

SHADOW - Main Result

Calculation: 6460 Gortloughra Cumulative Worst Case

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
136	297	373	423	216	252	408	617	382	612	1,601	1,598

W	WNW	NW	NNW	Sum
456	331	428	630	8,760

Monthly aggregation of real case reduction

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.

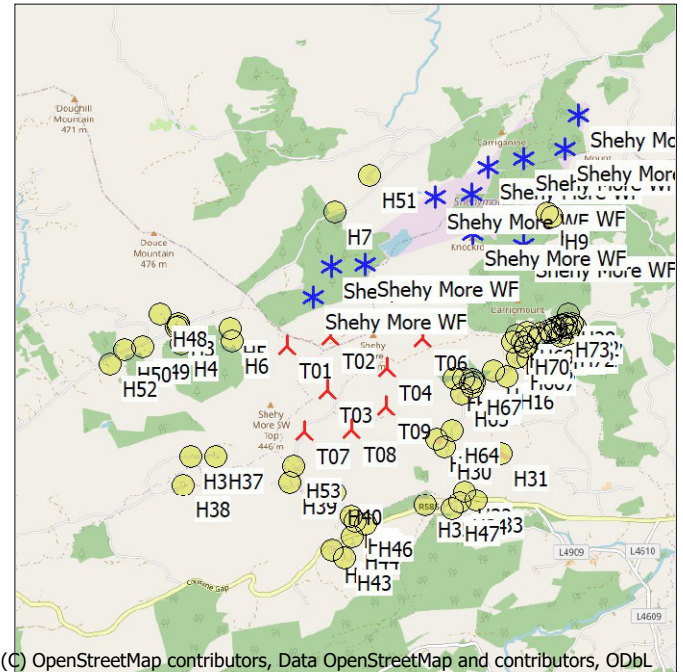
The ZVI calculation is based on the following assumptions:

DHM: Height Contours: CONTOURLINE_6460 Gortloughra WF_1.wpo (1)

Receptor grid resolution: 1.0 m

All coordinates are in

Irish ITM-IRENET95 (IE), geocentric, GRS80



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

▲ New WTG

★ Existing WTG

● Shadow receptor

Scale 1:100,000

WTGs

	Easting	Northing	Z	Row data/Description	WTG type		Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data	
					Valid	Manufact.					Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	514,007	559,976	363.6	T01	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902	-
2	514,579	560,100	445.0	T02	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902	-
3	514,530	559,377	388.0	T03	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902	-
4	515,323	559,654	363.4	T04	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902	-
5	515,804	560,057	339.5	T06	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902	-
6	514,219	558,839	339.8	T07	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902	-
7	514,846	558,858	391.8	T08	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902	-
8	515,300	559,151	345.2	T09	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902	-
9	514,364	560,624	303.0	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
10	514,610	561,017	294.9	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
11	515,059	561,037	340.1	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
12	517,161	561,263	278.5	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
13	516,484	561,426	318.7	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
14	516,482	561,949	307.4	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
15	516,703	562,299	290.0	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
16	517,176	562,409	242.6	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
17	517,731	562,527	264.7	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
18	517,919	562,954	277.7	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9
19	516,002	561,915	308.0	Shehy More WF	No	NORDEX	N100/2500-2,500	2,500	99.8	81.0	1,701	14.9

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
A	H1	512,574	560,249	173.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
B	H2	512,548	560,240	173.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
C	H3	512,576	560,296	179.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
D	H4	512,607	560,021	179.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
E	H5	513,258	560,218	201.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
F	H6	513,280	560,045	213.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: 6460 Gortloughra Cumulative Worst Case

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
G H7		514,664	561,741	242.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
H H8		517,491	561,675	226.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
I H9		517,560	561,620	238.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
J H10		516,223	559,500	202.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
K H11		516,345	559,495	191.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
L H12		516,426	559,436	166.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
M H13		516,455	559,391	159.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
N H14		516,453	559,491	179.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
O H15		516,742	559,597	178.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
P H16		516,913	559,519	155.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Q H17		517,205	559,763	150.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
R H18		517,186	559,907	166.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
S H19		516,995	559,974	207.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
T H20		517,058	560,064	205.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
U H21		517,237	560,043	189.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
V H22		517,355	560,026	175.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
W H23		517,505	560,096	175.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
X H24		517,525	560,068	166.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Y H25		517,602	560,034	162.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Z H26		517,766	560,044	154.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AA H27		517,833	560,174	162.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AB H28		517,746	560,332	180.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AC H29		515,967	558,698	134.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AD H30		516,071	558,608	133.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AE H31		516,831	558,505	145.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AF H32		516,331	558,002	116.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AG H33		516,489	557,893	121.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AH H34		516,258	557,871	124.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AI H35		515,815	557,831	123.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AJ H36		512,706	558,535	242.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AK H37		513,035	558,529	262.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AL H38		512,590	558,155	239.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AM H39		514,019	558,165	211.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AN H40		514,606	558,023	147.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AO H41		514,826	557,698	125.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AP H42		514,556	557,258	157.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AQ H43		514,715	557,154	169.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AR H44		514,833	557,430	137.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AS H45		514,870	557,636	126.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AT H46		515,012	557,597	127.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AU H47		516,168	557,781	135.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AV H48		512,339	560,424	168.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AW H49		512,089	560,001	161.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AX H50		511,856	559,964	174.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AY H51		515,138	562,209	216.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AZ H52		511,651	559,779	202.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BA H53		514,062	558,379	240.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BB H54		517,177	559,907	167.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BC H55		517,375	560,081	186.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BD H56		517,485	560,120	183.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BE H57		517,582	560,131	176.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BF H58		517,565	560,150	179.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BG H59		517,665	560,186	178.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BH H60		517,712	560,152	174.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BI H61		517,770	560,146	168.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BJ H62		517,793	560,211	170.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BK H63		517,724	560,209	177.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BL H64		516,185	558,817	149.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BM H65		516,326	559,301	160.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BN H66		517,061	559,769	165.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BO H67		516,482	559,447	165.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BP H68		517,190	559,916	168.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BQ H69		517,202	560,097	199.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BR H70		517,121	559,978	187.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: 6460 Gortloughra Cumulative Worst Case

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
BS H71		517,638	560,049	163.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BT H72		517,727	560,072	162.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BU H73		517,677	560,204	178.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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	H1	9:09	31	0:24	1:30
B	H2	8:52	30	0:23	1:29
C	H3	9:04	30	0:24	1:25
D	H4	10:37	32	0:24	2:12
E	H5	63:01	148	0:56	11:16
F	H6	76:45	148	1:11	15:06
G	H7	39:21	107	0:31	4:05
H	H8	69:00	167	0:45	10:34
I	H9	59:10	148	0:44	9:32
J	H10	70:03	164	0:39	13:11
K	H11	54:01	138	0:34	10:14
L	H12	45:29	121	0:32	8:32
M	H13	46:22	129	0:31	8:43
N	H14	39:25	105	0:31	7:28
O	H15	19:30	63	0:25	3:45
P	H16	29:29	100	0:24	5:18
Q	H17	13:12	41	0:25	2:36
R	H18	17:28	59	0:25	3:24
S	H19	21:42	65	0:29	4:09
T	H20	13:19	38	0:28	2:46
U	H21	10:09	33	0:25	2:06
V	H22	8:41	30	0:22	1:48
W	H23	7:07	28	0:21	1:25
X	H24	6:59	28	0:20	1:26
Y	H25	6:30	26	0:20	1:20
Z	H26	0:00	0	0:00	0:00
AA	H27	0:00	0	0:00	0:00
AB	H28	0:00	0	0:00	0:00
AC	H29	30:42	88	0:31	6:12
AD	H30	28:21	88	0:28	5:33
AE	H31	22:17	74	0:22	3:50
AF	H32	0:00	0	0:00	0:00
AG	H33	0:00	0	0:00	0:00
AH	H34	0:00	0	0:00	0:00
AI	H35	0:00	0	0:00	0:00
AJ	H36	10:26	34	0:24	2:18
AK	H37	36:46	107	0:31	7:58
AL	H38	12:51	48	0:21	2:51
AM	H39	0:00	0	0:00	0:00
AN	H40	0:00	0	0:00	0:00
AO	H41	0:00	0	0:00	0:00
AP	H42	0:00	0	0:00	0:00
AQ	H43	0:00	0	0:00	0:00
AR	H44	0:00	0	0:00	0:00
AS	H45	0:00	0	0:00	0:00
AT	H46	0:00	0	0:00	0:00
AU	H47	0:00	0	0:00	0:00
AV	H48	6:32	26	0:20	1:01
AW	H49	0:00	0	0:00	0:00
AX	H50	0:00	0	0:00	0:00
AY	H51	19:18	57	0:40	3:09
AZ	H52	0:00	0	0:00	0:00
BA	H53	0:00	0	0:00	0:00

To be continued on next page...

SHADOW - Main Result

Calculation: 6460 Gortloughra Cumulative Worst Case

...continued from previous page

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]
BB	H54	17:50	61	0:26	3:29
BC	H55	8:26	30	0:22	1:43
BD	H56	7:09	26	0:21	1:24
BE	H57	6:29	26	0:19	1:15
BF	H58	6:33	26	0:20	1:14
BG	H59	5:48	24	0:19	1:03
BH	H60	0:00	0	0:00	0:00
BI	H61	0:00	0	0:00	0:00
BJ	H62	0:00	0	0:00	0:00
BK	H63	0:00	0	0:00	0:00
BL	H64	34:47	87	0:33	6:23
BM	H65	57:57	136	0:34	10:43
BN	H66	29:49	99	0:28	5:40
BO	H67	39:39	109	0:30	7:28
BP	H68	11:50	36	0:25	2:25
BQ	H69	10:28	33	0:25	2:07
BR	H70	12:36	37	0:26	2:36
BS	H71	6:07	24	0:19	1:15
BT	H72	0:00	0	0:00	0:00
BU	H73	5:44	24	0:19	1:01

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

No.	Name	Worst case	Expected
		[h/year]	[h/year]
1	T01	95:52	17:57
2	T02	25:16	5:18
3	T03	38:14	6:09
4	T04	106:15	20:06
5	T06	68:53	13:18
6	T07	49:02	10:43
7	T08	80:21	15:26
8	T09	110:38	19:40
9	Shehy More WF	26:48	5:41
10	Shehy More WF	0:00	0:00
11	Shehy More WF	33:40	2:51
12	Shehy More WF	80:31	11:10
13	Shehy More WF	14:09	2:29
14	Shehy More WF	20:43	3:51
15	Shehy More WF	3:57	0:49
16	Shehy More WF	0:00	0:00
17	Shehy More WF	0:00	0:00
18	Shehy More WF	0:00	0:00
19	Shehy More WF	22:51	4:06

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

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

SHADOW - Detailed Results

Calculation: 6460 Gortloughra Cumulative Worst Case

Worst case, Shadow hours per year [h/year]

[illegible]

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra Cumulative Worst Case

...continued from previous page

Receptor	WTG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
BM		0:00	0:00	0:00	31:56	0:00	0:00	8:04	17:57	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BN		0:00	0:00	0:00	6:37	17:24	0:00	0:00	5:48	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BO		0:00	0:00	0:00	20:28	0:00	0:00	6:27	12:44	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BP		0:00	0:00	0:00	0:00	11:50	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BQ		0:00	0:00	0:00	0:00	10:28	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BR		0:00	0:00	0:00	0:00	12:36	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BS		0:00	0:00	0:00	0:00	6:07	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BT		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BU		0:00	0:00	0:00	0:00	5:44	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
Total		95:52	25:16	38:14	106:15	68:53	49:02	80:21	110:38	26:48	0:00	33:40	80:31	14:09	20:43	3:57	0:00	0:00	0:00	22:51

	Total
A	9:09
B	8:52
C	9:04
D	10:37
E	63:01
F	76:45
G	39:21
H	69:00
I	59:10
J	70:03
K	54:01
L	45:29
M	46:22
N	39:25
O	19:30
P	29:29
Q	13:12
R	17:28
S	21:42
T	13:19
U	10:09
V	8:41
W	7:07
X	6:59
Y	6:30
Z	0:00
AA	0:00
AB	0:00
AC	30:42
AD	28:21
AE	22:17
AF	0:00
AG	0:00
AH	0:00
AI	0:00
AJ	10:26
AK	36:46
AL	12:51
AM	0:00
AN	0:00
AO	0:00
AP	0:00
AQ	0:00
AR	0:00
AS	0:00
AT	0:00
AU	0:00
AV	6:32
AW	0:00
AX	0:00
AY	19:18
AZ	0:00
BA	0:00

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra Cumulative Worst Case

...continued from previous page

	Total
BB	17:50
BC	8:26
BD	7:09
BE	6:29
BF	6:33
BG	5:48
BH	0:00
BI	0:00
BJ	0:00
BK	0:00
BL	34:47
BM	57:57
BN	29:49
BO	39:39
BP	11:50
BQ	10:28
BR	12:36
BS	6:07
BT	0:00
BU	5:44
Total	

Worst case, Shadow days per year [days/year]

Receptor	WTG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
A		31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31
B		30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
C		30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
D		32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
E		54	36	31	0	0	0	0	0	49	0	0	0	0	0	0	0	0	0	0	148
F		68	40	32	0	0	0	0	0	48	0	0	0	0	0	0	0	0	0	0	148
G		0	0	0	0	0	0	0	0	0	0	82	0	0	0	0	0	0	0	25	107
H		0	0	0	0	0	0	0	0	0	0	0	79	29	38	0	0	0	0	21	167
I		0	0	0	0	0	0	0	0	0	0	0	66	27	35	0	0	0	0	20	148
J		0	0	28	77	0	0	30	43	0	0	0	0	0	0	0	0	0	0	0	164
K		0	0	24	59	0	0	27	39	0	0	0	0	0	0	0	0	0	0	0	138
L		0	0	0	61	0	0	26	38	0	0	0	0	0	0	0	0	0	0	0	121
M		0	0	0	67	0	0	26	38	0	0	0	0	0	0	0	0	0	0	0	129
N		0	0	0	50	0	0	26	36	0	0	0	0	0	0	0	0	0	0	0	105
O		0	0	0	34	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	63
P		0	0	0	32	41	0	0	27	0	0	0	0	0	0	0	0	0	0	0	100
Q		0	0	0	0	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
R		0	0	0	23	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
S		0	0	0	0	40	0	0	25	0	0	0	0	0	0	0	0	0	0	0	65
T		0	0	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
U		0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
V		0	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
W		0	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
X		0	0	0	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
Y		0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
Z		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AB		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AC		0	0	0	0	0	28	60	0	0	0	0	0	0	0	0	0	0	0	0	88
AD		0	0	0	0	0	26	62	0	0	0	0	0	0	0	0	0	0	0	0	88
AE		0	0	0	0	0	0	0	74	0	0	0	0	0	0	0	0	0	0	0	74
AF		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AG		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AI		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AJ		0	0	0	0	0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	34
AK		0	0	43	0	0	50	28	0	0	0	0	0	0	0	0	0	0	0	0	107
AL		0	0	0	0	0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	48
AM		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AN		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AO		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra Cumulative Worst Case

...continued from previous page

Receptor	WTG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
AP		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AQ		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AR		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AU		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AV		26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
AW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AX		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AY		0	0	0	0	0	0	0	0	0	0	0	0	0	22	20	0	0	0	33	57
AZ		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BA		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BB		0	0	0	24	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61
BC		0	0	0	0	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
BD		0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
BE		0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
BF		0	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26
BG		0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
BH		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BI		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BJ		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BK		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BL		0	0	0	0	0	37	50	0	0	0	0	0	0	0	0	0	0	0	0	87
BM		0	0	0	66	0	0	28	42	0	0	0	0	0	0	0	0	0	0	0	136
BN		0	0	0	25	50	0	0	24	0	0	0	0	0	0	0	0	0	0	0	99
BO		0	0	0	53	0	0	25	35	0	0	0	0	0	0	0	0	0	0	0	109
BP		0	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
BQ		0	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
BR		0	0	0	0	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
BS		0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
BT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BU		0	0	0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	24
Total		271	76	158	571	714	186	375	500	97	0	82	145	56	95	20	0	0	0	99	

Worst case, Max shadow hours per day [h/day]

Receptor	WTG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
A		0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
B		0:23	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:23
C		0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
D		0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
E		0:42	0:25	0:23	0:00	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:56
F		0:46	0:27	0:24	0:00	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:11
G		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:31	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:18	0:31
H		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:45	0:23	0:23	0:00	0:00	0:00	0:00	0:16	0:45
I		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:44	0:21	0:22	0:00	0:00	0:00	0:00	0:15	0:44
J		0:00	0:00	0:21	0:39	0:00	0:00	0:23	0:34	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:39
K		0:00	0:00	0:19	0:34	0:00	0:00	0:21	0:31	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:34
L		0:00	0:00	0:00	0:32	0:00	0:00	0:20	0:29	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:32
M		0:00	0:00	0:00	0:31	0:00	0:00	0:21	0:29	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:31
N		0:00	0:00	0:00	0:31	0:00	0:00	0:20	0:28	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:31
O		0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:23	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:25
P		0:00	0:00	0:00	0:22	0:24	0:00	0:00	0:21	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
Q		0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:25
R		0:00	0:00	0:00	0:19	0:25	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:25
S		0:00	0:00	0:00	0:00	0:29	0:00	0:00	0:19	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:29
T		0:00	0:00	0:00	0:00	0:28	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:28
U		0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:25
V		0:00	0:00	0:00	0:00	0:22	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:22
W		0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:21
X		0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:20
Y		0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:20
Z		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AA		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AB		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra Cumulative Worst Case

...continued from previous page

Receptor	WTG	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
AC		0:00	0:00	0:00	0:00	0:00	0:20	0:31	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:31
AD		0:00	0:00	0:00	0:00	0:00	0:19	0:28	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:28
AE		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:22	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:22
AF		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AG		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AH		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AI		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AJ		0:00	0:00	0:00	0:00	0:00	0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
AK		0:00	0:00	0:21	0:00	0:00	0:30	0:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:31
AL		0:00	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:21
AM		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AN		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AO		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AP		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AQ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AR		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AS		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AT		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AU		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AV		0:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:20
AW		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AX		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AY		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:17	0:15	0:00	0:00	0:00	0:25	0:40
AZ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BA		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BB		0:00	0:00	0:00	0:19	0:26	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:26
BC		0:00	0:00	0:00	0:00	0:22	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:22
BD		0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:21
BE		0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:19
BF		0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:20
BG		0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:19
BH		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BI		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BJ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BK		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BL		0:00	0:00	0:00	0:00	0:00	0:00	0:26	0:33	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:33
BM		0:00	0:00	0:00	0:34	0:00	0:00	0:22	0:33	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:34
BN		0:00	0:00	0:00	0:20	0:28	0:00	0:00	0:19	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:28
BO		0:00	0:00	0:00	0:30	0:00	0:00	0:20	0:28	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:30
BP		0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:25
BQ		0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:25
BR		0:00	0:00	0:00	0:00	0:26	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:26
BS		0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:19
BT		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BU		0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:19
Total		3:23	0:52	1:48	5:36	8:28	1:54	4:12	5:49	0:42	0:00	0:31	1:29	0:44	1:02	0:15	0:00	0:00	0:00	1:14	

Real case, Shadow hours per year [h/year]

Receptor	WTG																			Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
A	1:31	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:30
B	1:29	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:29
C	1:26	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:25
D	2:12	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:12
E	4:57	2:21	1:04	0:00	0:00	0:00	0:00	0:00	2:55	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	11:16
F	8:07	2:57	1:17	0:00	0:00	0:00	0:00	0:00	2:46	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	15:06
G	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:51	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	4:05
H	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	6:01	1:27	2:14	0:00	0:00	0:00	0:00	0:53	10:34
I	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	5:29	1:20	1:55	0:00	0:00	0:00	0:00	0:48	9:32
J	0:00	0:00	0:00	1:20	7:22	0:00	0:00	1:26	3:26	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	13:11
K	0:00	0:00	1:10	5:11	0:00	0:00	1:15	2:48	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	10:14
L	0:00	0:00	0:00	4:48	0:00	0:00	1:11	2:34	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	8:32
M	0:00	0:00	0:00	4:57	0:00	0:00	1:11	2:35	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	8:43
N	0:00	0:00	0:00	4:03	0:00	0:00	1:07	2:22	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	7:28
O	0:00	0:00	0:00	2:15	0:00	0:00	0:00	1:30	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	3:45

SHADOW - Detailed Results

Calculation: 6460 Gortloughra Cumulative Worst Case

...continued from previous page

[illegible]

Total time can be different from the sum in case of concurrent Shadow flicker events

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** A - H1**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	08:29 (1) 21:00	06:10 21:46	05:25 22:00	05:22 21:28	06:48 20:26		07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	08:31 (1) 21:02	06:08 21:47	05:25 21:59	05:23 21:26	06:50 20:24		07:39 19:15	07:32 17:10	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	08:32 (1) 21:04	06:06 21:48	05:24 21:59	06:02 21:25	06:51 20:22		07:40 19:13	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:19 18:21	07:08 20:15	08:37 (1) 21:05	06:05 21:49	05:23 21:59	06:03 21:23	06:53 20:20		07:42 19:10	07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	08:40 (1) 21:07	06:03 21:50	05:22 21:58	06:05 21:21	06:55 20:17		07:44 19:08	07:38 17:04	08:27 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15		07:45 19:06	07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13		07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:29	06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10	08:32 (1) 19:01	07:49 16:59	07:43 16:28	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	08:33 (1) 18:59	07:50 16:57	07:45 16:28	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06	08:38 (1) 18:57	07:52 16:56	07:46 16:27	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04	08:40 (1) 18:55	07:54 16:54	07:48 16:27	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	08:21 (1) 18:52	07:55 16:53	07:50 16:27	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:06	07:08 19:59	08:20 (1) 18:50	07:57 16:51	07:52 16:27	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57	08:19 (1) 18:48	07:59 16:50	07:53 16:27	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54	08:19 (1) 18:46	07:55 16:48	07:55 16:27	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52	08:19 (1) 18:44	07:57 16:47	07:57 16:27	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59	07:14 19:50	08:18 (1) 18:41	07:59 16:46	07:59 16:27	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:41 21:27	05:19 21:59	05:39 21:48	06:26 20:56	07:16 19:47	08:18 (1) 18:39	08:00 16:44	08:00 16:28	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:18 (1) 18:37	08:07 16:43	08:07 16:28	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	05:18 22:00	05:42 21:45	06:29 20:52	07:19 19:43	08:19 (1) 18:35	08:09 16:42	08:04 16:28	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:19 (1) 18:33	08:11 16:41	08:05 16:29	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:21 (1) 18:31	08:13 16:40	08:07 16:29	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	08:25 (1) 18:29	08:14 16:38	08:09 16:30	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	05:19 22:01	05:47 21:40	06:35 20:44	07:25 19:33	08:30 (1) 18:27	08:16 16:37	08:10 16:30	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:01	05:48 21:39	06:37 20:42	07:27 19:31	08:31 (1) 18:25	08:17 16:36	08:12 16:31	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29	08:32 (1) 18:21	08:14 16:35	08:14 16:32	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	08:33 (1) 18:19	08:15 16:34	08:15 16:32	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24	08:34 (1) 18:17	08:17 16:33	08:17 16:33	08:45 16:33
29	08:23 17:19	07:22 18:05	06:14 19:01	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22	08:35 (1) 18:15	08:18 16:34	08:18 16:34	08:45 16:34
30	08:21 17:21	07:19 18:06	06:12 19:01	06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	08:36 (1) 18:13	08:20 16:35	08:20 16:35	08:45 16:35
31	08:20 17:23	07:17 18:08	06:11 19:01	06:11 20:59	05:26 21:45	05:21 22:00	05:57 21:30	06:47 20:29	07:36 19:19	08:37 (1) 18:11	08:21 16:36	08:21 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			222	49					278				
Sun reduction			0.24	0.35					0.28				
Oper. time red.			1.00	1.00					1.00				
Wind dir. red.			0.60	0.60					0.60				
Total reduction			0.15	0.21					0.17				
Total, real			33	11					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)

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** B - H2**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	08:27 (1) 08:46 (1)	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	08:28 (1) 08:45 (1)	06:08 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:39 19:15	07:32 17:10	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	08:30 (1) 08:43 (1)	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:40 19:13	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:19 18:21	07:08 20:15	08:32 (1) 08:40 (1)	06:05 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20	07:42 19:10	07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	05:25 21:21	06:05 20:17	06:55 20:17	07:44 19:08	07:38 17:04	08:27 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	06:58 20:13	07:47 19:04	07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:29	06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10	07:00 20:10	08:27 (1) 08:34 (1)	07:49 19:01	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	07:01 20:08	08:24 (1) 08:37 (1)	07:50 18:59	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06	07:03 20:06	08:21 (1) 08:38 (1)	07:52 18:57	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04	07:04 20:04	08:20 (1) 08:39 (1)	07:54 18:55	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:06 20:01	08:19 (1) 08:39 (1)	07:55 18:52	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:06	07:08 19:59	07:08 19:59	08:18 (1) 08:40 (1)	07:57 18:50	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57	07:09 19:57	08:17 (1) 08:40 (1)	07:59 18:48	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54	07:11 19:54	08:17 (1) 08:40 (1)	07:55 18:46	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52	07:12 19:52	08:17 (1) 08:40 (1)	07:57 18:44	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59	07:14 19:50	07:14 19:50	08:16 (1) 08:39 (1)	07:59 18:41	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:41 21:27	05:18 21:59	05:39 21:48	06:26 20:56	07:16 19:47	07:16 19:47	08:17 (1) 08:38 (1)	08:00 18:39	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	07:17 19:45	08:17 (1) 08:36 (1)	08:02 18:37	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	05:18 22:00	05:42 21:45	06:29 20:52	07:19 19:43	07:19 19:43	08:18 (1) 08:35 (1)	08:09 18:35	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	07:20 19:40	08:19 (1) 08:32 (1)	08:05 18:33	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	05:44 21:43	06:32 20:48	07:22 19:38	07:22 19:38	08:22 (1) 08:30 (1)	08:13 18:31	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	07:24 19:36	08:22 (1) 08:30 (1)	08:14 18:31	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	05:19 22:01	05:47 21:40	06:35 20:44	07:25 19:33	07:25 19:33	08:16 18:27	08:10 18:12	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:01	05:48 21:39	06:37 20:42	07:27 19:31	07:27 19:31	08:16 18:27	08:12 18:16	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29	07:29 19:29	08:15 18:23	08:14 18:15	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:30 19:26	08:15 18:21	08:15 18:16	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24	07:32 19:24	08:14 18:21	08:17 18:16	08:45 16:33
29	08:23 17:19	07:22 18:05	06:14 19:03	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22	07:34 19:22	08:14 18:17	08:18 18:16	08:45 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	07:35 19:19	08:13 18:21	08:17 18:16	08:45 16:35
31	08:20 17:23	07:17 20:08	06:11 21:08	06:11 21:12	05:26 21:45	05:22 21:30	05:57 20:29	06:47 20:29	07:35 19:19	07:35 19:19	08:12 18:21	08:17 18:16	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			207	57						268			
Sun reduction			0.24	0.35						0.28			
Oper. time red.			1.00	1.00						1.00			
Wind dir. red.			0.61	0.61						0.61			
Total reduction			0.15	0.22						0.17			
Total, real			31	12						46			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** C - H3**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:45	08:18	07:25		07:15	06:10	05:25	05:22	05:59	06:48		07:37	07:30	08:21
	16:37	17:25	18:16		20:10	21:00	21:46	22:00	21:28	20:26		19:17	17:11	16:31
2	08:45	08:17	07:23		07:12	06:08	05:25	05:23	06:00	06:50		07:39	07:32	08:22
	16:38	17:27	18:18		20:11	21:02	21:47	21:59	21:26	20:24		19:15	17:10	16:31
3	08:45	08:15	07:21		07:10	06:06	05:24	05:24	06:02	06:51		07:40	07:34	08:24
	16:39	17:28	18:20		20:13	21:04	21:48	21:59	21:25	20:22		19:13	17:08	16:30
4	08:44	08:13	07:19		07:08	06:05	05:23	05:25	06:03	06:53		07:42	07:36	08:25
	16:40	17:30	18:21		20:15	21:05	21:49	21:59	21:23	20:20		19:10	17:06	16:30
5	08:44	08:12	07:16		07:06	06:03	05:22	05:25	06:05	06:55		07:44	07:38	08:27
	16:42	17:32	18:23		20:17	21:07	21:50	21:58	21:21	20:17		19:08	17:04	16:29
6	08:44	08:10	07:14		07:03	06:01	05:22	05:26	06:06	06:56		07:45	07:39	08:28
	16:43	17:34	18:25		20:18	21:09	21:51	21:58	21:20	20:15		19:06	17:02	16:29
7	08:43	08:08	07:12		07:01	05:59	05:21	05:27	06:08	06:58		07:47	07:41	08:29
	16:44	17:36	18:27		20:20	21:10	21:52	21:57	21:18	20:13		19:03	17:01	16:28
8	08:43	08:07	07:10		06:59	05:57	05:21	05:28	06:10	07:00		07:49	07:43	08:30
	16:45	17:38	18:29		20:22	21:12	21:53	21:56	21:16	20:10		19:01	16:59	16:28
9	08:43	08:05	07:07		06:57	05:56	05:20	05:29	06:11	07:01		07:50	07:45	08:31
	16:47	17:40	18:30		20:23	21:14	21:54	21:56	21:14	20:08		18:59	16:57	16:28
10	08:42	08:03	07:05		06:54	05:54	05:20	05:30	06:13	07:03		07:52	07:46	08:33
	16:48	17:41	18:32		20:25	21:15	21:54	21:55	21:12	20:06		18:57	16:56	16:27
11	08:41	08:01	07:03		06:52	05:52	05:19	05:31	06:14	07:04		07:54	07:48	08:34
	16:50	17:43	18:34		20:27	21:17	21:55	21:54	21:10	20:04		18:55	16:54	16:27
12	08:41	07:59	07:01		06:50	05:51	05:19	05:32	06:16	07:06		07:55	07:50	08:35
	16:51	17:45	18:36		20:28	21:18	21:56	21:53	21:08	20:01	8	08:32 (1)	18:52	16:53
13	08:40	07:58	06:58		06:48	05:49	05:19	05:33	06:18	07:08		08:29 (1)	18:50	16:51
	16:53	17:47	18:37		20:30	21:20	21:57	21:53	21:06	19:59	14	08:43 (1)	18:50	16:51
14	08:39	07:56	06:56		06:46	05:47	05:18	05:34	06:19	07:09		08:26 (1)	18:48	16:50
	16:54	17:49	18:39		20:32	21:21	21:57	21:52	21:05	19:57	18	08:44 (1)	18:48	16:50
15	08:39	07:54	06:54		06:43	05:46	05:18	05:35	06:21	07:11		08:25 (1)	18:46	16:49
	16:56	17:51	18:41		20:33	21:23	21:58	21:51	21:03	19:54	20	08:45 (1)	18:46	16:48
16	08:38	07:52	06:52		06:41	05:44	05:18	05:37	06:22	07:12		08:25 (1)	18:44	16:47
	16:57	17:52	18:42		20:35	21:24	21:58	21:50	21:01	19:52	21	08:46 (1)	18:44	16:47
17	08:37	07:50	06:49		07:47 (1)	06:39	05:43	05:18	06:24	07:14		08:23 (1)	18:44	16:47
	16:59	17:54	18:44	4	07:51 (1)	20:37	21:26	21:59	21:49	20:59	22	08:45 (1)	18:41	16:46
18	08:36	07:48	06:47		07:43 (1)	06:37	05:41	05:18	06:26	07:16		08:23 (1)	18:40	16:46
	17:00	17:56	18:46	12	07:55 (1)	20:39	21:27	21:59	21:48	20:56	23	08:46 (1)	18:39	16:44
19	08:35	07:46	06:45		07:40 (1)	06:35	05:40	05:18	06:27	07:17		08:22 (1)	18:37	16:43
	17:02	17:58	18:48	16	07:56 (1)	20:40	21:29	21:59	21:46	20:54	23	08:45 (1)	18:37	16:43
20	08:34	07:44	06:42		07:38 (1)	06:33	05:39	05:18	06:29	07:19		08:22 (1)	18:35	16:42
	17:04	18:00	18:49	19	07:57 (1)	20:42	21:30	22:00	21:45	20:52	23	08:45 (1)	18:35	16:42
21	08:33	07:42	06:40		07:37 (1)	06:30	05:37	05:18	06:30	07:20		08:21 (1)	18:33	16:41
	17:05	18:02	18:51	21	07:58 (1)	20:44	21:32	22:00	21:44	20:50	23	08:44 (1)	18:33	16:41
22	08:32	07:40	06:38		07:36 (1)	06:28	05:36	05:19	06:32	07:22		08:22 (1)	18:31	16:40
	17:07	18:03	18:53	22	07:58 (1)	20:45	21:33	22:00	21:43	20:48	21	08:43 (1)	18:31	16:40
23	08:30	07:38	06:35		07:35 (1)	06:26	05:35	05:19	06:34	07:24		08:23 (1)	18:29	16:38
	17:09	18:05	18:54	23	07:58 (1)	20:47	21:35	22:00	21:41	20:46	19	08:42 (1)	18:29	16:38
24	08:29	07:36	06:33		07:35 (1)	06:24	05:34	05:19	06:35	07:25		08:23 (1)	18:27	16:37
	17:10	18:07	18:56	24	07:59 (1)	20:49	21:36	22:01	21:40	20:44	17	08:40 (1)	18:27	16:37
25	08:28	07:34	06:31		07:34 (1)	06:22	05:32	05:19	06:37	07:27		08:25 (1)	18:25	16:36
	17:12	18:09	18:58	23	07:57 (1)	20:50	21:37	22:01	21:39	20:42	14	08:39 (1)	18:25	16:36
26	08:27	07:31	06:29		07:35 (1)	06:20	05:31	05:20	06:38	07:29		08:28 (1)	18:23	16:35
	17:14	18:11	19:00	22	07:57 (1)	20:52	21:39	22:01	21:37	20:40	8	08:36 (1)	18:23	16:35
27	08:25	07:29	06:26		07:35 (1)	06:18	05:30	05:20	06:40	07:30		07:21	18:21	16:34
	17:16	18:13	19:01	22	07:57 (1)	20:54	21:40	22:01	21:36	20:37		17:21	18:20	16:34
28	08:24	07:27	06:24		07:36 (1)	06:16	05:29	05:21	06:42	07:32		07:23	18:17	16:33
	17:18	18:14	19:03	20	07:56 (1)	20:55	21:41	22:00	21:34	20:35		17:19	18:16	16:33
29	08:23		07:22		08:36 (1)	06:14	05:28	05:21	06:43	07:34		07:25	18:18	16:33
	17:19		20:05	18	08:54 (1)	20:57	21:42	22:00	21:33	20:33		17:17	18:16	16:33
30	08:21		07:19		08:37 (1)	06:12	05:27	05:22	06:45	07:35		07:27	18:20	16:33
	17:21		20:06	15	08:52 (1)	20:59	21:44	22:00	21:31	20:31		17:15	18:19	16:33
31	08:20		07:17		08:40 (1)		05:26		06:47			07:29		16:33
	17:23		20:08	9	08:49 (1)		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367		416	485	498	501	453	381		332	267	244
Total, worst case			270							274				
Sun reduction			0.24							0.28				
Oper. time red.			1.00							1.00				
Wind dir. red.			0.60							0.60				
Total reduction			0.15							0.17				
Total, real			39							46				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** D - H4**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	07:56 (1) 08:20 (1)	07:37 19:17	07:30 17:11
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:56 (1) 08:20 (1)	07:39 19:15	07:32 17:10
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:55 (1) 08:19 (1)	07:40 19:13	07:34 17:08
4	08:44 16:40	08:13 17:30	07:19 18:21	07:08 20:15	06:05 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20	07:56 (1) 08:19 (1)	07:42 19:10	07:36 17:06
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	07:56 (1) 08:17 (1)	07:44 19:08	07:38 17:04
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:03 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15	07:57 (1) 08:16 (1)	07:45 19:06	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	06:01 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:58 (1) 08:14 (1)	07:47 19:03	07:41 17:01
8	08:43 16:45	08:07 17:38	07:10 18:29	06:59 20:22	06:59 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10	08:00 (1) 08:11 (1)	07:49 19:01	07:43 16:59
9	08:43 16:47	08:05 17:40	07:07 18:30	06:57 20:23	06:57 21:13	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	06:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	06:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04	07:54 18:55	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	06:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	06:48 21:20	05:19 21:57	05:33 21:53	06:18 21:06	07:08 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	06:46 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57	07:59 18:48	07:53 16:50	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	06:43 20:33	06:43 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54	08:00 18:46	07:55 16:48	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	06:41 20:35	06:41 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52	08:02 18:44	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	06:39 21:26	05:18 21:59	05:38 21:49	06:24 20:59	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	06:37 21:27	05:18 21:59	05:39 21:48	06:26 20:56	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	06:35 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	06:33 21:30	05:18 22:00	05:42 21:45	06:29 20:52	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	06:30 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	06:28 21:33	05:19 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:13 18:31	08:07 16:40	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	06:26 21:35	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	06:24 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:16	08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	06:22 21:37	05:19 22:01	05:49 21:39	06:37 20:42	07:27 19:31	08:02 (1) 08:17 (1)	07:27 19:31	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	06:20 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29	08:01 (1) 08:19 (1)	07:29 19:29	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	06:18 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:59 (1) 08:19 (1)	07:30 19:26	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	06:16 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24	07:58 (1) 08:20 (1)	07:32 19:24	08:45 16:33
29	08:23 17:19	07:22 18:05	06:14 20:57	06:14 20:57	06:14 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22	07:57 (1) 08:20 (1)	07:34 19:22	08:45 16:34
30	08:21 17:21	07:19 20:06	06:12 20:59	06:12 20:59	06:12 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	07:57 (1) 08:21 (1)	07:35 19:19	08:45 16:35
31	08:20 17:23	07:17 20:08	06:11 20:58	06:11 20:58	06:11 21:45	05:26 22:00	05:57 21:30	06:47 20:29	07:57 (1) 08:21 (1)	07:57 (1) 08:21 (1)	07:35 19:19	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				318				157		162		
Sun reduction				0.35				0.30		0.28		
Oper. time red.				1.00				1.00		1.00		
Wind dir. red.				0.64				0.64		0.64		
Total reduction				0.23				0.19		0.18		
Total, real				73				30		30		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** E - H5**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	
1	08:45	08:18	07:25	07:15	08:57 (1)	06:10	05:25
	16:37	17:25	18:16	20:10	42 09:39 (1)	21:00	21:46
2	08:45	08:17	07:23	07:12	08:57 (1)	06:08	05:24
	16:38	17:27	18:18	20:11	41 09:38 (1)	21:02	21:47
3	08:45	08:15	07:21	07:10	08:57 (1)	06:06	05:24
	16:39	17:28	18:20	20:13	41 09:38 (1)	21:04	21:48
4	08:44	08:13	07:18	07:08	08:28 (2)	06:05	05:23
	16:40	17:30	18:21	20:15	42 09:37 (1)	21:05	21:49
5	08:44	08:12	07:16	07:06	08:22 (2)	06:03	05:22
	16:42	17:32	18:23	20:17	52 09:36 (1)	21:07	21:50
6	08:44	08:10	07:14	07:03	08:20 (2)	06:01	05:22
	16:43	17:34	18:25	20:18	55 09:35 (1)	21:09	21:51
7	08:43	08:08	07:12	07:01	08:18 (2)	05:59	05:21
	16:44	17:36	18:27	20:20	56 09:34 (1)	21:10	21:52
8	08:43	08:07	07:10	06:59	08:17 (2)	05:57	05:21
	16:45	17:38	18:29	20:22	56 09:33 (1)	21:12	21:53
9	08:43	08:05	07:07	06:57	08:15 (2)	05:56	05:20
	16:47	17:39	18:30	20:23	55 09:30 (1)	21:13	21:54
10	08:42	08:03	07:05	06:54	08:15 (2)	05:54	05:20
	16:48	17:41	18:32	20:25	53 09:29 (1)	21:15	8 06:51 (9)
11	08:41	08:01	07:03	06:52	08:14 (2)	05:52	06:41 (9)
	16:50	17:43	18:34	20:27	51 09:27 (1)	21:17	12 06:53 (9)
12	08:41	07:59	07:01	06:50	08:14 (2)	05:51	06:39 (9)
	16:51	17:45	18:36	20:28	46 09:24 (1)	21:18	15 06:54 (9)
13	08:40	07:58	06:58	06:48	08:14 (2)	05:49	06:39 (9)
	16:52	17:47	18:37	20:30	40 09:21 (1)	21:20	16 06:55 (9)
14	08:39	07:56	08:56 (3)	06:45	08:13 (2)	05:47	06:38 (9)
	16:54	17:49	10 09:06 (3)	20:32	28 09:14 (1)	21:21	17 06:55 (9)
15	08:39	07:54	08:53 (3)	06:43	08:13 (2)	05:46	06:37 (9)
	16:56	17:51	15 09:08 (3)	20:33	24 08:37 (2)	21:23	19 06:56 (9)
16	08:38	07:52	08:52 (3)	06:41	08:13 (2)	05:44	06:37 (9)
	16:57	17:52	17 09:09 (3)	20:35	23 08:36 (2)	21:24	20 06:57 (9)
17	08:37	07:50	08:51 (3)	06:39	08:14 (2)	05:43	06:36 (9)
	16:59	17:54	19 09:10 (3)	20:37	21 08:35 (2)	21:26	21 06:57 (9)
18	08:36	07:48	08:50 (3)	06:37	08:15 (2)	05:41	06:37 (9)
	17:00	17:56	21 09:11 (3)	20:39	19 08:34 (2)	21:27	20 06:57 (9)
19	08:35	07:46	08:50 (3)	06:35	08:16 (2)	05:40	06:37 (9)
	17:02	17:58	22 09:12 (3)	20:40	16 08:32 (2)	21:29	21 06:58 (9)
20	08:34	07:44	08:49 (3)	06:33	08:18 (2)	05:39	06:36 (9)
	17:04	18:00	23 09:12 (3)	20:42	12 08:30 (2)	21:30	21 06:57 (9)
21	08:33	07:42	08:49 (3)	06:30	08:10 (1)	05:37	06:36 (9)
	17:05	18:02	23 09:12 (3)	20:44	6 08:27 (2)	21:32	21 06:57 (9)
22	08:32	07:40	08:49 (3)	06:28	08:07 (1)	05:36	06:37 (9)
	17:07	18:03	23 09:12 (3)	20:45	29 08:36 (1)	21:33	20 06:57 (9)
23	08:30	07:38	08:50 (3)	06:26	08:06 (1)	05:35	06:37 (9)
	17:09	18:05	22 09:12 (3)	20:47	31 08:37 (1)	21:35	20 06:57 (9)
24	08:29	07:36	08:49 (3)	06:24	08:04 (1)	05:34	06:38 (9)
	17:10	18:07	21 09:10 (3)	20:49	35 08:39 (1)	21:36	19 06:57 (9)
25	08:28	07:34	08:50 (3)	06:22	08:02 (1)	05:32	06:38 (9)
	17:12	18:09	19 09:09 (3)	20:50	37 08:39 (1)	21:37	19 06:57 (9)
26	08:27	07:31	08:51 (3)	06:20	08:01 (1)	05:31	06:39 (9)
	17:14	18:11	17 09:08 (3)	20:52	38 08:39 (1)	21:39	17 06:56 (9)
27	08:25	07:29	08:52 (3)	06:18	08:01 (1)	05:30	06:39 (9)
	17:16	18:12	15 09:07 (3)	20:54	39 08:40 (1)	21:40	17 06:56 (9)
28	08:24	07:27	08:55 (3)	06:16	07:59 (1)	05:29	06:40 (9)
	17:17	18:14	9 09:04 (3)	20:55	40 08:39 (1)	21:41	15 06:55 (9)
29	08:23		07:22	06:14	08:59 (1)	05:28	06:40 (9)
	17:19		20:05	41 09:40 (1)	20:57	21:42	15 06:55 (9)
30	08:21		07:19	06:12	08:58 (1)	05:27	06:41 (9)
	17:21		20:06	42 09:40 (1)	20:59	21:44	13 06:54 (9)
31	08:20		07:17	06:11	08:58 (1)	05:26	06:43 (9)
	17:23		20:08	42 09:40 (1)		21:45	11 06:54 (9)
Potential sun hours	260	278	367	416	485	498	
Total, worst case		276		432	779	377	15
Sun reduction		0.21		0.24	0.35	0.37	0.30
Oper. time red.		1.00		1.00	1.00		1.00
Wind dir. red.		0.52		0.58	0.61	0.69	0.69
Total reduction		0.11		0.14	0.21	0.26	0.21
Total, real		29		62	167	97	3

