
9	08:47	08:09	07:12	07:05	06:01	05:24	06:27 (1) 05:34	06:31 (1) 06:16	07:06	07:32 (2) 07:55	08:20 (3) 07:49	08:36
10	08:46	08:08	07:10	07:03	05:59	05:23	06:28 (1) 05:37	06:31 (1) 06:18	07:11	07:35 (2) 07:58	08:23 (3) 07:52	08:37
11	08:46	08:06	07:08	07:01	05:57	05:22	06:29 (1) 05:38	06:31 (1) 06:19	07:09	07:37 (2) 08:00	08:25 (3) 07:54	08:39
12	08:45	08:04	07:05	06:58	05:55	05:21	06:30 (1) 05:40	06:30 (1) 06:24	07:14	07:42 (2) 08:05	08:28 (3) 07:57	08:42
13	08:44	08:02	07:03	06:56	05:54	05:20	06:31 (1) 05:41	06:30 (1) 06:26	07:16	07:44 (2) 08:07	08:30 (3) 07:59	08:42
14	08:44	08:00	07:01	06:54	05:53	05:19	06:32 (1) 05:42	06:30 (1) 06:27	07:17	07:45 (2) 08:08	08:31 (3) 07:58	08:43
15	08:43	07:58	08:23 (4) 06:59	07:29 (3) 06:48	07:24 (2) 05:51	06:20 (1) 05:24	06:30 (1) 05:41	06:30 (1) 06:26	07:16	08:05	07:59	08:42
16	08:42	07:56	08:21 (4) 06:56	07:27 (3) 06:46	07:24 (2) 05:50	06:20 (1) 05:24	06:30 (1) 05:42	06:30 (1) 06:27	07:17	08:07	08:01	08:43
17	08:42	07:53	08:34 (4) 06:54	07:29 (3) 06:44	07:25 (2) 05:48	06:19 (1) 05:24	06:31 (1) 05:43	06:29 (1) 06:29	07:19	08:08	08:52 (4) 08:03	08:43
18	08:40	07:53	08:17 (4) 06:52	07:31 (3) 06:42	07:26 (2) 05:47	06:19 (1) 05:24	06:31 (1) 05:44	06:29 (1) 06:31	07:20	08:10	08:49 (4) 08:05	08:44
19	08:39	07:51	08:15 (4) 06:50	07:34 (3) 06:40	07:28 (2) 05:45	06:20 (1) 05:24	06:31 (1) 05:46	06:29 (1) 06:32	07:22	08:12	08:48 (4) 08:06	08:45
20	08:38	07:49	08:16 (4) 06:47	07:33 (3) 06:38	07:27 (2) 05:44	06:20 (1) 05:24	06:32 (1) 05:47	06:30 (1) 06:34	07:24	08:14	08:53 (4) 08:08	08:45
21	08:37	07:47	08:15 (4) 06:45	07:32 (3) 06:36	07:26 (2) 05:43	06:20 (1) 05:24	06:32 (1) 05:48	06:30 (1) 06:35	07:25	08:15	08:54 (4) 08:10	08:46
22	08:36	07:44	08:16 (4) 06:43	07:31 (3) 06:34	07:25 (2) 05:42	06:20 (1) 05:24	06:33 (1) 05:49	06:30 (1) 06:36	07:27	08:17	08:55 (4) 08:11	08:47
23	08:35	07:42	08:17 (4) 06:40	07:30 (3) 06:31	07:24 (2) 05:41	06:20 (1) 05:24	06:34 (1) 05:51	06:29 (1) 06:39	07:28	08:19	08:56 (4) 08:13	08:47
24	08:34	07:40	08:19 (4) 06:38	07:29 (3) 06:29	07:23 (2) 05:40	06:20 (1) 05:24	06:35 (1) 05:52	06:30 (1) 06:40	07:31 (2) 07:30	08:21 (3) 08:21	08:57 (4) 08:15	08:48
25	08:32	07:38	08:22 (4) 06:36	07:27 (3) 06:27	07:22 (2) 05:38	06:20 (1) 05:25	06:36 (1) 05:54	06:30 (1) 06:42	07:32	08:23 (3) 08:23	08:58 (4) 08:16	08:48
26	08:31	07:36	08:33 (4) 06:33	07:25 (3) 06:25	07:21 (2) 05:37	06:20 (1) 05:25	06:37 (1) 05:55	06:30 (1) 06:43	07:33	08:25 (3) 08:25	08:59 (4) 08:18	08:48
27	08:30	07:34	08:34 (4) 06:31	07:23 (3) 06:23	07:19 (2) 05:36	06:20 (1) 05:26	06:38 (1) 05:57	06:31 (1) 06:45	07:35	08:27 (3) 08:27	09:00 (4) 08:19	08:49
28	08:29	07:32	08:35 (4) 06:29	07:21 (3) 06:21	07:17 (2) 05:35	06:20 (1) 05:27	06:39 (1) 05:59	06:31 (1) 06:48	07:38	08:30 (3) 08:30	09:01 (4) 08:22	08:49
29	08:27	07:27	08:36 (4) 06:27	07:19 (3) 06:19	07:14 (2) 05:34	06:20 (1) 05:28	06:40 (1) 06:00	06:32 (1) 06:47	07:40	08:33 (3) 08:33	09:02 (4) 08:23	08:49
30	08:26	07:24	08:37 (4) 06:24	07:17 (3) 06:17	07:11 (2) 05:33	06:22 (1) 05:27	06:41 (1) 06:01	06:33 (1) 06:50	07:42	08:35 (3) 08:35	09:03 (4) 08:24	08:49
31	08:24	07:22	08:38 (4) 06:21	07:15 (3) 06:15	07:05 (2) 05:32	06:23 (1) 05:28	06:42 (1) 06:02	06:34 (1) 06:52	07:44	08:37 (3) 08:37	09:04 (4) 08:25	08:49
Potential sun hours	260	278	367	416	484	497	501	453	381	284	267	245
Total, worst case	172	233	347	416	484	497	501	453	381	284	267	245
Sun reduction	0,28	0,26	0,35	0,40	0,40	0,35	0,38	0,41	0,33	0,29	0,29	0,29
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.	0,54	0,55	0,62	0,68	0,68	0,68	0,68	0,64	0,59	0,54	0,54	0,54
Total reduction	0,14	0,14	0,20	0,26	0,26	0,22	0,24	0,25	0,18	0,15	0,15	0,15
Total, real	24	32	71	171	171	128	207	70	52	43	43	43