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** E - H5**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59		06:50 (9)	06:48	08:13 (2)	07:37		07:30	08:21
	22:00		21:28	14	07:04 (9)	20:26	51	09:26 (1)	19:17	17:11	16:31
2	05:23		06:00		06:52 (9)	06:50		08:14 (2)	07:39	07:32	08:22
	21:59		21:26	11	07:03 (9)	20:24	53	09:28 (1)	19:15	17:09	16:31
3	05:24		06:02		06:54 (9)	06:51		08:13 (2)	07:40	07:34	08:24
	21:59		21:25	6	07:00 (9)	20:22	55	09:28 (1)	19:13	17:08	16:30
4	05:25		06:03			06:53		08:14 (2)	07:42	07:36	08:25
	21:59		21:23			20:20	56	09:30 (1)	19:10	17:06	16:29
5	05:25		06:05			06:55		08:14 (2)	07:43	07:37	08:27
	21:58		21:21			20:17	56	09:30 (1)	19:08	17:04	16:29
6	05:26		06:06			06:56		08:16 (2)	07:45	07:39	08:28
	21:58		21:20			20:15	54	09:31 (1)	19:06	17:02	16:29
7	05:27		06:08			06:58		08:17 (2)	07:47	07:41	08:29
	21:57		21:18			20:13	52	09:31 (1)	19:03	17:01	16:28
8	05:28		06:10			06:59		08:22 (2)	07:49	07:43	08:30
	21:56		21:16			20:10	44	09:32 (1)	19:01	16:59	16:28
9	05:29		06:11			07:01		08:50 (1)	07:50	07:45	08:31
	21:56		21:14			20:08	41	09:31 (1)	18:59	16:57	16:28
10	05:30		06:13			07:03		08:50 (1)	07:52	07:46	08:33
	21:55	5	06:58 (9)	21:12		20:06	42	09:32 (1)	18:57	16:56	16:27
11	05:31		06:52 (9)	06:14		07:04		08:50 (1)	07:54	07:48	08:34
	21:54	8	07:00 (9)	21:10		20:04	42	09:32 (1)	18:55	16:54	16:27
12	05:32		06:51 (9)	06:16		07:06		08:49 (1)	07:55	07:50	08:35
	21:53	10	07:01 (9)	21:08		20:01	42	09:31 (1)	18:52	16:53	16:27
13	05:33		06:50 (9)	06:18		07:08		08:50 (1)	07:57	09:31 (3)	07:52
	21:53	12	07:02 (9)	21:06		19:59	41	09:31 (1)	18:50	3	09:34 (3)
14	05:34		06:49 (9)	06:19		07:09		08:49 (1)	07:59	09:26 (3)	07:53
	21:52	14	07:03 (9)	21:04		19:57	41	09:30 (1)	18:48	12	09:38 (3)
15	05:35		06:49 (9)	06:21		07:11		08:49 (1)	08:00	09:24 (3)	07:55
	21:51	15	07:04 (9)	21:03		19:54	41	09:30 (1)	18:46	16	09:40 (3)
16	05:37		06:49 (9)	06:22		07:12		08:49 (1)	08:02	09:23 (3)	07:57
	21:50	16	07:05 (9)	21:01		19:52	39	09:28 (1)	18:44	18	09:41 (3)
17	05:38		06:48 (9)	06:24		07:14		08:50 (1)	08:04	09:22 (3)	07:59
	21:49	18	07:06 (9)	20:58		19:50	38	09:28 (1)	18:41	20	09:42 (3)
18	05:39		06:48 (9)	06:26		07:16		08:51 (1)	08:06	09:21 (3)	08:00
	21:48	18	07:06 (9)	20:56		19:47	36	09:27 (1)	18:39	22	09:43 (3)
19	05:40		06:47 (9)	06:27		07:17		08:51 (1)	08:07	09:20 (3)	08:02
	21:46	19	07:06 (9)	20:54		19:45	34	09:25 (1)	18:37	22	09:42 (3)
20	05:42		06:47 (9)	06:29		07:19		08:52 (1)	08:09	09:20 (3)	08:04
	21:45	20	07:07 (9)	20:52		19:43	32	09:24 (1)	18:35	22	09:42 (3)
21	05:43		06:48 (9)	06:30		07:20		08:52 (1)	08:11	09:20 (3)	08:05
	21:44	20	07:08 (9)	20:50		19:40	30	09:22 (1)	18:33	22	09:42 (3)
22	05:44		06:47 (9)	06:32		07:22		08:54 (1)	08:13	09:20 (3)	08:07
	21:43	21	07:08 (9)	20:48	7	08:32 (2)	26	09:20 (1)	18:31	22	09:42 (3)
23	05:46		06:47 (9)	06:34		08:21 (2)	27	08:56 (1)	08:14	09:20 (3)	08:09
	21:41	21	07:08 (9)	20:46	13	08:34 (2)	22	09:18 (1)	18:29	22	09:42 (3)
24	05:47		06:47 (9)	06:35		08:19 (2)	27	08:58 (1)	08:16	09:21 (3)	08:10
	21:40	20	07:07 (9)	20:44	17	08:36 (2)	16	09:14 (1)	18:27	20	09:41 (3)
25	05:48		06:47 (9)	06:37		08:17 (2)			07:18	08:22 (3)	08:12
	21:39	21	07:08 (9)	20:42	20	08:37 (2)			17:25	18	08:40 (3)
26	05:50		06:47 (9)	06:38		08:17 (2)			07:20	08:22 (3)	08:13
	21:37	21	07:08 (9)	20:40	21	08:38 (2)			17:23	16	08:38 (3)
27	05:51		06:47 (9)	06:40		08:15 (2)			07:21	08:23 (3)	08:15
	21:36	20	07:07 (9)	20:37	23	08:38 (2)			17:21	14	08:37 (3)
28	05:53		06:48 (9)	06:42		08:15 (2)			07:23	08:26 (3)	08:17
	21:34	19	07:07 (9)	20:35	24	08:39 (2)			17:19	8	08:34 (3)
29	05:54		06:48 (9)	06:43		08:14 (2)			07:25		08:18
	21:33	19	07:07 (9)	20:33	29	09:15 (1)			17:17		16:33
30	05:56		06:48 (9)	06:45		08:14 (2)			07:27		08:20
	21:31	18	07:06 (9)	20:31	40	09:21 (1)			17:15		16:32
31	05:57		06:50 (9)	06:47		08:14 (2)			07:29		08:45
	21:30	15	07:05 (9)	20:29	46	09:24 (1)			17:13		16:36
Potential sun hours	501		453			381			332		267
Total, worst case		370		271		984			277		244
Sun reduction		0.27		0.30		0.28			0.24		
Oper. time red.		1.00		1.00		1.00			1.00		
Wind dir. red.		0.69		0.63		0.59			0.52		
Total reduction		0.19		0.19		0.17			0.12		
Total, real		68		51		165			34		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** F - H6

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	08:18		07:25		08:30 (3)	07:15		06:10	07:48 (2)	05:25
	16:37	17:25		18:16	24	08:54 (3)	20:10		21:00	58	08:52 (1)
2	08:45	08:17		07:23		08:30 (3)	07:12		06:08		07:49 (2)
	16:38	17:27		18:18	24	08:54 (3)	20:11		21:02	54	08:51 (1)
3	08:45	08:15		07:21		08:30 (3)	07:10		06:06		07:49 (2)
	16:39	17:28		18:20	24	08:54 (3)	20:13		21:04	50	08:49 (1)
4	08:44	08:13		07:18		08:30 (3)	07:08		06:05		07:51 (2)
	16:40	17:30		18:21	23	08:53 (3)	20:15		21:05	43	08:47 (1)
5	08:44	08:12		07:16		08:31 (3)	07:06		06:03		07:54 (2)
	16:42	17:32		18:23	22	08:53 (3)	20:17		21:07	35	08:46 (1)
6	08:44	08:10		07:14		08:31 (3)	07:03		06:01		08:20 (1)
	16:43	17:34		18:25	20	08:51 (3)	20:18	5	08:43 (1)	24	08:44 (1)
7	08:43	08:08		07:12		08:32 (3)	07:01		05:59		08:21 (1)
	16:44	17:36		18:27	17	08:49 (3)	20:20	17	08:49 (1)	21	08:42 (1)
8	08:43	08:07		07:10		08:34 (3)	06:59		05:57		08:24 (1)
	16:45	17:38		18:29	13	08:47 (3)	20:22	23	08:52 (1)	16	08:40 (1)
9	08:43	08:05		07:07		08:37 (3)	06:57		05:56		08:26 (1)
	16:47	17:39		18:30	6	08:43 (3)	20:23	27	08:53 (1)	7	08:35 (1)
10	08:42	08:03		07:05		06:54	20:25		05:54		08:24 (1)
	16:48	17:41		18:32		20:25	31	08:55 (1)	21:15		21:54
11	08:41	08:01		07:03		06:52	20:27		05:52		21:54
	16:50	17:43		18:34		20:27	34	08:56 (1)	21:17		05:19
12	08:41	07:59		07:01		06:50	20:28		05:51		21:55
	16:51	17:45		18:36		20:28	36	08:57 (1)	21:18		05:19
13	08:40	07:58		06:58		06:48	20:30		05:49		21:56
	16:52	17:47		18:37		20:30	39	08:58 (1)	21:20		05:19
14	08:39	07:56		06:56		06:45	20:32		05:47		21:57
	16:54	17:49		18:39		20:32	41	08:58 (1)	21:21		05:18
15	08:39	07:54		06:54		06:43	20:33		05:46		21:57
	16:56	17:51		18:41		20:33	41	08:58 (1)	21:23		05:18
16	08:38	07:52		06:51		06:41	20:35		05:44		21:58
	16:57	17:52		18:42		20:35	50	08:59 (1)	21:24		05:18
17	08:37	07:50		06:49		06:39	20:37		05:43		21:58
	16:59	17:54		18:44		20:37	57	08:59 (1)	21:26		05:18
18	08:36	07:48		06:47		06:37	20:40		05:41		21:59
	17:00	17:56		18:46		20:39	61	08:59 (1)	21:27		05:18
19	08:35	07:46		06:45		06:35	20:42		05:40		05:18
	17:02	17:58		18:48		20:40	65	08:59 (1)	21:29		21:59
20	08:34	07:44		06:42		06:33	20:44		05:39		21:59
	17:04	18:00		18:49		20:42	67	08:59 (1)	21:30		05:18
21	08:33	07:42		06:40		06:30	20:44		05:37		22:00
	17:05	18:02		18:51		20:44	70	08:59 (1)	21:32		05:18
22	08:32	07:40		06:38		06:28	20:45		05:36		22:00
	17:07	18:03	9	08:39 (3)	18:53	20:45	71	08:59 (1)	21:33		05:18
23	08:30	07:38		06:35		06:26	20:47		05:35		22:00
	17:09	18:05	14	08:51 (3)	18:54	20:47	71	08:58 (1)	21:35		05:19
24	08:29	07:36		06:33		06:24	20:49		05:34		22:00
	17:10	18:07	17	08:51 (3)	18:56	20:49	71	08:58 (1)	21:36		05:19
25	08:28	07:34		06:31		06:22	20:50		05:32		22:00
	17:12	18:09	20	08:53 (3)	18:58	20:50	71	08:57 (1)	21:37		05:19
26	08:27	07:31		06:28		06:20	20:52		05:31		22:01
	17:14	18:11	22	08:54 (3)	19:00	20:52	70	08:56 (1)	21:39		05:20
27	08:25	07:29		06:26		06:18	20:54		05:30		22:01
	17:16	18:12	23	08:54 (3)	19:01	20:54	68	08:55 (1)	21:40		05:20
28	08:24	07:27		06:24		06:16	20:55		05:29		22:00
	17:17	18:14	24	08:55 (3)	19:03	20:55	67	08:55 (1)	21:41		05:21
29	08:23			07:22		06:14	20:57		05:28		05:21
	17:19			20:05		20:57	65	08:53 (1)	21:42	6	06:15 (9)
30	08:21			07:19		06:12	20:59		05:27		06:21 (9)
	17:21			20:06		20:59	61	08:52 (1)	21:44	9	06:14 (9)
31	08:20			07:17					05:26		22:00
	17:23			20:08					21:45	11	06:23 (9)
Potential sun hours	260	278		367		416		485			498
Total, worst case					173		1279		334		567
Sun reduction			0.21		0.24		0.35		0.37		0.30
Oper. time red.			1.00		1.00		1.00		1.00		1.00
Wind dir. red.			0.55		0.55		0.64		0.64		0.69
Total reduction			0.11		0.13		0.23		0.24		0.21
Total, real			14		23		289		79		118

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** F - H6

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	06:15 (9)	05:59		06:48	08:21 (1)	07:37		07:30	08:21		
	22:00	20	06:35 (9)	21:28	20:26	34	08:55 (1)	19:17		17:11	16:31	
2	05:23	06:16 (9)	06:00		06:50	08:23 (1)	07:38		07:32	08:22		
	21:59	19	06:35 (9)	21:26	20:24	31	08:54 (1)	19:15		17:09	16:31	
3	05:24	06:15 (9)	06:02		06:51	08:24 (1)	07:40		07:34	08:24		
	21:59	19	06:34 (9)	21:25	20:22	27	08:51 (1)	19:13		17:08	16:30	
4	05:25	06:16 (9)	06:03		06:53	08:26 (1)	07:42		07:36	08:25		
	21:59	19	06:35 (9)	21:23	20:20	23	08:49 (1)	19:10		17:06	16:29	
5	05:25	06:17 (9)	06:05	10	06:55	08:33 (1)	07:43		09:12 (3)	07:37	08:26	
	21:58	18	06:35 (9)	21:21	20:17	17	08:45 (1)	19:08	11	09:23 (3)	17:04	16:29
6	05:26	06:17 (9)	06:06		06:56	08:31 (1)	07:45		09:09 (3)	07:39	08:28	
	21:58	18	06:35 (9)	21:20	20:15	6	08:34 (1)	19:06	15	09:24 (3)	17:02	16:29
7	05:27	06:17 (9)	06:08		06:58		07:47		09:08 (3)	07:41	08:29	
	21:57	17	06:34 (9)	21:18	20:13		19:03	18	09:26 (3)	17:01	16:28	
8	05:28	06:18 (9)	06:10		06:59	08:02 (2)	07:49		09:07 (3)	07:43	08:30	
	21:56	16	06:34 (9)	21:16	20:10		19:01	20	09:27 (3)	16:59	16:28	
9	05:29	06:18 (9)	06:11		07:01	08:00 (2)	07:50		09:05 (3)	07:45	08:31	
	21:56	16	06:34 (9)	21:14	20:08		18:59	22	09:27 (3)	16:57	16:28	
10	05:30	06:19 (9)	06:13		07:03	07:58 (2)	07:52		09:04 (3)	07:46	08:33	
	21:55	15	06:34 (9)	21:12	20:06		18:57	24	09:28 (3)	16:56	16:27	
11	05:31	06:20 (9)	06:14		07:04	07:57 (2)	07:54		09:04 (3)	07:48	08:34	
	21:54	13	06:33 (9)	21:10	20:04		18:55	24	09:28 (3)	16:54	16:27	
12	05:32	06:21 (9)	06:16		07:06	07:55 (2)	07:55		09:04 (3)	07:50	08:35	
	21:53	12	06:33 (9)	21:08	20:01		18:52	24	09:28 (3)	16:53	16:27	
13	05:33	06:22 (9)	06:18		07:08	07:55 (2)	07:57		09:04 (3)	07:52	08:36	
	21:53	10	06:32 (9)	21:06	19:59		18:50	24	09:28 (3)	16:51	16:27	
14	05:34	06:23 (9)	06:19		07:09	07:55 (2)	07:59		09:03 (3)	07:53	08:37	
	21:52	8	06:31 (9)	21:04	19:57		18:48	24	09:27 (3)	16:50	16:27	
15	05:35	06:26 (9)	06:21		07:11	07:54 (2)	08:00		09:04 (3)	07:55	08:37	
	21:51	2	06:28 (9)	21:03	19:54		18:46	22	09:26 (3)	16:48	16:27	
16	05:37		06:22		07:12	07:54 (2)	08:02		09:04 (3)	07:57	08:38	
	21:50		21:01	68	19:52	09:03 (1)	18:44	21	09:25 (3)	16:47	16:27	
17	05:38		06:24		07:14	07:53 (2)	08:04		09:05 (3)	07:59	08:39	
	21:49		20:58	70	19:50	09:03 (1)	18:41	19	09:24 (3)	16:46	16:27	
18	05:39		06:26		07:16	07:53 (2)	08:06		09:07 (3)	08:00	08:40	
	21:47		20:56	71	19:47	09:04 (1)	18:39	16	09:23 (3)	16:44	16:28	
19	05:40		06:27		07:17	07:53 (2)	08:07		09:08 (3)	08:02	08:41	
	21:46		20:54	70	19:45	09:03 (1)	18:37	12	09:20 (3)	16:43	16:28	
20	05:42		06:29		07:19	07:53 (2)	08:09		09:11 (3)	08:04	08:41	
	21:45		20:52	71	19:43	09:04 (1)	18:35	6	09:17 (3)	16:42	16:28	
21	05:43		06:30		07:20	07:53 (2)	08:11		08:05	08:42		
	21:44		20:50	70	19:40	09:03 (1)	18:33		16:41	16:29		
22	05:44		06:32		07:22	07:54 (2)	08:13		08:07	08:42		
	21:43		20:48	69	19:38	09:04 (1)	18:31		16:39	16:29		
23	05:46		06:34		07:24	07:54 (2)	08:14		08:09	08:43		
	21:41		20:46	68	19:36	09:03 (1)	18:29		16:38	16:30		
24	05:47		06:35		07:25	07:55 (2)	08:16		08:10	08:43		
	21:40		20:44	65	19:33	09:03 (1)	18:27		16:37	16:30		
25	05:48		06:37		07:27	07:56 (2)	07:18		08:12	08:44		
	21:39		20:42	62	19:31	09:02 (1)	17:25		16:36	16:31		
26	05:50		06:38		07:29	07:58 (2)	07:20		08:13	08:44		
	21:37		20:40	57	19:29	09:02 (1)	17:23		16:35	16:32		
27	05:51		06:40		07:30	08:01 (2)	07:21		08:15	08:44		
	21:36		20:37	48	19:26	09:01 (1)	17:21		16:34	16:32		
28	05:53		06:42		07:32	08:18 (1)	07:23		08:17	08:45		
	21:34		20:35	42	19:24	09:00 (1)	17:19		16:34	16:33		
29	05:54		06:43		07:34	08:18 (1)	07:25		08:18	08:45		
	21:33		20:33	41	19:22	08:59 (1)	17:17		16:33	16:34		
30	05:56		06:45		07:35	08:19 (1)	07:27		08:20	08:45		
	21:31		20:31	39	19:19	08:58 (1)	17:15		16:32	16:35		
31	05:57		06:47		07:29	08:21 (1)	07:29			08:45		
	21:30		20:29	36	08:57 (1)		17:13			16:36		
Potential sun hours	501		453		381		332		267		244	
Total, worst case		222		1461		138		302				
Sun reduction		0.27		0.30		0.28		0.24				
Oper. time red.		1.00		1.00		1.00		1.00				
Wind dir. red.		0.69		0.64		0.63		0.55				
Total reduction		0.19		0.19		0.18		0.13				
Total, real		41		277		25		39				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations**Shadow receptor:** G - H7

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	10:21 (11)	08:18	07:25	07:15			06:10	05:25		
	16:37	23	10:44 (11)	17:25	18:16	20:10		21:00	21:46		
2	08:45	10:21 (11)	08:17	07:23	07:12			06:08	05:24		
	16:38	24	10:45 (11)	17:26	18:18	20:11		21:02	21:47		
3	08:45	10:21 (11)	08:15	07:21	07:10			06:06	05:24		
	16:39	24	10:45 (11)	17:28	18:20	20:13		21:04	21:48		
4	08:44	10:21 (11)	08:13	07:18	07:08			06:04	05:23		
	16:40	25	10:46 (11)	17:30	18:21	20:15		21:05	21:49		
5	08:44	10:22 (11)	08:12	07:16	07:05			06:03	05:22		
	16:41	25	10:47 (11)	17:32	18:23	20:16		21:07	21:50		
6	08:44	10:21 (11)	08:10	07:14	07:03			06:01	05:21		
	16:43	26	10:47 (11)	17:34	18:25	20:18		21:09	21:51		
7	08:43	10:22 (11)	08:08	07:12	07:01			05:59	05:21		
	16:44	27	10:49 (11)	17:36	18:27	20:20		21:10	21:52		
8	08:43	10:22 (11)	08:07	07:10	06:59			05:57	05:20		
	16:45	27	10:49 (11)	17:38	18:28	20:22		21:12	21:53		
9	08:43	10:21 (11)	08:05	07:07	06:56			05:56	05:20		
	16:47	28	10:49 (11)	17:39	18:30	20:23		21:13	21:54		
10	08:42	10:22 (11)	08:03	07:05	06:54		07:24 (19)	05:54	05:19		
	16:48	29	10:51 (11)	17:41	18:32	20:25	6	07:30 (19)	21:15	21:54	
11	08:41	10:22 (11)	08:01	07:03	06:52			07:21 (19)	05:52	05:19	
	16:49	29	10:51 (11)	17:43	18:34	20:27	11	07:32 (19)	21:17	21:55	
12	08:41	10:22 (11)	07:59	07:01	06:50			07:20 (19)	05:51	05:19	
	16:51	29	10:51 (11)	17:45	18:35	20:28	14	07:34 (19)	21:18	21:56	
13	08:40	10:22 (11)	07:58	06:58	06:48			07:19 (19)	05:49	05:18	
	16:52	30	10:52 (11)	17:47	18:37	20:30	15	07:34 (19)	21:20	21:57	
14	08:39	10:22 (11)	07:56	06:56	06:45			07:17 (19)	05:47	05:18	
	16:54	30	10:52 (11)	17:49	18:39	20:32	17	07:34 (19)	21:21	21:57	
15	08:39	10:23 (11)	07:54	06:54	06:43			07:17 (19)	05:46	05:18	
	16:55	30	10:53 (11)	17:50	18:41	20:33	17	07:34 (19)	21:23	21:58	
16	08:38	10:23 (11)	07:52	06:51	06:41			07:16 (19)	05:44	05:18	
	16:57	30	10:53 (11)	17:52	18:42	20:35	18	07:34 (19)	21:24	21:58	
17	08:37	10:23 (11)	07:50	06:49	06:39			07:16 (19)	05:43	05:18	
	16:59	31	10:54 (11)	17:54	18:44	20:37	18	07:34 (19)	21:26	21:59	
18	08:36	10:24 (11)	07:48	06:47	06:37			07:17 (19)	05:41	05:18	
	17:00	30	10:54 (11)	17:56	18:46	20:38	16	07:33 (19)	21:27	21:59	
19	08:35	10:24 (11)	07:46	06:45	06:35			07:17 (19)	05:40	05:18	
	17:02	30	10:54 (11)	17:58	18:48	20:40	15	07:32 (19)	21:29	21:59	
20	08:34	10:25 (11)	07:44	06:42	06:32			07:18 (19)	05:39	05:18	
	17:03	30	10:55 (11)	18:00	18:49	20:42	13	07:31 (19)	21:30	22:00	
21	08:33	10:26 (11)	07:42	06:40	06:30			07:20 (19)	05:37	05:18	
	17:05	29	10:55 (11)	18:01	18:51	20:44	9	07:29 (19)	21:32	22:00	
22	08:32	10:26 (11)	07:40	06:38	06:28				05:36	05:18	
	17:07	28	10:54 (11)	18:03	18:53	20:45			21:33	22:00	
23	08:30	10:27 (11)	07:38	06:35	06:26				05:35	05:19	
	17:09	28	10:55 (11)	18:05	18:54	20:47			21:35	22:00	
24	08:29	10:28 (11)	07:36	06:33	06:24				05:33	05:19	
	17:10	27	10:55 (11)	18:07	18:56	20:49			21:36	22:00	
25	08:28	10:28 (11)	07:34	06:31	06:22				05:32	05:19	
	17:12	26	10:54 (11)	18:09	18:58	20:50			21:37	22:01	
26	08:27	10:29 (11)	07:31	06:28	06:20				05:31	05:20	
	17:14	25	10:54 (11)	18:11	18:59	20:52			21:39	22:01	
27	08:25	10:30 (11)	07:29	06:26	06:18				05:30	05:20	
	17:16	23	10:53 (11)	18:12	19:01	20:54			21:40	22:00	
28	08:24	10:31 (11)	07:27	06:24	06:16				05:29	05:21	
	17:17	21	10:52 (11)	18:14	19:03	20:55			21:41	22:00	
29	08:23	10:33 (11)		07:22	06:14				05:28	05:21	
	17:19	17	10:50 (11)		20:05	20:57			21:42	22:00	
30	08:21	10:35 (11)		07:19	06:12				05:27	05:22	
	17:21	14	10:49 (11)		20:06	20:59			21:44	22:00	
31	08:20	10:38 (11)		07:17					05:26		
	17:23	8	10:46 (11)		20:08				21:45		
Potential sun hours	260		278	367	416			485	498		
Total, worst case	803				169						
Sun reduction	0.16				0.35						
Oper. time red.	1.00				1.00						
Wind dir. red.	0.54				0.67						
Total reduction	0.08				0.24						
Total, real	68				40						

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** G - H7**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22	05:59	06:48	07:20 (19)	07:37	07:30
	22:00	21:28	20:26	11 07:31 (19)	19:17	17:11
2	05:23	06:00	06:50	07:23 (19)	07:38	07:32
	21:59	21:26	20:24	6 07:29 (19)	19:15	17:09
3	05:24	06:02	06:51		07:40	07:34
	21:59	21:25	20:22		19:12	17:08
4	05:24	06:03	06:53		07:42	07:36
	21:59	21:23	20:19		19:10	17:06
5	05:25	06:05	06:55		07:43	07:37
	21:58	21:21	20:17		19:08	17:04
6	05:26	06:06	06:56		07:45	07:39
	21:58	21:19	20:15		19:06	17:02
7	05:27	06:08	06:58		07:47	07:41
	21:57	21:18	20:13		19:03	17:01
8	05:28	06:09	06:59		07:48	07:43
	21:56	21:16	20:10		19:01	16:59
9	05:29	06:11	07:01		07:50	07:45
	21:56	21:14	20:08		18:59	16:57
10	05:30	06:13	07:03		07:52	07:46
	21:55	21:12	20:06		18:57	16:56
11	05:31	06:14	07:04		07:54	07:48
	21:54	21:10	20:03		18:54	16:54
12	05:32	06:16	07:06		07:55	07:50
	21:53	21:08	20:01		18:52	16:53
13	05:33	06:17	07:07		07:57	07:52
	21:53	21:06	19:59		18:50	16:51
14	05:34	06:19	07:09		07:59	07:53
	21:52	21:04	19:57		18:48	16:50
15	05:35	06:21	07:11		08:00	07:55
	21:51	21:02	19:54		18:46	16:48
16	05:36	06:22	07:12		08:02	07:57
	21:50	21:00	19:52		18:43	16:47
17	05:38	06:24	07:14		08:04	07:59
	21:49	20:58	19:50		18:41	16:45
18	05:39	06:25	07:16		08:06	08:00
	21:47	20:56	19:47		18:39	16:44
19	05:40	06:27	07:17		08:07	08:02
	21:46	20:54	19:45		18:37	16:43
20	05:42	06:29	07:19		08:09	08:04
	21:45	20:52	19:43		18:35	16:42
21	05:43	06:30	07:20		08:11	08:05
	21:44	20:50	19:40		18:33	16:40
22	05:44	06:32	07:22		08:13	08:07
	21:43	20:48	19:38		18:31	16:39
23	05:46	06:33	07:24		08:14	08:09
	21:41	20:46	19:36		18:29	16:38
24	05:47	06:35	07:25		08:16	08:10
	21:40	20:44	19:33		18:27	16:37
25	05:48	06:37	07:27		07:18	08:12
	21:39	20:42	19:31		17:25	16:36
26	05:50	06:38	07:29		07:20	08:13
	21:37	20:39	19:29		17:23	16:35
27	05:51	06:40	07:30		07:21	08:15
	21:36	20:37	19:26		17:21	16:34
28	05:53	06:42	07:32		07:23	08:17
	21:34	20:35	19:24		17:19	16:33
29	05:54	06:43	07:33		07:25	08:18
	21:33	20:33	19:22		17:17	16:33
30	05:56	06:45	07:35		07:27	08:20
	21:31	20:31	19:19		17:15	16:32
31	05:57	06:46	07:36		07:28	08:21
	21:30	20:28	19:17		17:13	16:36
Potential sun hours	501	453	381	332	267	244
Total, worst case						700
Sun reduction		155	17		517	
Oper. time red.		0.30	0.28		0.18	0.13
Wind dir. red.		1.00	1.00		1.00	1.00
Total reduction		0.67	0.67		0.54	0.54
Total, real		0.20	0.19		0.10	0.07
		31	3		52	51

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** H - H8**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45		08:18		15:00 (12)	07:25			07:14			06:10			19:45 (14)	05:25	
	16:37		17:24	45	15:45 (12)	18:16			20:10			21:00	22		20:07 (14)	21:46	
2	08:45		08:16		15:00 (12)	07:23			07:12			06:08			19:45 (14)	05:24	
	16:38		17:26	45	15:45 (12)	18:18			20:11			21:02	23		20:08 (14)	21:47	
3	08:44		08:15		15:01 (12)	07:20			07:10			06:06			19:45 (14)	05:23	
	16:39		17:28	45	15:46 (12)	18:19			20:13			21:03	23		20:08 (14)	21:48	
4	08:44		08:13		15:01 (12)	07:18			07:08			06:04			19:45 (14)	05:23	
	16:40		17:30	44	15:45 (12)	18:21			20:15			21:05	23		20:08 (14)	21:49	
5	08:44		08:12		15:01 (12)	07:16			07:05			06:02			19:45 (14)	05:22	
	16:41		17:32	44	15:45 (12)	18:23			20:16			21:07	22		20:07 (14)	21:50	
6	08:44		08:10		15:01 (12)	07:14			07:03			06:01			19:46 (14)	05:21	
	16:43		17:34	44	15:45 (12)	18:25			20:18			21:08	21		20:07 (14)	21:51	
7	08:43		08:08		15:02 (12)	07:12			07:01			05:59			19:46 (14)	05:21	
	16:44		17:35	44	15:46 (12)	18:26			20:20			21:10	20		20:06 (14)	21:52	
8	08:43		08:06		15:03 (12)	07:09			06:59			05:57			19:46 (14)	05:20	
	16:45		17:37	42	15:45 (12)	18:28			20:21			21:12	19		20:05 (14)	21:53	
9	08:42		08:05		15:03 (12)	07:07			06:56			05:55			19:47 (14)	05:20	
	16:46		17:39	42	15:45 (12)	18:30			20:23			21:13	18		20:05 (14)	21:53	
10	08:42		08:03		15:04 (12)	07:05		17:33 (13)	06:54			05:54			19:48 (14)	05:19	
	16:48		17:41	40	15:44 (12)	18:32	9	17:42 (13)	20:25			21:15	16		20:04 (14)	21:54	
11	08:41		15:14 (12)	08:01	15:04 (12)	07:03		17:31 (13)	06:52		19:44 (19)	05:52			19:50 (14)	05:19	
	16:49	5	15:19 (12)	17:43	15:43 (12)	18:34	14	17:45 (13)	20:26	9	19:53 (19)	21:16	13		20:03 (14)	21:55	
12	08:41		15:11 (12)	07:59	15:05 (12)	07:00		17:28 (13)	06:50		19:42 (19)	05:50			19:51 (14)	05:19	
	16:51	12	15:23 (12)	17:45	15:43 (12)	18:35	17	17:45 (13)	20:28	13	19:55 (19)	21:18	10		20:01 (14)	21:56	
13	08:40		15:09 (12)	07:57	15:06 (12)	06:58		17:27 (13)	06:47		19:40 (19)	05:49			19:55 (14)	05:18	
	16:52	16	15:25 (12)	17:47	15:42 (12)	18:37	19	17:46 (13)	20:30	14	19:54 (19)	21:20	3		19:58 (14)	21:56	
14	08:39		15:07 (12)	07:55	15:08 (12)	06:56		17:26 (13)	06:45		19:40 (19)	05:47				05:18	
	16:54	20	15:27 (12)	17:48	15:41 (12)	18:39	21	17:47 (13)	20:32	15	19:55 (19)	21:21				21:57	
15	08:38		15:06 (12)	07:54	15:09 (12)	06:54		17:25 (13)	06:43		19:39 (19)	05:46				05:18	
	16:55	23	15:29 (12)	17:50	15:39 (12)	18:40	22	17:47 (13)	20:33	16	19:55 (19)	21:23				21:58	
16	08:38		15:05 (12)	07:52	15:11 (12)	06:51		17:25 (13)	06:41		19:39 (19)	05:44				05:18	
	16:57	26	15:31 (12)	17:52	15:38 (12)	18:42	22	17:47 (13)	20:35	16	19:55 (19)	21:24				21:58	
17	08:37		15:05 (12)	07:50	15:14 (12)	06:49		17:25 (13)	06:39		19:39 (19)	05:43				05:18	
	16:58	27	15:32 (12)	17:54	15:35 (12)	18:44	22	17:47 (13)	20:37	15	19:54 (19)	21:26				21:58	
18	08:36		15:04 (12)	07:48	15:17 (12)	06:47		17:24 (13)	06:37		19:40 (19)	05:41				05:18	
	17:00	30	15:34 (12)	17:56	15:32 (12)	18:46	22	17:46 (13)	20:38	14	19:54 (19)	21:27				21:59	
19	08:35		15:04 (12)	07:46		06:44		17:25 (13)	06:34		19:41 (19)	05:40				05:18	
	17:02	31	15:35 (12)	17:58		18:47	20	17:45 (13)	20:40	11	19:52 (19)	21:29				21:59	
20	08:34		15:03 (12)	07:44		06:42		17:26 (13)	06:32		19:42 (19)	05:38				05:18	
	17:03	34	15:37 (12)	18:00		18:49	19	17:45 (13)	20:42	9	19:51 (19)	21:30				22:00	
21	08:33		15:02 (12)	07:42		06:40		17:26 (13)	06:30			05:37				05:18	
	17:05	35	15:37 (12)	18:01		18:51	16	17:42 (13)	20:43			21:32				22:00	
22	08:31		15:02 (12)	07:40		06:37		17:28 (13)	06:28			05:36				05:18	
	17:07	36	15:38 (12)	18:03		18:52	13	17:41 (13)	20:45			21:33				22:00	
23	08:30		15:02 (12)	07:38		06:35		17:31 (13)	06:26			05:34				05:18	
	17:08	38	15:40 (12)	18:05		18:54	7	17:38 (13)	20:47			21:34				22:00	
24	08:29		15:01 (12)	07:35		06:33			06:24			05:33				05:19	
	17:10	39	15:40 (12)	18:07		18:56			20:48			21:36				22:00	
25	08:28		15:01 (12)	07:33		06:31			06:22		19:53 (14)	05:32				05:19	
	17:12	40	15:41 (12)	18:09		18:58			20:50	10	20:03 (14)	21:37				22:00	
26	08:27		15:01 (12)	07:31		06:28			06:20		19:50 (14)	05:31				05:19	
	17:14	41	15:42 (12)	18:10		18:59			20:52	15	20:05 (14)	21:38				22:00	
27	08:25		15:01 (12)	07:29		06:26			06:18		19:49 (14)	05:30				05:20	
	17:15	41	15:42 (12)	18:12		19:01			20:53	17	20:06 (14)	21:40				22:00	
28	08:24		15:01 (12)	07:27		06:24			06:16		19:48 (14)	05:29				05:20	
	17:17	43	15:44 (12)	18:14		19:03			20:55	19	20:07 (14)	21:41				22:00	
29	08:22		15:00 (12)			07:21			06:14		19:46 (14)	05:28				05:21	
	17:19	44	15:44 (12)			20:04			20:57	21	20:07 (14)	21:42				22:00	
30	08:21		15:00 (12)			07:19			06:12		19:46 (14)	05:27				05:21	
	17:21	44	15:44 (12)			20:06			20:58	21	20:07 (14)	21:43				22:00	
31	08:19		15:00 (12)			07:17						05:26					
	17:23	45	15:45 (12)			20:08						21:45					
Potential sun hours	260		278			367			416			485				498	
Total, worst case		670		674		243			235			233					
Sun reduction		0.16		0.21		0.24			0.35			0.37					
Oper. time red.		1.00		1.00		1.00			1.00			1.00					
Wind dir. red.		0.71		0.71		0.68			0.60			0.59					
Total reduction		0.11		0.15		0.17			0.21			0.22					
Total, real		74		99		40			50			51					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** H - H8**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22	05:58	20:00 (14)	06:48	19:43 (19)	07:37	18:07 (13)	07:30	14:33 (12)	08:21	14:55 (12)
	22:00	21:28	12 20:12 (14)	20:26	9 19:52 (19)	19:17	18:26 (13)	17:11	41 15:14 (12)	16:31	7 15:02 (12)
2	05:23	06:00	19:58 (14)	06:50		07:38	18:08 (13)	07:32	14:33 (12)	08:22	
	21:59	21:26	15 20:13 (14)	20:24		19:15	18:23 (13)	17:09	41 15:14 (12)	16:30	
3	05:23	06:01	19:58 (14)	06:51		07:40	18:10 (13)	07:34	14:32 (12)	08:24	
	21:59	21:25	17 20:15 (14)	20:22		19:12	18:21 (13)	17:07	43 15:15 (12)	16:30	
4	05:24	06:03	19:56 (14)	06:53		07:42	18:14 (13)	07:35	14:32 (12)	08:25	
	21:58	21:23	19 20:15 (14)	20:19		19:10	18:17 (13)	17:06	43 15:15 (12)	16:29	
5	05:25	06:05	19:56 (14)	06:54		07:43		07:37	14:31 (12)	08:26	
	21:58	21:21	20 20:16 (14)	20:17		19:08		17:04	44 15:15 (12)	16:29	
6	05:26	06:06	19:55 (14)	06:56		07:45		07:39	14:31 (12)	08:28	
	21:57	21:19	21 20:16 (14)	20:15		19:05		17:02	44 15:15 (12)	16:28	
7	05:27	06:08	19:55 (14)	06:58		07:47		07:41	14:31 (12)	08:29	
	21:57	21:18	22 20:17 (14)	20:12		19:03		17:00	44 15:15 (12)	16:28	
8	05:28	06:09	19:54 (14)	06:59		07:48		07:43	14:31 (12)	08:30	
	21:56	21:16	23 20:17 (14)	20:10		19:01		16:59	44 15:15 (12)	16:27	
9	05:29	06:11	19:54 (14)	07:01		07:50		07:44	14:31 (12)	08:31	
	21:56	21:14	23 20:17 (14)	20:08		18:59		16:57	45 15:16 (12)	16:27	
10	05:30	06:12	19:54 (14)	07:02		07:52		07:46	14:31 (12)	08:32	
	21:55	21:12	23 20:17 (14)	20:06		18:56		16:56	45 15:16 (12)	16:27	
11	05:31	06:14	19:54 (14)	07:04		07:53		07:48	14:31 (12)	08:33	
	21:54	21:10	23 20:17 (14)	20:03		18:54		16:54	45 15:16 (12)	16:27	
12	05:32	06:16	19:54 (14)	07:06		07:55		07:50	14:32 (12)	08:34	
	21:53	21:08	22 20:16 (14)	20:01		18:52		16:52	44 15:16 (12)	16:27	
13	05:33	06:17	19:54 (14)	07:07		07:57		07:51	14:32 (12)	08:35	
	21:52	21:06	22 20:16 (14)	19:59		18:50		16:51	44 15:16 (12)	16:27	
14	05:34	06:19	19:54 (14)	07:09		07:58		07:53	14:33 (12)	08:36	
	21:51	21:04	21 20:15 (14)	19:56		18:48		16:49	43 15:16 (12)	16:27	
15	05:35	06:20	19:55 (14)	07:10		08:00		07:55	14:34 (12)	08:37	
	21:50	21:02	19 20:14 (14)	19:54		18:45		16:48	41 15:15 (12)	16:27	
16	05:36	06:22	19:56 (14)	07:12		08:02		07:57	14:34 (12)	08:38	
	21:49	21:00	16 20:12 (14)	19:52		18:43		16:47	41 15:15 (12)	16:27	
17	05:38	06:24	19:57 (14)	07:14		08:04		07:58	14:35 (12)	08:39	
	21:48	20:58	14 20:11 (14)	19:49		18:41		16:45	40 15:15 (12)	16:27	
18	05:39	06:25	19:59 (14)	07:15		08:05		08:00	14:35 (12)	08:40	
	21:47	20:56	9 20:08 (14)	19:47		18:39		16:44	39 15:14 (12)	16:27	
19	05:40	06:27		07:17		08:07		08:02	14:36 (12)	08:40	
	21:46	20:54		19:45		18:37		16:43	38 15:14 (12)	16:28	
20	05:41	06:28		07:19	18:18 (13)	08:09		08:04	14:37 (12)	08:41	
	21:45	20:52		19:42	5 18:23 (13)	18:35		16:41	36 15:13 (12)	16:28	
21	05:43	06:30		07:20	18:14 (13)	08:11		08:05	14:38 (12)	08:42	
	21:44	20:50		19:40	12 18:26 (13)	18:33		16:40	35 15:13 (12)	16:28	
22	05:44	06:32	19:50 (19)	07:22	18:12 (13)	08:12		08:07	14:39 (12)	08:42	
	21:43	20:48	1 19:51 (19)	19:38	16 18:28 (13)	18:31		16:39	34 15:13 (12)	16:29	
23	05:45	06:33	19:46 (19)	07:23	18:09 (13)	08:14	15:52 (12)	08:09	14:40 (12)	08:43	
	21:41	20:46	9 19:55 (19)	19:35	19 18:28 (13)	18:29	7 15:59 (12)	16:38	31 15:11 (12)	16:29	
24	05:47	06:35	19:43 (19)	07:25	18:09 (13)	08:16	15:46 (12)	08:10	14:41 (12)	08:43	
	21:40	20:44	12 19:55 (19)	19:33	20 18:29 (13)	18:27	17 16:03 (12)	16:37	30 15:11 (12)	16:30	
25	05:48	06:37	19:43 (19)	07:27	18:08 (13)	07:18	14:43 (12)	08:12	14:43 (12)	08:44	
	21:39	20:41	13 19:56 (19)	19:31	21 18:29 (13)	17:25	22 15:05 (12)	16:36	27 15:10 (12)	16:31	
26	05:50	06:38	19:42 (19)	07:28	18:07 (13)	07:19	14:40 (12)	08:13	14:44 (12)	08:44	
	21:37	20:39	15 19:57 (19)	19:28	22 18:29 (13)	17:23	27 15:07 (12)	16:35	26 15:10 (12)	16:31	
27	05:51	06:40	19:41 (19)	07:30	18:06 (13)	07:21	14:38 (12)	08:15	14:45 (12)	08:44	
	21:36	20:37	16 19:57 (19)	19:26	23 18:29 (13)	17:21	31 15:09 (12)	16:34	23 15:08 (12)	16:32	
28	05:52	06:41	19:41 (19)	07:32	18:07 (13)	07:23	14:37 (12)	08:16	14:47 (12)	08:44	
	21:34	20:35	16 19:57 (19)	19:24	22 18:29 (13)	17:19	33 15:10 (12)	16:33	20 15:07 (12)	16:33	
29	05:54	06:43	19:41 (19)	07:33	18:06 (13)	07:25	14:36 (12)	08:18	14:50 (12)	08:44	
	21:33	20:33	15 19:56 (19)	19:21	21 18:27 (13)	17:17	35 15:11 (12)	16:32	16 15:06 (12)	16:34	
30	05:55	06:45	19:41 (19)	07:35	18:07 (13)	07:27	14:35 (12)	08:19	14:51 (12)	08:45	
	21:31	20:31	14 19:55 (19)	19:19	20 18:27 (13)	17:15	37 15:12 (12)	16:32	13 15:04 (12)	16:35	
31	05:57	06:46	19:41 (19)			07:28	14:34 (12)			08:45	
	21:29	20:03 (14)	20:28	13 19:54 (19)		17:13	39 15:13 (12)			16:36	
Potential sun hours	501	453		381		332		267		244	
Total, worst case	7	465		210		296		1100		7	
Sun reduction	0.27	0.30		0.28		0.24		0.18		0.13	
Oper. time red.	1.00	1.00		1.00		1.00		1.00		1.00	
Wind dir. red.	0.59	0.60		0.68		0.71		0.71		0.71	
Total reduction	0.16	0.18		0.19		0.17		0.13		0.10	
Total, real	1	83		40		50		145		1	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** I - H9

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	08:18	15:42 (12)	07:25	07:14	06:10	19:55 (14)	05:25			
	16:37	17:24	35 16:17 (12)	18:16	20:10	21:00	20:15 (14)	21:46			
2	08:45	08:16	15:41 (12)	07:23	07:12	06:08	19:55 (14)	05:24			
	16:38	17:26	36 16:17 (12)	18:18	20:11	21:02	20:16 (14)	21:47			
3	08:44	08:15	15:41 (12)	07:20	07:10	06:06	19:55 (14)	05:23			
	16:39	17:28	38 16:19 (12)	18:19	20:13	21:03	20:16 (14)	21:48			
4	08:44	08:13	15:41 (12)	07:18	07:08	06:04	19:54 (14)	05:23			
	16:40	17:30	39 16:20 (12)	18:21	20:15	21:05	20:16 (14)	21:49			
5	08:44	08:12	15:40 (12)	07:16	07:05	06:02	19:54 (14)	05:22			
	16:41	17:32	40 16:20 (12)	18:23	20:16	21:07	20:15 (14)	21:50			
6	08:44	08:10	15:39 (12)	07:14	07:03	06:01	19:55 (14)	05:21			
	16:43	17:34	42 16:21 (12)	18:25	20:18	21:08	20:16 (14)	21:51			
7	08:43	08:08	15:40 (12)	07:12	07:01	05:59	19:55 (14)	05:21			
	16:44	17:35	42 16:22 (12)	18:26	20:20	21:10	20:15 (14)	21:52			
8	08:43	08:06	15:39 (12)	07:09	06:59	05:57	19:55 (14)	05:20			
	16:45	17:37	43 16:22 (12)	18:28	20:21	21:12	20:14 (14)	21:53			
9	08:42	08:05	15:39 (12)	07:07	06:56	05:55	19:57 (14)	05:20			
	16:46	17:39	43 16:22 (12)	18:30	20:23	21:13	20:13 (14)	21:53			
10	08:42	08:03	15:39 (12)	07:05	06:54	05:54	19:57 (14)	05:19			
	16:48	17:41	44 16:23 (12)	18:32	20:25	21:15	20:12 (14)	21:54			
11	08:41	08:01	15:39 (12)	07:03	06:52	05:52	19:59 (14)	05:19			
	16:49	17:43	44 16:23 (12)	18:34	20:26	21:16	20:11 (14)	21:55			
12	08:41	07:59	15:39 (12)	07:00	06:50	05:50	20:00 (14)	05:19			
	16:51	17:45	44 16:23 (12)	18:35	20:28	7 19:59 (19)	21:18	21:56			
13	08:40	07:57	15:39 (12)	06:58	06:47	19:49 (19)	05:49	05:18			
	16:52	17:47	44 16:23 (12)	18:37	20:30	11 20:00 (19)	21:20	21:56			
14	08:39	07:55	15:39 (12)	06:56	17:46 (13)	06:45	19:48 (19)	05:47			
	16:54	17:48	43 16:22 (12)	18:39	10 17:56 (13)	20:32	13 20:01 (19)	21:21			
15	08:38	07:54	15:39 (12)	06:54	17:43 (13)	06:43	19:47 (19)	05:46			
	16:55	17:50	43 16:22 (12)	18:40	14 17:57 (13)	20:33	14 20:01 (19)	21:23			
16	08:37	07:52	15:40 (12)	06:51	17:41 (13)	06:41	19:46 (19)	05:44			
	16:57	17:52	42 16:22 (12)	18:42	18 17:59 (13)	20:35	15 20:01 (19)	21:24			
17	08:37	07:50	15:40 (12)	06:49	17:40 (13)	06:39	19:46 (19)	05:43			
	16:58	17:54	41 16:21 (12)	18:44	20 18:00 (13)	20:37	15 20:01 (19)	21:26			
18	08:36	07:48	15:41 (12)	06:47	17:39 (13)	06:37	19:46 (19)	05:41			
	17:00	17:56	40 16:21 (12)	18:46	20 17:59 (13)	20:38	15 20:01 (19)	21:27			
19	08:35	07:46	15:42 (12)	06:44	17:39 (13)	06:34	19:47 (19)	05:40			
	17:02	17:58	38 16:20 (12)	18:47	21 18:00 (13)	20:40	13 20:00 (19)	21:29			
20	08:34	07:44	15:43 (12)	06:42	17:39 (13)	06:32	19:48 (19)	05:38			
	17:03	18:00	36 16:19 (12)	18:49	21 18:00 (13)	20:42	11 19:59 (19)	21:30			
21	08:33	07:42	15:44 (12)	06:40	17:38 (13)	06:30	19:49 (19)	05:37			
	17:05	18:01	34 16:18 (12)	18:51	21 17:59 (13)	20:43	8 19:57 (19)	21:32			
22	08:31	07:40	15:46 (12)	06:37	17:38 (13)	06:28		05:36			
	17:07	18:03	31 16:17 (12)	18:52	20 17:58 (13)	20:45		21:33			
23	08:30	07:38	15:47 (12)	06:35	17:39 (13)	06:26		05:34			
	17:08	18:05	28 16:15 (12)	18:54	18 17:57 (13)	20:47		21:34			
24	08:29	07:35	15:49 (12)	06:33	17:39 (13)	06:24		05:33			
	17:10	18:07	24 16:13 (12)	18:56	16 17:55 (13)	20:48		21:36			
25	08:28	15:53 (12)	07:33	06:31	17:41 (13)	06:22		05:32			
	17:12	16:03 (12)	18:09	18 16:10 (12)	18:58	13 17:54 (13)		21:37			
26	08:27	15:50 (12)	07:31	06:28	17:44 (13)	06:20	20:02 (14)	05:31			
	17:14	16:07 (12)	18:10	10 16:06 (12)	18:59	7 17:51 (13)	9 20:11 (14)	21:38			
27	08:25	15:48 (12)	07:29	06:26		06:18	19:59 (14)	05:30			
	17:15	16:09 (12)	18:12	19:01		20:53	14 20:13 (14)	21:40			
28	08:24	15:47 (12)	07:27	06:24		06:16	19:58 (14)	05:29			
	17:17	16:11 (12)	18:14	19:03		20:55	16 20:14 (14)	21:41			
29	08:22	15:45 (12)		07:21		06:14	19:57 (14)	05:28			
	17:19	16:13 (12)		20:04		20:57	18 20:15 (14)	21:42			
30	08:21	15:44 (12)		07:19		06:12	19:56 (14)	05:27			
	17:21	16:14 (12)		20:06		20:58	19 20:15 (14)	21:43			
31	08:19	15:43 (12)		07:17				05:26			
	17:23	16:16 (12)		20:08				21:45			
Potential sun hours	260	278	367	416	485	498					
Total, worst case	163	962	219	198	217						
Sun reduction	0.16	0.21	0.24	0.35	0.37						
Oper. time red.	1.00	1.00	1.00	1.00	1.00						
Wind dir. red.	0.71	0.71	0.67	0.60	0.59						
Total reduction	0.11	0.15	0.16	0.21	0.22						
Total, real	18	141	36	42	47						

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** I - H9

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22	05:58	20:10 (14)	06:48	07:37	07:30
	22:00	21:28	10	20:20 (14)	19:17	17:11
2	05:23	06:00	20:08 (14)	06:50	07:38	17:11
	21:59	21:26	13	20:21 (14)	19:15	44
3	05:23	06:01	20:07 (14)	06:51	07:40	17:09
	21:59	21:25	16	20:23 (14)	19:12	43
4	05:24	06:03	20:06 (14)	06:53	07:42	17:07
	21:58	21:23	17	20:23 (14)	19:10	43
5	05:25	06:05	20:05 (14)	06:54	07:43	17:06
	21:58	21:21	19	20:24 (14)	19:08	41
6	05:26	06:06	20:04 (14)	06:56	07:45	17:04
	21:57	21:19	20	20:24 (14)	19:05	40
7	05:27	06:08	20:04 (14)	06:58	07:47	17:02
	21:57	21:18	21	20:25 (14)	19:03	39
8	05:28	06:09	20:04 (14)	06:59	07:48	17:00
	21:56	21:16	21	20:25 (14)	19:01	38
9	05:29	06:11	20:04 (14)	07:01	07:50	16:59
	21:56	21:14	21	20:25 (14)	18:59	36
10	05:30	06:12	20:03 (14)	07:02	07:52	16:57
	21:55	21:12	22	20:25 (14)	18:56	34
11	05:31	06:14	20:04 (14)	07:04	07:53	16:56
	21:54	21:10	21	20:25 (14)	18:54	33
12	05:32	06:16	20:03 (14)	07:06	07:55	16:54
	21:53	21:08	21	20:24 (14)	18:52	30
13	05:33	06:17	20:04 (14)	07:07	07:57	16:52
	21:52	21:06	20	20:24 (14)	18:50	28
14	05:34	06:19	20:04 (14)	07:09	07:58	16:51
	21:51	21:04	18	20:22 (14)	18:48	24
15	05:35	06:20	20:06 (14)	07:10	08:00	16:49
	21:50	21:02	15	20:21 (14)	18:45	21
16	05:36	06:22	20:06 (14)	07:12	08:02	16:48
	21:49	21:00	13	20:19 (14)	18:43	14
17	05:38	06:24	20:09 (14)	07:14	08:04	16:46
	21:48	20:58	8	20:17 (14)	18:41	20
18	05:39	06:25	07:15	18:39 (13)	08:05	16:45
	21:47	20:56	12	18:41 (13)	18:39	26
19	05:40	06:27	07:17	18:27 (13)	08:07	16:44
	21:46	20:54	16	18:43 (13)	18:37	29
20	05:41	06:28	07:19	18:26 (13)	08:09	16:43
	21:45	20:52	18	18:44 (13)	18:35	32
21	05:43	06:30	07:20	18:24 (13)	08:11	16:42
	21:44	20:50	20	18:44 (13)	18:33	35
22	05:44	06:32	19:53 (19)	07:22	18:23 (13)	08:12
	21:43	20:48	8	20:01 (19)	18:31	37
23	05:45	06:33	19:51 (19)	07:23	18:22 (13)	08:14
	21:41	20:46	12	20:03 (19)	18:29	39
24	05:47	06:35	19:50 (19)	07:25	18:22 (13)	08:16
	21:40	20:44	13	20:03 (19)	18:33	40
25	05:48	06:37	19:49 (19)	07:27	18:22 (13)	07:18
	21:38	20:41	15	20:04 (19)	18:43 (13)	17:25
26	05:50	06:38	19:49 (19)	07:28	18:22 (13)	07:19
	21:37	20:39	15	20:04 (19)	17:23	42
27	05:51	06:40	19:48 (19)	07:30	18:23 (13)	07:21
	21:36	20:37	15	20:03 (19)	17:21	43
28	05:52	06:41	19:49 (19)	07:32	18:24 (13)	07:23
	21:34	20:35	14	20:03 (19)	17:19	43
29	05:54	06:43	19:48 (19)	07:33	18:24 (13)	07:25
	21:33	20:33	13	20:01 (19)	17:17	44
30	05:55	06:45	19:50 (19)	07:35	18:27 (13)	07:27
	21:31	20:31	11	20:01 (19)	17:15	44
31	05:57	06:46	19:51 (19)	07:36	18:28 (13)	07:28
	21:29	20:28	7	19:58 (19)	17:13	44
Potential sun hours	501	453	381	332	267	244
Total, worst case	5	419	230	573	564	
Sun reduction	0.27	0.30	0.28	0.24	0.18	
Oper. time red.	1.00	1.00	1.00	1.00	1.00	
Wind dir. red.	0.59	0.59	0.67	0.71	0.71	
Total reduction	0.16	0.18	0.19	0.17	0.13	
Total, real	1	74	44	97	74	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** J - H10**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	08:18		07:25		16:49 (7)	07:15	18:51 (3)	06:10	19:05 (4)	05:25
	16:37	17:25		18:16	22	17:11 (7)	20:10	19:11 (3)	21:00	19:35 (4)	21:46
2	08:45	08:16		07:23		16:49 (7)	07:12	18:51 (3)	06:08	19:04 (4)	05:24
	16:38	17:26		18:18	23	17:12 (7)	20:11	19:11 (3)	21:02	19:37 (4)	21:47
3	08:44	08:15		07:20		16:49 (7)	07:10	18:52 (3)	06:06	19:03 (4)	05:24
	16:39	17:28		18:19	23	17:12 (7)	20:13	19:10 (3)	21:03	19:37 (4)	21:48
4	08:44	08:13		07:18		16:49 (7)	07:08	18:52 (3)	06:04	19:02 (4)	05:23
	16:40	17:30		18:21	23	17:12 (7)	20:15	19:09 (3)	21:05	19:37 (4)	21:49
5	08:44	08:12		07:16		16:49 (7)	07:05	18:53 (3)	06:03	19:02 (4)	05:22
	16:41	17:32		18:23	23	17:12 (8)	20:16	19:07 (3)	21:07	19:37 (4)	21:50
6	08:44	08:10		07:14		16:50 (7)	07:03	18:55 (3)	06:01	19:02 (4)	05:22
	16:43	17:34		18:25	25	17:15 (8)	20:18	19:05 (3)	21:08	19:38 (4)	21:51
7	08:43	08:08		07:12		16:51 (7)	07:01	18:59 (3)	05:59	19:01 (4)	05:21
	16:44	17:36		18:27	26	17:17 (8)	20:20	19:01 (3)	21:10	19:38 (4)	21:52
8	08:43	08:06		07:09		16:52 (7)	06:59		05:57	19:00 (4)	05:20
	16:45	17:37		18:28	27	17:19 (8)	20:21		21:12	19:38 (4)	21:53
9	08:42	08:05		07:07		16:52 (8)	06:56		05:56	19:01 (4)	05:20
	16:47	17:39		18:30	28	17:20 (8)	20:23		21:13	19:39 (4)	21:53
10	08:42	08:03		07:05		16:51 (8)	06:54		05:54	19:00 (4)	05:19
	16:48	17:41		18:32	30	17:21 (8)	20:25		21:15	19:39 (4)	21:54
11	08:41	08:01		07:03		16:50 (8)	06:52		05:52	19:01 (4)	05:19
	16:49	17:43		18:34	31	17:21 (8)	20:27		21:16	19:39 (4)	21:55
12	08:41	07:59		07:00		16:48 (8)	06:50		05:50	19:01 (4)	05:19
	16:51	17:45		18:35	33	17:21 (8)	20:28		21:18	19:39 (4)	21:56
13	08:40	07:57		06:58		16:48 (8)	06:48		05:49	19:01 (4)	05:19
	16:52	17:47		18:37	34	17:22 (8)	20:30		21:20	19:39 (4)	21:56
14	08:39	07:56		06:56		16:48 (8)	06:45		05:47	19:01 (4)	05:18
	16:54	17:49		18:39	34	17:22 (8)	20:32		21:21	19:38 (4)	21:57
15	08:38	07:54		06:54		16:47 (8)	06:43		05:46	19:02 (4)	05:18
	16:55	17:50		18:41	34	17:21 (8)	20:33		21:23	19:38 (4)	21:57
16	08:37	07:52		06:51		16:47 (8)	06:41		05:44	19:01 (4)	05:18
	16:57	17:52		18:42	34	17:21 (8)	20:35		21:24	19:38 (4)	21:58
17	08:37	07:50		06:49		16:47 (8)	06:39		05:43	19:02 (4)	05:18
	16:59	17:54		18:44	34	17:21 (8)	20:37		21:26	19:38 (4)	21:58
18	08:36	07:48		06:47		16:47 (8)	06:37		05:41	19:03 (4)	05:18
	17:00	17:56		18:46	33	17:20 (8)	20:38		21:27	19:38 (4)	21:59
19	08:35	07:46		06:44		16:47 (8)	06:34		05:40	19:04 (4)	05:18
	17:02	17:58		18:47	32	17:19 (8)	20:40		21:29	19:38 (4)	21:59
20	08:34	07:44		06:42		16:48 (8)	06:32		05:39	19:03 (4)	05:18
	17:03	18:00		18:49	31	17:19 (8)	20:42		21:30	19:36 (4)	22:00
21	08:33	07:42		06:40		16:49 (8)	06:30		05:37	19:04 (4)	05:18
	17:05	18:01		18:51	29	17:18 (8)	20:43		21:32	19:36 (4)	22:00
22	08:31	07:40		06:38		16:49 (8)	06:28		05:36	19:05 (4)	05:18
	17:07	18:03		18:53	27	17:16 (8)	20:45		21:33	19:36 (4)	22:00
23	08:30	07:38		06:35		16:51 (8)	06:26		05:35	19:06 (4)	05:19
	17:09	18:05		18:54	23	17:14 (8)	20:47		21:34	19:35 (4)	22:00
24	08:29	07:35	16:57 (7)	06:33		16:53 (8)	06:24		05:33	19:07 (4)	05:19
	17:10	18:07	8	17:05 (7)	18:56	17:12 (8)	20:48		21:36	19:35 (4)	22:00
25	08:28	07:33		06:31		16:55 (8)	06:22		05:32	19:08 (4)	05:19
	17:12	18:09	14	17:08 (7)	18:58	18:04 (3)	20:50		21:37	19:34 (4)	22:00
26	08:27	07:31		06:28		17:58 (3)	06:20	19:15 (4)	05:31	19:09 (4)	05:20
	17:14	18:11	17	17:10 (7)	18:59	18:09 (3)	20:52	19:28 (4)	21:38	19:34 (4)	22:00
27	08:25	07:29		06:26		17:56 (3)	06:18	19:12 (4)	05:30	19:10 (4)	05:20
	17:16	18:12	19	17:11 (7)	19:01	18:11 (3)	20:53	19:30 (4)	21:40	19:33 (4)	22:00
28	08:24	07:27		06:24		17:54 (3)	06:16	19:09 (4)	05:29	19:11 (4)	05:21
	17:17	18:14	21	17:12 (7)	19:03	18:11 (3)	20:55	19:32 (4)	21:41	19:32 (4)	22:00
29	08:22			07:21		18:53 (3)	06:14	19:07 (4)	05:28	19:12 (4)	05:21
	17:19			20:04	19	19:12 (3)	20:57	19:33 (4)	21:42	19:31 (4)	22:00
30	08:21			07:19		18:52 (3)	06:12	19:06 (4)	05:27	19:13 (4)	05:22
	17:21			20:06	20	19:12 (3)	20:59	19:34 (4)	21:43	19:30 (4)	22:00
31	08:19			07:17		18:51 (3)			05:26	19:14 (4)	
	17:23			20:08	20	19:11 (3)			21:45	19:29 (4)	
Potential sun hours	260	278		367		416		485		498	
Total, worst case				796		209		983		18	
Sun reduction		0.21		0.24		0.35		0.37		0.30	
Oper. time red.		1.00		1.00		1.00		1.00		1.00	
Wind dir. red.		0.70		0.69		0.64		0.61		0.61	
Total reduction		0.14		0.17		0.23		0.23		0.18	
Total, real		11		134		47		222		3	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** J - H10**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:11 (4)	06:48		07:37	17:28 (8)	07:30	08:21	
	22:00		21:28	38	19:49 (4)	20:26	19:17	33	18:01 (8)	17:11	16:31
2	05:23		06:00		19:11 (4)	06:50			17:28 (8)	07:32	08:22
	21:59		21:26	39	19:50 (4)	20:24	19:15	32	18:00 (8)	17:09	16:30
3	05:24		06:02		19:11 (4)	06:51			17:28 (8)	07:34	08:24
	21:59		21:25	38	19:49 (4)	20:22	19:12	31	17:59 (8)	17:08	16:30
4	05:24		06:03		19:10 (4)	06:53			17:29 (8)	07:35	08:25
	21:58		21:23	38	19:48 (4)	20:19	19:10	29	17:58 (8)	17:06	16:29
5	05:25		06:05		19:11 (4)	06:54			17:29 (7)	07:37	08:26
	21:58		21:21	38	19:49 (4)	20:17	1	18:56 (3)	17:56 (8)	17:04	16:29
6	05:26		06:06		19:11 (4)	06:56			17:27 (7)	07:39	08:28
	21:57		21:19	37	19:48 (4)	20:15	10	18:51 (3)	17:54 (8)	17:02	16:28
7	05:27		06:08		19:11 (4)	06:58			17:26 (7)	07:41	08:29
	21:57		21:18	37	19:48 (4)	20:13	14	19:02 (3)	17:52 (8)	17:01	16:28
8	05:28		06:09		19:11 (4)	06:59			17:25 (7)	07:43	08:30
	21:56		21:16	36	19:47 (4)	20:10	17	19:04 (3)	17:50 (8)	16:59	16:28
9	05:29		06:11		19:12 (4)	07:01			17:24 (7)	07:44	08:31
	21:56		21:14	35	19:47 (4)	20:08	19	19:04 (3)	17:46 (7)	16:57	16:27
10	05:30		19:28 (4)	06:13	19:12 (4)	07:03			17:23 (7)	07:46	08:32
	21:55	3	19:31 (4)	21:12	33	19:45 (4)	20:06	20	19:04 (3)	18:57	16:56
11	05:31		19:25 (4)	06:14		19:13 (4)	07:04		18:43 (3)	07:53	16:53
	21:54	10	19:35 (4)	21:10	32	19:45 (4)	20:03	20	19:03 (3)	18:54	16:54
12	05:32		19:23 (4)	06:16		19:13 (4)	07:06		18:43 (3)	07:55	16:54
	21:53	13	19:36 (4)	21:08	30	19:43 (4)	20:01	21	19:04 (3)	18:52	16:53
13	05:33		19:22 (4)	06:17		19:15 (4)	07:07		18:43 (3)	07:57	16:53
	21:52	16	19:38 (4)	21:06	28	19:43 (4)	19:59	20	19:03 (3)	18:50	16:51
14	05:34		19:21 (4)	06:19		19:15 (4)	07:09		18:43 (3)	07:59	16:53
	21:51	18	19:39 (4)	21:04	25	19:40 (4)	19:56	19	19:02 (3)	18:48	16:50
15	05:35		19:20 (4)	06:21		19:17 (4)	07:11		18:44 (3)	08:00	16:53
	21:50	20	19:40 (4)	21:02	22	19:39 (4)	19:54	17	19:01 (3)	18:46	16:48
16	05:36		19:19 (4)	06:22		19:19 (4)	07:12		18:44 (3)	08:02	16:53
	21:49	22	19:41 (4)	21:00	17	19:36 (4)	19:52	15	18:59 (3)	18:43	16:47
17	05:38		19:19 (4)	06:24		19:22 (4)	07:14		18:46 (3)	08:04	16:53
	21:48	24	19:43 (4)	20:58	11	19:33 (4)	19:49	11	18:57 (3)	18:41	16:45
18	05:39		19:18 (4)	06:25		19:15 (4)	07:15		17:44 (8)	08:05	16:48
	21:47	26	19:44 (4)	20:56		19:47	16	18:53 (3)	18:39	6	17:35 (7)
19	05:40		19:17 (4)	06:27		19:17			17:40 (8)	08:07	16:48
	21:46	27	19:44 (4)	20:54		19:45	18	17:58 (8)	18:37		16:43
20	05:42		19:16 (4)	06:29		19:19			17:38 (8)	08:09	16:48
	21:45	29	19:45 (4)	20:52		19:42	22	18:00 (8)	18:35		16:42
21	05:43		19:15 (4)	06:30		19:20			17:35 (8)	08:11	16:48
	21:44	30	19:45 (4)	20:50		19:40	26	18:01 (8)	18:33		16:40
22	05:44		19:15 (4)	06:32		19:22			17:34 (8)	08:12	16:40
	21:43	32	19:47 (4)	20:48		19:38	28	18:02 (8)	18:31		16:39
23	05:46		19:14 (4)	06:33		19:24			17:32 (8)	08:14	16:38
	21:41	33	19:47 (4)	20:46		19:35	30	18:02 (8)	18:29		16:38
24	05:47		19:14 (4)	06:35		19:25			17:31 (8)	08:16	16:37
	21:40	33	19:47 (4)	20:44		19:33	32	18:03 (8)	18:27		16:37
25	05:48		19:14 (4)	06:37		19:27			17:31 (8)	07:18	16:32
	21:38	34	19:48 (4)	20:42		19:31	32	18:03 (8)	17:25		16:36
26	05:50		19:13 (4)	06:38		19:28			17:29 (8)	07:19	16:33
	21:37	35	19:48 (4)	20:39		19:29	34	18:03 (8)	17:23		16:35
27	05:51		19:12 (4)	06:40		19:30			17:29 (8)	07:21	16:31
	21:36	36	19:48 (4)	20:37		19:26	34	18:03 (8)	17:21		16:34
28	05:53		19:13 (4)	06:42		19:32			17:29 (8)	07:23	16:33
	21:34	36	19:49 (4)	20:35		19:24	34	18:03 (8)	17:19		16:33
29	05:54		19:12 (4)	06:43		19:33			17:28 (8)	07:25	16:33
	21:33	37	19:49 (4)	20:33		19:22	34	18:02 (8)	17:17		16:34
30	05:56		19:11 (4)	06:45		19:35			17:28 (8)	07:27	16:34
	21:31	38	19:49 (4)	20:31		19:19	34	18:02 (8)	17:15		16:35
31	05:57		19:12 (4)	06:46					17:28		16:35
	21:29	37	19:49 (4)	20:28					17:13		16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		589		534		578		417			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.61		0.61		0.68		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		96		97		112		69			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** K - H11**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	08:18		07:25		16:59 (7)	07:15	18:54 (3)	06:10	19:04 (4)	05:25
	16:37	17:25		18:16	17	17:16 (7)	20:10	19:13 (3)	21:00	19:37 (4)	21:46
2	08:45	08:16		07:23		16:58 (7)	07:12	18:54 (3)	06:08	19:05 (4)	05:24
	16:38	17:26		18:18	19	17:17 (7)	20:11	19:12 (3)	21:02	19:38 (4)	21:47
3	08:44	08:15		07:20		16:58 (7)	07:10	18:54 (3)	06:06	19:04 (4)	05:24
	16:39	17:28		18:19	20	17:18 (7)	20:13	19:12 (3)	21:03	19:38 (4)	21:48
4	08:44	08:13		07:18		16:57 (7)	07:08	18:54 (3)	06:04	19:04 (4)	05:23
	16:40	17:30		18:21	21	17:18 (7)	20:15	19:10 (3)	21:05	19:37 (4)	21:49
5	08:44	08:12		07:16		16:56 (7)	07:05	18:56 (3)	06:03	19:03 (4)	05:22
	16:41	17:32		18:23	21	17:17 (7)	20:16	19:09 (3)	21:07	19:37 (4)	21:50
6	08:44	08:10		07:14		16:56 (7)	07:03	18:58 (3)	06:01	19:04 (4)	05:22
	16:43	17:34		18:25	21	17:17 (7)	20:18	19:06 (3)	21:08	19:38 (4)	21:51
7	08:43	08:08		07:12		16:57 (7)	07:01		05:59	19:04 (4)	05:21
	16:44	17:36		18:27	20	17:17 (7)	20:20		21:10	19:37 (4)	21:52
8	08:43	08:06		07:09		16:58 (7)	06:59		05:57	19:04 (4)	05:20
	16:45	17:37		18:28	24	17:22 (8)	20:21		21:12	19:37 (4)	21:53
9	08:42	08:05		07:07		16:58 (7)	06:56		05:56	19:04 (4)	05:20
	16:47	17:39		18:30	26	17:24 (8)	20:23		21:13	19:37 (4)	21:53
10	08:42	08:03		07:05		16:59 (7)	06:54		05:54	19:04 (4)	05:19
	16:48	17:41		18:32	27	17:26 (8)	20:25		21:15	19:36 (4)	21:54
11	08:41	08:01		07:03		17:02 (7)	06:52		05:52	19:05 (4)	05:19
	16:49	17:43		18:34	25	17:27 (8)	20:27		21:16	19:36 (4)	21:55
12	08:41	07:59		07:00		17:01 (8)	06:50		05:50	19:05 (4)	05:19
	16:51	17:45		18:35	27	17:28 (8)	20:28		21:18	19:35 (4)	21:56
13	08:40	07:57		06:58		17:01 (8)	06:48		05:49	19:07 (4)	05:18
	16:52	17:47		18:37	28	17:29 (8)	20:30		21:20	19:35 (4)	21:56
14	08:39	07:55		06:56		17:00 (8)	06:45		05:47	19:07 (4)	05:18
	16:54	17:49		18:39	29	17:29 (8)	20:32		21:21	19:34 (4)	21:57
15	08:38	07:54		06:54		16:59 (8)	06:43		05:46	19:08 (4)	05:18
	16:55	17:50		18:41	30	17:29 (8)	20:33		21:23	19:34 (4)	21:57
16	08:37	07:52		06:51		16:58 (8)	06:41		05:44	19:08 (4)	05:18
	16:57	17:52		18:42	31	17:29 (8)	20:35		21:24	19:32 (4)	21:58
17	08:37	07:50		06:49		16:58 (8)	06:39		05:43	19:10 (4)	05:18
	16:59	17:54		18:44	31	17:29 (8)	20:37		21:26	19:32 (4)	21:58
18	08:36	07:48		06:47		16:58 (8)	06:37		05:41	19:11 (4)	05:18
	17:00	17:56		18:46	30	17:28 (8)	20:38		21:27	19:31 (4)	21:59
19	08:35	07:46		06:44		16:58 (8)	06:34		05:40	19:13 (4)	05:18
	17:02	17:58		18:47	30	17:28 (8)	20:40		21:29	19:30 (4)	21:59
20	08:34	07:44		06:42		16:58 (8)	06:32		05:38	19:14 (4)	05:18
	17:03	18:00		18:49	30	17:28 (8)	20:42		21:30	19:27 (4)	22:00
21	08:33	07:42		06:40		16:59 (8)	06:30		05:37	19:17 (4)	05:18
	17:05	18:01		18:51	28	17:27 (8)	20:43		21:32	19:25 (4)	22:00
22	08:31	07:40		06:38		16:59 (8)	06:28		05:36		05:18
	17:07	18:03		18:53	26	17:25 (8)	20:45		21:33		22:00
23	08:30	07:38		06:35		17:00 (8)	06:26	19:17 (4)	05:35		05:19
	17:09	18:05		18:54	24	17:24 (8)	20:47	19:28 (4)	21:34		22:00
24	08:29	07:35		06:33		17:02 (8)	06:24	19:14 (4)	05:33		05:19
	17:10	18:07		18:56	21	17:23 (8)	20:48	19:31 (4)	21:36		22:00
25	08:28	07:33		06:31		17:03 (8)	06:22	19:11 (4)	05:32		05:19
	17:12	18:09		18:58	17	17:20 (8)	20:50	19:33 (4)	21:37		22:00
26	08:26	07:31		06:28		17:06 (8)	06:20	19:10 (4)	05:31		05:20
	17:14	18:11		18:59	19	18:09 (3)	20:52	19:34 (4)	21:38		22:00
27	08:25	07:29		06:26		17:59 (3)	06:18	19:08 (4)	05:30		05:20
	17:16	18:12	11	17:14 (7)	12	18:11 (3)	20:53	19:35 (4)	21:40		22:00
28	08:24	07:27		06:24		17:57 (3)	06:16	19:07 (4)	05:29		05:21
	17:17	18:14	15	17:16 (7)	19:03	18:12 (3)	20:55	19:36 (4)	21:41		22:00
29	08:22			07:21		18:56 (3)	06:14	19:06 (4)	05:28		05:21
	17:19			20:04	17	19:13 (3)	20:57	19:36 (4)	21:42		22:00
30	08:21			07:19		18:55 (3)	06:12	19:05 (4)	05:27		05:22
	17:21			20:06	18	19:13 (3)	20:58	19:36 (4)	21:43		22:00
31	08:19			07:17		18:54 (3)			05:26		
	17:23			20:08	19	19:13 (3)			21:45		
Potential sun hours	260	278		367		416		485		498	
Total, worst case				723		283		578			
Sun reduction		0.21		0.24		0.35		0.37			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.70		0.69		0.63		0.61			
Total reduction		0.14		0.17		0.22		0.23			
Total, real		4		121		63		132			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** K - H11**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December		
1	05:22		05:59		19:16 (4)	06:48		07:37	17:41 (8)	07:30	08:21		
	22:00		21:28	30	19:46 (4)	20:26		19:17	27	18:08 (8)	17:11	16:31	
2	05:23		06:00		19:16 (4)	06:50		07:38		17:41 (7)	07:32	08:22	
	21:59		21:26	31	19:47 (4)	20:24		19:15	25	18:06 (8)	17:09	16:30	
3	05:24		06:02		19:15 (4)	06:51		07:40		17:38 (7)	07:34	08:24	
	21:59		21:25	32	19:47 (4)	20:22		19:12	27	18:05 (8)	17:08	16:30	
4	05:24		06:03		19:14 (4)	06:53		07:42		17:36 (7)	07:35	08:25	
	21:58		21:23	32	19:46 (4)	20:19		19:10	27	18:03 (8)	17:06	16:29	
5	05:25		06:05		19:14 (4)	06:54		07:43		17:34 (7)	07:37	08:26	
	21:58		21:21	33	19:47 (4)	20:17		19:08	25	17:59 (8)	17:04	16:29	
6	05:26		06:06		19:13 (4)	06:56	18:54 (3)	07:45		17:33 (7)	07:39	08:28	
	21:57		21:19	34	19:47 (4)	20:15	8	19:02 (3)	19:06	22	17:55 (8)	17:02	16:28
7	05:27		06:08		19:13 (4)	06:58	18:51 (3)	07:47		17:33 (7)	07:41	08:29	
	21:57		21:18	34	19:47 (4)	20:13	13	19:04 (3)	19:03	20	17:53 (7)	17:01	16:28
8	05:28		06:09		19:13 (4)	06:59	18:50 (3)	07:48		17:32 (7)	07:43	08:30	
	21:56		21:16	34	19:47 (4)	20:10	15	19:05 (3)	19:01	21	17:53 (7)	16:59	16:28
9	05:29		06:11		19:13 (4)	07:01	18:48 (3)	07:50		17:31 (7)	07:44	08:31	
	21:56		21:14	34	19:47 (4)	20:08	17	19:05 (3)	18:59	21	17:52 (7)	16:57	16:27
10	05:30		06:13		19:13 (4)	07:03	18:47 (3)	07:52		17:31 (7)	07:46	08:32	
	21:55		21:12	33	19:46 (4)	20:06	19	19:06 (3)	18:57	21	17:52 (7)	16:56	16:27
11	05:31		06:14		19:13 (4)	07:04	18:46 (3)	07:53		17:32 (7)	07:48	08:33	
	21:54		21:10	33	19:46 (4)	20:03	19	19:05 (3)	18:54	20	17:52 (7)	16:54	16:27
12	05:32		06:16		19:13 (4)	07:06	18:46 (3)	07:55		17:33 (7)	07:50	08:34	
	21:53		21:08	32	19:45 (4)	20:01	19	19:05 (3)	18:52	18	17:51 (7)	16:53	16:27
13	05:33		06:17		19:14 (4)	07:07	18:46 (3)	07:57		17:33 (7)	07:51	08:35	
	21:52		21:06	31	19:45 (4)	19:59	19	19:05 (3)	18:50	16	17:49 (7)	16:51	16:27
14	05:34		06:19		19:14 (4)	07:09	18:46 (3)	07:59		17:34 (7)	07:53	08:36	
	21:51		21:04	29	19:43 (4)	19:56	17	19:03 (3)	18:48	13	17:47 (7)	16:50	16:27
15	05:35		06:21		19:15 (4)	07:11	18:47 (3)	08:00		17:37 (7)	07:55	08:37	
	21:50		21:02	28	19:43 (4)	19:54	15	19:02 (3)	18:46	8	17:45 (7)	16:48	16:27
16	05:36		06:22		19:15 (4)	07:12	18:47 (3)	08:02			07:57	08:38	
	21:49		21:00	26	19:41 (4)	19:52	13	19:00 (3)	18:43		16:47	16:27	
17	05:38		06:24		19:17 (4)	07:14	17:55 (8)	08:04			07:58	08:39	
	21:48		20:58	23	19:40 (4)	19:49	19	18:58 (3)	18:41		16:45	16:27	
18	05:39		06:25		19:17 (4)	07:15	17:51 (8)	08:05			08:00	08:40	
	21:47		20:56	21	19:38 (4)	19:47	16	18:07 (8)	18:39		16:44	16:27	
19	05:40		06:27		19:20 (4)	07:17	17:49 (8)	08:07			08:02	08:40	
	21:46		20:54	16	19:36 (4)	19:45	20	18:09 (8)	18:37		16:43	16:28	
20	05:42		06:29		19:22 (4)	07:19	17:47 (8)	08:09			08:04	08:41	
	21:45		20:52	10	19:32 (4)	19:42	23	18:10 (8)	18:35		16:42	16:28	
21	05:43		06:30			07:20	17:45 (8)	08:11			08:05	08:42	
	21:44		20:50			19:40	26	18:11 (8)	18:33		16:40	16:29	
22	05:44		06:32			07:22	17:44 (8)	08:12			08:07	08:42	
	21:42	3	19:30 (4)			19:38	27	18:11 (8)	18:31		16:39	16:29	
23	05:46		06:33			07:24	17:42 (8)	08:14			08:08	08:43	
	21:41	11	19:37 (4)			19:35	29	18:11 (8)	18:29		16:38	16:30	
24	05:47		06:35			07:25	17:42 (8)	08:16			08:10	08:43	
	21:40	15	19:39 (4)			19:33	30	18:12 (8)	18:27		16:37	16:30	
25	05:48		06:37			07:27	17:41 (8)	07:18			08:12	08:44	
	21:38	18	19:41 (4)			19:31	31	18:12 (8)	17:25		16:36	16:31	
26	05:50		06:38			07:28	17:40 (8)	07:19			08:13	08:44	
	21:37	21	19:42 (4)			19:28	31	18:11 (8)	17:23		16:35	16:31	
27	05:51		06:40			07:30	17:40 (8)	07:21			08:15	08:44	
	21:36	22	19:42 (4)			19:26	31	18:11 (8)	17:21		16:34	16:32	
28	05:53		06:42			07:32	17:40 (8)	07:23			08:16	08:44	
	21:34	25	19:44 (4)			19:24	31	18:11 (8)	17:19		16:33	16:33	
29	05:54		06:43			07:33	17:40 (8)	07:25			08:18	08:44	
	21:33	26	19:44 (4)			19:22	29	18:09 (8)	17:17		16:33	16:34	
30	05:56		06:45			07:35	17:40 (8)	07:27			08:19	08:45	
	21:31	28	19:45 (4)			19:19	29	18:09 (8)	17:15		16:32	16:35	
31	05:57		06:46					07:28				08:45	
	21:29	29	19:46 (4)			20:28		17:13				16:36	
Potential sun hours	501		453			381		332		267		244	
Total, worst case		198		576		546		311					
Sun reduction		0.27		0.30		0.28		0.24					
Oper. time red.		1.00		1.00		1.00		1.00					
Wind dir. red.		0.61		0.61		0.68		0.69					
Total reduction		0.16		0.18		0.19		0.16					
Total, real		33		105		105		51					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** L - H12**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	07:25				07:15	18:14 (8)	06:10	19:17 (4)	05:25	
	16:37	17:25	18:16				20:10	14 18:28 (8)	21:00	21 19:38 (4)	21:46	
2	08:45	08:16	07:23				07:12	18:18 (8)	06:08	19:16 (4)	05:24	
	16:38	17:26	18:18				20:11	6 18:24 (8)	21:02	24 19:40 (4)	21:47	
3	08:44	08:15	07:20				07:10		06:06	19:15 (4)	05:24	
	16:39	17:28	18:19				20:13		21:03	25 19:40 (4)	21:48	
4	08:44	08:13	07:18			17:13 (7)	07:08		06:04	19:14 (4)	05:23 (4)	
	16:40	17:30	18:21	6	17:19 (7)	20:15			21:05	27 19:41 (4)	21:49	
5	08:44	08:12	07:16			17:09 (7)	07:05		06:03	19:13 (4)	05:22	
	16:41	17:32	18:23	12	17:21 (7)	20:16			21:07	28 19:41 (4)	21:50	
6	08:44	08:10	07:14			17:07 (7)	07:03		06:01	19:13 (4)	05:22	
	16:43	17:34	18:25	16	17:23 (7)	20:18			21:08	29 19:42 (4)	21:51	
7	08:43	08:08	07:12			17:06 (7)	07:01		05:59	19:12 (4)	05:21	
	16:44	17:36	18:27	18	17:24 (7)	20:20			21:10	30 19:42 (4)	21:52	
8	08:43	08:06	07:09			17:06 (7)	06:59		05:57	19:12 (4)	05:20	
	16:45	17:37	18:28	19	17:25 (7)	20:21			21:12	30 19:42 (4)	21:53	
9	08:42	08:05	07:07			17:04 (7)	06:56		05:56	19:12 (4)	05:20	
	16:47	17:39	18:30	20	17:24 (7)	20:23			21:13	31 19:43 (4)	21:53	
10	08:42	08:03	07:05			17:04 (7)	06:54		05:54	19:11 (4)	05:19	
	16:48	17:41	18:32	20	17:24 (7)	20:25			21:15	32 19:43 (4)	21:54	
11	08:41	08:01	07:03			17:04 (7)	06:52		05:52	19:12 (4)	05:19	
	16:49	17:43	18:34	20	17:24 (7)	20:26			21:16	31 19:43 (4)	21:55	
12	08:41	07:59	07:00			17:04 (7)	06:50		05:50	19:12 (4)	05:19	
	16:51	17:45	18:35	19	17:23 (7)	20:28			21:18	31 19:43 (4)	21:56	
13	08:40	07:57	06:58			17:04 (7)	06:47		05:49	19:12 (4)	05:18	
	16:52	17:47	18:37	19	17:23 (7)	20:30			21:20	31 19:43 (4)	21:56	
14	08:39	07:55	06:56			17:05 (7)	06:45		05:47	19:12 (4)	05:18	
	16:54	17:49	18:39	17	17:22 (7)	20:32			21:21	30 19:42 (4)	21:57	
15	08:38	07:54	06:54			17:06 (7)	06:43		05:46	19:13 (4)	05:18	
	16:55	17:50	18:41	18	17:27 (8)	20:33			21:23	29 19:42 (4)	21:57	
16	08:37	07:52	06:51			17:08 (7)	06:41		05:44	19:12 (4)	05:18	
	16:57	17:52	18:42	23	17:32 (8)	20:35			21:24	30 19:42 (4)	21:58	
17	08:37	07:50	06:49			17:16 (8)	06:39		05:43	19:13 (4)	05:18	
	16:59	17:54	18:44	18	17:34 (8)	20:37			21:26	29 19:42 (4)	21:58	
18	08:36	07:48	06:47			17:13 (8)	06:37		05:41	19:14 (4)	05:18	
	17:00	17:56	18:46	22	17:35 (8)	20:38			21:27	27 19:41 (4)	21:59	
19	08:35	07:46	06:44			17:12 (8)	06:34		05:40	19:15 (4)	05:18	
	17:02	17:58	18:47	24	17:36 (8)	20:40			21:29	26 19:41 (4)	21:59	
20	08:34	07:44	06:42			17:11 (8)	06:32		05:38	19:15 (4)	05:18	
	17:03	18:00	18:49	26	17:37 (8)	20:42			21:30	25 19:40 (4)	22:00	
21	08:33	07:42	06:40			17:09 (8)	06:30		05:37	19:16 (4)	05:18	
	17:05	18:01	18:51	28	17:37 (8)	20:43			21:32	24 19:40 (4)	22:00	
22	08:31	07:40	06:38			17:09 (8)	06:28		05:36	19:17 (4)	05:18	
	17:07	18:03	18:53	28	17:37 (8)	20:45			21:33	22 19:39 (4)	22:00	
23	08:30	07:38	06:35			17:09 (8)	06:26		05:35	19:18 (4)	05:19	
	17:09	18:05	18:54	29	17:38 (8)	20:47			21:34	20 19:38 (4)	22:00	
24	08:29	07:35	06:33			17:09 (8)	06:24		05:33	19:19 (4)	05:19	
	17:10	18:07	18:56	29	17:38 (8)	20:48			21:36	19 19:38 (4)	22:00	
25	08:28	07:33	06:31			17:08 (8)	06:22		05:32	19:20 (4)	05:19	
	17:12	18:09	18:58	29	17:37 (8)	20:50			21:37	17 19:37 (4)	22:00	
26	08:26	07:31	06:28			17:08 (8)	06:20		05:31	19:22 (4)	05:20	
	17:14	18:11	18:59	29	17:37 (8)	20:52			21:38	13 19:35 (4)	22:00	
27	08:25	07:29	06:26			17:09 (8)	06:18		05:30	19:24 (4)	05:20	
	17:16	18:12	19:01	27	17:36 (8)	20:53			21:40	10 19:34 (4)	22:00	
28	08:24	07:27	06:24			17:08 (8)	06:16		19:26 (4)	05:29	19:27 (4)	
	17:17	18:14	19:03	27	17:35 (8)	20:55		4 19:30 (4)	21:41	4 19:31 (4)	22:00	
29	08:22		07:21			18:09 (8)	06:14		19:21 (4)	05:28	05:21	
	17:19		20:04	25	18:34 (8)	20:57		14 19:35 (4)	21:42		22:00	
30	08:21		07:19			18:11 (8)	06:12		19:19 (4)	05:27	05:22	
	17:21		20:06	21	18:32 (8)	20:58		17 19:36 (4)	21:43		22:00	
31	08:19		07:17			18:11 (8)			05:26			
	17:23		20:08	19	18:30 (8)				21:45			
Potential sun hours	260	278	367				416			485		498
Total, worst case				608				55		695		
Sun reduction				0.24				0.35		0.37		
Oper. time red.				1.00				1.00		1.00		
Wind dir. red.				0.69				0.63		0.60		
Total reduction				0.17				0.22		0.22		
Total, real				102				12		155		

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: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** L - H12