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: Receptors layout 2Shadow receptor: Z - Zweedsestraat 19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
 Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:49	08:23	08:57 (5)	07:30	07:53 (4)	07:20	07:49 (3)	06:15	06:43 (2)	05:31	06:41 (2)	05:28		
2	08:49	17:30	08:57 (5)	18:21	08:14 (4)	20:14	07:49 (3)	21:05	5	06:48 (2)	21:50	7	06:48 (2)	22:04
3	08:49	08:20	08:58 (5)	07:25	07:52 (4)	07:15	07:49 (3)	06:14	06:39 (2)	05:30	05:29	05:29		
4	08:49	16:44	08:58 (5)	07:25	07:52 (4)	07:15	07:49 (3)	06:14	06:39 (2)	05:30	05:29	05:29		
5	08:48	17:35	09:00 (5)	07:21	07:51 (4)	07:11	07:49 (3)	06:08	06:34 (2)	05:28	05:31	05:31		
6	08:48	16:47	09:16 (5)	07:28	08:14 (4)	20:21	08:13 (3)	21:11	22	06:56 (2)	21:54	22	06:56 (2)	21:54
7	08:48	17:39	09:12 (5)	07:19	07:51 (4)	07:08	07:50 (3)	06:06	06:32 (2)	05:27	05:32	05:32		
8	08:47	16:51	09:14 (5)	07:30	08:13 (4)	20:23	08:11 (3)	21:13	24	06:56 (2)	21:55	22	06:56 (2)	21:55
9	08:47	17:43	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
10	08:47	17:46	09:12 (5)	07:32	08:12 (4)	20:24	08:10 (3)	21:15	26	06:57 (2)	21:56	22	06:57 (2)	21:56
11	08:46	16:51	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
12	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
13	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
14	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
15	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
16	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
17	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
18	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
19	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
20	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
21	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
22	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
23	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
24	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
25	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
26	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
27	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
28	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
29	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
30	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
31	08:46	17:45	09:04 (5)	07:17	07:52 (4)	07:06	07:51 (3)	06:04	06:31 (2)	05:27	05:33	05:33		
Potential sun hours	260	278	175	363	416	484	497	480	261	381	332	267	303	245
Total, worst case	186	175	175	363	416	484	497	480	261	381	332	267	303	245
Sun reduction	0,19	0,28	0,26	0,26	0,35	0,40	0,38	0,38	0,41	0,33	0,29	0,21	0,21	0,21
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.	0,55	0,54	0,56	0,60	0,60	0,67	0,67	0,67	0,67	0,60	0,53	0,55	0,55	0,55
Total reduction	0,10	0,14	0,14	0,14	0,20	0,25	0,22	0,24	0,26	0,18	0,14	0,11	0,11	0,11
Total, real	18	24	50	38	181	181	2	67	67	67	36	33	33	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: Receptors layout 2Shadow receptor: AA - Van Abcoudestraat 5
 Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []
 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
 469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
 Idle start wind speed: Cut in wind speed from power curve