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:22 (4)	06:48		07:37	17:44 (7)	07:30	08:21	
	21:59		21:28	31 19:53 (4)	20:26		19:17	19	18:03 (7)	17:11	16:31
2	05:23		06:00	19:22 (4)	06:50		07:38		17:42 (7)	07:32	08:22
	21:59		21:26	32 19:54 (4)	20:24		19:15	20	18:02 (7)	17:09	16:30
3	05:24		06:02	19:22 (4)	06:51		07:40		17:42 (7)	07:34	08:24
	21:59		21:25	31 19:53 (4)	20:22		19:12	20	18:02 (7)	17:08	16:30
4	05:24		06:03	19:21 (4)	06:53		07:42		17:42 (7)	07:35	08:25
	21:58		21:23	31 19:52 (4)	20:19		19:10	20	18:02 (7)	17:06	16:29
5	05:25		06:05	19:22 (4)	06:54		07:43		17:41 (7)	07:37	08:26
	21:58		21:21	31 19:53 (4)	20:17		19:08	20	18:01 (7)	17:04	16:29
6	05:26		06:06	19:22 (4)	06:56		07:45		17:42 (7)	07:39	08:28
	21:57		21:19	30 19:52 (4)	20:15		19:06	18	18:00 (7)	17:02	16:28
7	05:27		06:08	19:23 (4)	06:58		07:47		17:43 (7)	07:41	08:29
	21:57		21:18	29 19:52 (4)	20:13		19:03	16	17:59 (7)	17:01	16:28
8	05:28		06:09	19:23 (4)	06:59		07:48		17:44 (7)	07:43	08:30
	21:56		21:16	27 19:50 (4)	20:10		19:01	14	17:58 (7)	16:59	16:28
9	05:29		06:11	19:24 (4)	07:01		07:50		17:45 (7)	07:44	08:31
	21:56		21:14	26 19:50 (4)	20:08		18:59	10	17:55 (7)	16:57	16:27
10	05:30		06:13	19:24 (4)	07:03		07:52			07:46	08:32
	21:55		21:12	25 19:49 (4)	20:06	4	18:12 (8)			16:56	16:27
11	05:31		06:14	19:25 (4)	07:04		18:06 (8)			07:48	08:33
	21:54		21:10	23 19:48 (4)	20:03	14	18:20 (8)			16:54	16:27
12	05:32		06:16	19:26 (4)	07:06		18:04 (8)			07:50	08:34
	21:53		21:08	20 19:46 (4)	20:01	18	18:22 (8)			16:53	16:27
13	05:33		06:17	19:28 (4)	07:07		18:02 (8)			07:51	08:35
	21:52		21:06	17 19:45 (4)	19:59	22	18:24 (8)			16:51	16:27
14	05:34		06:19	19:30 (4)	07:09		18:00 (8)			07:53	08:36
	21:51		21:04	11 19:41 (4)	19:56	24	18:24 (8)			16:50	16:27
15	05:35		06:21		07:11		17:59 (8)			07:55	08:37
	21:50		21:02		19:54	26	18:25 (8)			16:48	16:27
16	05:36	19:33 (4)	06:22		07:12		17:57 (8)			07:57	08:38
	21:49	8 19:41 (4)	21:00		19:52	27	18:24 (8)			16:47	16:27
17	05:38	19:32 (4)	06:24		07:14		17:57 (8)			07:58	08:39
	21:48	12 19:44 (4)	20:58		19:49	28	18:25 (8)			16:45	16:27
18	05:39	19:31 (4)	06:25		07:15		17:55 (8)			08:00	08:40
	21:47	15 19:46 (4)	20:56		19:47	29	18:24 (8)			16:44	16:27
19	05:40	19:29 (4)	06:27		07:17		17:55 (8)			08:02	08:40
	21:46	18 19:47 (4)	20:54		19:45	29	18:24 (8)			16:43	16:28
20	05:42	19:28 (4)	06:29		07:19		17:55 (8)			08:04	08:41
	21:45	20 19:48 (4)	20:52		19:42	29	18:24 (8)			16:42	16:28
21	05:43	19:27 (4)	06:30		07:20		17:55 (8)			08:05	08:42
	21:44	21 19:48 (4)	20:50		19:40	28	18:23 (8)			16:40	16:29
22	05:44	19:27 (4)	06:32		07:22		17:55 (8)			08:07	08:42
	21:42	23 19:50 (4)	20:48		19:38	28	18:23 (8)			16:39	16:29
23	05:46	19:26 (4)	06:33		07:24		17:54 (8)			08:08	08:43
	21:41	24 19:50 (4)	20:46		19:35	27	18:21 (8)			16:38	16:30
24	05:47	19:25 (4)	06:35		07:25		17:55 (8)			08:10	08:43
	21:40	26 19:51 (4)	20:44		19:33	25	18:20 (8)			16:37	16:30
25	05:48	19:25 (4)	06:37		07:27		17:56 (8)			08:12	08:43
	21:38	27 19:52 (4)	20:42		19:31	23	18:19 (8)			16:36	16:31
26	05:50	19:24 (4)	06:38		07:28		17:57 (8)			08:13	08:44
	21:37	28 19:52 (4)	20:39		19:28	20	18:17 (8)			16:35	16:31
27	05:51	19:23 (4)	06:40		07:30		17:51 (7)			08:15	08:44
	21:36	29 19:52 (4)	20:37		19:26	23	18:15 (8)			16:34	16:32
28	05:53	19:24 (4)	06:42		07:32		17:48 (7)			08:16	08:44
	21:34	29 19:53 (4)	20:35		19:24	22	18:11 (8)			16:33	16:33
29	05:54	19:23 (4)	06:43		07:33		17:46 (7)			08:18	08:44
	21:33	30 19:53 (4)	20:33		19:22	15	18:01 (7)			16:33	16:34
30	05:56	19:22 (4)	06:45		07:35		17:44 (7)			08:19	08:45
	21:31	31 19:53 (4)	20:31		19:19	18	18:02 (7)			16:32	16:35
31	05:57	19:23 (4)	06:46				07:28				08:45
	21:29	30 19:53 (4)	20:28				17:13				16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		371		364	479		157				
Sun reduction		0.27		0.30	0.28		0.24				
Oper. time red.		1.00		1.00	1.00		1.00				
Wind dir. red.		0.60		0.60	0.68		0.69				
Total reduction		0.16		0.18	0.19		0.16				
Total, real		60		65	93		26				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** M - H13**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	16:37	08:18	17:25	18:16	07:25	18:21	19:16	07:15	18:15 (8)	19:10	06:10	18:15 (8)	19:05	05:25	19:29 (4)	
2	08:45	16:38	08:16	17:26	18:18	07:23	18:21	19:18	07:12	18:16 (8)	19:12	06:08	18:16 (8)	19:07	05:24	19:30 (4)	
3	08:44	16:39	08:15	17:28	18:19	07:20	18:21	19:20	07:10	18:17 (8)	19:14	06:06	18:17 (8)	19:09	05:24	19:31 (4)	
4	08:44	16:40	08:13	17:30	18:21	07:18	18:21	19:22	07:08	18:18 (8)	19:16	06:04	18:18 (8)	19:11	05:23	19:35 (4)	
5	08:44	16:41	08:12	17:32	18:23	07:16	18:23	19:24	07:05	18:20 (8)	19:18	06:03	18:20 (8)	19:13	05:22	19:38 (4)	
6	08:44	16:43	08:10	17:34	18:25	07:14	18:25	19:26	07:03	18:24 (8)	19:20	06:01	18:24 (8)	19:15	05:22		
7	08:43	16:44	08:08	17:36	18:27	07:12	18:27	19:28	07:01	17:18 (7)	18:22	05:59	17:23 (7)	18:27	05:21		
8	08:43	16:45	08:06	17:37	18:28	07:09	18:28	19:30	06:59	17:14 (7)	18:24	05:57	17:14 (7)	18:29	05:20		
9	08:42	16:47	08:05	17:39	18:30	07:07	18:30	19:32	06:56	17:12 (7)	18:26	05:56	17:12 (7)	18:31	05:20		
10	08:42	16:48	08:03	17:41	18:32	07:05	18:32	19:34	06:54	17:11 (7)	18:28	05:54	17:11 (7)	18:33	05:19		
11	08:41	16:49	08:01	17:43	18:34	07:03	18:34	19:36	06:52	17:10 (7)	18:30	05:52	17:10 (7)	18:35	05:19		
12	08:41	16:51	07:59	17:45	18:35	07:00	18:35	19:38	06:50	17:09 (7)	18:32	05:50	17:09 (7)	18:37	05:19		
13	08:40	16:52	07:57	17:47	18:37	06:58	18:37	19:40	06:47	17:09 (7)	18:34	05:49	17:09 (7)	18:39	05:18		
14	08:39	16:54	07:55	17:49	18:39	06:56	18:39	19:42	06:45	17:09 (7)	18:36	05:47	17:09 (7)	18:41	05:18		
15	08:38	16:55	07:54	17:50	18:41	06:54	18:41	19:44	06:43	17:08 (7)	18:38	05:46	17:08 (7)	18:43	05:18		
16	08:37	16:57	07:52	17:52	18:42	06:51	18:42	19:46	06:41	17:07 (7)	18:40	05:44	17:07 (7)	18:45	05:18		
17	08:37	16:59	07:50	17:54	18:44	06:49	18:44	19:48	06:39	17:10 (7)	18:42	05:43	17:10 (7)	18:47	05:18		
18	08:36	17:00	07:48	17:56	18:46	06:47	18:46	19:50	06:37	17:11 (7)	18:44	05:41	17:11 (7)	18:49	05:18		
19	08:35	17:02	07:46	17:58	18:47	06:44	18:47	19:52	06:34	17:13 (7)	18:46	05:40	17:13 (7)	18:51	05:18		
20	08:34	17:03	07:44	18:00	18:49	06:42	18:49	19:54	06:32	17:33 (8)	18:48	05:38	17:33 (8)	18:53	05:18		
21	08:33	17:05	07:42	18:01	18:51	06:40	18:51	19:56	06:30	17:25 (8)	18:50	05:37	17:25 (8)	18:55	05:18		
22	08:31	17:07	07:40	18:03	18:53	06:38	18:53	19:58	06:28	17:38 (8)	18:52	05:36	17:38 (8)	18:57	05:18		
23	08:30	17:09	07:38	18:05	18:55	06:35	18:55	20:00	06:26	17:41 (8)	18:54	05:35	17:41 (8)	19:00	05:19		
24	08:29	17:10	07:35	18:07	18:56	06:33	18:56	20:02	06:24	17:19 (8)	18:56	05:34	17:19 (8)	19:02	05:19		
25	08:28	17:12	07:33	18:09	18:58	06:31	18:58	20:04	06:22	17:43 (8)	18:58	05:33	17:43 (8)	19:04	05:19		
26	08:26	17:14	07:31	18:11	18:59	06:28	18:59	20:06	06:20	17:44 (8)	19:00	05:31	17:44 (8)	19:06	05:20		
27	08:25	17:16	07:29	18:12	19:01	06:26	19:01	20:08	06:18	17:16 (8)	19:02	05:30	17:16 (8)	19:08	05:20		
28	08:24	17:17	07:27	18:14	19:03	06:24	19:03	20:10	06:16	17:15 (8)	19:04	05:29	17:15 (8)	19:10	05:21		
29	08:22	17:19	07:25	18:16	19:05	06:22	19:05	20:12	06:14	17:14 (8)	19:06	05:28	17:14 (8)	19:12	05:21		
30	08:21	17:21	07:23	18:18	19:07	06:20	19:07	20:14	06:12	18:14 (8)	19:08	05:27	18:14 (8)	19:14	05:22		
31	08:19	17:23	07:21	18:20	19:09	06:18	19:09	20:16	06:10	18:13 (8)	19:10	05:26	18:13 (8)	19:16	05:22		
Potential sun hours	260	278	367						416			485			498		
Total, worst case				503					108			738			37		
Sun reduction				0.24					0.35			0.37			0.30		
Oper. time red.				1.00					1.00			1.00			1.00		
Wind dir. red.				0.68					0.68			0.60			0.60		
Total reduction				0.17					0.24			0.22			0.18		
Total, real				84					26			163			7		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** M - H13**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:29 (4)	06:48		07:37	17:48 (7)	07:30	08:21	
	21:59		21:28	29	19:58 (4)	20:26	19:17	21	18:09 (7)	17:11	16:31
2	05:23		06:00		19:30 (4)	06:50			17:48 (7)	07:32	08:22
	21:59		21:26	29	19:59 (4)	20:24	19:15	19	18:07 (7)	17:09	16:30
3	05:24		06:02		19:30 (4)	06:51			17:48 (7)	07:34	08:24
	21:59		21:25	28	19:58 (4)	20:22	19:12	19	18:07 (7)	17:08	16:30
4	05:24		06:03		19:30 (4)	06:53			17:49 (7)	07:35	08:25
	21:58		21:23	27	19:57 (4)	20:19	19:10	17	18:06 (7)	17:06	16:29
5	05:25		06:05		19:31 (4)	06:54			17:50 (7)	07:37	08:26
	21:58		21:21	25	19:56 (4)	20:17	19:08	13	18:03 (7)	17:04	16:29
6	05:26		06:06		19:31 (4)	06:56	18:21 (8)		17:52 (7)	07:39	08:28
	21:57		21:19	24	19:55 (4)	20:15	18:25 (8)	9	18:01 (7)	17:02	16:28
7	05:27		06:08		19:32 (4)	06:58	18:15 (8)			07:41	08:29
	21:57		21:18	22	19:54 (4)	20:13	18:29 (8)			17:01	16:28
8	05:28		06:09		19:33 (4)	06:59	18:13 (8)			07:43	08:30
	21:56		21:16	19	19:52 (4)	20:10	18:31 (8)			16:59	16:28
9	05:29		19:40 (4)	06:11		19:35 (4)	07:01			07:50	08:31
	21:56	6	19:46 (4)	21:14	16	19:51 (4)	20:08	20	18:31 (8)	18:59	16:27
10	05:30		19:38 (4)	06:13		19:37 (4)	07:03			07:52	08:32
	21:55	10	19:48 (4)	21:12	11	19:48 (4)	20:06	24	18:33 (8)	18:57	16:27
11	05:31		19:37 (4)	06:14			07:04			07:53	08:33
	21:54	13	19:50 (4)	21:10			20:03	26	18:33 (8)	18:54	16:27
12	05:32		19:36 (4)	06:16			07:06			07:55	08:34
	21:53	15	19:51 (4)	21:08			20:01	26	18:33 (8)	18:52	16:27
13	05:33		19:35 (4)	06:17			07:07			07:57	08:35
	21:52	17	19:52 (4)	21:06			19:59	28	18:34 (8)	18:50	16:27
14	05:34		19:34 (4)	06:19			07:09			07:59	08:36
	21:51	19	19:53 (4)	21:04			19:56	28	18:33 (8)	18:48	16:27
15	05:35		19:33 (4)	06:21			07:11			08:00	08:37
	21:50	21	19:54 (4)	21:02			19:54	28	18:33 (8)	18:46	16:27
16	05:36		19:33 (4)	06:22			07:12			08:02	08:38
	21:49	21	19:54 (4)	21:00			19:52	28	18:32 (8)	18:43	16:27
17	05:38		19:33 (4)	06:24			07:14			08:04	08:39
	21:48	23	19:56 (4)	20:58			19:49	28	18:32 (8)	18:41	16:27
18	05:39		19:32 (4)	06:25			07:15			08:05	08:40
	21:47	24	19:56 (4)	20:56			19:47	28	18:31 (8)	18:39	16:27
19	05:40		19:31 (4)	06:27			07:17			08:07	08:40
	21:46	26	19:57 (4)	20:54			19:45	26	18:30 (8)	18:37	16:28
20	05:42		19:31 (4)	06:29			07:19			08:09	08:41
	21:45	26	19:57 (4)	20:52			19:42	24	18:29 (8)	18:35	16:28
21	05:43		19:30 (4)	06:30			07:20			08:11	08:42
	21:44	27	19:57 (4)	20:50			19:40	22	18:27 (8)	18:33	16:29
22	05:44		19:30 (4)	06:32			07:22			08:12	08:42
	21:42	28	19:58 (4)	20:48			19:38	20	18:26 (8)	18:31	16:29
23	05:46		19:30 (4)	06:33			07:24			08:14	08:43
	21:41	28	19:58 (4)	20:46			19:35	16	18:23 (8)	18:29	16:30
24	05:47		19:29 (4)	06:35			07:25			08:16	08:43
	21:40	29	19:58 (4)	20:44			19:33	13	18:19 (8)	18:27	16:30
25	05:48		19:30 (4)	06:37			07:27			07:18	08:43
	21:38	29	19:59 (4)	20:42			19:31	12	18:07 (7)	17:25	16:31
26	05:50		19:29 (4)	06:38			07:28			07:19	08:44
	21:37	30	19:59 (4)	20:39			19:28	15	18:07 (7)	17:23	16:31
27	05:51		19:29 (4)	06:40			07:30			07:21	08:44
	21:36	30	19:59 (4)	20:37			19:26	17	18:08 (7)	17:21	16:32
28	05:53		19:29 (4)	06:42			07:32			07:23	08:44
	21:34	31	20:00 (4)	20:35			19:24	19	18:09 (7)	17:19	16:33
29	05:54		19:29 (4)	06:43			07:33			07:25	08:44
	21:33	30	19:59 (4)	20:33			19:22	19	18:08 (7)	17:17	16:34
30	05:56		19:28 (4)	06:45			07:35			07:27	08:45
	21:31	31	19:59 (4)	20:31			19:19	21	18:09 (7)	17:15	16:35
31	05:57		19:29 (4)	06:46						07:28	08:45
	21:29	30	19:59 (4)	20:28						17:13	16:36
Potential sun hours	501		453		381		332		267	244	
Total, worst case		544		230		524		98			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.60		0.60		0.68		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		87		41		101		16			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** N - H14**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45		08:18		07:25				17:09 (7)	07:15		06:10		19:05 (4)	05:25		
	16:37		17:25		18:16		8		17:17 (7)	20:10		21:00	31	19:36 (4)	21:46		
2	08:45		08:16		07:23				17:06 (7)	07:12		06:08		19:06 (4)	05:24		
	16:38		17:26		18:18		14		17:20 (7)	20:11		21:02	31	19:37 (4)	21:47		
3	08:44		08:15		07:20				17:05 (7)	07:10		06:06		19:06 (4)	05:24		
	16:39		17:28		18:19		16		17:21 (7)	20:13		21:03	30	19:36 (4)	21:48		
4	08:44		08:13		07:18				17:04 (7)	07:08		06:04		19:06 (4)	05:23		
	16:40		17:30		18:21		18		17:22 (7)	20:15		21:05	30	19:36 (4)	21:49		
5	08:44		08:12		07:16				17:03 (7)	07:05		06:03		19:06 (4)	05:22		
	16:41		17:32		18:23		19		17:22 (7)	20:16		21:07	29	19:35 (4)	21:50		
6	08:44		08:10		07:14				17:02 (7)	07:03		06:01		19:07 (4)	05:22		
	16:43		17:34		18:25		20		17:22 (7)	20:18		21:08	28	19:35 (4)	21:51		
7	08:43		08:08		07:12				17:02 (7)	07:01		05:59		19:07 (4)	05:21		
	16:44		17:36		18:27		20		17:22 (7)	20:20		21:10	28	19:35 (4)	21:52		
8	08:43		08:06		07:09				17:03 (7)	06:59		05:57		19:07 (4)	05:20		
	16:45		17:37		18:28		19		17:22 (7)	20:21		21:12	27	19:34 (4)	21:53		
9	08:42		08:05		07:07				17:02 (7)	06:56		05:56		19:08 (4)	05:20		
	16:47		17:39		18:30		19		17:21 (7)	20:23		21:13	25	19:33 (4)	21:53		
10	08:42		08:03		07:05				17:03 (7)	06:54		05:54		19:09 (4)	05:19		
	16:48		17:41		18:32		23		17:26 (8)	20:25		21:15	23	19:32 (4)	21:54		
11	08:41		08:01		07:03				17:04 (7)	06:52		05:52		19:10 (4)	05:19		
	16:49		17:43		18:34		25		17:29 (8)	20:26		21:16	22	19:32 (4)	21:55		
12	08:41		07:59		07:00				17:05 (7)	06:50		05:50		19:11 (4)	05:19		
	16:51		17:45		18:35		26		17:31 (8)	20:28		21:18	19	19:30 (4)	21:56		
13	08:40		07:57		06:58				17:09 (7)	06:47		05:49		19:13 (4)	05:18		
	16:52		17:47		18:37		23		17:32 (8)	20:30		21:20	16	19:29 (4)	21:56		
14	08:39		07:55		06:56				17:09 (8)	06:45		05:47		19:14 (4)	05:18		
	16:54		17:49		18:39		25		17:34 (8)	20:32		21:21	13	19:27 (4)	21:57		
15	08:38		07:54		06:54				17:08 (8)	06:43		05:46		19:17 (4)	05:18		
	16:55		17:50		18:41		25		17:33 (8)	20:33		21:23	8	19:25 (4)	21:57		
16	08:37		07:52		06:51				17:07 (8)	06:41		05:44			05:18		
	16:57		17:52		18:42		27		17:34 (8)	20:35		21:24			21:58		
17	08:37		07:50		06:49				17:07 (8)	06:39		05:43			05:18		
	16:59		17:54		18:44		28		17:35 (8)	20:37		21:26			21:58		
18	08:36		07:48		06:47				17:06 (8)	06:37		05:41			05:18		
	17:00		17:56		18:46		28		17:34 (8)	20:38		21:27			21:59		
19	08:35		07:46		06:44				17:06 (8)	06:34		05:40			05:18		
	17:02		17:58		18:47		28		17:34 (8)	20:40		21:29			21:59		
20	08:34		07:44		06:42				17:06 (8)	06:32		05:38			05:18		
	17:03		18:00		18:49		28		17:34 (8)	20:42		21:30			22:00		
21	08:33		07:42		06:40				17:05 (8)	06:30		19:18 (4)	05:37		05:18		
	17:05		18:01		18:51		27		17:32 (8)	20:43	10	19:28 (4)	21:32		22:00		
22	08:31		07:40		06:38				17:06 (8)	06:28		19:15 (4)	05:36		05:18		
	17:07		18:03		18:53		26		17:32 (8)	20:45	15	19:30 (4)	21:33		22:00		
23	08:30		07:38		06:35				17:07 (8)	06:26		19:13 (4)	05:35		05:19		
	17:09		18:05		18:54		24		17:31 (8)	20:47	19	19:32 (4)	21:34		22:00		
24	08:29		07:35		06:33				17:08 (8)	06:24		19:11 (4)	05:33		05:19		
	17:10		18:07		18:56		22		17:30 (8)	20:48	22	19:33 (4)	21:36		22:00		
25	08:28		07:33		06:31				17:08 (8)	06:22		19:10 (4)	05:32		05:19		
	17:12		18:09		18:58		20		17:28 (8)	20:50	24	19:34 (4)	21:37		22:00		
26	08:26		07:31		06:28				17:10 (8)	06:20		19:09 (4)	05:31		05:20		
	17:14		18:11		18:59		16		17:26 (8)	20:52	26	19:35 (4)	21:38		22:00		
27	08:25		07:29		06:26				17:14 (8)	06:18		19:08 (4)	05:30		05:20		
	17:16		18:12		19:01		9		17:23 (8)	20:53	28	19:36 (4)	21:40		22:00		
28	08:24		07:27		06:24					06:16		19:07 (4)	05:29		05:21		
	17:17		18:14		19:03					20:55	29	19:36 (4)	21:41		22:00		
29	08:22				07:21					06:14		19:06 (4)	05:28		05:21		
	17:19				20:04					20:57	30	19:36 (4)	21:42		22:00		
30	08:21				07:19					06:12		19:06 (4)	05:27		05:22		
	17:21				20:06					20:58	30	19:36 (4)	21:43		22:00		
31	08:19				07:17							05:26					
	17:23				20:08							21:45					
Potential sun hours	260		278		367				416			485			498		
Total, worst case					583				233			360					
Sun reduction					0.24				0.35			0.37					
Oper. time red.					1.00				1.00			1.00					
Wind dir. red.					0.69				0.62			0.62					
Total reduction					0.17				0.22			0.23					
Total, real					98				51			82					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** N - H14**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22	05:59	19:21 (4)	06:48		07:37	17:46 (7)	07:30	08:21		
	21:59	21:28	20	19:41 (4)	20:26	19:17	25	18:11 (8)	17:11	16:31	
2	05:23	06:00		19:20 (4)	06:50	07:38		17:43 (7)	07:32	08:22	
	21:59	21:26	23	19:43 (4)	20:24	19:15	25	18:08 (8)	17:09	16:30	
3	05:24	06:02		19:19 (4)	06:51	07:40		17:41 (7)	07:34	08:24	
	21:59	21:25	24	19:43 (4)	20:22	19:12	25	18:06 (8)	17:08	16:30	
4	05:24	06:03		19:17 (4)	06:53	07:42		17:40 (7)	07:35	08:25	
	21:58	21:23	26	19:43 (4)	20:19	19:10	18	17:58 (7)	17:06	16:29	
5	05:25	06:05		19:17 (4)	06:54	07:43		17:39 (7)	07:37	08:26	
	21:58	21:21	27	19:44 (4)	20:17	19:08	19	17:58 (7)	17:04	16:29	
6	05:26	06:06		19:16 (4)	06:56	07:45		17:38 (7)	07:39	08:28	
	21:57	21:19	28	19:44 (4)	20:15	19:06	20	17:58 (7)	17:02	16:28	
7	05:27	06:08		19:16 (4)	06:58	07:47		17:38 (7)	07:41	08:29	
	21:57	21:18	29	19:45 (4)	20:13	19:03	20	17:58 (7)	17:01	16:28	
8	05:28	06:09		19:15 (4)	06:59	07:48		17:38 (7)	07:43	08:30	
	21:56	21:16	30	19:45 (4)	20:10	19:01	20	17:58 (7)	16:59	16:28	
9	05:29	06:11		19:15 (4)	07:01	07:50		17:38 (7)	07:44	08:31	
	21:56	21:14	30	19:45 (4)	20:08	18:59	18	17:56 (7)	16:57	16:27	
10	05:30	06:13		19:14 (4)	07:03	07:52		17:39 (7)	07:46	08:32	
	21:55	21:12	31	19:45 (4)	20:06	18:57	17	17:56 (7)	16:56	16:27	
11	05:31	06:14		19:15 (4)	07:04	07:53		17:40 (7)	07:48	08:33	
	21:54	21:10	30	19:45 (4)	20:03	18:54	15	17:55 (7)	16:54	16:27	
12	05:32	06:16		19:14 (4)	07:06	07:55		17:41 (7)	07:50	08:34	
	21:53	21:08	30	19:44 (4)	20:01	18:52	12	17:53 (7)	16:53	16:27	
13	05:33	06:17		19:14 (4)	07:07	07:57		17:43 (7)	07:51	08:35	
	21:52	21:06	30	19:44 (4)	19:59	18:50	6	17:49 (7)	16:51	16:27	
14	05:34	06:19		19:14 (4)	07:09	07:59		07:53	08:36		
	21:51	21:04	29	19:43 (4)	19:56	18:48		16:50	16:27		
15	05:35	06:21		19:15 (4)	07:11	08:00		07:55	08:37		
	21:50	21:02	28	19:43 (4)	19:54	18:46		16:48	16:27		
16	05:36	06:22		19:15 (4)	07:12	18:03 (8)	08:02	07:57	08:38		
	21:49	21:00	27	19:42 (4)	19:52	8	18:11 (8)	18:43	16:47	16:27	
17	05:38	06:24		19:16 (4)	07:14	17:59 (8)	08:04	07:58	08:39		
	21:48	20:58	26	19:42 (4)	19:49	15	18:14 (8)	18:41	16:45	16:27	
18	05:39	06:25		19:16 (4)	07:15	17:56 (8)	08:05	08:00	08:40		
	21:47	20:56	24	19:40 (4)	19:47	19	18:15 (8)	18:39	16:44	16:27	
19	05:40	06:27		19:17 (4)	07:17	17:55 (8)	08:07	08:02	08:40		
	21:46	20:54	22	19:39 (4)	19:45	21	18:16 (8)	18:37	16:43	16:28	
20	05:41	06:29		19:18 (4)	07:19	17:54 (8)	08:09	08:04	08:41		
	21:45	20:52	19	19:37 (4)	19:42	23	18:17 (8)	18:35	16:42	16:28	
21	05:43	06:30		19:20 (4)	07:20	17:52 (8)	08:11	08:05	08:42		
	21:44	20:50	15	19:35 (4)	19:40	25	18:17 (8)	18:33	16:40	16:29	
22	05:44	06:32		19:24 (4)	07:22	17:51 (8)	08:12	08:07	08:42		
	21:42	20:48	8	19:32 (4)	19:38	27	18:18 (8)	18:31	16:39	16:29	
23	05:46	06:33			07:24	17:50 (8)	08:14	08:08	08:43		
	21:41	20:46			19:35	27	18:17 (8)	18:29	16:38	16:30	
24	05:47	06:35			07:25	17:49 (8)	08:16	08:10	08:43		
	21:40	20:44			19:33	28	18:17 (8)	18:27	16:37	16:30	
25	05:48	06:37			07:27	17:49 (8)	07:18	08:12	08:43		
	21:38	20:42			19:31	28	18:17 (8)	17:25	16:36	16:31	
26	05:50	06:38			07:28	17:48 (8)	07:19	08:13	08:44		
	21:37	20:39			19:28	28	18:16 (8)	17:23	16:35	16:31	
27	05:51	06:40			07:30	17:49 (8)	07:21	08:15	08:44		
	21:36	20:37			19:26	27	18:16 (8)	17:21	16:34	16:32	
28	05:53	06:42			07:32	17:49 (8)	07:23	08:16	08:44		
	21:34	20:35			19:24	26	18:15 (8)	17:19	16:33	16:33	
29	05:54	19:26 (4)	06:43		07:33	17:49 (8)	07:25	08:18	08:44		
	21:33	19:37 (4)	20:33		19:22	25	18:14 (8)	17:17	16:33	16:34	
30	05:56	19:24 (4)	06:45		07:35	17:50 (8)	07:27	08:19	08:45		
	21:31	19:38 (4)	20:31		19:19	23	18:13 (8)	17:15	16:32	16:35	
31	05:57	19:22 (4)	06:46				07:28		08:45		
	21:29	19:40 (4)	20:28				17:13		16:36		
Potential sun hours	501	453		381		332		267	244		
Total, worst case			556		350		240				
Sun reduction	0.27		0.30		0.28		0.24				
Oper. time red.	1.00		1.00		1.00		1.00				
Wind dir. red.	0.62		0.62		0.69		0.69				
Total reduction	0.17		0.18		0.19		0.16				
Total, real	7		102		68		39				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

Shadow receptor: O - H15

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	19:02 (4) 19:17	17:53 (8) 17:11	07:30 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:02 (4) 19:15	17:52 (8) 17:09	07:32 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	19:04 (4) 19:12	17:53 (8) 17:08	07:34 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	19:05 (4) 19:10	17:53 (8) 17:06	07:35 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	19:07 (4) 19:08	17:53 (8) 17:04	07:37 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	19:15 (4) 19:06	17:55 (8) 17:02	07:39 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	19:06 19:03	17:56 (8) 18:09 (8)	07:41 17:01
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	19:07 19:01	18:00 (8) 18:05 (8)	07:43 16:59
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	19:01 18:59	18:05 (8) 18:05 (8)	16:59 16:57
10	08:42 16:48	08:03 17:39	07:05 18:30	06:54 20:23	05:54 21:13	05:19 21:53	05:30 21:56	06:13 21:12	07:02 20:06	19:02 18:57	18:05 (8) 18:05 (8)	16:57 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	19:03 18:54	18:05 (8) 18:05 (8)	16:56 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	19:04 18:52	18:05 (8) 18:05 (8)	16:54 16:53
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	19:05 18:50	18:05 (8) 18:05 (8)	16:53 16:51
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	19:06 18:48	18:05 (8) 18:05 (8)	16:51 16:50
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:21 21:02	07:11 19:54	19:07 18:46	18:05 (8) 18:05 (8)	16:50 16:49
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	19:08 18:43	18:05 (8) 18:05 (8)	16:49 16:47
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	19:09 18:41	18:05 (8) 18:05 (8)	16:47 16:45
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	19:10 18:39	18:05 (8) 18:05 (8)	16:45 16:44
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	19:11 18:37	18:05 (8) 18:05 (8)	16:44 16:43
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00	05:41 21:45	06:29 20:52	07:19 19:42	19:12 (4) 19:20 (4)	18:05 (8) 18:05 (8)	16:43 16:42
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	19:10 (4) 19:23 (4)	18:05 (8) 18:05 (8)	16:42 16:40
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	19:07 (4) 19:24 (4)	18:05 (8) 18:05 (8)	16:40 16:39
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	05:45 21:41	06:33 20:46	07:24 19:35	19:06 (4) 19:25 (4)	18:05 (8) 18:05 (8)	16:39 16:38
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	19:05 (4) 19:26 (4)	18:05 (8) 18:05 (8)	16:38 16:37
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	19:04 (4) 19:26 (4)	18:05 (8) 18:05 (8)	16:37 16:36
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28	19:03 (4) 19:27 (4)	18:05 (8) 18:05 (8)	16:36 16:35
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	19:02 (4) 19:26 (4)	18:05 (8) 18:05 (8)	16:35 16:34
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:41 20:35	07:32 19:24	19:02 (4) 19:27 (4)	18:05 (8) 18:05 (8)	16:34 16:33
29	08:22 17:19	07:21 18:04	06:21 20:04	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:22	19:01 (4) 19:26 (4)	18:05 (8) 18:05 (8)	16:33 16:32
30	08:21 17:21	07:19 18:06	06:19 20:06	06:12 20:58	05:27 21:43	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	19:02 (4) 19:26 (4)	18:05 (8) 18:05 (8)	16:32 16:31
31	08:19 17:23	07:17 18:08	06:17 20:08	06:11 21:44	05:26 21:44	05:22 22:00	05:57 21:29	06:46 20:28	07:38 19:24 (4)	19:01 (4) 19:24 (4)	18:05 (8) 18:05 (8)	16:31 16:30
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case			255	323				245	205	142		
Sun reduction			0.24	0.35				0.30	0.28	0.24		
Oper. time red.			1.00	1.00				1.00	1.00	1.00		
Wind dir. red.			0.69	0.64				0.64	0.67	0.69		
Total reduction			0.17	0.23				0.19	0.19	0.16		
Total, real			43	74				47	39	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		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** P - H16**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January			February			March			April			May			June		
1	08:45	08:18	07:25							07:15			06:10			05:25		20:19 (5)
	16:37	17:25	18:16							20:10			21:00			21:46	5	20:24 (5)
2	08:44	08:16	07:23							07:12			06:08			05:24		20:16 (5)
	16:38	17:26	18:18							20:11			21:02			21:47	10	20:26 (5)
3	08:44	08:15	07:20							07:10			06:06			05:24		20:15 (5)
	16:39	17:28	18:19							20:13			21:03			21:48	12	20:27 (5)
4	08:44	08:13	07:18							07:08			06:04			05:23		20:14 (5)
	16:40	17:30	18:21							20:15			21:05			21:49	15	20:29 (5)
5	08:44	08:12	07:16							07:05			06:03			05:22		20:13 (5)
	16:41	17:32	18:23							20:16			21:07			21:50	16	20:29 (5)
6	08:44	08:10	07:14							07:03			06:01			05:21		20:13 (5)
	16:43	17:34	18:25							20:18			21:08			21:51	18	20:31 (5)
7	08:43	08:08	07:12							07:01			05:59			05:21		20:12 (5)
	16:44	17:36	18:27							20:20			21:10			21:52	19	20:31 (5)
8	08:43	08:06	07:09							06:59			05:57			05:20		20:12 (5)
	16:45	17:37	18:28							20:21			21:12			21:53	20	20:32 (5)
9	08:42	08:05	07:07							06:56			05:55			05:20		20:12 (5)
	16:47	17:39	18:30							20:23			21:13			21:53	20	20:32 (5)
10	08:42	08:03	07:05							06:54			05:54			05:19		20:12 (5)
	16:48	17:41	18:32							20:25			21:15			21:54	21	20:33 (5)
11	08:41	08:01	07:03							06:52			19:21 (4)			05:52		20:12 (5)
	16:49	17:43	18:34							20:26	4		19:25 (4)			21:16	22	20:34 (5)
12	08:41	07:59	07:00							06:50			19:17 (4)			05:50		20:11 (5)
	16:51	17:45	18:35							20:28	12		19:29 (4)			21:18	22	20:33 (5)
13	08:40	07:57	06:58						17:34 (8)	06:47			19:14 (4)			05:49		20:11 (5)
	16:52	17:47	18:37	9					17:43 (8)	20:30	15		19:29 (4)			21:20	23	20:34 (5)
14	08:39	07:55	06:56						17:32 (8)	06:45			19:13 (4)			05:47		20:11 (5)
	16:54	17:49	18:39	14					17:46 (8)	20:32	18		19:31 (4)			21:21	24	20:35 (5)
15	08:38	07:54	06:54						17:30 (8)	06:43			19:12 (4)			05:46		20:12 (5)
	16:55	17:50	18:41	16					17:46 (8)	20:33	19		19:31 (4)			21:23	23	20:35 (5)
16	08:37	07:52	06:51						17:29 (8)	06:41			19:11 (4)			05:44		20:12 (5)
	16:57	17:52	18:42	18					17:47 (8)	20:35	21		19:32 (4)			21:24	24	20:36 (5)
17	08:37	07:50	06:49						17:28 (8)	06:39			19:11 (4)			05:43		20:12 (5)
	16:58	17:54	18:44	20					17:48 (8)	20:37	21		19:32 (4)			21:26	24	20:36 (5)
18	08:36	07:48	06:47						17:27 (8)	06:37			19:10 (4)			05:41		20:12 (5)
	17:00	17:56	18:46	20					17:47 (8)	20:38	22		19:32 (4)			21:27	24	20:36 (5)
19	08:35	07:46	06:44						17:27 (8)	06:34			19:10 (4)			05:40		20:12 (5)
	17:02	17:58	18:47	20					17:47 (8)	20:40	22		19:32 (4)			21:29	24	20:36 (5)
20	08:34	07:44	06:42						17:27 (8)	06:32			19:10 (4)			05:38		20:12 (5)
	17:03	18:00	18:49	20					17:47 (8)	20:42	21		19:31 (4)			21:30	24	20:36 (5)
21	08:33	07:42	06:40						17:26 (8)	06:30			19:10 (4)			05:37		20:12 (5)
	17:05	18:01	18:51	20					17:46 (8)	20:43	21		19:31 (4)			21:32	24	20:36 (5)
22	08:31	07:40	06:38						17:27 (8)	06:28			19:11 (4)			05:36		20:13 (5)
	17:07	18:03	18:53	18					17:45 (8)	20:45	19		19:30 (4)			21:33	24	20:37 (5)
23	08:30	07:38	06:35						17:28 (8)	06:26			19:12 (4)			05:35		20:13 (5)
	17:08	18:05	18:54	16					17:44 (8)	20:47	17		19:29 (4)			21:34	24	20:37 (5)
24	08:29	07:35	06:33						17:30 (8)	06:24			19:13 (4)			05:33		20:13 (5)
	17:10	18:07	18:56	13					17:43 (8)	20:48	15		19:28 (4)			21:36	24	20:37 (5)
25	08:28	07:33	06:31						17:32 (8)	06:22			19:14 (4)			05:32		20:14 (5)
	17:12	18:09	18:58	7					17:39 (8)	20:50	12		19:26 (4)			21:37	24	20:38 (5)
26	08:26	07:31	06:28							06:20			19:17 (4)			05:31		20:14 (5)
	17:14	18:10	18:59							20:52	5		19:22 (4)			21:38	24	20:38 (5)
27	08:25	07:29	06:26							06:18			05:30			05:20		20:15 (5)
	17:16	18:12	19:01							20:53			21:40			22:00	23	20:38 (5)
28	08:24	07:27	06:24							06:16			05:29			05:20		20:14 (5)
	17:17	18:14	19:03							20:55			21:41			22:00	24	20:38 (5)
29	08:22		07:21							06:14			05:28			05:21		20:15 (5)
	17:19		20:04							20:57			21:42			22:00	23	20:38 (5)
30	08:21		07:19							06:12			05:27			05:22		20:15 (5)
	17:21		20:06							20:58			21:43			22:00	23	20:38 (5)
31	08:19		07:17										05:26					
	17:23		20:08										21:44					
Potential sun hours	260	278	367							416			485			498		
Total, worst case							211				264					627		
Sun reduction							0.24				0.35					0.30		
Oper. time red.							1.00				1.00					1.00		
Wind dir. red.							0.68				0.63					0.56		
Total reduction							0.17				0.22					0.17		
Total, real							35				59					105		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** P - H16**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22	20:16 (5)	05:59	06:48	19:20 (4)	07:37	18:17 (8)	07:30	08:21		
	21:59	22	20:38 (5)	21:28	4	19:24 (4)	19:17	3	18:20 (8)	17:11	16:31
2	05:23	20:16 (5)	06:00	06:50		07:38			07:32	08:22	
	21:59	21	20:37 (5)	21:26		19:15			17:09	16:30	
3	05:24	20:17 (5)	06:02	06:51		07:40			07:34	08:24	
	21:59	20	20:37 (5)	21:24		19:12			17:07	16:30	
4	05:24	20:17 (5)	06:03	06:53		07:42			07:35	08:25	
	21:58	20	20:37 (5)	21:23		19:10			17:06	16:29	
5	05:25	20:18 (5)	06:05	06:54		07:43			07:37	08:26	
	21:58	19	20:37 (5)	21:21		19:08			17:04	16:29	
6	05:26	20:18 (5)	06:06	06:56		07:45			07:39	08:28	
	21:57	18	20:36 (5)	21:19		19:06			17:02	16:28	
7	05:27	20:19 (5)	06:08	06:58		07:47			07:41	08:29	
	21:57	17	20:36 (5)	21:17		19:03			17:01	16:28	
8	05:28	20:20 (5)	06:09	06:59		07:48			07:43	08:30	
	21:56	15	20:35 (5)	21:16		19:01			16:59	16:28	
9	05:29	20:21 (5)	06:11	07:01		07:50			07:44	08:31	
	21:55	14	20:35 (5)	21:14		18:59			16:57	16:27	
10	05:30	20:23 (5)	06:13	07:02		07:52			07:46	08:32	
	21:55	11	20:34 (5)	21:12		18:57			16:56	16:27	
11	05:31	20:25 (5)	06:14	07:04		07:53			07:48	08:33	
	21:54	7	20:32 (5)	21:10		18:54			16:54	16:27	
12	05:32		06:16	07:06		07:55			07:50	08:34	
	21:53		21:08	20:01		18:52			16:53	16:27	
13	05:33		06:17	07:07		07:57			07:51	08:35	
	21:52		21:06	19:59		18:50			16:51	16:27	
14	05:34		06:19	07:09		07:58			07:53	08:36	
	21:51		21:04	19:56		18:48			16:50	16:27	
15	05:35		06:21	07:11		08:00			07:55	08:37	
	21:50		21:02	19:54		18:46			16:48	16:27	
16	05:36		06:22	07:12		08:02			07:57	08:38	
	21:49		21:00	19:52		18:43			16:47	16:27	
17	05:38		06:24	19:23 (4)	07:14	08:04			07:58	08:39	
	21:48	7	19:30 (4)	19:49		18:41			16:45	16:27	
18	05:39		06:25	19:20 (4)	07:15	18:20 (8)	08:05		08:00	08:40	
	21:47		20:56	12	19:32 (4)	19:47	5	18:25 (8)	18:39	16:44	16:27
19	05:40		06:27	19:18 (4)	07:17	18:17 (8)	08:07		08:02	08:40	
	21:46		20:54	16	19:34 (4)	19:45	12	18:29 (8)	18:37	16:43	16:28
20	05:41		06:29	19:16 (4)	07:19	18:15 (8)	08:09		08:03	08:41	
	21:45		20:52	18	19:34 (4)	19:42	15	18:30 (8)	18:35	16:42	16:28
21	05:43		06:30	19:16 (4)	07:20	18:13 (8)	08:11		08:05	08:42	
	21:44		20:50	19	19:35 (4)	19:40	18	18:31 (8)	18:33	16:40	16:29
22	05:44		06:32	19:14 (4)	07:22	18:12 (8)	08:12		08:07	08:42	
	21:42		20:48	21	19:35 (4)	19:38	19	18:31 (8)	18:31	16:39	16:29
23	05:45		06:33	19:14 (4)	07:23	18:11 (8)	08:14		08:08	08:43	
	21:41		20:46	21	19:35 (4)	19:35	20	18:31 (8)	18:29	16:38	16:29
24	05:47		06:35	19:14 (4)	07:25	18:10 (8)	08:16		08:10	08:43	
	21:40		20:44	22	19:36 (4)	19:33	21	18:31 (8)	18:27	16:37	16:30
25	05:48		06:37	19:13 (4)	07:27	18:10 (8)	07:18		08:12	08:43	
	21:38		20:41	22	19:35 (4)	19:31	21	18:31 (8)	17:25	16:36	16:31
26	05:50		06:38	19:13 (4)	07:28	18:10 (8)	07:19		08:13	08:44	
	21:37		20:39	22	19:35 (4)	19:28	20	18:30 (8)	17:23	16:35	16:31
27	05:51		06:40	19:13 (4)	07:30	18:10 (8)	07:21		08:15	08:44	
	21:36		20:37	21	19:34 (4)	19:26	19	18:29 (8)	17:21	16:34	16:32
28	05:53		06:41	19:14 (4)	07:32	18:11 (8)	07:23		08:16	08:44	
	21:34		20:35	19	19:33 (4)	19:24	17	18:28 (8)	17:19	16:33	16:33
29	05:54		06:43	19:14 (4)	07:33	18:11 (8)	07:25		08:18	08:44	
	21:33		20:33	17	19:31 (4)	19:22	15	18:26 (8)	17:17	16:33	16:34
30	05:56		06:45	19:15 (4)	07:35	18:13 (8)	07:27		08:19	08:45	
	21:31		20:31	15	19:30 (4)	19:19	11	18:24 (8)	17:15	16:32	16:35
31	05:57		06:46	19:16 (4)		07:28				08:45	
	21:29		20:28	11	19:27 (4)	17:13				16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case		184		263		217		3			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.56		0.63		0.68		0.68			
Total reduction		0.15		0.19		0.19		0.16			
Total, real		27		49		42		0			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** Q - H17**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	[January	[February	[March	[April	[May	[June	[July	[August	[September	[October	[November	[December				
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	19:26 (5) 21:00	05:25 21:46	05:22 21:59	05:59 21:28	19:42 (5) 19:56 (5)	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31		
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	19:27 (5) 19:52 (5)	05:24 21:47	05:23 21:59	06:00 21:26	19:41 (5) 19:58 (5)	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30		
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	19:27 (5) 19:51 (5)	05:23 21:48	05:24 21:59	06:02 21:24	19:39 (5) 19:58 (5)	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30		
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	19:26 (5) 19:51 (5)	05:23 21:49	05:24 21:58	06:03 21:23	19:38 (5) 19:58 (5)	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29		
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	19:26 (5) 19:50 (5)	05:22 21:50	05:25 21:58	06:05 21:21	19:38 (5) 19:59 (5)	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29		
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	19:27 (5) 19:51 (5)	05:21 21:51	05:26 21:57	06:06 21:19	19:36 (5) 19:59 (5)	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28		
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	19:27 (5) 19:50 (5)	05:21 21:52	05:27 21:57	06:08 21:17	19:36 (5) 20:00 (5)	06:58 20:12	07:47 19:03	07:41 17:01	08:29 16:28		
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	19:27 (5) 19:49 (5)	05:20 21:53	05:28 21:56	06:09 21:16	19:36 (5) 20:00 (5)	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28		
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	19:29 (5) 19:49 (5)	05:20 21:53	05:29 21:55	06:11 21:14	19:36 (5) 20:00 (5)	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27		
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	19:29 (5) 19:47 (5)	05:19 21:54	05:30 21:55	06:13 21:12	19:35 (5) 20:00 (5)	07:02 20:06	07:52 18:57	07:46 16:56	08:32 16:27		
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	19:31 (5) 19:47 (5)	05:19 21:55	05:31 21:54	06:14 21:10	19:35 (5) 20:00 (5)	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27		
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	19:32 (5) 19:45 (5)	05:19 21:56	05:32 21:53	06:16 21:08	19:35 (5) 19:59 (5)	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27		
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	19:34 (5) 19:43 (5)	05:18 21:56	05:33 21:52	06:17 21:06	19:36 (5) 19:59 (5)	07:07 20:01	07:57 18:50	07:51 16:51	08:35 16:27		
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	19:47 (5) 19:58 (5)	05:18 21:57	05:34 21:51	06:19 21:04	19:36 (5) 19:58 (5)	07:09 20:06	07:58 18:48	07:53 16:50	08:36 16:27		
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	19:58 (5) 21:57	05:35 21:50	05:35 21:50	06:20 21:02	19:37 (5) 19:57 (5)	07:11 20:08	08:00 18:46	07:55 16:48	08:37 16:27		
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	19:58 (5) 21:58	05:36 21:49	05:36 21:49	06:22 21:00	19:37 (5) 19:56 (5)	07:12 20:06	08:02 18:43	07:57 16:47	08:38 16:27		
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	19:58 (5) 21:58	05:38 21:48	05:38 21:48	06:24 20:58	19:38 (5) 19:55 (5)	07:14 20:03	08:04 18:41	07:58 16:45	08:39 16:27		
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	19:58 (5) 21:59	05:39 21:47	05:39 21:47	06:25 20:56	19:39 (5) 19:52 (5)	07:15 20:06	08:05 18:39	08:00 16:44	08:40 16:27		
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	19:58 (5) 21:59	05:40 21:46	05:40 21:46	06:27 20:54	19:42 (5) 19:50 (5)	07:17 20:06	08:07 18:37	08:02 16:43	08:40 16:28		
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	19:58 (5) 21:59	05:41 21:45	05:41 21:45	06:29 20:52	19:50 (5) 20:06	07:19 20:08	08:09 18:35	08:03 16:42	08:41 16:28		
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	19:58 (5) 22:00	05:43 21:44	05:43 21:44	06:30 20:50	20:06 20:12	07:20 20:09	08:11 18:33	08:05 16:40	08:42 16:28		
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	05:36 21:33	19:58 (5) 22:00	05:44 21:42	05:44 21:42	06:32 20:48	20:12 20:18	07:22 20:10	08:12 18:31	08:07 16:39	08:42 16:29		
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	19:58 (5) 22:00	05:45 21:41	05:45 21:41	06:33 20:46	20:18 20:24	07:23 20:10	08:14 18:29	08:08 16:38	08:43 16:29		
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	19:58 (5) 22:00	05:47 21:40	05:47 21:40	06:35 20:44	19:52 (5) 20:08	07:25 20:12	08:16 18:37	08:10 16:37	08:43 16:30		
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	19:58 (5) 22:00	05:48 21:38	05:48 21:38	06:37 20:41	20:10 20:16	07:27 20:13	08:18 18:34	08:12 16:36	08:43 16:31		
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	19:58 (5) 22:00	05:50 21:37	05:50 21:37	06:38 20:39	20:14 20:20	07:28 20:14	08:19 18:34	08:13 16:35	08:44 16:31		
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:39	19:58 (5) 22:00	05:51 21:36	05:51 21:36	06:40 20:37	20:16 20:22	07:30 20:16	08:21 18:34	08:15 16:34	08:44 16:32		
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	19:58 (5) 22:00	05:52 21:34	05:52 21:34	06:41 20:35	20:18 20:24	07:32 20:18	08:22 18:35	08:16 16:33	08:44 16:33		
29	08:22 17:19	07:21 20:04	06:14 20:57	06:14 21:42	05:28 21:42	19:58 (5) 22:00	05:54 21:33	05:54 21:33	06:43 20:33	20:20 20:26	07:33 20:19	08:23 18:36	08:18 16:33	08:44 16:34		
30	08:21 17:21	07:19 20:06	06:12 20:58	06:12 21:43	05:27 21:43	19:58 (5) 22:00	05:56 21:31	05:56 21:31	06:45 20:31	20:28 20:34	07:35 20:22	08:24 18:37	08:19 16:32	08:45 16:35		
31	08:19 17:23	07:17 20:08	06:11 21:44	06:11 21:44	05:26 21:44	19:58 (5) 22:00	05:57 21:31	05:57 21:31	06:46 20:31	20:36 20:42	07:36 20:23	08:25 18:38	08:20 16:32	08:45 16:36		
Potential sun hours	260	278	367	416	485	498	501	453	382	381	332	267	244			
Total, worst case				126	268				382							
Sun reduction				0.35	0.37				0.27							
Oper. time red.				1.00	1.00				1.00							
Wind dir. red.				0.60	0.60				0.60							
Total reduction				0.21	0.22				0.16							
Total, real				27	59				68							

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** R - H18**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30	
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29	
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:01	08:29 16:28	
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27	
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	07:52 18:57	07:46 16:56	08:32 16:27	
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27	
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27	
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	9 19:21 (5) 19:30 (5)	05:49 21:20	05:18 21:56	06:17 21:06	19:26 (5) 19:36 (5)	07:07 19:59	18:40 (4) 18:50	07:57 18:50	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	14 19:32 (5) 19:32 (5)	05:47 21:21	05:18 21:57	06:19 21:04	19:23 (5) 19:37 (5)	07:09 19:56	18:37 (4) 18:48	07:58 18:48	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	18 19:16 (5) 19:34 (5)	05:46 21:23	05:18 21:57	06:20 21:02	19:22 (5) 19:39 (5)	07:11 19:54	18:36 (4) 18:50	08:00 18:46	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	20 19:15 (5) 19:35 (5)	05:44 21:24	05:18 21:58	06:22 21:49	19:20 (5) 19:39 (5)	07:12 19:52	18:34 (4) 18:50	08:02 18:43	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	22 19:14 (5) 19:36 (5)	05:43 21:26	05:18 21:58	06:24 20:58	19:19 (5) 19:41 (5)	07:14 19:49	18:33 (4) 18:51	08:04 18:41	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	23 19:13 (5) 19:36 (5)	05:41 21:27	05:18 21:59	06:25 20:56	19:18 (5) 19:41 (5)	07:15 19:47	18:32 (4) 18:50	08:05 18:39	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	25 19:12 (5) 19:37 (5)	05:40 21:29	05:18 21:59	06:27 20:54	19:17 (5) 19:41 (5)	07:17 19:45	18:32 (4) 18:50	08:07 18:37	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	17:50 (4) 18:01 (4)	06:32 20:42	05:38 21:30	05:18 21:59	06:29 20:52	19:16 (5) 19:41 (5)	07:19 19:42	18:32 (4) 18:50	08:09 18:35	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	17:48 (4) 18:01 (4)	06:30 20:43	05:37 21:32	05:18 22:00	06:30 20:50	19:16 (5) 19:41 (5)	07:20 19:40	18:32 (4) 18:48	08:11 18:33	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	17:46 (4) 18:02 (4)	06:28 20:45	05:36 21:33	05:18 22:00	06:32 20:48	19:15 (5) 19:40 (5)	07:22 19:38	18:33 (4) 18:47	08:12 18:31	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	17:46 (4) 18:03 (4)	06:26 20:47	05:35 21:34	05:19 22:00	06:33 20:46	19:16 (5) 19:40 (5)	07:23 19:35	18:33 (4) 18:45	08:14 18:29	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	17:45 (4) 18:04 (4)	06:24 20:48	05:33 21:36	05:19 22:00	06:35 20:44	19:16 (5) 19:40 (5)	07:25 19:33	18:36 (4) 18:42	08:16 18:27	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	17:44 (4) 18:03 (4)	06:22 20:50	05:32 21:37	05:19 22:00	06:37 20:41	19:16 (5) 19:39 (5)	07:27 19:31	18:42 (4) 18:48	08:18 18:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	17:45 (4) 18:02 (4)	06:20 20:52	05:31 21:38	05:20 22:00	06:38 20:39	19:17 (5) 19:39 (5)	07:28 19:28	18:48 (4) 18:54	08:19 18:33	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	17:45 (4) 18:02 (4)	06:18 20:53	05:30 21:40	05:21 22:00	06:40 20:37	19:17 (5) 19:37 (5)	07:30 19:26	18:51 (4) 18:56	08:15 18:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	17:45 (4) 18:00 (4)	06:16 20:55	05:29 21:41	05:20 22:00	06:41 20:35	19:18 (5) 19:36 (5)	07:32 19:24	18:56 (4) 18:61	08:16 18:33	08:44 16:33
29	08:22 17:19	07:21 18:19	06:21 19:04	18:46 (4) 18:59 (4)	06:14 20:57	05:28 21:42	05:21 22:00	06:43 20:33	19:19 (5) 19:33 (5)	07:33 19:22	18:62 (4) 18:67	08:18 18:34	08:44 16:34
30	08:21 17:21	07:19 18:19	06:20 19:06	18:49 (4) 18:57 (4)	06:12 20:58	05:27 21:43	05:22 22:00	06:45 20:31	19:22 (5) 19:30 (5)	07:35 19:19	18:68 (4) 18:73	08:19 18:35	08:45 16:35
31	08:19 17:23	07:17 18:08	06:17 19:08	07:17 18:08	06:17 19:08	05:26 21:44	05:26 21:44	06:46 20:28	19:22 (5) 19:30 (5)	07:35 19:19	18:68 (4) 18:73	08:19 18:35	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			165	356				357	170				
Sun reduction			0.24	0.35				0.30	0.28				
Oper. time red.			1.00	1.00				1.00	1.00				
Wind dir. red.			0.67	0.63				0.63	0.67				
Total reduction			0.16	0.22				0.19	0.19				
Total, real			27	79				67	32				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations**Shadow receptor:** S - H19

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	19:07 (5) 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:08 (5) 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	19:09 (5) 19:12	07:40 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	19:12 (5) 19:10	07:42 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	19:25 (5) 19:08	07:43 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:57	05:26 21:19	06:06 21:19	06:56 20:15	19:06 19:06	07:45 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	19:07 (5) 19:03	07:47 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:14 (5) 21:12	05:57 21:53	05:20 21:56	06:09 21:16	06:59 20:10	19:03 19:01	07:48 17:01	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:11 (5) 21:13	05:55 21:53	05:20 21:56	06:11 21:14	07:01 20:08	19:01 18:59	07:50 17:01	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:10 (5) 21:15	05:54 21:54	05:19 21:55	06:13 21:12	07:02 20:06	19:01 18:57	07:52 17:01	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:08 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10	07:04 20:03	19:01 18:54	07:53 17:01	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:07 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08	07:06 20:01	19:01 18:52	07:55 17:01	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19:05 (5) 21:20	05:49 21:56	05:18 21:52	06:17 21:06	07:07 20:00	19:01 18:50	07:57 17:01	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	19:05 (5) 21:21	05:47 21:57	05:18 21:51	06:19 21:04	07:09 20:00	19:01 18:48	07:58 17:01	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	19:04 (5) 21:23	05:46 21:57	05:18 21:50	06:20 21:02	07:11 20:00	19:01 18:46	07:59 17:01	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 17:12 (8)	06:41 18:42	19:04 (5) 21:24	05:44 21:58	05:18 21:49	06:22 21:00	07:12 20:00	19:01 18:43	07:59 17:01	08:38 16:27
17	08:37 16:58	07:50 17:54	06:51 17:14 (8)	06:39 18:44	19:04 (5) 21:26	05:43 21:58	05:18 21:48	06:24 20:58	07:14 20:00	19:01 18:41	07:59 17:01	08:39 16:27
18	08:36 17:00	07:48 17:56	06:50 17:15 (8)	06:37 18:46	19:04 (5) 21:27	05:41 21:59	05:18 21:47	06:25 20:56	07:15 20:00	19:01 18:39	07:59 17:01	08:40 16:27
19	08:35 17:02	07:46 17:58	06:50 17:16 (8)	06:34 18:47	19:04 (5) 21:29	05:40 21:59	05:18 21:46	06:27 20:54	07:17 20:00	19:01 18:37	07:59 17:01	08:40 16:28
20	08:34 17:03	07:44 18:00	06:50 17:16 (8)	06:32 18:49	19:04 (5) 21:30	05:38 22:00	05:18 21:45	06:29 20:52	07:19 20:00	19:01 18:35	07:59 17:01	08:41 16:28
21	08:33 17:05	07:42 18:01	06:50 17:16 (8)	06:30 18:51	19:05 (5) 21:32	05:37 22:00	05:18 21:44	06:30 20:50	07:20 20:00	19:01 18:33	07:59 17:01	08:42 16:28
22	08:31 17:07	07:40 18:03	06:50 17:17 (8)	06:28 18:53	19:05 (5) 21:33	05:36 22:00	05:18 21:42	06:32 20:48	07:22 20:00	19:01 18:31	07:59 17:01	08:42 16:29
23	08:30 17:08	07:38 18:05	06:50 17:15 (8)	06:26 18:54	19:06 (5) 21:34	05:35 22:00	05:19 21:41	06:33 20:46	07:23 20:00	19:01 18:31	07:59 17:01	08:43 16:29
24	08:29 17:10	07:35 18:07	06:50 17:15 (8)	06:24 18:56	19:07 (5) 21:36	05:33 22:00	05:19 21:40	06:35 20:44	07:25 20:00	19:01 18:31	07:59 17:01	08:43 16:30
25	08:28 17:12	07:33 18:09	06:50 17:14 (8)	06:22 18:58	19:08 (5) 21:37	05:32 22:00	05:19 21:38	06:37 20:41	07:27 20:00	19:01 18:31	07:59 17:01	08:43 16:31
26	08:26 17:14	07:31 18:10	06:50 17:13 (8)	06:20 18:59	19:10 (5) 21:38	05:31 22:00	05:20 21:37	06:38 20:39	07:28 20:00	19:01 18:31	07:59 17:01	08:44 16:31
27	08:25 17:15	07:29 18:12	06:50 17:11 (8)	06:18 19:01	19:13 (5) 21:40	05:30 22:00	05:20 21:36	06:40 20:37	07:30 20:00	19:01 18:31	07:59 17:01	08:44 16:32
28	08:24 17:17	07:27 18:14	06:50 19:03	06:16 20:55	19:21 (5) 21:41	05:29 22:00	05:20 21:34	06:41 20:35	07:32 20:00	19:01 18:31	07:59 17:01	08:44 16:33
29	08:22 17:19	07:22 18:14	06:50 19:03	06:14 20:57	19:22 (5) 21:42	05:28 22:00	05:21 21:33	06:43 20:33	07:33 20:00	19:01 18:31	07:59 17:01	08:44 16:34
30	08:21 17:21	07:21 18:14	06:50 19:03	06:12 20:58	19:23 (5) 21:43	05:27 22:00	05:22 21:31	06:45 20:31	07:35 20:00	19:01 18:31	07:59 17:01	08:45 16:35
31	08:19 17:23	07:17 18:14	06:50 19:03	07:17 20:08	19:24 (5) 21:44	05:26 22:00	05:27 21:29	06:46 20:28	07:36 20:00	19:01 18:31	07:59 17:01	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case		183						393	75		189	
Sun reduction		0.21		0.35				0.30	0.28		0.24	
Oper. time red.		1.00		1.00				1.00	1.00		1.00	
Wind dir. red.		0.70		0.64				0.64	0.64		0.70	
Total reduction		0.14		0.23				0.19	0.18		0.17	
Total, real		26		104				74	14		31	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** T - H20**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	19:03 (5) 19:18 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	18:54 (5) 19:20 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	19:01 (5) 19:20 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	18:52 (5) 19:20 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	19:00 (5) 19:21 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	18:52 (5) 19:20 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:58 (5) 19:21 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18:51 (5) 19:19 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	18:57 (5) 19:22 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18:52 (5) 19:19 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	18:56 (5) 19:22 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	18:52 (5) 19:19 (5)	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	18:56 (5) 19:23 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:12	18:52 (5) 19:17 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	18:54 (5) 19:22 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:53 (5) 19:16 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	18:54 (5) 19:22 (5)	05:55 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	18:53 (5) 19:14 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	18:54 (5) 19:22 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	18:54 (5) 19:13 (5)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	18:55 (5) 19:21 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:55 (5) 19:10 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	18:55 (5) 19:21 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:58 (5) 19:07 (5)	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	18:55 (5) 19:19 (5)	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:57 18:50	07:57 16:51	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	18:56 (5) 19:18 (5)	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:58 18:48	07:58 16:50	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	18:57 (5) 19:17 (5)	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	18:55 (5) 19:10 (5)	07:53 18:54	07:48 16:54	08:33 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	18:58 (5) 19:15 (5)	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:54 (5) 19:13 (5)	07:52 18:43	07:47 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	19:00 (5) 19:13 (5)	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:54 (5) 19:13 (5)	07:53 18:41	07:48 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:06 (5) 19:07 (5)	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:55 (5) 18:39	07:54 16:44	07:49 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:07 (5) 21:29	05:40 21:59	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:56 (5) 18:37	07:55 16:43	07:50 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:08 (5) 21:30	05:38 22:00	05:18 21:45	05:41 21:45	06:29 20:52	07:19 19:42	18:57 (5) 18:35	07:56 16:42	07:51 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:09 (5) 21:32	05:37 22:00	05:18 21:44	05:43 21:44	06:30 20:50	07:20 19:40	18:58 (5) 18:33	07:57 16:40	07:52 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	19:10 (5) 21:33	05:36 22:00	05:18 21:42	05:44 21:42	06:32 20:48	07:22 19:38	18:59 (5) 18:31	07:58 16:39	07:53 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	19:11 (5) 21:34	05:35 22:00	05:19 21:41	05:45 21:41	06:33 20:46	07:23 19:35	18:59 (5) 18:29	07:59 16:38	07:54 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	19:12 (5) 21:36	05:33 22:00	05:19 21:40	05:47 21:40	06:35 20:44	07:25 19:33	18:59 (5) 18:27	08:00 16:37	07:55 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:13 (5) 21:37	05:32 22:00	05:19 21:38	05:48 21:41	06:37 20:41	19:07 (5) 19:11 (5)	18:59 (5) 19:03 (5)	07:27 17:25	07:18 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	19:14 (5) 21:38	05:31 22:00	05:20 21:37	05:50 21:39	06:38 20:39	19:08 (5) 19:16 (5)	18:59 (5) 19:00 (5)	07:28 17:23	07:19 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	19:15 (5) 21:40	05:30 22:00	05:21 21:36	05:51 21:37	06:40 20:37	19:09 (5) 19:17 (5)	18:59 (5) 18:58 (5)	07:30 17:21	07:21 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:16 (5) 21:41	05:29 22:00	05:20 21:34	05:53 21:35	06:41 20:35	19:10 (5) 19:18 (5)	18:59 (5) 18:56 (5)	07:32 17:19	07:23 16:33	08:44 16:33
29	08:22 17:19	07:21 18:19	06:21 19:04	06:14 20:57	19:17 (5) 21:42	05:28 22:00	05:21 21:33	05:54 21:33	06:43 20:33	19:11 (5) 19:19 (5)	18:59 (5) 18:56 (5)	07:33 17:17	07:25 16:33	08:44 16:34
30	08:21 17:21	07:19 18:21	06:20 19:06	06:12 20:58	19:18 (5) 21:43	05:27 22:00	05:22 21:31	05:56 21:31	06:45 20:31	19:12 (5) 19:20 (5)	18:59 (5) 18:54 (5)	07:35 17:15	07:27 16:32	08:45 16:35
31	08:19 17:23	07:17 18:23	06:19 19:08	06:11 19:07 (5) 19:14 (5)	19:19 (5) 21:44	05:26 21:44	05:27 21:29	05:57 21:29	06:46 20:28	19:13 (5) 19:20 (5)	18:59 (5) 18:54 (5)	07:36 17:13	07:28 16:32	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	276	267	244		
Total, worst case			7	389					127	276				
Sun reduction			0.24	0.35					0.30	0.28				
Oper. time red.			1.00	1.00					1.00	1.00				
Wind dir. red.			0.65	0.65					0.65	0.65				
Total reduction			0.16	0.23					0.19	0.18				
Total, real			1	90					25	51				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** U - H21**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April		May	June	July	August		September		October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10		19:13 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28		06:48 20:26	19:00 (5) 19:23 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	4	19:09 (5) 21:02	06:08 21:47	05:24 21:59	05:23 21:26	23	06:50 20:24	18:58 (5) 19:22 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	12	19:06 (5) 21:03	06:06 21:48	05:23 21:59	05:24 21:24	24	06:51 20:22	18:58 (5) 19:22 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	17	19:04 (5) 21:05	06:04 21:49	05:23 21:58	05:24 21:23	24	06:53 20:19	18:57 (5) 19:22 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	19	19:03 (5) 21:07	06:03 21:50	05:22 21:58	05:25 21:21	25	06:54 20:17	18:58 (5) 19:21 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	21	19:02 (5) 21:08	06:01 21:51	05:21 21:57	05:26 21:19	23	06:56 20:15	18:58 (5) 19:21 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	23	19:02 (5) 21:10	05:59 21:52	05:21 21:57	06:08 21:17	23	06:58 20:12	18:58 (5) 19:19 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	24	19:00 (5) 21:12	05:57 21:53	05:20 21:56	06:09 21:16	21	06:59 20:10	18:59 (5) 19:19 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	24	19:00 (5) 21:13	05:55 21:53	05:20 21:56	06:11 21:14	20	07:01 20:08	19:00 (5) 19:16 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	24	19:00 (5) 21:15	05:54 21:54	05:19 21:55	06:13 21:12	16	07:02 20:06	19:01 (5) 19:14 (5)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	23	19:01 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10	13	07:04 20:03	19:04 (5) 19:10 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	22	19:01 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08	6	07:06 20:01	19:04 (5) 18:52	07:55 16:53	07:50 16:27	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	20	19:01 (5) 21:20	05:49 21:56	05:18 21:52	06:17 21:06		07:07 19:59	19:05 (5) 18:50	07:57 16:51	07:51 16:27	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	18	19:02 (5) 21:21	05:47 21:57	05:18 21:51	06:19 21:04		07:09 19:56	19:06 (5) 18:48	07:58 16:50	07:53 16:27	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	16	19:03 (5) 21:23	05:46 21:57	05:18 21:50	06:20 21:02		07:11 19:54	19:07 (5) 18:46	08:00 16:48	07:55 16:27	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35		19:05 (5) 21:24	05:44 21:58	05:18 21:49	06:22 21:00		07:12 19:52	19:08 (5) 18:43	08:02 16:47	07:57 16:27	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	11	19:16 (5) 21:26	05:43 21:58	05:18 21:48	06:24 20:58		07:14 19:49	19:09 (5) 18:41	08:04 16:45	07:58 16:27	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38		05:41 21:27	05:18 21:59	05:18 21:47	06:25 20:56		07:15 19:47	19:10 (5) 18:39	08:05 16:44	08:00 16:27	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54		07:17 19:45	19:11 (5) 18:37	08:07 16:43	08:02 16:28	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52		07:19 19:42	19:12 (5) 18:35	08:09 16:42	08:03 16:28	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43		05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50		07:20 19:40	19:13 (5) 18:33	08:11 16:40	08:05 16:28	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48		07:22 19:38	19:14 (5) 18:31	08:12 16:39	08:07 16:29	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47		05:35 21:34	05:19 22:00	05:45 21:41	06:33 20:46		07:23 19:35	19:15 (5) 18:29	08:14 16:38	08:08 16:29	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44		07:25 19:33	19:16 (5) 18:27	08:16 16:37	08:10 16:30	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41		07:27 19:31	19:17 (5) 18:25	08:18 16:36	08:12 16:31	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39		07:28 19:28	19:18 (5) 19:07 (5)	07:19 16:35	08:13 16:31	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	3	07:30 19:26	19:19 (5) 19:05 (5)	07:30 16:34	08:15 16:32	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	11	07:32 19:24	19:20 (5) 19:03 (5)	07:32 16:33	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:00	06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	16	07:33 19:22	19:21 (5) 19:02 (5)	07:33 16:34	08:18 16:34	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58		05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	18	07:35 19:19	19:22 (5) 19:00 (5)	07:35 16:35	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:11 19:08	06:11 20:58		05:26 21:44	05:22 22:00	05:57 21:29	06:46 20:28	20	07:36 19:22 (5)	19:23 (5) 19:01 (5)	07:36 16:36	08:20 16:33	08:45 16:36
Potential sun hours	260	278	367	416		485	498	501	453	22	381	332	267		244
Total, worst case				301					90		218				
Sun reduction				0.35					0.30		0.28				
Oper. time red.				1.00					1.00		1.00				
Wind dir. red.				0.65					0.65		0.65				
Total reduction				0.23					0.19		0.18				
Total, real				69					17		40				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** V - H22**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

		January	February	March	April		May	June	July	August		September		October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10			06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28		06:48 20:26	19:03 (5) 19:24 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	3	19:16 (5) 19:19 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26		06:50 20:24	19:02 (5) 19:24 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	12	19:11 (5) 19:23 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24		06:51 20:22	19:02 (5) 19:24 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15		19:08 (5) 19:24 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23		06:53 20:19	19:01 (5) 19:23 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	18	19:07 (5) 19:25 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21		06:54 20:17	19:01 (5) 19:23 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	20	19:06 (5) 19:26 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19		06:56 20:15	19:02 (5) 19:22 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20		19:05 (5) 19:27 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17		06:58 20:12	19:02 (5) 19:20 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	22	19:04 (5) 19:26 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16		06:59 20:10	19:03 (5) 19:19 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	22	19:04 (5) 19:26 (5)	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14		07:01 20:08	19:04 (5) 19:16 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	22	19:04 (5) 19:26 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12		07:02 20:06	19:08 (5) 19:13 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	22	19:04 (5) 19:26 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10		07:04 20:03	19:04 (5) 19:09 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	21	19:04 (5) 19:25 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08		07:06 20:01	19:05 (5) 18:52	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19	19:04 (5) 19:23 (5)	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06		07:07 19:59	19:06 (5) 18:50	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	17	19:05 (5) 19:22 (5)	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04		07:09 19:56	19:07 (5) 18:48	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	14	19:06 (5) 19:20 (5)	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02		07:11 19:54	19:08 (5) 18:45	07:55 18:45	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	10	19:08 (5) 19:18 (5)	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00		07:12 19:52	19:09 (5) 18:43	07:57 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37		05:43 21:26	05:18 21:58	05:38 21:48	05:38 21:48	06:24 20:58		07:14 19:49	19:10 (5) 18:41	07:58 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38		05:41 21:27	05:18 21:59	05:39 21:47	05:39 21:47	06:25 20:56		07:15 19:47	19:11 (5) 18:39	07:57 18:39	07:57 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	05:40 21:46	06:27 20:54		07:17 19:45	19:12 (5) 18:37	07:58 18:37	07:58 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	05:41 21:45	06:29 20:52		07:19 19:42	19:13 (5) 18:35	07:59 18:35	07:59 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43		05:37 21:32	05:18 22:00	05:43 21:44	05:43 21:44	06:30 20:50		07:20 19:40	19:14 (5) 18:33	07:59 18:33	07:59 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	05:44 21:42	06:32 20:48		07:22 19:38	19:15 (5) 18:31	07:59 18:31	07:59 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47		05:35 21:34	05:18 22:00	05:45 21:41	05:45 21:41	06:33 20:46		07:23 19:35	19:16 (5) 18:29	07:59 18:29	07:59 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	05:47 21:40	06:35 20:44		07:25 19:33	19:17 (5) 18:27	07:59 18:27	07:59 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	05:48 21:38	06:37 20:41		07:27 19:31	19:18 (5) 17:25	07:59 17:25	07:59 16:36	08:44 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	05:50 21:37	06:38 20:39		07:28 19:28	19:19 (5) 17:23	07:59 17:23	07:59 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	05:51 21:36	06:40 20:37	10	07:30 19:26	19:20 (5) 19:08 (5)	07:30 19:26	07:30 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	05:53 21:34	06:41 20:35	14	07:32 19:24	19:22 (5) 19:06 (5)	07:32 19:24	07:32 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:00	06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	05:54 21:33	06:43 20:33	17	07:33 19:21	19:23 (5) 19:07 (5)	07:33 19:21	07:33 16:33	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58		05:27 21:43	05:22 22:00	05:55 21:31	05:55 21:31	06:45 20:31	19	07:35 19:19	19:05 (5) 19:24 (5)	07:35 19:19	07:35 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:11 19:08	06:11 20:58		05:26 21:44	05:22 22:00	05:57 21:29	05:57 21:29	06:46 20:28	21	07:36 19:24 (5)	19:06 (5) 19:09 (5)	07:36 19:24	07:36 16:32	08:45 16:36
Potential sun hours	260	278	367	416	260	485	498	501	453	381	381	180	332	267	244	
Total, worst case					0.35					0.30		0.28				
Sun reduction					1.00					1.00		1.00				
Oper. time red.					0.65					0.65		0.65				
Wind dir. red.					0.23					0.19		0.18				
Total reduction					60					16		33				
Total, real																

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** W - H23**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	19:02 (5) 19:21 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	19:02 (5) 19:22 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:05 (5) 19:10 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	19:01 (5) 19:22 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	19:02 (5) 19:13 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	19:00 (5) 19:21 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18:59 (5) 19:14 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	19:01 (5) 19:20 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18:58 (5) 19:15 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	19:01 (5) 19:20 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	18:57 (5) 19:16 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	19:02 (5) 19:19 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	18:56 (5) 19:16 (5)	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:02 (5) 19:17 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:56 (5) 19:16 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:04 (5) 19:15 (5)	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	18:55 (5) 19:15 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:07 (5) 19:12 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	18:55 (5) 19:15 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:12 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:54 (5) 19:13 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:15 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:55 (5) 19:13 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19:16 (5)	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:55 (5) 19:11 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	19:17 (5)	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:57 (5) 19:09 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	19:18 (5)	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	19:01 (5) 19:05 (5)	08:00 18:45	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	19:19 (5)	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:02 18:43	07:57 16:47	08:38 16:27	
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	19:20 (5)	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:04 18:41	07:58 16:45	08:39 16:27	
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:21 (5)	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:05 18:39	08:00 16:44	08:40 16:27	
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:22 (5)	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:07 18:37	08:02 16:43	08:40 16:28	
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:23 (5)	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	18:09 18:35	08:03 16:42	08:41 16:28	
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:24 (5)	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	18:11 18:33	08:05 16:40	08:42 16:28	
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	19:25 (5)	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	18:12 18:31	08:07 16:39	08:42 16:29	
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	19:26 (5)	05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	18:14 18:29	08:08 16:38	08:43 16:29	
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	19:27 (5)	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	18:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:28 (5)	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	18:18 17:25	08:12 16:36	08:43 16:31	
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	19:29 (5)	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28	18:19 17:23	08:13 16:35	08:44 16:31	
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	19:30 (5)	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	18:21 17:21	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03	18:12 (5) 18:13 (5)	19:31 (5)	06:16 20:55	05:29 22:00	05:53 21:34	06:41 20:35	07:32 19:24	17:23 17:19	08:16 16:33	08:44 16:33	
29	08:22 17:19	07:21 18:04	06:14 18:57	19:07 (5) 19:18 (5)	19:32 (5)	06:14 20:57	05:28 22:00	05:54 21:33	06:43 20:33	07:33 19:21	17:25 17:17	08:18 16:33	08:44 16:34	
30	08:21 17:21	07:19 18:06	06:12 19:05 (5)	19:05 (5) 19:20 (5)	19:33 (5)	06:12 20:58	05:27 22:00	05:55 21:31	06:45 20:31	07:35 19:19	17:26 17:15	08:19 16:32	08:45 16:35	
31	08:19 17:23	07:17 20:08	19:03 (5) 19:20 (5)	19:03 (5) 19:20 (5)	19:34 (5)	06:13 20:59	05:26 21:44	05:57 21:29	06:46 20:28	19:19 17:13	17:28 17:13	16:32 16:36	08:45 16:36	
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244		
Total, worst case			44	167						216				
Sun reduction			0.24	0.35						0.28				
Oper. time red.			1.00	1.00						1.00				
Wind dir. red.			0.65	0.65						0.65				
Total reduction			0.16	0.23						0.19				
Total, real			7	39						40				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** X - H24**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August		September		October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16		07:14 20:09	15	19:07 (5) 19:22 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	11	19:05 (5) 19:16 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18		07:12 20:11	17	19:06 (5) 19:23 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	14	19:03 (5) 19:17 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19		07:10 20:13	18	19:05 (5) 19:23 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	17	19:01 (5) 19:18 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21		07:08 20:15	20	19:03 (5) 19:23 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18	19:00 (5) 19:18 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23		07:05 20:16	20	19:03 (5) 19:23 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	20	18:59 (5) 19:19 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	20	19:03 (5) 19:23 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	20	18:59 (5) 19:19 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26		07:01 20:20	20	19:03 (5) 19:23 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	20	18:58 (5) 19:18 (5)	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28		06:59 20:21	18	19:03 (5) 19:21 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	20	18:58 (5) 19:18 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30		06:56 20:23	17	19:03 (5) 19:20 (5)	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	19	18:58 (5) 19:17 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25	14	19:05 (5) 19:19 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	17	18:59 (5) 19:16 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34		06:52 20:26	11	19:06 (5) 19:17 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	15	18:59 (5) 19:14 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35		06:50 20:28	3	19:10 (5) 19:13 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	11	19:01 (5) 19:12 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37		06:47 20:30		05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	06:17 21:06	07:07 19:59	5	19:03 (5) 19:08 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39		06:45 20:32		05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	06:19 21:04	07:09 19:56		07:58 18:48	07:57 16:50	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40		06:43 20:33		05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	06:20 21:02	07:11 19:54		08:00 18:45	07:55 16:48	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42		06:41 20:35		05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	06:22 21:00	07:12 19:52		08:02 18:43	07:57 16:47	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44		06:39 20:37		05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	06:24 20:58	07:14 19:49		08:04 18:41	07:58 16:45	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46		06:37 20:38		05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	06:25 20:56	07:15 19:47		08:05 18:39	08:00 16:44	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47		06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	06:27 20:54	07:17 19:45		08:07 18:37	08:02 16:43	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49		06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	06:29 20:52	07:19 19:42		08:09 18:35	08:03 16:42	08:03 16:42	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51		06:30 20:43		05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	06:30 20:50	07:20 19:40		08:11 18:33	08:05 16:40	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52		06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	06:32 20:48	07:22 19:38		08:12 18:31	08:07 16:39	08:07 16:39	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54		06:26 20:47		05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	06:33 20:46	07:23 19:35		08:14 18:29	08:08 16:38	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56		06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	06:35 20:44	07:25 19:33		08:16 18:27	08:10 16:37	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58		06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	06:37 20:41	07:27 19:31		08:18 17:25	08:12 16:36	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59		06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	06:38 20:39	07:28 19:28		07:19 17:23	08:13 16:35	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01		06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	06:40 20:37	07:30 19:26		07:21 17:21	08:15 16:34	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03		06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	06:41 20:35	07:32 19:24		07:23 17:19	08:16 16:33	08:16 16:33	08:44 16:33
29	08:22 17:19		07:21 20:04		06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	06:43 20:33	07:33 19:21		07:25 17:17	08:18 16:33	08:18 16:33	08:44 16:34
30	08:21 17:21		07:19 20:06	19:13 (5) 4	06:12 20:58		05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	06:45 20:31	07:35 19:19		07:26 17:15	08:19 16:32	08:19 16:32	08:45 16:35
31	08:19 17:23		07:17 20:08	19:09 (5) 11	19:20 (5)		05:26 21:44		05:57 21:29	06:46 20:28	19:09 (5) 19:13 (5)			07:28 17:13			08:45 16:36
Potential sun hours	260	278	367		416		485		498	501	453	381		332	267	244	
Total, worst case			15		193						4	207					
Sun reduction			0.24		0.35						0.30	0.28					
Oper. time red.			1.00		1.00						1.00	1.00					
Wind dir. red.			0.65		0.65						0.65	0.65					
Total reduction			0.16		0.23						0.19	0.18					
Total, real			2		45						1	38					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** Y - H25**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45	08:18	07:25	07:14	19:14 (5)	06:10	05:25	05:22	05:58	06:48	19:08 (5)	07:37	07:30	08:21
2	16:37	17:24	18:16	20:09	8	19:22 (5)	21:00	21:46	21:59	21:28	14	19:22 (5)	19:17	17:11
3	08:44	08:16	07:23	07:12	13	19:12 (5)	06:08	05:24	05:23	06:00	16	19:06 (5)	07:38	08:22
4	16:38	17:26	18:18	20:11	19:25 (5)	21:02	21:47	21:59	21:26	20:24	19:22 (5)	19:15	17:09	16:30
5	08:44	08:15	07:20	07:10	19:10 (5)	06:06	05:23	05:24	06:02	06:51	19:05 (5)	07:40	07:34	08:24
6	16:39	17:28	18:19	20:13	16	19:26 (5)	21:03	21:48	21:59	21:24	18	19:23 (5)	19:12	17:07
7	08:44	08:13	07:18	07:08	19:08 (5)	06:04	05:23	05:24	06:03	06:53	19:04 (5)	07:42	07:35	08:25
8	16:40	17:30	18:21	20:15	18	19:26 (5)	21:05	21:49	21:58	21:23	18	19:22 (5)	19:10	17:06
9	08:44	08:12	07:16	07:05	19:08 (5)	06:03	05:22	05:25	06:05	06:54	19:03 (5)	07:43	07:37	08:26
10	16:41	17:32	18:23	20:16	18	19:26 (5)	21:07	21:50	21:58	21:21	20	19:23 (5)	19:08	17:04
11	08:44	08:10	07:14	07:03	19:07 (5)	06:01	05:21	05:26	06:06	06:56	19:04 (5)	07:45	07:39	08:28
12	16:43	17:34	18:25	20:18	20	19:27 (5)	21:08	21:51	21:57	21:19	19	19:23 (5)	19:05	17:02
13	08:43	08:08	07:12	07:01	19:07 (5)	05:59	05:21	05:27	06:08	06:58	19:03 (5)	07:47	07:41	08:29
14	16:44	17:36	18:26	20:20	20	19:27 (5)	21:10	21:52	21:57	21:17	19	19:22 (5)	19:03	17:00
15	08:43	08:06	07:09	06:59	19:06 (5)	05:57	05:20	05:28	06:09	06:59	19:03 (5)	07:48	07:43	08:30
16	16:45	17:37	18:28	20:21	19	19:25 (5)	21:12	21:53	21:56	21:16	18	19:21 (5)	19:01	16:59
17	08:42	08:05	07:07	06:56	19:07 (5)	05:55	05:20	05:29	06:11	07:01	19:03 (5)	07:50	07:44	08:31
18	16:47	17:39	18:30	20:23	18	19:25 (5)	21:13	21:53	21:55	21:14	16	19:19 (5)	18:59	16:57
19	08:42	08:03	07:05	06:54	19:08 (5)	05:54	05:19	05:30	06:12	07:02	16	19:05 (5)	18:59	16:56
20	16:48	17:41	18:32	20:25	16	19:24 (5)	21:15	21:54	21:55	21:12	13	19:18 (5)	18:56	16:56
21	08:41	08:01	07:03	06:52	19:09 (5)	05:52	05:19	05:31	06:14	07:04	19	19:06 (5)	07:53	07:48
22	16:49	17:43	18:34	20:26	14	19:23 (5)	21:16	21:55	21:54	21:10	9	19:15 (5)	18:54	16:54
23	08:41	07:59	07:00	06:50	19:10 (5)	05:50	05:19	05:32	06:16	07:06			07:55	07:50
24	16:51	17:45	18:35	20:28	11	19:21 (5)	21:18	21:56	21:53	21:08			18:52	16:52
25	08:40	07:57	06:58	06:47	19:13 (5)	05:49	05:18	05:33	06:17	07:07			07:57	07:51
26	16:52	17:47	18:37	20:30	3	19:16 (5)	21:20	21:56	21:52	21:06			19:59	16:51
27	08:39	07:55	06:56	06:45		05:47	05:18	05:34	06:19	07:09			07:58	07:53
28	16:54	17:48	18:39	20:32		21:21	21:57	21:51	21:04	19:56			18:48	16:50
29	08:38	07:54	06:54	06:43		05:46	05:18	05:35	06:20	07:10			08:00	07:55
30	16:55	17:50	18:40	20:33		21:23	21:57	21:50	21:02	19:54			18:45	16:48
31	08:37	07:52	06:51	06:41		05:44	05:18	05:36	06:22	07:12			08:02	07:57
32	16:57	17:52	18:42	20:35		21:24	21:58	21:49	21:00	19:52			18:43	16:47
33	08:37	07:50	06:49	06:39		05:43	05:18	05:38	06:24	07:14			08:04	07:58
34	16:58	17:54	18:44	20:37		21:26	21:58	21:48	20:58	19:49			18:41	16:45
35	08:36	07:48	06:47	06:37		05:41	05:18	05:39	06:25	07:15			08:05	08:00
36	17:00	17:56	18:46	20:38		21:27	21:59	21:47	20:56	19:47			18:39	16:44
37	08:35	07:46	06:44	06:34		05:40	05:18	05:40	06:27	07:17			08:07	08:02
38	17:02	17:58	18:47	20:40		21:29	21:59	21:46	20:54	19:45			18:37	16:43
39	08:34	07:44	06:42	06:32		05:38	05:18	05:41	06:29	07:19			08:09	08:03
40	17:03	18:00	18:49	20:42		21:30	21:59	21:45	20:52	19:42			18:35	16:42
41	08:32	07:42	06:40	06:30		05:37	05:18	05:43	06:30	07:20			08:11	08:05
42	17:05	18:01	18:51	20:43		21:31	22:00	21:44	20:50	19:40			18:33	16:40
43	08:31	07:40	06:37	06:28		05:36	05:18	05:44	06:32	07:22			08:12	08:07
44	17:07	18:03	18:52	20:45		21:33	22:00	21:42	20:48	19:38			18:31	16:39
45	08:30	07:37	06:35	06:26		05:35	05:18	05:45	06:33	07:23			08:14	08:08
46	17:08	18:05	18:54	20:47		21:34	22:00	21:41	20:46	19:35			18:29	16:38
47	08:29	07:35	06:33	06:24		05:33	05:19	05:47	06:35	07:25			08:16	08:10
48	17:10	18:07	18:56	20:48		21:36	22:00	21:40	20:44	19:33			18:27	16:37
49	08:28	07:33	06:31	06:22		05:32	05:19	05:48	06:37	07:27			07:18	08:12
50	17:12	18:09	18:58	20:50		21:37	22:00	21:38	20:41	19:31			17:25	16:36
51	08:26	07:31	06:28	06:20		05:31	05:20	05:50	06:38	07:28			07:19	08:13
52	17:14	18:10	18:59	20:52		21:38	22:00	21:37	20:39	19:28			17:23	16:35
53	08:25	07:29	06:26	06:18		05:30	05:20	05:51	06:40	07:30			07:21	08:15
54	17:15	18:12	19:01	20:53		21:40	22:00	21:36	20:37	19:26			17:21	16:34
55	08:24	07:27	06:24	06:16		05:29	05:20	05:53	06:41	07:32			07:23	08:16
56	17:17	18:14	19:03	20:55		21:41	22:00	21:34	20:35	19:24			17:19	16:33
57	08:22		07:21	06:14		05:28	05:21	05:54	06:43	07:33			07:25	08:18
58	17:19		20:04	20:57		21:42	22:00	21:33	20:33	19:21			17:17	16:33
59	08:21		07:19	06:12		05:27	05:22	05:55	06:45	07:35			07:26	08:19
60	17:21		20:06	20:58		21:43	22:00	21:31	20:31	19:19			17:15	16:32
61	08:19		07:17			05:26		05:57	06:46				07:28	08:45
62	17:23		20:08			21:44		21:29	20:28				17:13	16:36
Potential sun hours	260	278	367	416		485	498	501	453	381		332	267	244
Total, worst case				194						16		180		
Sun reduction				0.35						0.30		0.28		
Oper. time red.				1.00						1.00		1.00		
Wind dir. red.				0.65						0.65		0.65		
Total reduction				0.23						0.19		0.18		
Total, real				45						3		33		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** Z - H26**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AA - H27

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	07:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	07:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	07:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:30	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AB - H28

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

Shadow receptor: AC - H29

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December			
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	18 19:19 (7)	05:25 21:46	05:22 21:59	05:59 21:28	19:05 (7) 19:36 (7)	06:48 20:26	15 19:16 (6) 19:31 (6)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	19 19:01 (7)	05:24 21:47	05:23 21:59	06:00 21:26	19:06 (7) 19:36 (7)	06:50 20:24	11 19:17 (6) 19:28 (6)	07:38 19:15	07:32 17:09	08:22 16:31
3	08:44 16:39	08:15 17:28	07:20 18:20	07:10 20:13	06:06 21:03	23 18:59 (7)	05:24 21:48	05:24 21:59	06:02 21:25	19:05 (7) 19:35 (7)	06:51 20:22	4 19:21 (6) 19:25 (6)	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	25 18:58 (7)	05:23 21:49	05:24 21:58	06:03 21:23	19:06 (7) 19:36 (7)	06:53 20:19		07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:42	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	26 18:57 (7)	05:22 21:50	05:25 21:58	06:05 21:21	19:06 (7) 19:35 (7)	06:54 20:17		07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	27 18:57 (7)	05:22 21:51	05:26 21:57	06:06 21:19	19:05 (7) 19:34 (7)	06:56 20:15		07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	29 18:56 (7)	05:21 21:52	05:27 21:57	06:08 21:18	19:06 (7) 19:34 (7)	06:58 20:13		07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:38	07:09 18:28	06:59 20:21	05:57 21:12	30 18:55 (7)	05:20 21:53	05:28 21:56	06:09 21:16	19:06 (7) 19:32 (7)	06:59 20:10		07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:23 (6) 19:27 (6)	30 18:55 (7)	05:20 21:53	05:29 21:56	06:11 21:14	19:08 (7) 19:32 (7)	07:01 20:08		07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:19 (6) 19:30 (6)	30 18:55 (7)	05:20 21:54	05:30 21:55	06:13 21:12	19:08 (7) 19:30 (7)	07:03 20:06		07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	19:17 (6) 19:32 (6)	30 18:55 (7)	05:19 21:55	05:31 21:54	06:14 21:10	19:10 (7) 19:29 (7)	07:04 20:03		07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:16 (6) 19:33 (6)	31 18:55 (7)	05:19 21:18	05:32 21:56	06:16 21:08	19:10 (7) 19:27 (7)	07:06 20:01		07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:50	07:57 17:52	06:58 18:37	06:48 20:30	19:14 (6) 19:33 (6)	31 18:55 (7)	05:19 21:20	05:33 21:52	06:17 21:06	19:13 (7) 19:25 (7)	07:07 20:00		07:57 18:50	16:51	08:35
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	19:14 (6) 19:33 (6)	31 18:55 (7)	05:18 21:21	05:34 21:51	06:19 21:04	19:25 (7) 19:26	06:59 19:56		07:59 18:48	16:53	08:36
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	19:13 (6) 19:33 (6)	29 18:56 (7)	05:18 21:57	05:35 21:50	19:23 (7) 19:15 (7)	19:23 (7) 19:15 (7)	06:21 06:22		07:11 07:12	16:58	08:37
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	19:13 (6) 19:33 (6)	29 18:56 (7)	05:18 21:58	05:37 21:49	19:15 (7) 19:26 (7)	19:15 (7) 21:00	06:22 19:52		07:12 18:43	16:58	08:38
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	19:13 (6) 19:33 (6)	28 18:56 (7)	05:18 21:58	05:38 21:48	19:15 (7) 19:28 (7)	19:15 (7) 20:58	06:24 19:49		07:14 18:41	16:58	08:39
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:14 (6) 19:32 (6)	27 18:57 (7)	05:18 21:59	05:39 21:47	19:13 (7) 19:29 (7)	19:13 (7) 20:56	06:25 19:47		07:15 18:39	16:58	08:40
19	08:35 17:02	07:46 17:58	06:44 18:47	06:35 20:40	19:14 (6) 19:31 (6)	26 18:58 (7)	05:18 21:59	05:40 21:46	19:12 (7) 19:10 (7)	19:12 (7) 20:57	07:17 06:24		07:17 18:37	16:58	08:40
20	08:34 17:03	07:47 18:00	06:42 18:49	06:32 20:42	19:15 (6) 19:30 (6)	26 18:58 (7)	05:18 21:30	05:42 21:45	19:11 (7) 20:31 (7)	19:11 (7) 20:52	06:27 19:42		19:45 18:35	16:43	08:41
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:16 (6) 19:29 (6)	25 18:59 (7)	05:18 21:32	05:43 21:44	19:10 (7) 19:32 (7)	19:10 (7) 20:50	07:20 19:32	9 19:23 (6)	07:20 19:40	16:42	08:42
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	19:18 (6) 19:26 (6)	24 19:00 (7)	05:18 21:33	05:44 21:42	19:10 (7) 19:33 (7)	19:10 (7) 20:48	07:22 19:38		19:21 (6) 19:34 (6)	16:42	08:42
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	22 19:01 (7)	05:19 21:34	05:46 21:41	19:09 (7) 19:33 (7)	19:09 (7) 20:46	07:24 19:35		19:19 (6) 19:34 (6)	16:42	08:43
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	21 19:02 (7)	05:19 21:37	05:47 21:40	19:08 (7) 19:34 (7)	19:08 (7) 20:44	07:25 19:33	15 19:18 (6)	19:35 (6) 19:16 (6)	16:38	08:43
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	19 19:03 (7)	05:19 21:40	05:48 21:38	19:08 (7) 19:35 (7)	19:08 (7) 20:42	07:27 19:35	17 19:16 (6)	19:33 (6) 19:16 (6)	16:30	08:43
26	08:26 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	15 19:04 (7)	05:20 21:37	05:50 21:37	19:07 (7) 19:35 (7)	19:07 (7) 20:39	07:28 19:29	20 19:16 (6)	19:31 (6) 19:15 (6)	16:31	08:44
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	12 19:06 (7)	05:20 21:40	05:51 21:36	19:06 (7) 19:35 (7)	19:06 (7) 20:37	07:30 19:35	20 19:15 (6)	19:30 (6) 19:16 (6)	16:32	08:44
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	8 19:08 (7)	05:21 21:42	05:53 21:34	19:07 (7) 19:36 (7)	19:07 (7) 20:35	07:32 19:36	20 19:15 (6)	19:32 (6) 19:16 (6)	16:33	08:44
29	08:22 17:19	07:21 20:04	06:14 20:57	06:04 20:57	19:08 (7) 19:13 (7)		05:28 21:42	05:54 21:33	19:06 (7) 19:36 (7)	19:06 (7) 20:33	07:33 19:22	19 19:15 (6)	19:33 (6) 19:16 (6)	16:34	08:44
30	08:21 17:21	07:19 20:06	06:12 20:58	06:02 20:58	19:04 (7) 19:17 (7)		05:27 21:43	05:56 22:00	19:05 (7) 19:35 (7)	19:05 (7) 20:31	07:35 19:19	19 19:15 (6)	19:35 (6) 19:19	16:35	08:45
31	08:19 17:23	07:17 20:08			05:26 21:44			05:57 21:29	19:06 (7) 19:36 (7)	19:06 (7) 20:28	07:36 19:32 (6)	17 19:15 (6)		16:36	08:45
Potential sun hours	260	278	367	416	485		498	501	453		381	381	30	267	244
Total, worst case				234	682			381	515		30		0.28		
Sun reduction				0.35	0.37			0.27	0.30		0.28				
Oper. time red.				1.00	1.00			1.00	1.00		1.00				
Wind dir. red.				0.63	0.62			0.62	0.62		0.63				
Total reduction				0.22	0.23			0.17	0.19		0.18				
Total, real				53	156			63	96		5				