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

SHADOW - Calendar

Calculation: Receptors layout 2Shadow receptor: AB - Van Abcoudestraat 19

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	08:51 (5)	07:30	07:20	06:15	05:31	06:53	07:23 (3)	07:42	08:13 (4)	07:35
2	08:49	17:30	09:14 (5)	18:21	20:14	21:05	21:50	20:31	28	07:51 (3)	19:22	26
3	08:49	17:32	08:50 (5)	07:28	07:17	06:14	05:30	06:55	07:24 (3)	07:43	08:13 (4)	07:37
4	08:49	17:32	08:49 (5)	07:23	07:13	06:10	05:28	06:58	07:25 (3)	07:46	08:14 (4)	07:40
5	08:48	17:35	09:14 (5)	18:26	20:18	21:08	21:52	20:27	25	07:49 (3)	19:17	26
6	08:48	17:37	08:50 (5)	07:25	07:15	06:12	05:29	06:56	07:24 (3)	07:45	08:13 (4)	07:38
7	08:48	17:35	09:14 (5)	18:26	20:18	21:08	21:52	20:27	25	07:49 (3)	19:17	26
8	08:48	17:37	08:49 (5)	07:23	07:13	06:10	05:28	06:58	07:25 (3)	07:46	08:14 (4)	07:40
9	08:47	17:41	09:14 (5)	18:32	20:24	21:15	21:56	20:17	13	07:42 (3)	19:08	18
10	08:48	17:39	09:14 (5)	18:30	20:23	21:15	21:55	20:20	17	07:45 (3)	19:50	21
11	08:48	17:39	09:14 (5)	18:30	20:23	21:15	21:55	20:20	17	07:45 (3)	19:50	21
12	08:45	17:42	08:51 (5)	07:19	07:08	06:05	05:21	06:47	07:17	07:36	08:06 (3)	07:44
13	08:44	17:42	08:51 (5)	07:19	07:08	06:05	05:21	06:47	07:17	07:36	08:06 (3)	07:44
14	08:44	17:42	08:51 (5)	07:19	07:08	06:05	05:21	06:47	07:17	07:36	08:06 (3)	07:44
15	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
16	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
17	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
18	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
19	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
20	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
21	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
22	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
23	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
24	08:43	17:45	09:12 (5)	18:35	20:28	21:18	21:58	20:13	19	07:41 (3)	19:04	11
25	08:32	18:12	08:59 (5)	07:38	06:36	05:33	04:49	06:24	07:00 (3)	07:19	07:48 (3)	07:22
26	08:32	18:12	08:59 (5)	07:38	06:36	05:33	04:49	06:24	07:00 (3)	07:19	07:48 (3)	07:22
27	08:30	17:19	09:07 (5)	18:16	20:06	20:56	21:41	20:04	28	07:53 (3)	19:34	17
28	08:28	17:24	09:08 (5)	18:17	20:05	20:55	21:40	20:04	29	07:53 (3)	19:31	20
29	08:27	17:25	09:10 (5)	18:19	20:06	20:56	21:41	20:04	28	07:53 (3)	19:34	17
30	08:26	17:26	09:12 (5)	18:20	20:07	20:57	21:42	20:05	27	07:53 (3)	19:34	17
31	08:24	17:28	09:12 (5)	18:22	20:09	20:59	21:44	20:06	26	07:53 (3)	19:34	17
Potential sun hours	260	278	261	367	416	484	497	501	381	322	267	245
Total, worst case	99	261	318	466	194	0	0	537	312	285	235	329
Sun reduction	0,19	0,26	0,26	0,35	0,40	0,40	0,35	0,38	0,41	0,33	0,29	0,21
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.	0,55	0,55	0,54	0,62	0,70	0,70	0,70	0,62	0,58	0,54	0,55	0,55
Total reduction	0,10	0,14	0,13	0,20	0,26	0,23	0,25	0,24	0,18	0,15	0,11	0,11
Total, real	10	37	42	95	51	211	134	74	52	34	36	

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

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

Calculation: Receptors layout 2Shadow receptor: AC - Van Abcoudestraat 29

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

Table with 12 columns for months (January to December) and rows for hourly sun hours, potential sun hours, and various reduction factors (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

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: Receptors layout 2Shadow receptor: AD - Tol 8
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

Table with columns for months (January to December) and rows for each day of the month, containing time and shadow data.