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: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

Shadow receptor: AD - H30

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	19:23 (7) 21:59	05:59 21:28	19:21 (7) 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	19:24 (7) 21:59	06:00 21:26	19:22 (7) 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:24 21:48	19:24 (7) 21:59	06:02 21:25	19:22 (7) 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:24 21:49	19:24 (7) 21:59	06:03 21:23	19:23 (7) 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:42	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	19:24 (7) 21:59	06:05 21:21	19:24 (7) 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:22 21:51	19:24 (7) 21:59	06:06 21:19	19:24 (7) 20:15	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	19:24 (7) 21:59	06:08 21:18	19:26 (7) 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:38	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	19:24 (7) 21:59	06:09 21:16	19:27 (7) 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	05:20 21:53	19:24 (7) 21:59	06:11 21:15	19:29 (7) 20:06	07:50 18:57	07:44 16:56	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	19:24 (7) 21:59	06:13 21:12	19:31 (7) 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:16	05:19 21:55	19:24 (7) 21:59	06:14 21:10	19:31 (7) 20:03	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:51 21:18	05:19 21:56	19:24 (7) 21:59	06:16 21:08	19:38 (7) 20:01	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	19:24 (7) 21:59	06:17 21:06	19:40 (7) 20:06	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	19:24 (7) 21:59	06:19 21:04	19:41 (7) 20:04	07:59 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:57	19:24 (7) 21:59	06:21 21:02	19:42 (7) 20:06	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	19:24 (7) 21:59	06:22 21:00	19:43 (7) 20:06	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	19:24 (7) 21:59	06:24 20:58	19:44 (7) 20:06	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	19:24 (7) 21:59	06:25 20:56	19:45 (6) 20:06	08:05 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:44 18:47	06:35 20:40	05:40 21:29	05:18 21:59	19:24 (7) 21:59	06:27 20:54	19:46 (6) 20:06	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	05:18 21:59	19:24 (7) 21:59	06:29 20:52	19:47 (6) 20:06	08:09 18:35	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	19:24 (7) 21:59	06:30 20:50	19:48 (6) 20:06	08:11 18:33	08:05 16:40	08:42 16:29
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	19:24 (7) 21:59	06:32 20:48	19:49 (6) 20:06	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	19:24 (7) 21:59	06:33 20:46	19:50 (6) 20:06	08:14 18:29	08:08 16:38	08:43 16:30
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	19:24 (7) 21:59	06:35 20:44	19:51 (6) 20:06	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	19:24 (7) 21:59	06:37 20:42	19:52 (6) 20:06	08:17 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	19:24 (7) 21:59	06:38 20:39	19:53 (6) 20:06	08:18 17:23	08:13 16:35	08:44 16:31
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	19:24 (7) 21:59	06:40 20:37	19:54 (6) 20:06	08:19 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	19:24 (7) 21:59	06:42 20:35	19:55 (6) 20:06	08:20 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:04	06:14 20:57	05:28 21:42	05:21 22:00	19:24 (7) 21:59	06:43 20:33	19:56 (6) 20:06	08:21 17:17	08:17 16:33	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	05:27 21:43	05:22 22:00	19:24 (7) 21:59	06:45 20:31	19:57 (6) 20:06	08:22 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:11 19:07	06:11 20:58	05:26 21:44	05:22 22:00	19:24 (7) 21:59	06:46 20:28	19:58 (6) 20:06	08:23 17:13	08:20 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				194	637	15		385				
Sun reduction				0.35	0.37	0.30		0.30				
Oper. time red.				1.00	1.00	1.00		1.00				
Wind dir. red.				0.62	0.60	0.60		0.61				
Total reduction				0.22	0.22	0.18		0.18				
Total, real				43	142	3		70				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AE - H31**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December			
1	08:45	08:18	07:25	07:15	06:10	05:25	20:08 (8)	05:22	20:16 (8)	05:59	06:48	07:37	07:30	08:21	
	16:37	17:25	18:16	20:10	21:00	21:46	21	20:29 (8)	21:59	20:33 (8)	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	20:08 (8)	05:23	20:15 (8)	06:00	06:50	07:38	07:32	08:22	
	16:38	17:26	18:18	20:11	21:02	21:47	21	20:29 (8)	21:59	20:33 (8)	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:24	20:08 (8)	05:24	20:16 (8)	06:02	06:51	07:40	07:34	08:24	
	16:39	17:28	18:19	20:13	21:03	21:48	21	20:29 (8)	21:59	20:34 (8)	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	20:09 (8)	05:24	20:16 (8)	06:03	06:53	07:42	07:35	08:25	
	16:40	17:30	18:21	20:15	21:05	21:49	20	20:29 (8)	21:58	20:34 (8)	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	20:09 (8)	05:25	20:16 (8)	06:05	06:54	07:43	07:37	08:26	
	16:41	17:32	18:23	20:16	21:07	21:50	20	20:29 (8)	21:58	20:35 (8)	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	20:10 (8)	05:26	20:15 (8)	06:06	06:56	07:45	07:39	08:28	
	16:43	17:34	18:25	20:18	21:08	21:51	19	20:29 (8)	21:57	20:35 (8)	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	20:10 (8)	05:27	20:15 (8)	06:08	06:58	07:47	07:41	08:29	
	16:44	17:36	18:27	20:20	21:10	21:52	19	20:29 (8)	21:57	20:35 (8)	21:17	20:12	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	20:10 (8)	05:28	20:15 (8)	06:09	06:59	07:48	07:43	08:30	
	16:45	17:37	18:28	20:21	21:12	21:53	19	20:29 (8)	21:56	20:36 (8)	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	20:10 (8)	05:29	20:15 (8)	06:11	07:01	07:50	07:44	08:31	
	16:47	17:39	18:30	20:23	21:13	21:53	18	20:28 (8)	21:55	20:36 (8)	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	20:11 (8)	05:30	20:15 (8)	06:13	07:02	07:52	07:46	08:32	
	16:48	17:41	18:32	20:25	21:15	21:54	18	20:29 (8)	21:55	20:36 (8)	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	20:12 (8)	05:31	20:15 (8)	06:14	07:04	07:53	07:48	08:33	
	16:49	17:43	18:34	20:26	21:16	21:55	17	20:29 (8)	21:54	20:37 (8)	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	20:13 (8)	05:32	20:15 (8)	06:16	07:06	07:55	07:50	08:34	
	16:51	17:45	18:35	20:28	21:18	21:56	16	20:29 (8)	21:53	20:37 (8)	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:47	05:49	05:19	20:12 (8)	05:33	20:15 (8)	06:17	07:07	07:57	07:51	08:35	
	16:52	17:47	18:37	20:30	21:20	21:56	16	20:28 (8)	21:52	20:37 (8)	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	20:13 (8)	05:34	20:15 (8)	06:19	07:09	07:58	07:53	08:36	
	16:54	17:49	18:39	20:32	21:21	21:57	15	20:28 (8)	21:51	20:37 (8)	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	20:13 (8)	05:35	20:15 (8)	06:21	07:11	08:00	07:55	08:37	
	16:55	17:50	18:41	20:33	21:23	21:57	16	20:29 (8)	21:50	20:37 (8)	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	20:14 (8)	05:37	20:15 (8)	06:22	07:12	08:02	07:57	08:38	
	16:57	17:52	18:42	20:35	21:24	21:58	15	20:29 (8)	21:49	20:37 (8)	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	20:14 (8)	05:38	20:16 (8)	06:24	07:14	08:04	07:58	08:39	
	16:59	17:54	18:44	20:37	21:26	21:58	15	20:29 (8)	21:48	20:38 (8)	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	20:14 (8)	05:39	20:16 (8)	06:25	07:15	08:05	08:00	08:40	
	17:00	17:56	18:46	20:38	21:27	21:59	15	20:29 (8)	21:47	20:38 (8)	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	20:15 (8)	05:40	20:16 (8)	06:27	07:17	08:07	08:02	08:40	
	17:02	17:58	18:47	20:40	21:29	21:59	14	20:29 (8)	21:46	20:38 (8)	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	20:15 (8)	05:42	20:16 (8)	06:29	07:19	08:09	08:03	08:41	
	17:03	18:00	18:49	20:42	21:30	21:59	14	20:29 (8)	21:45	20:37 (8)	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	20:16 (8)	05:43	20:17 (8)	06:30	07:20	08:11	08:05	08:42	
	17:05	18:01	18:51	20:43	21:31	21:59	14	20:30 (8)	21:44	20:37 (8)	20:50	19:40	18:33	16:40	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	20:16 (8)	05:44	20:18 (8)	06:32	07:22	08:12	08:07	08:42	
	17:07	18:03	18:53	20:45	21:33	22:00	14	20:30 (8)	21:42	20:37 (8)	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	20:16 (8)	05:46	20:18 (8)	06:33	07:24	08:14	08:08	08:43	
	17:09	18:05	18:54	20:47	21:34	22:00	14	20:30 (8)	21:41	20:37 (8)	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	20:15 (8)	05:47	20:18 (8)	06:35	07:25	08:16	08:10	08:43	
	17:10	18:07	18:56	20:48	21:36	22:00	15	20:30 (8)	21:40	20:36 (8)	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	20:16 (8)	05:48	20:20 (8)	06:37	07:27	08:17	08:12	08:43	
	17:12	18:09	18:58	20:50	21:37	22:00	15	20:31 (8)	21:38	20:36 (8)	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	20:16 (8)	05:50	20:21 (8)	06:38	07:28	08:19	08:13	08:44	
	17:14	18:10	18:59	20:52	21:38	22:00	15	20:31 (8)	21:37	20:34 (8)	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	20:16 (8)	05:51	20:22 (8)	06:40	07:30	08:21	08:15	08:44	
	17:16	18:12	19:01	20:53	21:40	22:00	16	20:32 (8)	21:36	20:32 (8)	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	20:16 (8)	05:53	20:25 (8)	06:42	07:32	08:23	08:16	08:44	
	17:17	18:14	19:03	20:55	21:41	22:00	16	20:32 (8)	21:34	20:31 (8)	20:35	19:24	17:19	16:33	16:33
29	08:22	07:21	06:14	05:28	05:21	05:21	20:16 (8)	05:54	20:26 (8)	06:43	07:33	08:24	08:18	08:44	
	17:19	18:04	18:57	20:57	21:42	22:00	16	20:32 (8)	21:33	20:33	19:22	17:17	16:33	16:34	
30	08:21	07:19	06:12	05:27	05:22	05:22	20:16 (8)	05:56	20:26 (8)	06:45	07:35	08:26	08:19	08:44	
	17:21	18:06	18:58	20:58	21:43	22:00	16	20:32 (8)	21:31	20:31	19:19	17:15	16:32	16:35	
31	08:19	07:17	06:10	05:26	05:20	05:20	20:16 (8)	05:57	20:26 (8)	06:46	07:36	08:27	08:20	08:45	
	17:23	18:08	18:59	21:44	22:00	22:00	20:16 (8)	05:57	20:26 (8)	06:46	07:36	08:27	08:20	08:45	
Potential sun hours	260	278	367	416	485	498	500	501	453	381	332	267	244		
Total, worst case					304	500		533							
Sun reduction					0.37	0.30		0.27							
Oper. time red.					1.00	1.00		1.00							
Wind dir. red.					0.57	0.57		0.57							
Total reduction					0.21	0.17		0.15							
Total, real					64	85		81							

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AF - H32

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AG - H33**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AH - H34**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AI - H35**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AJ - H36**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	07:04 (6) 21:46	05:25 22:00	05:59 21:28		06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	07:05 (6) 21:47	05:25 21:59	05:23 21:26		06:50 20:24	07:39 19:15	07:32 17:10	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:07 21:04	07:06 (6) 21:48	05:24 21:59	05:24 21:25		06:51 20:22	07:40 19:13	07:34 17:08	08:24 16:30
4	08:44 16:41	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	07:08 (6) 21:49	05:23 21:59	06:03 21:23		06:53 20:20	07:42 19:10	07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	07:15 (6) 21:50	05:22 21:58	06:05 21:21		06:55 20:17	07:44 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09		05:22 21:58	06:07 21:19		06:56 20:15	07:45 19:06	07:39 17:03	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10		05:21 21:57	06:08 21:18		06:58 20:13	07:47 19:04	07:41 17:01	08:29 16:28
8	08:43 16:46	08:07 17:38	07:10 18:29	06:59 20:22	05:57 21:12		05:21 21:56	06:10 21:16		07:00 20:10	07:49 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:13		05:20 21:56	06:11 21:14	9	07:17 (6) 07:26 (6)	07:50 18:59	07:45 16:58	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15		05:20 21:55	06:13 21:12	13	07:15 (6) 07:28 (6)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17		05:19 21:54	06:14 21:10	16	07:13 (6) 07:29 (6)	07:54 18:55	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18		05:19 21:53	06:16 21:08	19	07:12 (6) 07:31 (6)	07:55 18:52	07:50 16:53	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20		05:19 21:52	06:18 21:06	20	07:11 (6) 07:31 (6)	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:48 21:21		05:19 21:52	06:19 21:04	22	07:10 (6) 07:32 (6)	07:59 18:48	07:53 16:50	08:37 16:27
15	08:38 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23		05:18 21:51	06:21 21:02	23	07:09 (6) 07:32 (6)	08:00 18:46	07:55 16:48	08:37 16:27
16	08:38 16:57	07:52 17:53	06:52 18:42	06:41 20:35	05:44 21:24		05:18 21:50	06:22 21:00	23	07:09 (6) 07:32 (6)	08:02 18:44	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26		05:18 21:49	06:24 20:58	24	07:08 (6) 07:32 (6)	08:04 18:41	07:59 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:42 21:27	07:10 (6)	05:18 21:47	06:26 20:56		07:09 (6) 07:32 (6)	08:06 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:39 21:29	07:08 (6)	05:18 21:46	06:27 20:54		07:10 (6) 07:31 (6)	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	07:22 (6)	05:18 21:45	06:29 20:52	23	07:09 (6) 07:31 (6)	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	07:06 (6)	05:18 21:44	06:30 20:50	22	07:09 (6) 07:29 (6)	08:11 18:33	08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	07:24 (6)	05:19 21:43	06:32 20:48	20	07:10 (6) 07:29 (6)	08:13 18:31	08:07 16:40	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	07:25 (6)	05:19 21:41	06:34 20:46	19	07:10 (6) 07:27 (6)	08:14 18:29	08:09 16:38	08:43 16:30
24	08:29 17:11	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	07:02 (6)	05:19 21:40	06:35 20:44	17	07:12 (6) 07:26 (6)	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	07:25 (6)	05:19 21:39	06:37 20:42	14	07:13 (6) 07:23 (6)	08:18 17:25	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	07:02 (6)	05:20 21:37	06:39 20:40	10	07:29 (6) 19:29	08:19 17:23	08:13 16:35	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	07:25 (6)	05:20 21:36	06:40 20:37		07:30 19:26	08:20 17:21	08:15 16:35	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	07:02 (6)	05:21 21:34	06:42 20:35		07:32 19:24	08:22 17:19	08:17 16:34	08:44 16:33
29	08:23 17:19		07:22 20:05	06:14 20:57	05:28 21:42	07:24 (6)	05:21 21:33	06:43 20:33		07:34 19:22	08:23 17:17	08:18 16:33	08:45 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:44	07:02 (6)	05:22 21:31	06:45 20:31		07:35 19:19	08:24 17:15	08:19 16:32	08:45 16:35
31	08:20 17:23		07:17 20:08		05:26 21:45	07:22 (6)	05:22 21:30	06:47 20:29			07:29 17:13		08:45 16:36
Potential sun hours	260	278	367	416	485		498	501	453	381	332	267	244
Total, worst case				257	52				317				
Sun reduction				0.35	0.37				0.30				
Oper. time red.				1.00	1.00				1.00				
Wind dir. red.				0.68	0.68				0.68				
Total reduction				0.24	0.25				0.20				
Total, real				62	13				64				

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

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

6460 Gortloughra WF 8 no. turbine wind farm Gortloughra Co.Cork

8 no. turbine wind farm Gortloughra Co.Cork

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:
31/03/2026 14:52/4.2.285

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

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

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker (WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker (WTG causing flicker last time)
	Minutes with flicker	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations**Shadow receptor:** AL - H38

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	06:33 (6) 22:00	05:59 21:28	06:34 (6) 20:26	06:48 19:17	07:37 17:11	07:30 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	05:25 21:47	06:34 (6) 21:59	06:00 21:26	06:36 (6) 20:24	06:50 19:15	07:39 17:10	07:32 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:07 21:04	05:24 21:48	06:34 (6) 21:59	06:02 21:25	06:37 (6) 20:22	06:51 19:13	07:40 17:08	07:34 16:30
4	08:44 16:41	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	05:23 21:49	06:34 (6) 21:59	06:03 21:23	06:40 (6) 20:20	06:53 19:10	07:42 17:06	07:36 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	05:22 21:50	06:34 (6) 21:58	06:05 21:21	06:46 (6) 20:17	06:55 19:08	07:44 17:04	07:37 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	06:34 (6) 21:58	06:07 21:19	06:46 (6) 20:15	06:56 19:06	07:45 17:03	07:39 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	06:34 (6) 21:57	06:08 21:18	06:46 (6) 20:13	06:58 19:04	07:47 17:01	07:41 16:28
8	08:43 16:46	08:07 17:38	07:10 18:29	06:59 20:22	05:58 21:12	05:21 21:53	06:34 (6) 21:56	06:10 21:16	06:46 (6) 20:10	06:58 19:01	07:49 16:59	07:43 16:28
9	08:42 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:13	05:20 21:54	06:34 (6) 21:56	06:11 21:14	06:46 (6) 20:08	06:59 18:59	07:50 16:58	07:45 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	06:34 (6) 21:55	06:13 21:12	06:46 (6) 20:03	06:57 18:52	07:52 16:56	07:46 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	06:34 (6) 21:54	06:14 21:10	06:46 (6) 20:04	06:58 18:55	07:54 16:54	07:48 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18	05:19 21:56	06:34 (6) 21:53	06:16 21:08	06:46 (6) 20:01	06:57 18:52	07:55 16:53	07:50 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	06:34 (6) 21:52	06:18 21:06	06:46 (6) 20:06	06:58 18:57	07:52 16:51	07:52 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:48 21:21	05:19 21:57	06:34 (6) 21:52	06:19 21:04	06:46 (6) 20:04	06:59 18:48	07:53 16:50	07:53 16:27
15	08:38 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	06:34 (6) 21:51	06:21 21:02	06:46 (6) 20:06	06:59 18:46	07:55 16:48	07:55 16:27
16	08:38 16:57	07:52 17:53	06:52 18:42	06:41 20:35	05:44 21:24	05:18 21:58	06:34 (6) 21:50	06:22 21:00	06:46 (6) 20:06	06:59 18:44	07:57 16:47	07:57 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	06:34 (6) 21:49	06:24 20:58	06:46 (6) 20:06	06:59 18:41	07:59 16:46	07:59 16:28
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:42 21:27	05:18 21:59	06:34 (6) 21:47	06:26 20:56	06:46 (6) 20:06	06:59 18:39	07:59 16:44	07:59 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	06:34 (6) 21:46	06:27 20:54	06:46 (6) 20:06	06:59 18:37	07:59 16:43	07:59 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	05:18 22:00	06:34 (6) 21:45	06:29 20:52	06:46 (6) 20:06	06:59 18:35	07:59 16:42	07:59 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	06:34 (6) 21:44	06:30 20:50	06:46 (6) 20:06	06:59 18:33	07:59 16:41	07:59 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	06:34 (6) 21:43	06:32 20:48	06:46 (6) 20:06	06:59 18:31	07:59 16:40	07:59 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	06:34 (6) 21:41	06:34 20:46	06:46 (6) 20:06	06:59 18:29	07:59 16:38	07:59 16:30
24	08:29 17:11	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	05:19 22:00	06:34 (6) 21:40	06:35 20:44	06:46 (6) 20:06	06:59 18:27	07:59 16:37	07:59 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:20 22:00	06:34 (6) 21:39	06:37 20:42	06:46 (6) 20:06	06:59 18:25	07:59 16:36	07:59 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	05:20 22:00	06:34 (6) 21:37	06:39 20:40	06:46 (6) 20:06	06:59 18:23	07:59 16:35	07:59 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	06:34 (6) 21:36	06:40 20:37	06:46 (6) 20:06	06:59 18:21	07:59 16:35	07:59 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	06:34 (6) 21:34	06:42 20:35	06:46 (6) 20:06	06:59 18:19	07:59 16:34	07:59 16:33
29	08:23 17:19	07:22 20:05	06:14 20:57	05:28 21:42	05:28 21:42	05:21 22:00	06:34 (6) 21:33	06:43 20:33	06:46 (6) 20:06	06:59 18:17	07:59 16:34	07:59 16:34
30	08:21 17:21	07:19 20:06	06:12 20:59	05:27 21:43	05:27 21:43	05:22 22:00	06:34 (6) 21:31	06:45 20:31	06:46 (6) 20:06	06:59 18:15	07:59 16:32	07:59 16:35
31	08:20 17:23	07:17 20:08	06:11 21:45	05:26 21:45	05:26 21:45	06:30 (6) 21:30	06:34 (6) 21:30	06:47 20:29	06:46 (6) 20:06	06:59 18:13	07:59 16:32	07:59 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	245
Total, worst case					381	1	342	47				
Sun reduction					0.37	0.30	0.27	0.30				
Oper. time red.					1.00	1.00	1.00	1.00				
Wind dir. red.					0.69	0.69	0.69	0.69				
Total reduction					0.26	0.21	0.19	0.21				
Total, real					98	0	64	10				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AM - H39

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:57	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AN - H40**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:52	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AO - H41

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AP - H42**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AQ - H43

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:51	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AR - H44

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AS - H45**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AT - H46**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:27	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	08:44 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:03	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	05:23 21:49	05:25 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:36 17:06	08:25 16:29
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:22 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:38	07:09 18:28	06:59 20:21	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	07:59 18:48	07:53 16:50	08:36 16:27
15	08:38 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:21 21:02	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:49	06:22 21:00	07:12 19:52	08:02 18:44	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	08:04 18:41	07:58 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:16 19:47	08:05 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:47	06:35 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	05:18 21:59	05:42 21:45	06:29 20:52	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	05:44 21:42	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	08:14 18:29	08:08 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:48	05:34 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:42	07:27 19:31	07:18 17:25	08:12 16:36	08:43 16:31
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:29 19:29	07:19 17:23	08:13 16:35	08:44 16:32
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24	07:23 17:19	08:16 16:34	08:44 16:33
29	08:22 17:19		07:22 20:05	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:22	07:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:43	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23		07:17 20:08		05:26 21:44		05:57 21:29	06:46 20:28		07:28 17:13		08:45 16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AU - H47

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AV - H48**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April	May	June	July	August	September		October		November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16		07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26		07:37 19:17	9	08:30 (1) 08:39 (1)	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18		07:12 20:11	06:08 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24		07:39 19:15			07:32 17:10	08:23 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20		07:10 20:13	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22		07:40 19:13			07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:19 18:21		07:08 20:15	06:05 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20		07:42 19:10			07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23		07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17		07:44 19:08			07:38 17:04	08:27 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15		07:45 19:06			07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27		07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13		07:47 19:04			07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:29		06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10		07:49 19:01			07:43 16:59	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30		06:57 20:23	05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08		07:50 18:59			07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06		07:52 18:57			07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34		06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04		07:54 18:55			07:48 16:54	08:34 16:27
12	08:41 16:51	08:00 17:45	07:01 18:36	5	07:53 (1) 07:58 (1)	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01				07:55 18:52	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	11	07:49 (1) 08:00 (1)	06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:07	07:08 19:59				07:57 18:50	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	15	07:47 (1) 08:02 (1)	06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57				07:59 18:48	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	17	07:46 (1) 08:03 (1)	06:43 20:34	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54				08:00 18:46	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	19	07:44 (1) 08:03 (1)	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52				08:02 18:44	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	19	07:44 (1) 08:03 (1)	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59	07:14 19:50				08:04 18:41	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	20	07:43 (1) 08:03 (1)	06:37 20:39	05:41 21:27	05:18 21:59	05:39 21:48	06:26 20:57	07:16 19:47				08:06 18:39	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	19	07:43 (1) 08:02 (1)	06:35 20:40	05:40 21:29	05:18 21:59	06:27 20:54	07:17 19:45	08:36 (1) 08:39 (1)	08:07 18:37			08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	19	07:43 (1) 08:02 (1)	06:33 20:42	05:39 21:30	05:18 22:00	06:29 20:52	07:19 19:43	08:32 (1) 08:43 (1)	08:09 18:35			08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	17	07:44 (1) 08:01 (1)	06:30 20:44	05:37 21:32	05:18 22:00	06:30 21:44	07:21 20:50	08:30 (1) 08:44 (1)	08:11 18:33			08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	15	07:44 (1) 07:59 (1)	06:28 20:45	05:36 21:33	05:19 22:00	06:32 20:48	07:22 19:38	08:28 (1) 08:45 (1)	08:13 18:31			08:07 16:40	08:42 16:29
23	08:31 17:09	07:38 18:05	06:35 18:54	12	07:45 (1) 07:57 (1)	06:26 20:47	05:35 21:35	05:19 22:00	06:34 20:46	07:24 19:36	08:28 (1) 08:46 (1)	08:14 18:29			08:09 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	6	07:48 (1) 07:54 (1)	06:24 20:49	05:34 21:36	05:19 22:01	06:35 20:44	07:25 19:33	08:26 (1) 08:46 (1)	08:16 18:27			08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58			06:22 20:50	05:32 21:37	05:19 22:01	06:37 20:42	07:27 19:31	08:26 (1) 08:46 (1)	07:18 17:25			08:12 16:36	08:44 16:31
26	08:27 17:14	07:32 18:11	06:29 19:00			06:20 20:52	05:31 21:39	05:20 22:01	06:38 20:40	07:29 19:29	08:26 (1) 08:46 (1)	07:20 17:23			08:14 16:35	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01			06:18 20:54	05:30 21:40	05:20 22:01	06:40 20:37	07:30 19:26	08:26 (1) 08:45 (1)	07:21 17:21			08:15 16:34	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03			06:16 20:55	05:29 21:41	05:21 22:00	06:42 21:34	07:32 19:24	08:26 (1) 08:44 (1)	07:23 17:19			08:17 16:34	08:45 16:33
29	08:23 17:19		07:22 20:05			06:14 20:57	05:28 21:42	05:21 22:00	06:43 21:33	07:34 19:22	08:27 (1) 08:43 (1)	07:25 17:17			08:18 16:33	08:45 16:34
30	08:21 17:21		07:19 20:06			06:12 20:59	05:27 21:44	05:22 22:00	06:45 21:31	07:35 19:19	08:28 (1) 08:41 (1)	07:27 17:15			08:20 16:32	08:45 16:35
31	08:20 17:23		07:17 20:08				05:26 21:45		05:57 21:30	06:47 20:29		07:29 17:13				08:45 16:36
Potential sun hours	260	278	367		416	485	498	501	453	381		332		267	244	
Total, worst case				194						189			9			
Sun reduction				0.24						0.28			0.24			
Oper. time red.				1.00						1.00			1.00			
Wind dir. red.				0.59						0.59			0.59			
Total reduction				0.14						0.17			0.14			
Total, real				28						32			1			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AW - H49

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:22
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:45	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:18	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:00	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	07:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	07:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	07:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	07:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	07:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AX - H50

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:13	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:23
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:41	17:30	18:22	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:46	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:11	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:19	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:01	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:42	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:04	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:11	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	07:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	07:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	07:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	07:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	07:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:20	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations**Shadow receptor:** AY - H51

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45	08:18	07:25	07:15	06:10	05:25
	16:37	17:25	18:16	20:10	21:00	21:46
2	08:45	08:17	07:23	07:12	06:08	05:24
	16:38	17:26	18:18	20:11	21:02	21:47
3	08:45	08:15	07:21	07:10	07:38 (15)	06:06
	16:39	17:28	18:20	20:13	07:44 (15)	21:04
4	08:44	08:13	07:18	07:08	07:35 (15)	06:04
	16:40	17:30	18:21	20:15	07:45 (15)	21:05
5	08:44	08:12	07:16	07:05	07:33 (15)	06:03
	16:41	17:32	18:23	20:16	07:46 (15)	21:07
6	08:44	08:10	07:14	07:03	07:33 (15)	06:01
	16:43	17:34	18:25	20:18	07:47 (15)	21:09
7	08:43	08:08	07:12	08:06 (19)	07:32 (15)	05:59
	16:44	17:36	18:27	08:15 (19)	07:47 (15)	21:10
8	08:43	08:07	07:10	08:03 (19)	07:31 (15)	05:57
	16:45	17:37	18:28	08:18 (19)	07:46 (15)	21:12
9	08:43	08:05	07:07	08:00 (19)	07:31 (15)	05:55
	16:47	17:39	18:30	08:19 (19)	07:46 (15)	21:13
10	08:42	08:03	07:05	07:59 (19)	07:32 (15)	05:54
	16:48	17:41	18:32	08:20 (19)	07:45 (15)	21:15
11	08:41	08:01	07:03	07:58 (19)	07:33 (15)	05:52
	16:49	17:43	18:34	08:21 (19)	07:44 (15)	21:17
12	08:41	07:59	07:01	07:57 (19)	07:35 (15)	05:50
	16:51	17:45	18:35	08:21 (19)	07:41 (15)	21:18
13	08:40	07:58	06:58	07:56 (19)	06:48	05:49
	16:52	17:47	18:37	08:21 (19)	20:30	21:20
14	08:39	07:56	06:56	07:33 (14)	06:45	05:47
	16:54	17:49	18:39	08:21 (19)	20:32	21:21
15	08:39	07:54	06:54	07:30 (14)	06:43	05:46
	16:55	17:50	18:41	08:21 (19)	20:33	21:23
16	08:38	07:52	06:51	07:27 (14)	06:41	05:44
	16:57	17:52	18:42	08:20 (19)	20:35	21:24
17	08:37	07:50	06:49	07:27 (14)	06:39	05:43
	16:58	17:54	18:44	08:19 (19)	20:37	21:26
18	08:36	07:48	06:47	07:26 (14)	06:37	05:41
	17:00	17:56	18:46	08:19 (19)	20:38	21:27
19	08:35	07:46	06:45	07:25 (14)	06:34	05:40
	17:02	17:58	18:47	08:17 (19)	20:40	21:29
20	08:34	07:44	06:42	07:25 (14)	06:32	05:38
	17:03	18:00	18:49	08:15 (19)	20:42	21:30
21	08:33	07:42	06:40	07:26 (14)	06:30	05:37
	17:05	18:01	18:51	08:13 (19)	20:44	21:32
22	08:32	07:40	06:38	07:25 (14)	06:28	05:36
	17:07	18:03	18:53	08:09 (19)	20:45	21:33
23	08:30	07:38	06:35	07:27 (14)	06:26	05:35
	17:09	18:05	18:54	07:38 (14)	20:47	21:35
24	08:29	07:36	06:33	07:29 (14)	06:24	05:33
	17:10	18:07	18:56	07:36 (14)	20:49	21:36
25	08:28	07:33	06:31		06:22	05:32
	17:12	18:09	18:58		20:50	21:37
26	08:27	07:31	06:28		06:20	05:31
	17:14	18:11	18:59		20:52	21:39
27	08:25	07:29	06:26		06:18	05:30
	17:16	18:12	19:01		20:54	21:40
28	08:24	07:27	06:24		06:16	05:29
	17:17	18:14	19:03		20:55	21:41
29	08:23		07:21		06:14	05:28
	17:19		20:05		20:57	21:42
30	08:21		07:19		06:12	05:27
	17:21		20:06		20:59	21:44
31	08:20		07:17			05:26
	17:23		20:08			21:45
Potential sun hours	259	278	367	416	485	498
Total, worst case			459	118		
Sun reduction			0.24	0.35		
Oper. time red.			1.00	1.00		
Wind dir. red.			0.59	0.66		
Total reduction			0.14	0.23		
Total, real			66	28		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AY - H51**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22	05:59	06:48	07:32 (15)	07:37	08:36 (19)
	22:00	21:28	20:26	11 07:43 (15)	19:17	25 09:01 (19)
2	05:23	06:00	06:50	07:30 (15)	07:38	08:36 (19)
	21:59	21:26	20:24	13 07:43 (15)	19:15	23 08:59 (19)
3	05:24	06:02	06:51	07:29 (15)	07:40	08:36 (19)
	21:59	21:25	20:22	15 07:44 (15)	19:12	22 08:58 (19)
4	05:24	06:03	06:53	07:29 (15)	07:42	08:38 (19)
	21:59	21:23	20:19	15 07:44 (15)	19:10	19 08:57 (19)
5	05:25	06:05	06:54	07:28 (15)	07:43	08:38 (19)
	21:58	21:21	20:17	15 07:43 (15)	19:08	17 08:55 (19)
6	05:26	06:06	06:56	07:29 (15)	07:45	08:40 (19)
	21:58	21:19	20:15	14 07:43 (15)	19:06	13 08:53 (19)
7	05:27	06:08	06:58	07:28 (15)	07:47	08:44 (19)
	21:57	21:18	20:13	13 07:41 (15)	19:03	4 08:48 (19)
8	05:28	06:09	06:59	07:30 (15)	07:48	07:43
	21:56	21:16	20:10	10 07:40 (15)	19:01	16:59
9	05:29	06:11	07:01	07:31 (15)	07:50	07:45
	21:56	21:14	20:08	6 07:37 (15)	18:59	16:57
10	05:30	06:13	07:03	07:52	07:52	07:46
	21:55	21:12	20:06	18:57	16:56	16:27
11	05:31	06:14	07:04	07:54	07:48	08:34
	21:54	21:10	20:03	18:54	16:54	16:27
12	05:32	06:16	07:06	07:55	07:50	08:35
	21:53	21:08	20:01	18:52	16:53	16:27
13	05:33	06:17	07:07	07:57	07:52	08:36
	21:53	21:06	19:59	18:50	16:51	16:27
14	05:34	06:19	07:09	07:59	07:53	08:37
	21:52	21:04	19:56	18:48	16:50	16:27
15	05:35	06:21	07:11	08:00	07:55	08:37
	21:51	21:02	19:54	18:46	16:48	16:27
16	05:36	06:22	07:12	08:02	07:57	08:38
	21:50	21:00	19:52	18:43	16:47	16:27
17	05:38	06:24	07:14	08:04	07:59	08:39
	21:49	20:58	19:50	18:41	16:45	16:27
18	05:39	06:25	07:15	08:06	08:00	08:40
	21:47	20:56	19:47	18:39	16:44	16:27
19	05:40	06:27	07:17	08:17 (14)	08:07	08:02
	21:46	20:54	19:45	4 08:21 (14)	18:37	16:43
20	05:41	06:29	07:19	08:14 (14)	08:09	08:04
	21:45	20:52	19:43	10 08:24 (14)	18:35	16:42
21	05:43	06:30	07:20	08:11 (14)	08:11	08:05
	21:44	20:50	19:40	16 08:52 (19)	18:33	16:40
22	05:44	06:32	07:22	08:10 (14)	08:13	08:07
	21:43	20:48	19:38	28 08:57 (19)	18:31	16:39
23	05:45	06:33	07:24	08:10 (14)	08:14	08:09
	21:41	20:46	19:36	32 08:59 (19)	18:29	16:38
24	05:47	06:35	07:25	08:09 (14)	08:16	08:10
	21:40	20:44	19:33	37 09:00 (19)	18:27	16:37
25	05:48	06:37	07:27	08:09 (14)	07:18	08:12
	21:39	20:42	19:31	39 09:01 (19)	17:25	16:36
26	05:50	06:38	07:29	08:08 (14)	07:20	08:13
	21:37	20:39	19:29	39 09:01 (19)	17:23	16:35
27	05:51	06:40	07:30	08:09 (14)	07:21	08:15
	21:36	20:37	19:26	39 09:02 (19)	17:21	16:34
28	05:53	06:42	07:32	08:10 (14)	07:23	08:17
	21:34	20:35	19:24	37 09:02 (19)	17:19	16:33
29	05:54	06:43	07:33	08:11 (14)	07:25	08:18
	21:33	20:33	19:22	33 09:01 (19)	17:17	16:33
30	05:56	06:45	07:35	08:36 (19)	07:27	08:20
	21:31	20:31	19:19	25 09:01 (19)	17:15	16:32
31	05:57	06:46	07:34 (15)	07:28	08:45	16:35
	21:30	20:28	7 07:41 (15)	17:13	16:36	16:36
Potential sun hours	501	453	381	332	267	244
Total, worst case						
Sun reduction		7	451	123		
Oper. time red.		0.30	0.28	0.24		
Wind dir. red.		1.00	1.00	1.00		
Total reduction		0.66	0.61	0.58		
Total, real		0.20	0.17	0.14		
		1	78	17		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** AZ - H52

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:13	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:23
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:41	17:30	18:22	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:44	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:58	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:46	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:11	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:19	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:01	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:42	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:31	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:04	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:36	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:11	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	08:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:20	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BA - H53**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:57	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BB - H54**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31		
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30		
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30		
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29		
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29		
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28		
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:01	08:29 16:28		
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28		
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27		
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	07:52 18:57	07:46 16:56	08:32 16:27		
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27		
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	19:29 (5) 19:32 (5)	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27	
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	9 19:21 (5) 19:30 (5)	05:49 21:20	05:18 21:56	06:17 21:06	19:25 (5) 19:36 (5)	07:07 19:59	18:40 (4) 18:47 (4)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	14 19:18 (5) 19:32 (5)	05:47 21:21	05:18 21:57	06:19 21:04	19:23 (5) 19:38 (5)	07:09 19:56	18:37 (4) 18:49 (4)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	18 19:16 (5) 19:34 (5)	05:46 21:23	05:18 21:57	06:20 21:02	19:21 (5) 19:39 (5)	07:11 19:54	18:35 (4) 18:50 (4)	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	20 19:15 (5) 19:35 (5)	05:44 21:24	05:18 21:58	06:22 21:49	19:20 (5) 19:40 (5)	07:12 19:52	18:33 (4) 18:50 (4)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	22 19:14 (5) 19:36 (5)	05:43 21:26	05:18 21:58	06:24 20:58	19:19 (5) 19:41 (5)	07:14 19:49	18:33 (4) 18:51 (4)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	23 19:13 (5) 19:36 (5)	05:41 21:27	05:18 21:59	06:25 20:56	19:18 (5) 19:41 (5)	07:15 19:47	18:32 (4) 18:50 (4)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	3 17:54 (4) 17:57 (4)	06:34 20:40	05:40 21:29	05:18 21:59	06:27 20:54	19:17 (5) 19:41 (5)	07:17 19:45	18:32 (4) 18:50 (4)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	11 17:50 (4) 18:01 (4)	06:32 20:42	05:38 21:30	05:18 21:59	06:29 20:52	19:16 (5) 19:41 (5)	07:19 19:42	18:32 (4) 18:50 (4)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	14 17:47 (4) 18:01 (4)	06:30 20:43	05:37 21:32	05:18 22:00	06:30 20:50	19:16 (5) 19:41 (5)	07:20 19:40	18:32 (4) 18:48 (4)	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	16 17:46 (4) 18:02 (4)	06:28 20:45	05:36 21:33	05:18 22:00	06:32 20:48	19:15 (5) 19:41 (5)	07:22 19:38	18:33 (4) 18:47 (4)	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	17 17:46 (4) 18:03 (4)	06:26 20:47	05:35 21:34	05:19 22:00	06:33 20:46	19:16 (5) 19:41 (5)	07:23 19:35	18:33 (4) 18:45 (4)	08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	17 17:45 (4) 18:04 (4)	06:24 20:48	05:33 21:36	05:19 22:00	06:35 20:44	19:16 (5) 19:41 (5)	07:25 19:33	18:36 (4) 18:42 (4)	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	19 17:44 (4) 18:03 (4)	06:22 20:50	05:32 21:37	05:19 22:00	06:37 20:41	19:16 (5) 19:39 (5)	07:27 19:31	18:27 18:48	08:12 18:36	08:43 16:31	08:44 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	18 17:44 (4) 18:02 (4)	06:20 20:52	05:31 21:38	05:20 22:00	06:38 20:39	19:17 (5) 19:39 (5)	07:28 19:28	18:27 18:48	08:13 18:35	08:44 16:31	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	17 17:45 (4) 18:02 (4)	06:18 20:53	05:30 21:40	05:21 22:00	06:40 20:37	19:17 (5) 19:37 (5)	07:30 19:26	18:27 18:48	08:15 18:36	08:44 16:32	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	15 17:45 (4) 18:00 (4)	06:16 20:55	05:29 21:41	05:20 22:00	06:41 20:35	19:18 (5) 19:36 (5)	07:32 19:24	18:27 18:48	08:16 18:33	08:44 16:33	08:44 16:33
29	08:22 17:19	07:21 18:19	06:24 19:04	13 17:46 (4) 18:59 (4)	06:14 20:57	05:28 21:42	05:21 22:00	06:43 20:33	19:19 (5) 19:33 (5)	07:33 19:22	18:27 18:48	08:18 18:33	08:44 16:34	08:44 16:34
30	08:21 17:21	07:19 18:20	06:22 19:06	9 17:48 (4) 18:57 (4)	06:12 20:58	05:27 21:43	05:22 22:00	06:45 20:31	19:22 (5) 19:30 (5)	07:35 19:19	18:27 18:48	08:19 18:34	08:45 16:35	08:45 16:35
31	08:19 17:23	07:17 18:20	06:20 19:08	9 17:47 (4) 18:56 (4)	06:11 20:57	05:26 21:44	05:21 21:29	06:46 20:28	19:23 (5) 19:31 (5)	07:36 19:20	18:28 18:49	08:20 18:35	08:46 16:36	08:46 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244		
Total, worst case			171	361				367	171					
Sun reduction			0.24	0.35				0.30	0.28					
Oper. time red.			1.00	1.00				1.00	1.00					
Wind dir. red.			0.67	0.63				0.63	0.67					
Total reduction			0.16	0.22				0.19	0.19					
Total, real			28	80				68	32					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BC - H55**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 18:10	19:03 (5) 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	19:03 (5) 19:15 (5)	07:37 17:11	07:30 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 18:11	19:02 (5) 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:00 (5) 19:16 (5)	07:38 17:15	07:32 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 18:13	19:02 (5) 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	18:59 (5) 19:17 (5)	07:40 17:12	07:34 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 18:15	19:00 (5) 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18:57 (5) 19:17 (5)	07:42 17:10	07:35 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 18:16	19:00 (5) 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18:57 (5) 19:18 (5)	07:43 17:08	07:37 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 18:18	19:00 (5) 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	18:56 (5) 19:18 (5)	07:45 17:05	07:39 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 18:20	19:01 (5) 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	18:55 (5) 19:17 (5)	07:47 17:03	07:41 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 18:21	19:00 (5) 20:20	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:55 (5) 19:17 (5)	07:48 17:01	07:43 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:01 (5) 19:19 (5)	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	18:55 (5) 19:16 (5)	07:50 16:57	07:44 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:02 (5) 19:18 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	18:55 (5) 19:16 (5)	07:52 16:56	07:46 16:32
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:04 (5) 19:16 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:55 (5) 19:14 (5)	07:53 16:54	07:48 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:07 (5) 19:12 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:56 (5) 19:13 (5)	07:55 16:52	07:50 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19:08 (5) 21:20	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:58 (5) 19:11 (5)	07:57 16:51	07:51 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	19:09 (5) 21:21	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	19:00 (5) 19:07 (5)	07:58 16:48	07:53 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	19:10 (5) 21:23	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	19:01 (5) 18:45	07:59 16:48	07:55 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	19:11 (5) 21:24	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	19:02 (5) 18:43	07:57 16:47	07:54 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	19:12 (5) 21:26	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	19:03 (5) 18:41	07:58 16:45	07:53 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:13 (5) 21:27	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	19:04 (5) 18:39	08:00 16:44	08:00 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:14 (5) 21:29	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	19:05 (5) 18:37	08:02 16:43	08:02 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:15 (5) 21:30	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	19:06 (5) 18:35	08:03 16:42	08:03 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:16 (5) 21:32	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	19:07 (5) 18:33	08:05 16:40	08:05 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	19:17 (5) 21:33	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	19:08 (5) 18:31	08:07 16:39	08:07 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	19:18 (5) 21:34	05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	19:09 (5) 18:29	08:08 16:38	08:08 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	19:19 (5) 21:36	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	19:10 (5) 18:27	08:10 16:37	08:10 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:20 (5) 21:37	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	19:11 (5) 17:25	08:12 16:36	08:12 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	19:21 (5) 21:38	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28	19:12 (5) 17:23	08:13 16:35	08:13 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	19:22 (5) 21:40	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	19:13 (5) 17:24	08:15 16:34	08:15 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:23 (5) 21:41	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	19:14 (5) 17:25	08:16 16:33	08:16 16:33
29	08:22 17:19	07:21 18:04	06:21 19:04	06:14 19:05	19:24 (5) 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	19:15 (5) 17:26	08:18 16:33	08:18 16:34
30	08:21 17:21	07:19 18:06	06:20 19:05	06:12 19:05	19:25 (5) 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	19:16 (5) 17:27	08:19 16:32	08:19 16:35
31	08:19 17:23	07:17 18:08	06:19 19:08	06:11 19:20	19:26 (5) 20:59	05:26 21:44	05:21 22:00	05:57 21:29	06:46 20:28	19:06 (5) 19:11 (5)	19:17 (5) 17:28	08:20 16:36	08:20 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	251	332	267	244
Total, worst case			33	217				5		251			
Sun reduction			0.24	0.35				0.30		0.28			
Oper. time red.			1.00	1.00				1.00		1.00			
Wind dir. red.			0.65	0.65				0.65		0.65			
Total reduction			0.16	0.23				0.19		0.19			
Total, real			5	50				1		46			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case**Shadow receptor:** BD - H56**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	18:59 (5) 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	18:59 (5) 21:02	05:24 21:47	05:23 21:59	05:24 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	18:59 (5) 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:59 (5) 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	19:00 (5) 19:08 (5)	07:42 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	18:59 (5) 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18:58 (5) 19:11 (5)	07:43 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	19:00 (5) 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	18:56 (5) 19:12 (5)	07:45 17:05	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	19:02 (5) 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	18:55 (5) 19:13 (5)	07:47 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:03 (5) 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:54 (5) 19:13 (5)	07:48 17:01	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:11 (5) 21:13	05:25 21:53	05:29 21:55	06:11 21:14	07:01 20:08	18:53 (5) 19:13 (5)	07:50 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	07:02 21:12	07:02 20:06	18:52 (5) 19:13 (5)	07:52 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:52 (5) 19:12 (5)	07:53 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:52 (5) 19:12 (5)	07:55 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:51 (5) 19:10 (5)	07:57 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:52 (5) 19:09 (5)	07:58 16:48	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	18:54 (5) 19:08 (5)	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:55 (5) 19:05 (5)	08:02 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	18:09 18:35	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	18:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	18:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	18:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	18:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	18:18 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28	18:21 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	18:07 (5) 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	18:24 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	18:04 (5) 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	18:26 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:01	18:17 (5) 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	18:28 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:01	19:01 (5) 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	18:30 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:11 19:00	19:00 (5) 21:44	05:26 21:44	05:22 21:29	05:57 20:28	06:46 20:28	19:19	17:13	16:32	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case			77	137					215			
Sun reduction			0.24	0.35					0.28			
Oper. time red.			1.00	1.00					1.00			
Wind dir. red.			0.66	0.66					0.66			
Total reduction			0.16	0.23					0.19			
Total, real			12	32					40			

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		

6460 Gortloughra WF 8 no. turbine wind farm Gortloughra Co.Cork

8 no. turbine wind farm Gortloughra Co.Cork

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

31/03/2026 14:52/4.2.285

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August	September		October	November	December
1	08:45	08:18	07:25		07:14		19:00 (5)	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16		20:09	19	19:19 (5)	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23		07:12		19:00 (5)	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18		20:11	19	19:19 (5)	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20		07:10		19:00 (5)	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19		20:13	19	19:19 (5)	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18		07:08		19:00 (5)	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21		20:15	17	19:17 (5)	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16		07:05		19:01 (5)	06:03	05:22	05:25	06:05	06:54	19:02 (5)	07:43	07:37
	16:41	17:32	18:23		20:16	15	19:16 (5)	21:07	21:50	21:58	21:21	20:17	5	19:07 (5)	17:04
6	08:44	08:10	07:14		07:03		19:02 (5)	06:01	05:21	05:26	06:06	06:56	18:59 (5)	07:45	07:39
	16:43	17:34	18:25		20:18	12	19:14 (5)	21:08	21:51	21:57	21:19	20:15	11	19:10 (5)	17:02
7	08:43	08:08	07:12		07:01		19:05 (5)	05:59	05:21	05:27	06:08	06:58	18:56 (5)	07:47	07:41
	16:44	17:36	18:26		20:20	6	19:11 (5)	21:10	21:52	21:57	21:17	20:12	15	19:11 (5)	17:00
8	08:43	08:06	07:09		06:59			05:57	05:20	05:28	06:09	06:59	18:55 (5)	07:48	07:43
	16:45	17:37	18:28		20:21			21:12	21:53	21:56	21:16	20:10	17	19:12 (5)	17:01
9	08:42	08:05	07:07		06:56			05:55	05:20	05:29	06:11	07:01	18:53 (5)	07:50	07:44
	16:47	17:39	18:30		20:23			21:13	21:53	21:55	21:14	20:08	19	19:12 (5)	18:59
10	08:42	08:03	07:05		06:54			05:54	05:19	05:30	06:12	07:02	18:53 (5)	07:52	07:46
	16:48	17:41	18:32		20:25			21:15	21:54	21:55	21:12	20:06	19	19:12 (5)	18:56
11	08:41	08:01	07:03		06:52			05:52	05:19	05:31	06:14	07:04	18:52 (5)	07:53	07:48
	16:49	17:43	18:34		20:26			21:16	21:55	21:54	21:10	20:03	19	19:11 (5)	18:54
12	08:41	07:59	07:00		06:50			05:50	05:19	05:32	06:16	07:06	18:52 (5)	07:55	07:50
	16:51	17:45	18:35		20:28			21:18	21:56	21:53	21:08	20:01	19	19:11 (5)	18:52
13	08:40	07:57	06:58		06:47			05:49	05:18	05:33	06:17	07:07	18:51 (5)	07:57	07:51
	16:52	17:47	18:37		20:30			21:20	21:56	21:52	21:06	19:59	19	19:10 (5)	18:50
14	08:39	07:55	06:56		06:45			05:47	05:18	05:34	06:19	07:09	18:52 (5)	07:58	07:53
	16:54	17:48	18:39		20:32			21:21	21:57	21:51	21:04	19:56	17	19:09 (5)	18:48
15	08:38	07:54	06:54		06:43			05:46	05:18	05:35	06:20	07:10	18:53 (5)	08:00	07:55
	16:55	17:50	18:40		20:33			21:23	21:57	21:50	21:02	19:54	16	19:09 (5)	18:45
16	08:37	07:52	06:51		06:41			05:44	05:18	05:36	06:22	07:12	18:54 (5)	08:02	07:57
	16:57	17:52	18:42		20:35			21:24	21:58	21:49	21:00	19:52	12	19:06 (5)	18:43
17	08:37	07:50	06:49		06:39			05:43	05:18	05:38	06:24	07:14	18:56 (5)	08:04	07:58
	16:58	17:54	18:44		20:37			21:26	21:58	21:48	20:58	19:49	8	19:04 (5)	18:41
18	08:36	07:48	06:47		06:37			05:41	05:18	05:39	06:25	07:15		08:05	08:00
	17:00	17:56	18:46		20:38			21:27	21:59	21:47	20:56	19:47		18:39	16:44
19	08:35	07:46	06:44		06:34			05:40	05:18	05:40	06:27	07:17		08:07	08:02
	17:02	17:58	18:47		20:40			21:29	21:59	21:46	20:54	19:45		18:37	16:43
20	08:34	07:44	06:42		06:32			05:38	05:18	05:41	06:29	07:19		08:09	08:03
	17:03	18:00	18:49		20:42			21:30	21:59	21:45	20:52	19:42		18:35	16:42
21	08:32	07:42	06:40		06:30			05:37	05:18	05:43	06:30	07:20		08:11	08:05
	17:05	18:01	18:51		20:43			21:32	22:00	21:44	20:50	19:40		18:33	16:40
22	08:31	07:40	06:37		06:28			05:36	05:18	05:44	06:32	07:22		08:12	08:07
	17:07	18:03	18:52		20:45			21:33	22:00	21:42	20:48	19:38		18:31	16:39
23	08:30	07:37	06:35		06:26			05:34	05:18	05:45	06:33	07:23		08:14	08:08
	17:08	18:05	18:54		20:47			21:34	22:00	21:41	20:46	19:35		18:29	16:38
24	08:29	07:35	06:33		06:24			05:33	05:19	05:47	06:35	07:25		08:16	08:10
	17:10	18:07	18:56		20:48			21:36	22:00	21:40	20:44	19:33		18:27	16:37
25	08:28	07:33	06:31		06:22			05:32	05:19	05:48	06:37	07:27		07:18	08:12
	17:12	18:09	18:58		20:50			21:37	22:00	21:38	20:41	19:31		17:25	16:36
26	08:26	07:31	06:28		06:20			05:31	05:19	05:50	06:38	07:28		07:19	08:13
	17:14	18:10	18:59	5	18:09 (5)			21:38	22:00	21:37	20:39	19:28		17:23	16:35
27	08:25	07:29	06:26		06:18			05:30	05:20	05:51	06:40	07:30		07:21	08:15
	17:15	18:12	19:01	11	18:17 (5)			21:40	22:00	21:36	20:37	19:26		17:21	16:34
28	08:24	07:27	06:24		06:16			05:29	05:20	05:53	06:41	07:32		07:23	08:16
	17:17	18:14	19:03	15	18:18 (5)			21:41	22:00	21:34	20:35	19:24		17:19	16:33
29	08:22		07:21		06:14			05:28	05:21	05:54	06:43	07:33		07:25	08:18
	17:19		20:04	17	19:19 (5)			21:42	22:00	21:33	20:33	19:21		17:17	16:33
30	08:21		07:19		06:12			05:27	05:22	05:55	06:45	07:35		07:26	08:19
	17:21		20:06	19	19:20 (5)			21:43	22:00	21:31	20:31	19:19		17:15	16:32
31	08:19		07:17		19:00 (5)			05:26		05:57	06:46			07:28	08:45
	17:23		20:08	19	19:19 (5)			21:44		21:29	20:28			17:13	16:36
Potential sun hours	260	278	367		416		485	498	501		453	381	196	332	244
Total, worst case			86		107								0.28		
Sun reduction			0.24		0.35										
Oper. time red.			1.00		1.00								1.00		
Wind dir. red.			0.66		0.66								0.66		
Total reduction			0.16		0.23								0.19		
Total, real			14		25							37			

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	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case**Shadow receptor:** BF - H58**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August	September		October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16		07:14 20:09	19	18:58 (5) 19:17 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28		07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18		07:12 20:11	19	18:58 (5) 19:17 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26		07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19		07:10 20:13	17	18:59 (5) 19:16 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24		07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21		07:08 20:15	15	18:59 (5) 19:14 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23		07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23		07:05 20:16	11	19:01 (5) 19:12 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21		07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	5	19:04 (5) 19:09 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	5	19:00 (5) 19:05 (5)	07:45 19:05	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:26		07:01 20:20		05:59 21:10	06:01 21:52	05:21 21:57	05:27 21:57	06:08 21:17	5	18:56 (5) 19:07 (5)	07:47 19:03	07:41 17:00
8	08:43 16:45	08:06 17:37	07:09 18:28		06:59 20:21		05:57 21:12	06:09 21:53	05:28 21:56	06:09 21:16	06:59 21:10	11	18:54 (5) 19:09 (5)	07:48 19:01	07:43 16:59
9	08:42 16:47	08:05 17:39	07:07 18:30		06:56 20:23		05:55 21:13	06:11 21:53	05:29 21:55	06:11 21:14	07:01 20:08	17	18:52 (5) 19:09 (5)	07:50 18:59	07:44 16:57
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25		05:54 21:15	06:12 21:54	05:30 21:55	06:12 21:12	07:02 20:06	18	18:52 (5) 19:10 (5)	07:52 18:56	07:46 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34		06:52 20:26		05:52 21:16	06:14 21:55	05:31 21:54	06:14 21:10	07:04 20:03	19	18:50 (5) 19:09 (5)	07:53 18:54	07:48 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35		06:50 20:28		05:50 21:18	06:16 21:56	06:16 21:53	07:06 21:08	07:06 20:01	20	18:50 (5) 19:10 (5)	07:55 18:52	07:50 16:52
13	08:40 16:52	07:57 17:47	06:58 18:37		06:47 20:30		05:49 21:20	06:17 21:56	06:17 21:52	07:07 21:06	07:07 19:59	20	18:49 (5) 19:09 (5)	07:57 18:50	07:51 16:51
14	08:39 16:54	07:55 17:48	06:56 18:39		06:45 20:32		05:47 21:21	06:19 21:57	06:19 21:51	07:09 21:04	07:09 19:56	19	18:49 (5) 19:08 (5)	07:58 18:48	07:53 16:50
15	08:38 16:55	07:54 17:50	06:54 18:40		06:43 20:33		05:46 21:23	06:20 21:57	06:20 21:50	07:10 21:02	07:10 19:54	18	18:50 (5) 19:08 (5)	08:00 18:45	07:55 16:48
16	08:37 16:57	07:52 17:52	06:51 18:42		06:41 20:35		05:44 21:24	06:22 21:58	06:22 21:49	07:12 21:00	07:12 19:52	16	18:50 (5) 19:06 (5)	08:02 18:43	07:57 16:47
17	08:37 16:58	07:50 17:54	06:49 18:44		06:39 20:37		05:43 21:26	06:24 21:58	06:24 21:48	07:14 20:58	07:14 19:49	12	18:52 (5) 19:04 (5)	08:04 18:41	07:58 16:45
18	08:36 17:00	07:48 17:56	06:47 18:46		06:37 20:38		05:41 21:27	06:25 21:59	06:25 21:47	07:15 20:56	07:15 19:47	8	18:53 (5) 19:01 (5)	08:05 18:39	08:00 16:44
19	08:35 17:02	07:46 17:58	06:44 18:47		06:34 20:40		05:40 21:29	06:27 21:59	06:27 21:46	07:17 20:54	07:17 19:45		18:52 (5) 18:37	08:07 18:07	08:02 16:43
20	08:34 17:03	07:44 18:00	06:42 18:49		06:32 20:42		05:38 21:30	06:29 21:59	06:29 21:45	07:19 20:52	07:19 19:42		18:50 (5) 18:35	08:09 18:35	08:03 16:42
21	08:32 17:05	07:42 18:01	06:40 18:51		06:30 20:43		05:37 21:32	06:30 22:00	06:30 21:44	07:20 20:50	07:20 19:40		18:53 (5) 18:33	08:05 18:12	08:05 16:40
22	08:31 17:07	07:40 18:03	06:37 18:52		06:28 20:45		05:36 21:33	06:32 22:00	06:32 21:42	07:22 20:48	07:22 19:38		18:30 18:31	08:07 18:13	08:07 16:39
23	08:30 17:08	07:37 18:05	06:35 18:54		06:26 20:47		05:34 21:34	06:33 22:00	06:33 21:41	07:23 20:46	07:23 19:35		18:28 18:29	08:08 18:16	08:08 16:38
24	08:29 17:10	07:35 18:07	06:33 18:56		06:24 20:48		05:33 21:36	06:35 22:00	06:35 21:40	07:25 20:44	07:25 19:33		18:25 18:27	08:10 18:17	08:10 16:37
25	08:28 17:12	07:33 18:09	06:31 18:58	7	18:06 (5) 18:13 (5)		05:32 21:37	06:37 22:00	06:37 21:38	07:27 20:41	07:27 19:31		18:22 17:25	08:12 18:12	08:12 16:36
26	08:26 17:14	07:31 18:10	06:28 18:59	13	18:03 (5) 18:16 (5)		05:31 21:38	06:38 22:00	06:38 21:37	07:28 20:39	07:28 19:28		18:20 17:23	08:13 18:15	08:13 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	15	18:02 (5) 18:17 (5)		05:30 21:40	06:40 22:00	06:40 21:36	07:30 20:37	07:30 19:26		18:18 17:21	08:15 18:16	08:15 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	17	18:00 (5) 18:17 (5)		05:29 21:41	06:41 22:00	06:41 21:34	07:32 20:35	07:32 19:24		18:16 17:19	08:16 18:18	08:16 16:33
29	08:22 17:19	07:21 20:04	06:14 19:19	19	18:59 (5) 19:18 (5)		05:28 21:42	06:43 22:00	06:43 21:33	07:33 20:33	07:33 19:21		18:14 17:17	08:18 18:19	08:18 16:34
30	08:21 17:21	07:19 20:06	06:12 19:19	19	18:59 (5) 19:18 (5)		05:27 21:43	06:45 22:00	06:45 21:31	07:35 20:31	07:35 19:19		18:13 17:15	08:19 18:20	08:19 16:35
31	08:19 17:23	07:17 20:08	06:11 19:17 (5)	19	18:58 (5) 19:17 (5)		05:26 21:44	06:46 21:44	06:46 21:29	07:36 20:28	07:36 19:13		18:12 17:13	08:18 18:19	08:18 16:36
Potential sun hours	260	278	367		416		485	498	501	453	381		332	267	244
Total, worst case			109		86						198				
Sun reduction			0.24		0.35						0.28				
Oper. time red.			1.00		1.00						1.00				
Wind dir. red.			0.66		0.66						0.66				
Total reduction			0.16		0.23						0.19				
Total, real			18		20						37				

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

Shadow receptor: BG - H59

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	15 18:58 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	12 19:00 (5) 21:02	06:08 21:47	05:24 21:59	05:23 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30	
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	19:02 (5) 21:03	06:06 21:48	05:23 21:59	05:24 21:24	06:02 20:22	07:40 19:12	07:34 17:07	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	7 19:09 (5) 21:05	06:04 21:49	05:23 21:58	05:24 21:23	06:03 20:19	07:42 19:10	07:35 17:06	08:25 16:29	
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:00	08:29 16:28	
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	18:55 (5) 19:02 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	18:53 (5) 19:05 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:51 (5) 19:05 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:50 (5) 19:06 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:48 (5) 19:06 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:48 (5) 19:06 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54	18:48 (5) 19:06 (5)	08:00 18:45	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:47 (5) 19:05 (5)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:48 (5) 19:05 (5)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:48 (5) 19:03 (5)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:49 (5) 19:01 (5)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:28 20:52	07:19 19:42	18:51 (5) 18:59 (5)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:31	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	8 18:59 (5)	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:08 16:38	08:43 16:29	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:33 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	08:18 17:25	08:12 16:36	08:43 16:31	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	06:14 19:04	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:25 17:17	08:18 16:33	08:44 16:34	08:44 16:34
30	08:21 17:21	07:19 20:06	06:12 19:06	06:12 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:26 17:15	08:19 16:32	08:45 16:35	08:45 16:35
31	08:19 17:23	07:17 20:08	06:17 19:14 (5)	06:17 20:58	05:26 21:44	05:22 21:29	05:57 20:28	06:46 20:28	07:35 19:19	07:28 17:13	08:19 16:32	08:45 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			141	34						173			
Sun reduction			0.24	0.35						0.28			
Oper. time red.			1.00	1.00						1.00			
Wind dir. red.			0.66	0.66						0.66			
Total reduction			0.16	0.23						0.19			
Total, real			23	8						32			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BH - H60**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BI - H61**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BJ - H62

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BK - H63

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

Shadow receptor: BL - H64

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	19:41 (8) 20:02 (8)	05:22 21:59	19:42 (8) 20:13 (8)	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	19:40 (8) 20:03 (8)	05:23 21:59	19:42 (8) 20:13 (8)	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:24 21:48	19:39 (8) 20:03 (8)	05:24 21:59	19:42 (8) 20:12 (8)	06:02 21:25	06:51 20:22	07:40 19:12	07:34 17:08
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	19:39 (8) 20:04 (8)	05:24 21:58	19:43 (8) 20:12 (8)	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	19:38 (8) 20:05 (8)	05:25 21:58	19:44 (8) 20:12 (8)	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:22 21:51	19:38 (8) 20:06 (8)	05:26 21:57	19:44 (8) 20:12 (8)	06:06 21:19	06:56 20:15	07:45 19:06	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	19:38 (8) 20:06 (8)	05:27 21:57	19:44 (8) 20:11 (8)	06:08 21:18	06:58 20:13	07:47 19:03	07:41 17:01
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	19:38 (8) 20:07 (8)	05:28 21:56	19:45 (8) 20:11 (8)	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	05:20 21:53	19:37 (8) 20:07 (8)	05:29 21:56	19:46 (8) 20:11 (8)	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	19:37 (8) 20:08 (8)	05:30 21:55	19:47 (8) 20:10 (8)	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	19:38 (8) 20:08 (8)	05:31 21:54	19:48 (8) 20:10 (8)	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:51 21:18	05:19 21:56	19:38 (8) 20:09 (8)	05:32 21:53	19:49 (8) 20:09 (8)	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	19:37 (8) 20:09 (8)	05:33 21:52	19:50 (8) 20:08 (8)	06:17 21:06	07:07 19:12	07:57 18:50	07:51 16:51
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	19:37 (8) 20:09 (8)	05:34 21:51	19:51 (8) 20:07 (8)	06:19 21:04	07:09 19:01	07:59 18:48	07:53 16:50
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:57	19:37 (8) 20:10 (8)	05:35 21:50	19:53 (8) 20:05 (8)	06:21 21:02	07:11 19:16	08:00 18:46	07:55 16:48
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	19:38 (8) 20:10 (8)	05:37 21:49	19:55 (8) 20:02 (8)	06:22 21:00	07:12 19:17	08:02 18:43	07:57 16:47
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	19:38 (8) 20:10 (8)	05:38 21:48	19:55 (8) 20:02 (8)	06:24 20:58	07:14 19:18	08:04 18:41	07:58 16:45
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	19:38 (8) 20:11 (8)	05:39 21:47	19:55 (8) 20:02 (8)	06:25 20:56	07:15 19:18	08:05 18:39	08:00 16:44
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	19:38 (8) 20:11 (8)	05:40 21:46	19:55 (8) 20:02 (8)	06:27 20:54	07:17 19:19	08:07 18:37	08:02 16:43
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	05:18 21:59	19:38 (8) 20:11 (8)	05:42 21:45	19:55 (8) 20:02 (8)	06:29 20:52	07:19 19:19	08:09 18:35	08:04 16:42
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	19:39 (8) 20:12 (8)	05:43 21:44	19:55 (8) 20:02 (8)	06:30 20:50	07:20 19:19	08:11 18:33	08:05 16:40
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	19:39 (8) 20:12 (8)	05:44 21:42	19:55 (8) 20:02 (8)	06:32 20:48	07:22 19:20	08:12 18:31	08:07 16:39
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	19:39 (8) 20:12 (8)	05:46 21:41	19:55 (8) 20:02 (8)	06:33 20:46	07:24 19:19	08:14 18:29	08:08 16:38
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	19:39 (8) 20:12 (8)	05:47 21:40	19:55 (8) 20:02 (8)	06:35 20:44	07:25 19:19	08:16 18:27	08:10 16:37
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	19:40 (8) 20:12 (8)	05:48 21:38	19:55 (8) 20:02 (8)	06:37 20:42	07:27 19:18	08:18 18:25	08:12 16:36
26	08:26 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	19:40 (8) 20:12 (8)	05:50 21:37	19:55 (8) 20:02 (8)	06:38 20:39	07:28 19:17	08:19 18:23	08:13 16:35
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	19:40 (8) 20:13 (8)	05:51 21:36	19:55 (8) 20:02 (8)	06:40 20:37	07:30 19:16	08:21 18:26	08:15 16:34
28	08:24 17:17	07:27 18:14	06:24 19:04	06:16 20:55	05:29 21:41	05:21 22:00	19:40 (8) 20:12 (8)	05:53 21:34	19:55 (8) 20:02 (8)	06:42 20:35	07:32 19:15	08:23 18:24	08:16 16:33
29	08:22 17:19	07:21 18:04	06:14 19:06	06:14 20:57	05:28 21:42	05:21 22:00	19:41 (8) 20:13 (8)	05:54 21:33	19:55 (8) 20:02 (8)	06:43 20:33	07:33 19:13	08:25 18:22	08:18 16:33
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	05:27 21:43	05:22 22:00	19:41 (8) 20:12 (8)	05:56 21:31	19:55 (8) 20:02 (8)	06:45 20:31	07:35 19:11	08:27 18:21	08:19 16:35
31	08:19 17:23	07:17 18:08	06:10 19:07	06:10 20:58	05:26 21:44	05:23 22:00	19:41 (8) 20:12 (8)	05:57 21:29	19:55 (8) 20:02 (8)	06:46 20:28	07:36 19:07	08:28 18:21	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case				367	61	911	373	375					
Sun reduction				0.35	0.37	0.30	0.27	0.30					
Oper. time red.				1.00	1.00	1.00	1.00	1.00					
Wind dir. red.				0.64	0.58	0.58	0.58	0.64					
Total reduction				0.23	0.21	0.17	0.15	0.19					
Total, real				84	13	158	57	72					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BM - H65**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	08:18	07:25						07:15			18:19 (8)	06:10		05:25		19:36 (4)
	16:37	17:25	18:16						20:10	29		18:48 (8)	21:00		21:46	31	20:07 (4)
2	08:45	08:16	07:23						07:12			18:19 (8)	06:08		05:24		19:36 (4)
	16:38	17:26	18:18						20:11	30		18:49 (8)	21:02		21:47	31	20:07 (4)
3	08:44	08:15	07:20						07:10			18:18 (8)	06:06		05:24		19:36 (4)
	16:39	17:28	18:19						20:13	31		18:49 (8)	21:03		21:48	31	20:07 (4)
4	08:44	08:13	07:18						07:08			18:17 (8)	06:04		05:23		19:36 (4)
	16:40	17:30	18:21						20:15	32		18:49 (8)	21:05		21:49	32	20:08 (4)
5	08:44	08:12	07:16						07:05			18:16 (8)	06:03		05:22		19:36 (4)
	16:41	17:32	18:23						20:16	33		18:49 (8)	21:07		21:50	32	20:08 (4)
6	08:44	08:10	07:14						07:03			18:16 (8)	06:01		05:22		19:36 (4)
	16:43	17:34	18:25						20:18	33		18:49 (8)	21:08		21:51	33	20:09 (4)
7	08:43	08:08	07:12						07:01			18:17 (8)	05:59		05:21		19:36 (4)
	16:44	17:36	18:27						20:20	32		18:49 (8)	21:10		21:52	33	20:09 (4)
8	08:43	08:06	07:09						06:59			18:16 (8)	05:57		05:20		19:36 (4)
	16:45	17:37	18:28						20:21	31		18:47 (8)	21:12		21:53	33	20:09 (4)
9	08:42	08:05	07:07						06:56			18:16 (8)	05:56		05:20		19:36 (4)
	16:47	17:39	18:30						20:23	31		18:47 (8)	21:13		21:53	33	20:09 (4)
10	08:42	08:03	07:05						06:54			18:17 (8)	05:54		05:19		19:36 (4)
	16:48	17:41	18:32						20:25	29		18:46 (8)	21:15		21:54	34	20:10 (4)
11	08:41	08:01	07:03					17:19 (7)	06:52			18:18 (8)	05:52		05:19		19:37 (4)
	16:49	17:43	18:34	7				17:26 (7)	20:26	28		18:46 (8)	21:16		21:55	33	20:10 (4)
12	08:41	07:59	07:00					17:15 (7)	06:50			18:19 (8)	05:50		05:19		19:37 (4)
	16:51	17:45	18:35	13				17:28 (7)	20:28	26		18:45 (8)	21:18		21:56	34	20:11 (4)
13	08:40	07:57	06:58					17:13 (7)	06:48			18:19 (8)	05:49		05:19		19:36 (4)
	16:52	17:47	18:37	17				17:30 (7)	20:30	23		18:42 (8)	21:20		21:56	34	20:10 (4)
14	08:39	07:55	06:56					17:12 (7)	06:45			18:20 (8)	05:47		05:18		19:37 (4)
	16:54	17:49	18:39	19				17:31 (7)	20:32	21		18:41 (8)	21:21		21:57	34	20:11 (4)
15	08:38	07:54	06:54					17:10 (7)	06:43			18:22 (8)	05:46		05:18		19:37 (4)
	16:55	17:50	18:41	21				17:31 (7)	20:33	17		18:39 (8)	21:23		21:57	34	20:11 (4)
16	08:37	07:52	06:51					17:10 (7)	06:41			18:25 (8)	05:44		05:18		19:37 (4)
	16:57	17:52	18:42	21				17:31 (7)	20:35	10		18:35 (8)	21:24		21:58	34	20:11 (4)
17	08:37	07:50	06:49					17:10 (7)	06:39				05:43		05:18		19:37 (4)
	16:59	17:54	18:44	22				17:32 (7)	20:37				21:26		21:58	34	20:11 (4)
18	08:36	07:48	06:47					17:09 (7)	06:37				05:41		05:18		19:38 (4)
	17:00	17:56	18:46	22				17:31 (7)	20:38				21:27		21:59	34	20:12 (4)
19	08:35	07:46	06:44					17:09 (7)	06:34				05:40		05:18		19:38 (4)
	17:02	17:58	18:47	22				17:31 (7)	20:40				21:29		21:59	34	20:12 (4)
20	08:34	07:44	06:42					17:10 (7)	06:32				05:39		05:18		19:38 (4)
	17:03	18:00	18:49	20				17:30 (7)	20:42				19:45 (4)		05:18		19:38 (4)
21	08:33	07:42	06:40					17:10 (7)	06:30				05:37		19:43 (4)		19:39 (4)
	17:05	18:01	18:51	20				17:30 (7)	20:43				21:32	14	19:57 (4)		20:13 (4)
22	08:31	07:40	06:38					17:11 (7)	06:28				05:36		19:42 (4)		19:39 (4)
	17:07	18:03	18:53	16				17:27 (7)	20:45				21:33	17	19:59 (4)		20:13 (4)
23	08:30	07:38	06:35					17:12 (7)	06:26				05:35		19:40 (4)		19:39 (4)
	17:09	18:05	18:54	14				17:26 (7)	20:47				21:34	20	20:00 (4)		20:13 (4)
24	08:29	07:35	06:33					17:15 (7)	06:24				05:33		19:40 (4)		19:39 (4)
	17:10	18:07	18:56	8				17:23 (7)	20:48				21:36	21	20:01 (4)		20:13 (4)
25	08:28	07:33	06:31						06:22				05:32		19:39 (4)		19:40 (4)
	17:12	18:09	18:58						20:50				21:37	23	20:02 (4)		20:13 (4)
26	08:26	07:31	06:28						06:20				05:31		19:38 (4)		19:39 (4)
	17:14	18:11	18:59						20:52				21:38	25	20:03 (4)		20:13 (4)
27	08:25	07:29	06:26					17:30 (8)	06:18				05:30		19:38 (4)		19:40 (4)
	17:16	18:12	19:01	11				17:41 (8)	20:53				21:40	26	20:04 (4)		20:14 (4)
28	08:24	07:27	06:24					17:26 (8)	06:16				05:29		19:37 (4)		19:40 (4)
	17:17	18:14	19:03	17				17:43 (8)	20:55				21:41	28	20:05 (4)		20:14 (4)
29	08:22		07:21					18:24 (8)	06:14				05:28		19:37 (4)		19:41 (4)
	17:19		20:04	21				18:45 (8)	20:57				21:42	28	20:05 (4)		20:14 (4)
30	08:21		07:19					18:22 (8)	06:12				05:27		19:36 (4)		19:40 (4)
	17:21		20:06	25				18:47 (8)	20:58				21:43	29	20:05 (4)		20:14 (4)
31	08:19		07:17					18:20 (8)					05:26		19:36 (4)		
	17:23		20:08	27				18:47 (8)					21:45	30	20:06 (4)		
Potential sun hours	260	278	367					416				485			498		
Total, worst case				343				436				270			1000		
Sun reduction				0.24				0.35				0.37			0.30		
Oper. time red.				1.00				1.00				1.00			1.00		
Wind dir. red.				0.68				0.67				0.58			0.58		
Total reduction				0.17				0.24				0.21			0.17		
Total, real				57				104				58			174		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case**Shadow receptor:** BM - H65**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22	19:41 (4)	05:59	06:48	18:17 (8)	07:37	17:54 (7)	07:30	08:21		
	21:59	33	20:14 (4)	21:28	20:26	27	18:44 (8)	19:17	14	18:08 (7)	17:11
2	05:23	19:40 (4)	06:00	06:50	18:15 (8)	07:38	17:55 (7)	07:32	08:22		
	21:59	34	20:14 (4)	21:26	20:24	29	18:44 (8)	19:15	10	18:05 (7)	17:09
3	05:24	19:41 (4)	06:02	06:51	18:14 (8)	07:40		07:34	08:24		
	21:59	33	20:14 (4)	21:25	20:22	31	18:45 (8)	19:12		17:08	16:30
4	05:24	19:41 (4)	06:03	06:53	18:14 (8)	07:42		07:35	08:25		
	21:58	34	20:15 (4)	21:23	20:19	31	18:45 (8)	19:10		17:06	16:29
5	05:25	19:42 (4)	06:05	06:54	18:13 (8)	07:43		07:37	08:26		
	21:58	33	20:15 (4)	21:21	20:17	32	18:45 (8)	19:08		17:04	16:29
6	05:26	19:41 (4)	06:06	06:56	18:13 (8)	07:45		07:39	08:28		
	21:57	33	20:14 (4)	21:19	20:15	32	18:45 (8)	19:06		17:02	16:28
7	05:27	19:42 (4)	06:08	06:58	18:12 (8)	07:47		07:41	08:29		
	21:57	32	20:14 (4)	21:18	20:13	32	18:44 (8)	19:03		17:01	16:28
8	05:28	19:42 (4)	06:09	06:59	18:12 (8)	07:48		07:43	08:30		
	21:56	33	20:15 (4)	21:16	20:10	32	18:44 (8)	19:01		16:59	16:28
9	05:29	19:43 (4)	06:11	07:01	18:11 (8)	07:50		07:44	08:31		
	21:56	32	20:15 (4)	21:14	20:08	32	18:43 (8)	18:59		16:57	16:27
10	05:30	19:43 (4)	06:13	07:03	18:12 (8)	07:52		07:46	08:32		
	21:55	32	20:15 (4)	21:12	20:06	30	18:42 (8)	18:57		16:56	16:27
11	05:31	19:44 (4)	06:14	07:04	18:11 (8)	07:53		07:48	08:33		
	21:54	30	20:14 (4)	21:10	20:03	29	18:40 (8)	18:54		16:54	16:27
12	05:32	19:44 (4)	06:16	07:06	18:12 (8)	07:55		07:50	08:34		
	21:53	30	20:14 (4)	21:08	20:01	28	18:40 (8)	18:52		16:53	16:27
13	05:33	19:44 (4)	06:17	07:07	18:13 (8)	07:57		07:51	08:35		
	21:52	30	20:14 (4)	21:06	19:59	25	18:38 (8)	18:50		16:51	16:27
14	05:34	19:45 (4)	06:19	07:09	18:14 (8)	07:59		07:53	08:36		
	21:51	29	20:14 (4)	21:04	19:56	22	18:36 (8)	18:48		16:50	16:27
15	05:35	19:45 (4)	06:21	07:11	18:16 (8)	08:00		07:55	08:37		
	21:50	28	20:13 (4)	21:02	19:54	18	18:34 (8)	18:46		16:48	16:27
16	05:36	19:46 (4)	06:22	07:12	18:18 (8)	08:02		07:57	08:38		
	21:49	27	20:13 (4)	21:00	19:52	12	18:30 (8)	18:43		16:47	16:27
17	05:38	19:47 (4)	06:24	07:14				08:04	07:58	08:39	
	21:48	26	20:13 (4)	20:58	19:49			18:41	16:45	16:27	
18	05:39	19:48 (4)	06:25	07:15				08:05	08:00	08:40	
	21:47	24	20:12 (4)	20:56	19:47			18:39	16:44	16:27	
19	05:40	19:49 (4)	06:27	07:17	18:02 (7)	08:07		08:02	08:40		
	21:46	22	20:11 (4)	20:54	19:45	7	18:09 (7)	18:37	16:43	16:28	
20	05:42	19:49 (4)	06:29	07:19	17:59 (7)	08:09		08:04	08:41		
	21:45	21	20:10 (4)	20:52	19:42	13	18:12 (7)	18:35	16:42	16:28	
21	05:43	19:50 (4)	06:30	07:20	17:57 (7)	08:11		08:05	08:42		
	21:44	19	20:09 (4)	20:50	19:40	16	18:13 (7)	18:33	16:40	16:29	
22	05:44	19:53 (4)	06:32	07:22	17:55 (7)	08:12		08:07	08:42		
	21:42	15	20:08 (4)	20:48	19:38	19	18:14 (7)	18:31	16:39	16:29	
23	05:46	19:54 (4)	06:33	07:24	17:53 (7)	08:14		08:08	08:43		
	21:41	12	20:06 (4)	20:46	19:35	21	18:14 (7)	18:29	16:38	16:30	
24	05:47	19:58 (4)	06:35	07:25	17:53 (7)	08:16		08:10	08:43		
	21:40	4	20:02 (4)	20:44	19:33	21	18:14 (7)	18:27	16:37	16:30	
25	05:48		06:37	07:27	17:53 (7)	07:18		08:12	08:43		
	21:38		20:42	19:31	18:14 (7)	17:25		16:36	16:31		
26	05:50		06:38	07:28	17:51 (7)	07:19		08:13	08:44		
	21:37		20:39	19:28	18:13 (7)	17:23		16:35	16:31		
27	05:51		06:40	18:27 (8)	07:30			08:15	08:44		
	21:36		20:37	18:38 (8)	19:26	21	18:13 (7)	17:21	16:34	16:32	
28	05:53		06:42	18:24 (8)	07:32			08:16	08:44		
	21:34		20:35	18:41 (8)	19:24	21	18:13 (7)	17:19	16:33	16:33	
29	05:54		06:43	18:21 (8)	07:33			08:18	08:44		
	21:33		20:33	18:42 (8)	19:22	19	18:11 (7)	17:17	16:33	16:34	
30	05:56		06:45	18:20 (8)	07:35			08:19	08:45		
	21:31		20:31	18:43 (8)	19:19	17	18:10 (7)	17:15	16:32	16:35	
31	05:57		06:46	18:17 (8)					08:45		
	21:29		20:28	18:43 (8)				17:13	16:36		
Potential sun hours	501		453	381		332		267	244		
Total, worst case	646		98	660		24					
Sun reduction	0.27		0.30	0.28		0.24					
Oper. time red.	1.00		1.00	1.00		1.00					
Wind dir. red.	0.58		0.67	0.68		0.69					
Total reduction	0.15		0.20	0.19		0.16					
Total, real	100		20	126		4					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BN - H66**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45		08:18		07:25				17:20 (8)	07:14		18:52 (4)	06:10		19:28 (5)	05:25	
	16:37		17:25		18:16		8		17:28 (8)	20:10	20	19:12 (4)	21:00	24	19:52 (5)	21:46	
2	08:44		08:16		07:23				17:18 (8)	07:12		18:52 (4)	06:08		19:28 (5)	05:24	
	16:38		17:26		18:18		12		17:30 (8)	20:11	20	19:12 (4)	21:02	26	19:54 (5)	21:47	
3	08:44		08:15		07:20				17:16 (8)	07:10		18:52 (4)	06:06		19:28 (5)	05:23	
	16:39		17:28		18:19		16		17:32 (8)	20:13	19	19:11 (4)	21:03	26	19:54 (5)	21:48	
4	08:44		08:13		07:18				17:16 (8)	07:08		18:52 (4)	06:04		19:27 (5)	05:23	
	16:40		17:30		18:21		17		17:33 (8)	20:15	18	19:10 (4)	21:05	27	19:54 (5)	21:49	
5	08:44		08:12		07:16				17:14 (8)	07:05		18:53 (4)	06:03		19:26 (5)	05:22	
	16:41		17:32		18:23		18		17:32 (8)	20:16	16	19:09 (4)	21:07	28	19:54 (5)	21:50	
6	08:44		08:10		07:14				17:14 (8)	07:03		18:54 (4)	06:01		19:27 (5)	05:21	
	16:43		17:34		18:25		18		17:32 (8)	20:18	14	19:08 (4)	21:08	27	19:54 (5)	21:51	
7	08:43		08:08		07:12				17:14 (8)	07:01		18:56 (4)	05:59		19:26 (5)	05:21	
	16:44		17:36		18:27		19		17:33 (8)	20:20	10	19:06 (4)	21:10	28	19:54 (5)	21:52	
8	08:43		08:06		07:09				17:13 (8)	06:59			05:57		19:26 (5)	05:20	
	16:45		17:37		18:28		18		17:31 (8)	20:21			21:12	27	19:53 (5)	21:53	
9	08:42		08:05		07:07				17:14 (8)	06:56			05:55		19:27 (5)	05:20	
	16:47		17:39		18:30		17		17:31 (8)	20:23			21:13	27	19:54 (5)	21:53	
10	08:42		08:03		07:05				17:15 (8)	06:54			05:54		19:27 (5)	05:19	
	16:48		17:41		18:32		15		17:30 (8)	20:25			21:15	26	19:53 (5)	21:54	
11	08:41		08:01		07:03				17:17 (8)	06:52			05:52		19:28 (5)	05:19	
	16:49		17:43		18:34		11		17:28 (8)	20:26			21:16	25	19:53 (5)	21:55	
12	08:41		07:59		07:00				17:19 (8)	06:50			05:50		19:28 (5)	05:19	
	16:51		17:45		18:35		5		17:24 (8)	20:28			21:18	24	19:52 (5)	21:56	
13	08:40		07:57		06:58					06:47			05:49		19:29 (5)	05:18	
	16:52		17:47		18:37					20:30			21:20	23	19:52 (5)	21:56	
14	08:39		07:55		06:56					06:45			05:47		19:29 (5)	05:18	
	16:54		17:49		18:39					20:32			21:21	22	19:51 (5)	21:57	
15	08:38		07:54		06:54					06:43			05:46		19:30 (5)	05:18	
	16:55		17:50		18:40					20:33			21:23	21	19:51 (5)	21:57	
16	08:37		07:52		06:51					06:41			05:44		19:30 (5)	05:18	
	16:57		17:52		18:42					20:35			21:24	19	19:49 (5)	21:58	
17	08:37		07:50		06:49					06:39			05:43		19:32 (5)	05:18	
	16:58		17:54		18:44					20:37			21:26	16	19:48 (5)	21:58	
18	08:36		07:48		06:47					06:37			05:41		19:34 (5)	05:18	
	17:00		17:56		18:46					20:38			21:27	13	19:47 (5)	21:59	
19	08:35		07:46		06:44					06:34			05:40		19:35 (5)	05:18	
	17:02		17:58		18:47					20:40			21:29	10	19:45 (5)	21:59	
20	08:34		07:44		06:42					06:32			05:38		19:39 (5)	05:18	
	17:03		18:00		18:49					20:42			21:30	2	19:41 (5)	21:59	
21	08:33		07:42		06:40					06:30			05:37			05:18	
	17:05		18:01		18:51					20:43			21:32			22:00	
22	08:31		07:40		06:37					06:28			05:36			05:18	
	17:07		18:03		18:53					20:45			21:33			22:00	
23	08:30		07:38		06:35					06:26			05:35			05:19	
	17:08		18:05		18:54					20:47			21:34			22:00	
24	08:29		07:35		06:33					06:24			05:33			05:19	
	17:10		18:07		18:56					20:48			21:36			22:00	
25	08:28		07:33		06:31					06:22			05:32			05:19	
	17:12		18:09		18:58					20:50			21:37			22:00	
26	08:26		07:31		06:28					06:20		19:39 (5)	05:31			05:20	
	17:14		18:10		18:59					20:52	6	19:45 (5)	21:38			22:00	
27	08:25		07:29		06:26				17:59 (4)	06:18		19:35 (5)	05:30			05:20	
	17:15		18:12		19:01		10		18:09 (4)	20:53	13	19:48 (5)	21:40			22:00	
28	08:24		07:27		06:24				17:56 (4)	06:16		19:33 (5)	05:29			05:20	
	17:17		18:14		19:03		14		18:10 (4)	20:55	17	19:50 (5)	21:41			22:00	
29	08:22				07:21				18:55 (4)	06:14		19:31 (5)	05:28			05:21	
	17:19				20:04		16		19:11 (4)	20:57	20	19:51 (5)	21:42			22:00	
30	08:21				07:19				18:54 (4)	06:12		19:30 (5)	05:27			05:22	
	17:21				20:06		18		19:12 (4)	20:58	22	19:52 (5)	21:43			22:00	
31	08:19				07:17				18:52 (4)				05:26				
	17:23				20:08		20		19:12 (4)				21:44				
Potential sun hours	260		278		367				416				485			498	
Total, worst case					252				195				441				
Sun reduction					0.24				0.35				0.37				
Oper. time red.					1.00				1.00				1.00				
Wind dir. red.					0.68				0.64				0.60				
Total reduction					0.17				0.23				0.22				
Total, real					42				44				97				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case**Assumptions for shadow calculations****Shadow receptor:** BN - H66