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: Receptors layout 2Shadow receptor: AE - Moye Keene 169
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,60 2,75 3,10 4,87 6,22 5,72 6,14 5,96 4,20 3,09 1,89 1,22

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
469 688 556 384 481 441 747 1.491 1.263 905 557 338 8.320
Idle start wind speed: Cut in wind speed from power curve

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:49	08:23	07:30	07:20	06:15	05:31	05:28	06:17	06:04	06:53	07:24	08:25
2	08:49	08:21	07:28	07:17	06:14	05:30	05:29	06:18	06:05	06:55	07:25	08:26
3	08:49	08:19	07:25	07:15	06:12	05:29	05:29	06:11	06:07	06:56	07:24	08:28
4	08:49	08:18	07:23	07:13	06:10	05:28	05:30	06:11	06:09	06:58	07:25	08:29
5	08:48	08:16	07:21	07:11	06:08	05:28	05:28	06:12	06:10	07:00	07:25	08:31
6	08:48	08:15	07:19	07:09	06:06	05:27	05:27	06:12	06:13	07:01	07:27	08:32
7	08:48	08:13	07:17	07:07	06:04	05:27	05:28	06:12	06:13	07:02	07:28	08:33
8	08:47	08:11	07:14	07:04	06:03	05:26	05:26	06:12	06:15	07:04	07:30	08:34
9	08:47	08:09	07:12	07:02	06:01	05:26	05:26	06:13	06:16	07:06	07:33	08:36
10	08:46	08:08	07:10	07:00	05:59	05:25	05:25	06:13	06:18	07:08	07:34	08:37
11	08:46	08:06	07:08	06:58	05:57	05:25	05:25	06:13	06:19	07:09	07:35	08:38
12	08:45	08:04	07:05	06:55	05:56	05:24	05:24	06:14	06:21	07:11	07:36	08:39
13	08:44	08:02	07:03	06:53	05:54	05:24	05:24	06:14	06:23	07:12	07:37	08:40
14	08:44	08:00	07:01	06:51	05:52	05:24	05:24	06:15	06:24	07:14	07:38	08:41
15	08:43	07:58	06:59	06:48	05:51	05:24	05:24	06:15	06:26	07:16	07:39	08:42
16	08:42	07:56	06:56	06:46	05:50	05:24	05:24	06:15	06:27	07:17	07:40	08:42
17	08:41	07:54	06:54	06:44	05:48	05:24	05:24	06:16	06:29	07:19	07:41	08:43
18	08:40	07:53	06:52	06:42	05:47	05:24	05:24	06:16	06:31	07:20	07:42	08:44
19	08:39	07:51	06:49	06:40	05:45	05:24	05:24	06:16	06:32	07:22	07:43	08:45
20	08:38	07:49	06:47	06:38	05:44	05:24	05:24	06:16	06:33	07:23	07:44	08:45
21	08:37	07:47	06:45	06:36	05:43	05:24	05:24	06:16	06:35	07:25	07:45	08:46
22	08:36	07:44	06:43	06:33	05:41	05:24	05:24	06:16	06:37	07:27	07:46	08:47
23	08:35	07:42	06:40	06:31	05:40	05:24	05:24	06:17	06:39	07:29	07:47	08:47
24	08:34	07:40	06:38	06:29	05:39	05:24	05:24	06:17	06:41	07:31	07:48	08:48
25	08:32	07:38	06:36	06:27	05:38	05:25	05:25	06:17	06:43	07:33	07:49	08:48
26	08:31	07:36	06:33	06:25	05:37	05:25	05:25	06:17	06:45	07:35	07:50	08:48
27	08:30	07:34	06:31	06:23	05:36	05:26	05:26	06:17	06:47	07:37	07:51	08:48
28	08:29	07:32	06:29	06:21	05:34	05:26	05:26	06:18	06:49	07:39	07:52	08:49
29	08:27	07:29	06:27	06:19	05:33	05:27	05:27	06:18	06:51	07:41	07:54	08:49
30	08:26	07:27	06:25	06:17	05:33	05:27	05:27	06:18	06:53	07:43	07:55	08:49
31	08:24	07:24	06:23	06:13	05:32	05:28	05:28	06:19	06:55	07:45	07:57	08:49
Potential sun hours	260	278	367	416	484	497	501	453	381	332	267	245
Total, worst case	118	287	406	456	484	497	501	453	381	332	267	245
Sun reduction	0,28	0,26	0,35	0,40	0,40	0,35	0,38	0,41	0,33	0,29	0,25	0,21
Oper. time red.	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95
Wind dir. red.	0,53	0,53	0,62	0,69	0,69	0,69	0,69	0,69	0,62	0,53	0,45	0,41
Total reduction	0,14	0,13	0,20	0,26	0,26	0,22	0,25	0,24	0,19	0,14	0,11	0,09
Total, real	16	37	83	118	118	182	194	53	60	60	60	60

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)