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:38 (5)	06:48		07:37		07:30		08:21
	21:59		21:28	20:03 (5)	20:26		19:17		17:11		16:31
2	05:23		06:00	19:38 (5)	06:50		07:38		17:56 (8)		08:22
	21:59		21:26	20:04 (5)	20:24		19:15	9	18:05 (8)		16:30
3	05:24		06:02	19:37 (5)	06:51		07:40		17:54 (8)		08:24
	21:59		21:24	20:04 (5)	20:22		19:12	13	18:07 (8)		16:30
4	05:24		06:03	19:36 (5)	06:53		07:42		17:52 (8)		08:25
	21:58		21:23	20:03 (5)	20:19		19:10	16	18:08 (8)		16:29
5	05:25		06:05	19:37 (5)	06:54		07:43		17:51 (8)		08:26
	21:58		21:21	20:04 (5)	20:17	10	19:02 (4)	17	18:08 (8)		16:29
6	05:26		06:06	19:36 (5)	06:56		07:45		17:50 (8)		08:28
	21:57		21:19	20:03 (5)	20:15	14	19:04 (4)	18	18:08 (8)		16:28
7	05:27		06:08	19:36 (5)	06:58		07:47		17:50 (8)		08:29
	21:57		21:17	20:04 (5)	20:12	16	19:04 (4)	19	18:09 (8)		16:28
8	05:28		06:09	19:36 (5)	06:59		07:48		17:50 (8)		08:30
	21:56		21:16	20:03 (5)	20:10	18	19:05 (4)	18	18:08 (8)		16:28
9	05:29		06:11	19:37 (5)	07:01		07:50		17:49 (8)		08:31
	21:55		21:14	20:03 (5)	20:08	19	19:05 (4)	18	18:07 (8)		16:27
10	05:30		06:13	19:36 (5)	07:02		07:52		17:50 (8)		08:32
	21:55		21:12	20:02 (5)	20:06	20	19:05 (4)	16	18:06 (8)		16:27
11	05:31		06:14	19:37 (5)	07:04		07:53		17:51 (8)		08:33
	21:54		21:10	20:02 (5)	20:03	20	19:04 (4)	14	18:05 (8)		16:27
12	05:32		06:16	19:37 (5)	07:06		07:55		17:53 (8)		08:34
	21:53		21:08	20:01 (5)	20:01	19	19:04 (4)	11	18:04 (8)		16:27
13	05:33		06:17	19:38 (5)	07:07		07:57		17:55 (8)		08:35
	21:52		21:06	20:00 (5)	19:59	19	19:04 (4)	5	18:00 (8)		16:27
14	05:34		06:19	19:39 (5)	07:09		07:58		17:53 (8)		08:36
	21:51		21:04	19:58 (5)	19:56	17	19:02 (4)		16:50		16:27
15	05:35		06:20	19:41 (5)	07:11		08:00		17:55		08:37
	21:50		21:02	19:57 (5)	19:54	15	19:01 (4)		16:48		16:27
16	05:36		06:22	19:42 (5)	07:12		08:02		17:57		08:38
	21:49		21:00	19:54 (5)	19:52	11	18:58 (4)		16:47		16:27
17	05:38		06:24	19:47 (5)	07:14		08:04		17:58		08:39
	21:48		20:58	19:49 (5)	19:49	4	18:54 (4)		16:45		16:27
18	05:39		06:25		07:15		08:05		16:45		08:40
	21:47		20:56		19:47		18:39		16:44		16:27
19	05:40		06:27		07:17		08:07		16:43		08:40
	21:46		20:54		19:45		18:37		16:43		16:28
20	05:41		06:29		07:19		08:09		16:42		08:41
	21:45		20:52		19:42		18:35		16:42		16:28
21	05:43		06:30		07:20		08:11		16:41		08:42
	21:44		20:50		19:40		18:33		16:40		16:28
22	05:44		06:32		07:22		08:12		16:39		08:42
	21:42		20:48		19:38		18:31		16:39		16:29
23	05:45		06:33		07:23		08:14		16:38		08:43
	21:41		20:46		19:35		18:29		16:38		16:29
24	05:47	19:47 (5)	06:35		07:25		08:16		16:37		08:43
	21:40	7	19:54 (5)	20:44	19:33		18:27		16:37		16:30
25	05:48		06:37		07:27		07:18		16:36		08:43
	21:38	12	19:56 (5)	20:41	19:31		17:25		16:36		16:31
26	05:50		06:38		07:28		07:19		16:35		08:44
	21:37	15	19:58 (5)	20:39	19:28		17:23		16:35		16:31
27	05:51		06:40		07:30		07:21		16:34		08:44
	21:36	17	19:59 (5)	20:37	19:26		17:21		16:34		16:32
28	05:53		06:41		07:32		07:23		16:33		08:44
	21:34	20	20:01 (5)	20:35	19:24		17:19		16:33		16:33
29	05:54		06:43		07:33		07:25		16:33		08:44
	21:33	21	20:01 (5)	20:33	19:22		17:17		16:33		16:34
30	05:56		06:45		07:35		07:27		16:32		08:45
	21:31	23	20:02 (5)	20:31	19:19		17:15		16:32		16:35
31	05:57		06:46				07:28				08:45
	21:29	24	20:03 (5)	20:28			17:13				16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case			386		202		174				
Sun reduction	0.27		0.30		0.28		0.24				
Oper. time red.	1.00		1.00		1.00		1.00				
Wind dir. red.	0.60		0.60		0.66		0.69				
Total reduction	0.16		0.18		0.19		0.16				
Total, real	22		69		38		29				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations**Shadow receptor:** BO - H67

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45		08:18		07:25				07:15			06:10		19:13 (4)	05:25		
	16:37		17:25		18:16				20:10			21:00	26	19:39 (4)	21:46		
2	08:45		08:16		07:23				07:12			06:08		19:13 (4)	05:24		
	16:38		17:26		18:18				20:11			21:02	27	19:40 (4)	21:47		
3	08:44		08:15		07:20				07:10			06:06		19:12 (4)	05:24		
	16:39		17:28		18:19				20:13			21:03	28	19:40 (4)	21:48		
4	08:44		08:13		07:18			17:15 (7)	07:08			06:04		19:11 (4)	05:23		
	16:40		17:30		18:21	5		17:20 (7)	20:15			21:05	29	19:40 (4)	21:49		
5	08:44		08:12		07:16			17:11 (7)	07:05			06:03		19:11 (4)	05:22		
	16:41		17:32		18:23	12		17:23 (7)	20:16			21:07	29	19:40 (4)	21:50		
6	08:44		08:10		07:14			17:09 (7)	07:03			06:01		19:11 (4)	05:22		
	16:43		17:34		18:25	15		17:24 (7)	20:18			21:08	30	19:41 (4)	21:51		
7	08:43		08:08		07:12			17:08 (7)	07:01			05:59		19:11 (4)	05:21		
	16:44		17:36		18:27	17		17:25 (7)	20:20			21:10	30	19:41 (4)	21:52		
8	08:43		08:06		07:09			17:08 (7)	06:59			05:57		19:11 (4)	05:20		
	16:45		17:37		18:28	18		17:26 (7)	20:21			21:12	29	19:40 (4)	21:53		
9	08:42		08:05		07:07			17:06 (7)	06:56			05:56		19:11 (4)	05:20		
	16:47		17:39		18:30	20		17:26 (7)	20:23			21:13	30	19:41 (4)	21:53		
10	08:42		08:03		07:05			17:06 (7)	06:54			05:54		19:11 (4)	05:19		
	16:48		17:41		18:32	20		17:26 (7)	20:25			21:15	29	19:40 (4)	21:54		
11	08:41		08:01		07:03			17:06 (7)	06:52			05:52		19:12 (4)	05:19		
	16:49		17:43		18:34	20		17:26 (7)	20:26			21:16	28	19:40 (4)	21:55		
12	08:41		07:59		07:00			17:06 (7)	06:50			05:50		19:12 (4)	05:19		
	16:51		17:45		18:35	18		17:24 (7)	20:28			21:18	27	19:39 (4)	21:56		
13	08:40		07:57		06:58			17:07 (7)	06:47			05:49		19:13 (4)	05:18		
	16:52		17:47		18:37	17		17:24 (7)	20:30			21:20	26	19:39 (4)	21:56		
14	08:39		07:55		06:56			17:08 (7)	06:45			05:47		19:13 (4)	05:18		
	16:54		17:49		18:39	15		17:23 (7)	20:32			21:21	25	19:38 (4)	21:57		
15	08:38		07:54		06:54			17:09 (7)	06:43			05:46		19:14 (4)	05:18		
	16:55		17:50		18:41	22		17:32 (8)	20:33			21:23	24	19:38 (4)	21:57		
16	08:37		07:52		06:51			17:12 (7)	06:41			05:44		19:15 (4)	05:18		
	16:57		17:52		18:42	21		17:35 (8)	20:35			21:24	21	19:36 (4)	21:58		
17	08:37		07:50		06:49			17:17 (8)	06:39			05:43		19:16 (4)	05:18		
	16:59		17:54		18:44	20		17:37 (8)	20:37			21:26	20	19:36 (4)	21:58		
18	08:36		07:48		06:47			17:15 (8)	06:37			05:41		19:18 (4)	05:18		
	17:00		17:56		18:46	22		17:37 (8)	20:38			21:27	17	19:35 (4)	21:59		
19	08:35		07:46		06:44			17:14 (8)	06:34			05:40		19:19 (4)	05:18		
	17:02		17:58		18:47	24		17:38 (8)	20:40			21:29	15	19:34 (4)	21:59		
20	08:34		07:44		06:42			17:13 (8)	06:32			05:38		19:20 (4)	05:18		
	17:03		18:00		18:49	26		17:39 (8)	20:42			21:30	11	19:31 (4)	22:00		
21	08:33		07:42		06:40			17:12 (8)	06:30			05:37		19:24 (4)	05:18		
	17:05		18:01		18:51	27		17:39 (8)	20:43			21:32	5	19:29 (4)	22:00		
22	08:31		07:40		06:38			17:11 (8)	06:28			05:36			05:18		
	17:07		18:03		18:53	28		17:39 (8)	20:45			21:33			22:00		
23	08:30		07:38		06:35			17:11 (8)	06:26			05:35			05:19		
	17:09		18:05		18:54	28		17:39 (8)	20:47			21:34			22:00		
24	08:29		07:35		06:33			17:11 (8)	06:24			05:33			05:19		
	17:10		18:07		18:56	28		17:39 (8)	20:48			21:36			22:00		
25	08:28		07:33		06:31			17:11 (8)	06:22		19:25 (4)	05:32			05:19		
	17:12		18:09		18:58	27		17:38 (8)	20:50	4	19:29 (4)	21:37			22:00		
26	08:26		07:31		06:28			17:11 (8)	06:20		19:21 (4)	05:31			05:20		
	17:14		18:10		18:59	26		17:37 (8)	20:52	13	19:34 (4)	21:38			22:00		
27	08:25		07:29		06:26			17:12 (8)	06:18		19:18 (4)	05:30			05:20		
	17:16		18:12		19:01	25		17:37 (8)	20:53	18	19:36 (4)	21:40			22:00		
28	08:24		07:27		06:24			17:12 (8)	06:16		19:16 (4)	05:29			05:21		
	17:17		18:14		19:03	23		17:35 (8)	20:55	21	19:37 (4)	21:41			22:00		
29	08:22				07:21			18:13 (8)	06:14		19:15 (4)	05:28			05:21		
	17:19				20:04	21		18:34 (8)	20:57	23	19:38 (4)	21:42			22:00		
30	08:21				07:19			18:15 (8)	06:12		19:14 (4)	05:27			05:22		
	17:21				20:06	17		18:32 (8)	20:58	25	19:39 (4)	21:43			22:00		
31	08:19				07:17			18:17 (8)				05:26					
	17:23				20:08	11		18:28 (8)				21:45					
Potential sun hours	260		278		367			416				485			498		
Total, worst case					573			104				506					
Sun reduction					0.24			0.35				0.37					
Oper. time red.					1.00			1.00				1.00					
Wind dir. red.					0.69			0.61				0.61					
Total reduction					0.17			0.22				0.23					
Total, real					96			22				114					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations**Shadow receptor:** BO - H67

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:22 (4)	06:48		07:37	17:46 (7)	07:30	08:21	
	21:59		21:28	28	19:50 (4)	20:26	19:17	18	18:04 (7)	17:11	16:31
2	05:23		06:00		19:22 (4)	06:50			17:44 (7)	07:32	08:22
	21:59		21:26	29	19:51 (4)	20:24	19:15	20	18:04 (7)	17:09	16:30
3	05:24		06:02		19:21 (4)	06:51			17:44 (7)	07:34	08:24
	21:59		21:25	29	19:50 (4)	20:22	19:12	20	18:04 (7)	17:08	16:30
4	05:24		06:03		19:21 (4)	06:53			17:44 (7)	07:35	08:25
	21:58		21:23	29	19:50 (4)	20:19	19:10	20	18:04 (7)	17:06	16:29
5	05:25		06:05		19:21 (4)	06:54			17:43 (7)	07:37	08:26
	21:58		21:21	30	19:51 (4)	20:17	19:08	19	18:02 (7)	17:04	16:29
6	05:26		06:06		19:20 (4)	06:56			17:44 (7)	07:39	08:28
	21:57		21:19	30	19:50 (4)	20:15	19:06	18	18:02 (7)	17:02	16:28
7	05:27		06:08		19:21 (4)	06:58			17:45 (7)	07:41	08:29
	21:57		21:18	29	19:50 (4)	20:13	19:03	16	18:01 (7)	17:01	16:28
8	05:28		06:09		19:20 (4)	06:59			17:46 (7)	07:43	08:30
	21:56		21:16	30	19:50 (4)	20:10	19:01	14	18:00 (7)	16:59	16:28
9	05:29		06:11		19:21 (4)	07:01			17:47 (7)	07:44	08:31
	21:56		21:14	29	19:50 (4)	20:08	18:59	9	17:56 (7)	16:57	16:27
10	05:30		06:13		19:21 (4)	07:03			07:52	07:46	08:32
	21:55		21:12	28	19:49 (4)	20:06	18:57			16:56	16:27
11	05:31		06:14		19:21 (4)	07:04			07:53	07:48	08:33
	21:54		21:10	28	19:49 (4)	20:03	18:54			16:54	16:27
12	05:32		06:16		19:21 (4)	07:06	18:09 (8)		07:55	07:50	08:34
	21:53		21:08	26	19:47 (4)	20:01	11	18:20 (8)	18:52	16:53	16:27
13	05:33		06:17		19:22 (4)	07:07			18:07 (8)	07:57	08:35
	21:52		21:06	25	19:47 (4)	19:59	16	18:23 (8)	18:50	16:51	16:27
14	05:34		06:19		19:23 (4)	07:09			18:04 (8)	07:59	08:36
	21:51		21:04	22	19:45 (4)	19:56	20	18:24 (8)	18:48	16:50	16:27
15	05:35		06:21		19:24 (4)	07:11			18:03 (8)	08:00	08:37
	21:50		21:02	20	19:44 (4)	19:54	22	18:25 (8)	18:46	16:48	16:27
16	05:36		06:22		19:25 (4)	07:12			18:01 (8)	08:02	08:38
	21:49		21:00	17	19:42 (4)	19:52	24	18:25 (8)	18:43	16:47	16:27
17	05:38		06:24		19:28 (4)	07:14			18:00 (8)	08:04	08:39
	21:48		20:58	12	19:40 (4)	19:49	26	18:26 (8)	18:41	16:45	16:27
18	05:39		06:25		07:15	17:58 (8)	08:05		08:00	08:40	
	21:47		20:56		19:47	27	18:25 (8)	18:39		16:44	16:27
19	05:40		06:27		07:17	17:58 (8)	08:07		08:02	08:40	
	21:46		20:54		19:45	27	18:25 (8)	18:37		16:43	16:28
20	05:41		06:29		07:19	17:58 (8)	08:09		08:04	08:41	
	21:45		20:52		19:42	28	18:26 (8)	18:35		16:42	16:28
21	05:43		06:30		07:20	17:57 (8)	08:11		08:05	08:42	
	21:44		20:50		19:40	27	18:24 (8)	18:33		16:40	16:29
22	05:44		06:32		07:22	17:57 (8)	08:12		08:07	08:42	
	21:42		20:48		19:38	27	18:24 (8)	18:31		16:39	16:29
23	05:46		06:33		07:24	17:56 (8)	08:14		08:08	08:43	
	21:41	9	19:41 (4)	20:46	19:35	27	18:23 (8)	18:29		16:38	16:30
24	05:47		06:35		07:25	17:57 (8)	08:16		08:10	08:43	
	21:40	13	19:43 (4)	20:44	19:33	25	18:22 (8)	18:27		16:37	16:30
25	05:48		06:37		07:27	17:58 (8)	07:18		08:12	08:43	
	21:38	16	19:45 (4)	20:42	19:31	23	18:21 (8)	17:25		16:36	16:31
26	05:50		06:38		07:28	17:58 (8)	07:19		08:13	08:44	
	21:37	19	19:46 (4)	20:39	19:28	21	18:19 (8)	17:23		16:35	16:31
27	05:51		06:40		07:30	18:00 (8)	07:21		08:15	08:44	
	21:36	21	19:47 (4)	20:37	19:26	17	18:17 (8)	17:21		16:34	16:32
28	05:53		06:42		07:32	17:51 (7)	07:23		08:16	08:44	
	21:34	22	19:48 (4)	20:35	19:24	23	18:15 (8)	17:19		16:33	16:33
29	05:54		06:43		07:33	17:48 (7)	07:25		08:18	08:44	
	21:33	24	19:48 (4)	20:33	19:22	17	18:09 (8)	17:17		16:33	16:34
30	05:56		06:45		07:35	17:47 (7)	07:27		08:19	08:45	
	21:31	26	19:49 (4)	20:31	19:19	16	18:03 (7)	17:15		16:32	16:35
31	05:57		06:46				07:28			08:45	
	21:29	27	19:50 (4)	20:28			17:13			16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case	177		441		424		154				
Sun reduction	0.27		0.30		0.28		0.24				
Oper. time red.	1.00		1.00		1.00		1.00				
Wind dir. red.	0.61		0.61		0.68		0.69				
Total reduction	0.16		0.18		0.19		0.16				
Total, real	29		80		82		25				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BP - H68**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:13	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	19:22 (5)	05:50	05:19	05:32	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	7	19:29 (5)	21:18	21:56	21:53	21:08	18:52	16:53
13	08:40	07:57	06:58	06:47	19:17 (5)	05:49	05:18	05:33	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	14	19:31 (5)	21:20	21:56	21:52	21:06	18:50	16:51
14	08:39	07:55	06:56	06:45	19:16 (5)	05:47	05:18	05:34	07:09	07:58	07:53	08:36
	16:54	17:49	18:39	20:32	17	19:33 (5)	21:21	21:57	21:51	21:04	18:48	16:50
15	08:38	07:54	06:54	06:43	19:14 (5)	05:46	05:18	05:35	10	19:34 (5)	19:56	18:48
	16:55	17:50	18:40	20:33	20	19:34 (5)	21:23	21:57	21:50	21:02	18:46	16:48
16	08:37	07:52	06:51	06:41	19:13 (5)	05:44	05:18	05:36	15	19:37 (5)	19:54	18:46
	16:57	17:52	18:42	20:35	22	19:35 (5)	21:24	21:58	21:49	21:00	18:43	16:47
17	08:37	07:50	06:49	06:39	19:12 (5)	05:43	05:18	05:38	17	19:37 (5)	19:52	18:43
	16:58	17:54	18:44	20:37	23	19:35 (5)	21:26	21:58	21:48	20:58	18:41	16:45
18	08:36	07:48	06:47	06:37	19:12 (5)	05:41	05:18	05:39	20	19:39 (5)	19:49	18:41
	17:00	17:56	18:46	20:38	24	19:36 (5)	21:27	21:59	21:47	20:56	18:39	16:44
19	08:35	07:46	06:44	06:34	19:11 (5)	05:40	05:18	05:40	22	19:17 (5)	19:47	18:39
	17:02	17:58	18:47	20:40	25	19:36 (5)	21:29	21:59	21:46	20:54	18:37	16:43
20	08:34	07:44	06:42	06:32	19:11 (5)	05:38	05:18	05:41	23	19:40 (5)	19:45	18:37
	17:03	18:00	18:49	20:42	25	19:36 (5)	21:30	21:59	21:45	20:52	18:35	16:42
21	08:33	07:42	06:40	06:30	19:11 (5)	05:37	05:18	05:43	24	19:40 (5)	19:42	18:35
	17:05	18:01	18:51	20:43	25	19:36 (5)	21:32	22:00	21:44	20:50	18:33	16:40
22	08:31	07:40	06:37	06:28	19:11 (5)	05:36	05:18	05:44	25	19:40 (5)	19:40	18:33
	17:07	18:03	18:53	20:45	24	19:35 (5)	21:33	22:00	21:42	20:48	18:31	16:39
23	08:30	07:38	06:35	06:26	19:11 (5)	05:35	05:19	05:45	25	19:39 (5)	19:38	18:31
	17:08	18:05	18:54	20:47	24	19:35 (5)	21:34	22:00	21:41	20:46	18:29	16:38
24	08:29	07:35	06:33	06:24	19:11 (5)	05:33	05:19	05:47	25	19:40 (5)	19:35	18:29
	17:10	18:07	18:56	20:48	23	19:34 (5)	21:36	22:00	21:40	20:44	18:27	16:37
25	08:28	07:33	06:31	06:22	19:12 (5)	05:32	05:19	05:48	25	19:40 (5)	19:33	18:27
	17:12	18:09	18:58	20:50	21	19:33 (5)	21:37	22:00	21:38	20:41	17:25	16:36
26	08:26	07:31	06:28	06:20	19:13 (5)	05:31	05:20	05:50	25	19:39 (5)	19:31	17:25
	17:14	18:10	18:59	20:52	19	19:32 (5)	21:38	22:00	21:37	20:39	17:23	16:35
27	08:25	07:29	06:26	06:18	19:14 (5)	05:30	05:20	05:51	23	19:38 (5)	19:28	17:23
	17:15	18:12	19:01	20:53	16	19:30 (5)	21:40	22:00	21:36	20:37	17:21	16:34
28	08:24	07:27	06:24	06:16	19:15 (5)	05:29	05:20	05:53	22	19:37 (5)	19:26	17:21
	17:17	18:14	19:03	20:55	14	19:29 (5)	21:41	22:00	21:34	20:35	17:19	16:33
29	08:22		07:21	06:14	19:18 (5)	05:28	05:21	05:54	20	19:36 (5)	19:24	17:19
	17:19		20:04	20:57	8	19:26 (5)	21:42	22:00	21:33	20:33	17:17	16:33
30	08:21		07:19	06:12		05:27	05:22	05:56	17	19:34 (5)	19:22	17:17
	17:21		20:06	20:58		21:43	22:00	21:31	14	19:32 (5)	19:19	17:15
31	08:19		07:17			05:26		05:57		19:31 (5)		17:15
	17:23		20:08			21:44		20:28	7	19:28 (5)		17:13
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				351				359				
Sun reduction				0.35				0.30				
Oper. time red.				1.00				1.00				
Wind dir. red.				0.63				0.63				
Total reduction				0.22				0.19				
Total, real				78				67				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BQ - H69**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December				
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10	18:58 (5) 19:19 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	18:57 (5) 19:13 (5)	07:37 19:17	07:30 17:11	08:21 16:31		
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	18:57 (5) 19:20 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	18:55 (5) 19:13 (5)	07:38 19:15	07:32 17:09	08:22 16:30		
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	18:56 (5) 19:20 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	18:54 (5) 19:15 (5)	07:40 19:12	07:34 17:07	08:24 16:30		
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:55 (5) 19:20 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18:52 (5) 19:15 (5)	07:42 19:10	07:35 17:06	08:25 16:29		
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	18:55 (5) 19:20 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18:51 (5) 19:15 (5)	07:43 19:08	07:37 17:04	08:26 16:29		
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	18:55 (5) 19:19 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	18:51 (5) 19:16 (5)	07:45 19:05	07:39 17:02	08:28 16:28		
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	18:55 (5) 19:19 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	18:50 (5) 19:15 (5)	07:47 19:03	07:41 17:01	08:29 16:28		
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	18:55 (5) 19:17 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:50 (5) 19:15 (5)	07:48 19:01	07:43 16:59	08:30 16:28		
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	18:56 (5) 19:17 (5)	05:55 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	18:49 (5) 19:14 (5)	07:50 18:59	07:44 16:57	08:31 16:27		
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	18:57 (5) 19:15 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	18:50 (5) 19:13 (5)	07:52 18:57	07:46 16:56	08:32 16:27		
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	18:58 (5) 19:14 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:50 (5) 19:12 (5)	07:53 18:54	07:48 16:54	08:33 16:27		
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:00 (5) 19:12 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:51 (5) 19:11 (5)	07:55 18:52	07:50 16:53	08:34 16:27		
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	06:19	07:07 19:59	18:52 (5) 19:09 (5)	07:57 18:50	07:51 16:51	08:35 16:27		
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	06:19	07:09 19:56	18:53 (5) 19:07 (5)	07:58 18:48	07:53 16:50	08:36 16:27		
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	06:20	07:11 19:54	18:56 (5) 19:03 (5)	08:00 18:46	07:55 16:48	08:37 16:27		
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	06:22	07:12 19:52	18:57 (5) 19:13 (5)	08:02 18:43	07:57 16:47	08:38 16:27		
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	06:24	07:14 19:49	18:50 (5) 19:11 (5)	08:04 18:41	07:58 16:45	08:39 16:27		
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	06:25	07:15 19:47	18:49 (5) 19:10 (5)	08:05 18:39	08:00 16:44	08:40 16:27		
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	06:27	07:17 19:45	18:48 (5) 19:09 (5)	08:07 18:37	08:02 16:43	08:40 16:28		
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00	05:41 21:45	06:29 20:52	06:29	07:19 19:42	18:47 (5) 19:08 (5)	08:09 18:35	08:03 16:42	08:41 16:28		
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	06:30	07:20 19:40	18:46 (5) 19:07 (5)	08:11 18:33	08:05 16:40	08:42 16:28		
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	06:32	07:22 19:38	18:45 (5) 19:06 (5)	08:12 18:31	08:07 16:39	08:42 16:29		
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	05:45 21:41	06:33 20:46	06:33	07:23 19:35	18:44 (5) 19:05 (5)	08:14 18:29	08:08 16:38	08:43 16:29		
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	06:35	07:25 19:33	18:43 (5) 19:04 (5)	08:16 18:27	08:10 16:37	08:43 16:30		
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	06:37	07:27 19:31	18:42 (5) 19:03 (5)	08:18 17:25	08:12 16:36	08:43 16:31		
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	06:38	07:28 19:28	18:41 (5) 19:02 (5)	08:19 17:23	08:13 16:35	08:44 16:31		
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	06:40	07:30 19:26	18:40 (5) 19:01 (5)	08:21 17:21	08:15 16:34	08:44 16:32		
28	08:24 17:17	07:27 18:14	06:24 19:03	18:07 (5) 18:12 (5)	06:16 20:55	05:29 22:00	05:53 21:34	06:41 20:35	06:41	07:32 19:24	18:39 (5) 19:00 (5)	08:23 17:19	08:16 16:33	08:44 16:33		
29	08:22 17:19	07:21 20:04	07:21 19:01	19:03 (5) 19:16 (5)	06:14 20:57	05:28 21:42	05:54 21:33	06:43 20:33	06:43	07:33 19:22	18:38 (5) 19:00 (5)	08:25 17:17	08:18 16:33	08:44 16:34		
30	08:21 17:21	07:19 20:06	07:19 19:18	19:01 (5) 19:18 (5)	06:12 20:58	05:27 21:43	05:55 21:31	06:45 20:31	19:05 (5) 19:07 (5)	07:35 19:19	18:37 (5) 19:00 (5)	08:27 17:15	08:19 16:32	08:45 16:35		
31	08:19 17:23	07:17 20:08	07:17 19:18	18:59 (5) 19:18 (5)	06:11 21:44	05:26 21:44	05:57 21:29	06:46 20:28	18:59 (5) 19:11 (5)	07:35 19:19	18:36 (5) 19:00 (5)	08:28 17:13	08:20 16:32	08:45 16:36		
Potential sun hours	260	278	367	416	485	498	501	453	381	305	267	244				
Total, worst case			54	255				14	305							
Sun reduction			0.24	0.35				0.30	0.28							
Oper. time red.			1.00	1.00				1.00	1.00							
Wind dir. red.			0.66	0.66				0.66	0.66							
Total reduction			0.16	0.23				0.19	0.19							
Total, real			9	59				3	57							

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BR - H70**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	19:06 (5) 19:29 (5)	07:37 19:17	07:30 17:11
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:07 (5) 19:27 (5)	07:38 19:15	07:32 17:09
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	19:08 (5) 19:26 (5)	07:40 19:12	07:34 17:07
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	19:09 (5) 19:23 (5)	07:42 19:10	07:35 17:06
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	19:13 (5) 19:19 (5)	07:43 19:08	07:37 17:04
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:27 21:57	06:06 21:19	06:56 20:15	19:15 (5) 19:05	07:45 19:05	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	19:17 (5) 19:23 (5)	05:59 21:10	05:21 21:52	06:08 21:57	06:58 20:12	19:03 19:03	07:47 17:01	07:41 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:12 (5) 19:26 (5)	05:57 21:12	05:20 21:53	06:09 21:56	06:59 20:10	19:04 19:01	07:48 16:59	07:43 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:10 (5) 19:28 (5)	05:55 21:13	05:20 21:53	06:11 21:56	07:01 20:08	19:05 18:59	07:50 16:57	07:44 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:09 (5) 19:29 (5)	05:54 21:15	05:19 21:54	06:13 21:55	07:02 20:06	19:06 18:57	07:52 16:56	07:46 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:07 (5) 19:30 (5)	05:52 21:16	05:19 21:55	06:14 21:54	07:04 20:03	19:07 18:54	07:53 16:54	07:48 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:07 (5) 19:31 (5)	05:50 21:18	05:19 21:56	06:16 21:53	07:06 20:01	19:08 18:52	07:55 16:53	07:50 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19:05 (5) 19:30 (5)	05:49 21:20	05:18 21:56	06:17 21:52	07:07 19:59	19:09 18:50	07:57 16:51	07:51 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	19:04 (5) 19:30 (5)	05:47 21:21	05:18 21:57	06:19 21:51	07:09 19:56	19:10 18:48	07:58 16:50	07:53 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	19:04 (5) 19:30 (5)	05:46 21:23	05:18 21:57	06:20 21:50	07:11 19:54	19:11 18:46	07:55 16:48	07:53 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	19:04 (5) 19:30 (5)	05:44 21:24	05:18 21:58	06:22 21:49	07:12 19:52	19:12 18:43	07:57 16:47	07:58 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	19:04 (5) 19:30 (5)	05:43 21:26	05:18 21:58	06:24 20:58	07:14 19:49	19:13 18:41	07:58 16:45	07:59 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:04 (5) 19:30 (5)	05:41 21:27	05:18 21:59	06:25 20:56	07:15 19:47	19:14 18:39	07:59 16:44	08:00 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:05 (5) 19:29 (5)	05:40 21:29	05:18 21:59	06:27 20:54	07:17 19:45	19:15 18:37	08:00 16:43	08:01 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:05 (5) 19:28 (5)	05:38 21:30	05:18 22:00	06:29 20:52	07:19 19:42	19:16 18:35	08:01 16:42	08:02 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:06 (5) 19:27 (5)	05:37 21:32	05:18 22:00	06:30 20:50	07:20 19:40	19:17 19:11 (5)	08:02 16:40	08:03 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	19:07 (5) 19:26 (5)	05:36 21:33	05:18 22:00	06:32 20:48	07:22 19:38	19:18 19:31 (5)	08:12 16:39	08:07 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	19:08 (5) 19:24 (5)	05:35 21:34	05:19 22:00	06:33 20:46	07:23 19:35	19:09 (5) 19:32 (5)	08:14 16:38	08:08 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	19:10 (5) 19:22 (5)	05:33 21:36	05:19 22:00	06:35 20:44	07:25 19:33	19:08 (5) 19:33 (5)	08:16 16:37	08:10 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:11 (5) 19:37	05:32 22:00	05:19 21:58	06:37 20:41	07:27 19:31	19:07 (5) 19:32 (5)	08:17 16:36	08:12 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	19:12 (5) 19:38	05:31 22:00	05:20 21:57	06:38 20:39	07:28 19:28	19:07 (5) 19:33 (5)	08:18 16:35	08:13 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	19:13 (5) 19:40	05:30 22:00	05:21 21:56	06:40 20:37	07:30 19:26	19:06 (5) 19:32 (5)	08:19 16:34	08:14 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:14 (5) 19:41	05:29 22:00	05:20 21:54	06:41 20:35	07:32 19:24	19:06 (5) 19:32 (5)	08:20 16:33	08:16 16:33
29	08:22 17:19	07:21 18:04	06:14 19:00	06:14 20:57	19:15 (5) 19:42	05:28 22:00	05:21 21:53	06:43 20:33	07:33 19:22	19:05 (5) 19:31 (5)	08:21 16:33	08:18 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	19:16 (5) 19:43	05:27 22:00	05:22 21:51	06:45 20:31	07:35 19:19	19:06 (5) 19:31 (5)	08:22 16:32	08:19 16:35
31	08:19 17:23	07:17 18:08	06:11 19:08	06:11 20:58	19:17 (5) 19:44	05:26 22:00	05:22 21:49	06:46 20:28	07:36 19:30 (5)	19:07 (5) 19:33 (5)	08:23 16:36	08:20 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				375				300	81			
Sun reduction				0.35				0.30	0.28			
Oper. time red.				1.00				1.00	1.00			
Wind dir. red.				0.64				0.64	0.64			
Total reduction				0.23				0.19	0.18			
Total, real				85				57	15			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BS - H71**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August	September		October	November	December		
1	08:45 16:37	08:18 17:24	07:25 18:16		07:14 20:09	13	19:11 (5) 19:24 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	9	19:09 (5) 19:18 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18		07:12 20:11	16	19:09 (5) 19:25 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	13	19:06 (5) 19:19 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19		07:10 20:13	17	19:09 (5) 19:26 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	16	19:05 (5) 19:21 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21		07:08 20:15	18	19:07 (5) 19:25 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18	19:03 (5) 19:21 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23		07:05 20:16	19	19:07 (5) 19:26 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18	19:03 (5) 19:21 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	18	19:07 (5) 19:25 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	19	19:03 (5) 19:22 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26		07:01 20:20	18	19:07 (5) 19:25 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	19	19:02 (5) 19:21 (5)	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28		06:59 20:21	18	19:06 (5) 19:24 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18	19:02 (5) 19:20 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30		06:56 20:23	16	19:07 (5) 19:23 (5)	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	17	19:02 (5) 19:19 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25	13	19:08 (5) 19:21 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	15	19:03 (5) 19:18 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34		06:52 20:26	9	19:10 (5) 19:19 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	13	19:03 (5) 19:16 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35		06:50 20:28		05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:06 19:59	9	19:05 (5) 19:14 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37		06:47 20:30		05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 20:59	07:07 19:59		07:57 18:50	07:51 16:51	08:35 16:27	
14	08:39 16:54	07:55 17:48	06:56 18:39		06:45 20:32		05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 20:56	07:09 19:56		07:58 18:48	07:53 16:50	08:36 16:27	
15	08:38 16:55	07:54 17:50	06:54 18:40		06:43 20:33		05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54	07:10 19:54		08:00 18:45	07:55 16:48	08:37 16:27	
16	08:37 16:57	07:52 17:52	06:51 18:42		06:41 20:35		05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	07:12 19:52		08:02 18:43	07:57 16:47	08:38 16:27	
17	08:37 16:58	07:50 17:54	06:49 18:44		06:39 20:37		05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	07:14 19:49		08:04 18:41	07:58 16:45	08:39 16:27	
18	08:36 17:00	07:48 17:56	06:47 18:46		06:37 20:38		05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	07:15 19:47		08:05 18:39	08:00 16:44	08:40 16:27	
19	08:35 17:02	07:46 17:58	06:44 18:47		06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	07:17 19:45		08:07 18:37	08:02 16:43	08:40 16:28	
20	08:34 17:03	07:44 18:00	06:42 18:49		06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	07:19 19:42		08:09 18:35	08:03 16:42	08:41 16:28	
21	08:32 17:05	07:42 18:01	06:40 18:51		06:30 20:43		05:37 21:31	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	07:20 19:40		08:11 18:33	08:05 16:40	08:42 16:28	
22	08:31 17:07	07:40 18:03	06:37 18:52		06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	07:22 19:38		08:12 18:31	08:07 16:39	08:42 16:29	
23	08:30 17:08	07:37 18:05	06:35 18:54		06:26 20:47		05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	07:23 19:35		08:14 18:29	08:08 16:38	08:43 16:29	
24	08:29 17:10	07:35 18:07	06:33 18:56		06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	07:25 19:33		08:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58		06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	07:27 19:31		08:18 17:25	08:12 16:36	08:43 16:31	
26	08:26 17:14	07:31 18:10	06:28 18:59		06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:28 19:28		08:19 17:23	08:13 16:35	08:44 16:31	
27	08:25 17:15	07:29 18:12	06:26 19:01		06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:30 19:26		08:21 17:21	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03		06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	07:32 19:24		08:22 17:19	08:16 16:33	08:44 16:33	
29	08:22 17:19	07:21 20:04	07:21 20:04		06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:33 19:21		08:23 17:17	08:18 16:33	08:44 16:34	
30	08:21 17:21	07:19 20:06	07:19 20:06		06:12 20:58		05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:35 19:19		08:24 17:15	08:19 16:32	08:45 16:35	
31	08:19 17:23	07:17 20:08	07:17 20:08	19:13 (5) 19:21 (5)	06:12 20:58		05:26 21:44	05:27 21:29	05:57 20:28	06:46 20:28	07:36 19:19	07:36 19:19		08:25 17:13	08:20 16:32	08:46 16:36	
Potential sun hours	260	278	367	8	416		485	498	501	453	381	184		332	267	244	
Total, worst case				8								0.28					
Sun reduction				0.24			0.35					1.00					
Oper. time red.				1.00			1.00					0.65					
Wind dir. red.				0.65			0.65					0.18					
Total reduction				0.16			0.23					0.18					
Total, real				1			40					34					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case **Shadow receptor:** BT - H72

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	07:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	07:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	07:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

Shadow receptor: BU - H73

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

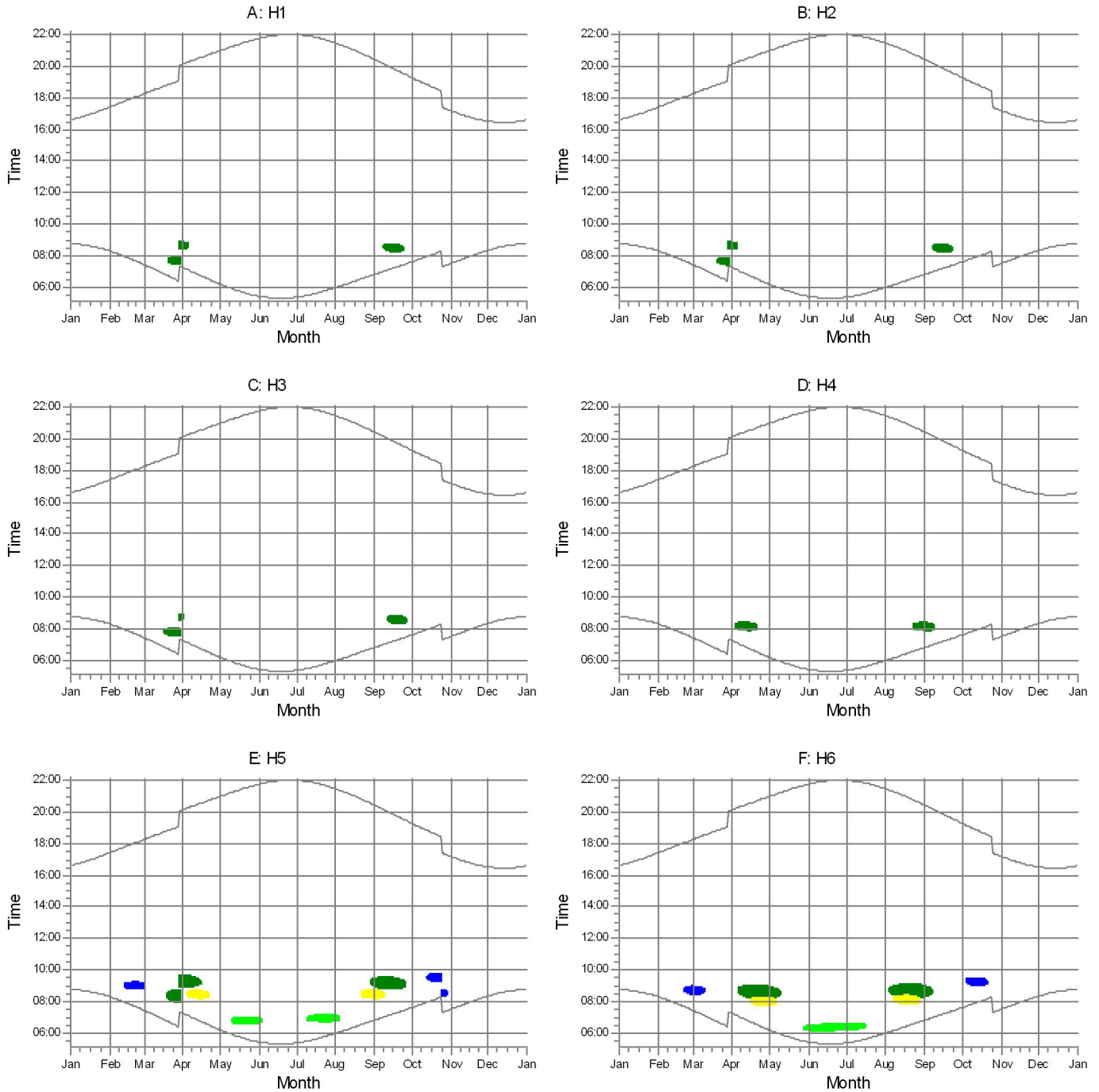
	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	12 18:58 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	8 19:00 (5) 21:02	06:08 21:47	05:24 21:59	05:23 21:26	06:00 20:24	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13		06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15		06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16		06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18		06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20		05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21		05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23		05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25		05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	18:54 (5) 19:01 (5)	07:52 18:56	08:32 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26		05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:51 (5) 19:02 (5)	07:53 18:54	08:33 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28		05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:49 (5) 19:04 (5)	07:55 18:52	08:34 16:52
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30		05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:47 (5) 19:04 (5)	07:57 18:50	08:35 16:51
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32		05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:47 (5) 19:04 (5)	07:58 18:48	08:36 16:50
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33		05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54	18:46 (5) 19:05 (5)	08:00 18:45	08:37 16:48
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35		05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:45 (5) 19:04 (5)	08:02 18:43	07:57 16:47
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37		05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:46 (5) 19:04 (5)	08:04 18:41	07:58 16:45
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38		05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:45 (5) 19:02 (5)	08:05 18:39	08:00 16:44
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:46 (5) 19:01 (5)	08:07 18:37	08:02 16:43
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	06:28 20:52	07:19 19:42	18:48 (5) 19:00 (5)	08:09 18:35	08:03 16:42
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43		05:37 21:31	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	18:49 (5) 18:56 (5)	08:11 18:33	08:05 16:40
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	18:56 (5) 18:31	08:12 16:39	08:07 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47		05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	18:56 (5) 18:29	08:14 16:38	08:08 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	18:56 (5) 18:27	08:16 16:37	08:10 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	18:56 (5) 17:25	08:18 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52		05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	18:56 (5) 17:23	08:19 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	18:56 (5) 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	18:56 (5) 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	06:14 20:57	06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	18:56 (5) 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 20:06	06:12 20:58	06:12 20:58		05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	18:56 (5) 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	06:15 20:58	06:15 20:58		05:26 21:44	05:22 21:29	05:57 20:28	06:46 20:28	07:35 19:19	18:56 (5) 17:13	08:19 16:32	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			150	20						174			
Sun reduction			0.24	0.35						0.28			
Oper. time red.			1.00	1.00						1.00			
Wind dir. red.			0.66	0.66						0.66			
Total reduction			0.16	0.24						0.19			
Total, real			24	5						33			

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

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

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

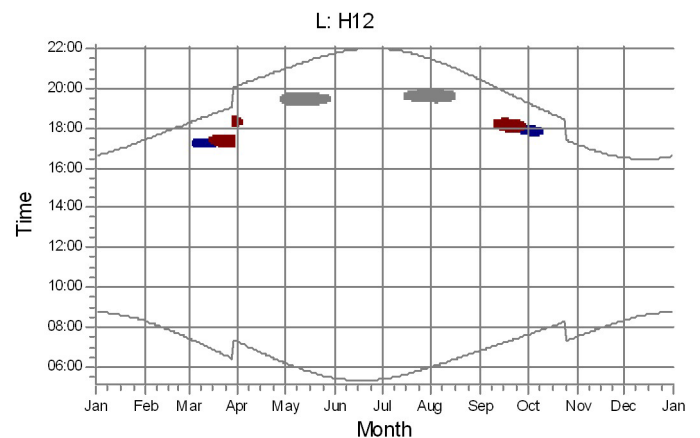
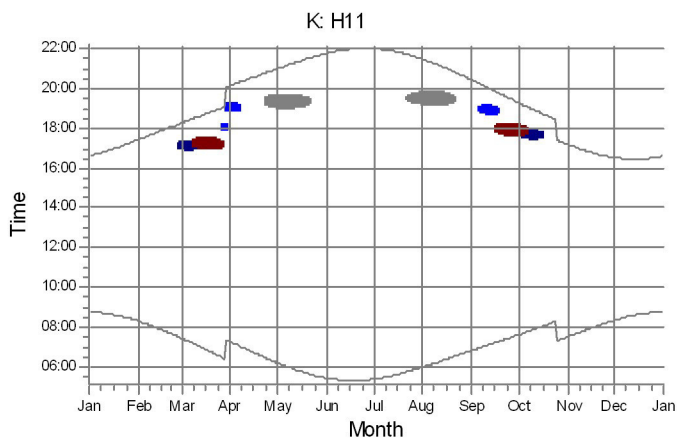
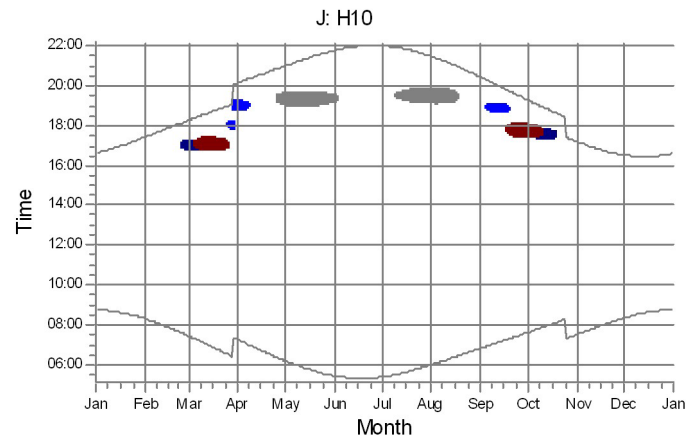
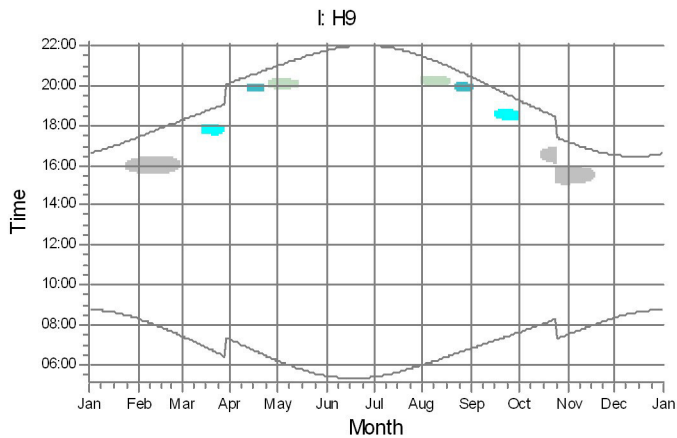
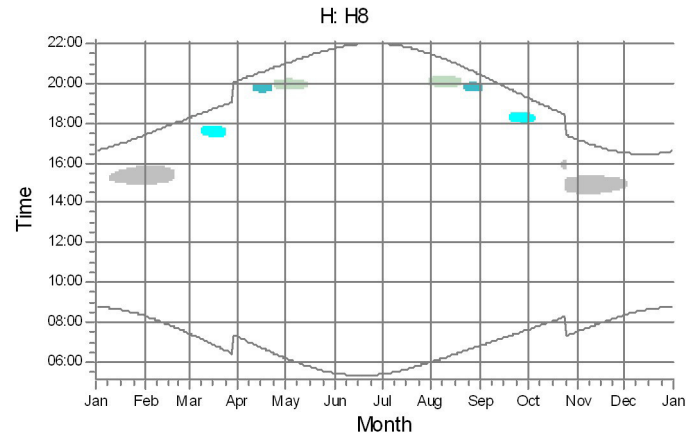
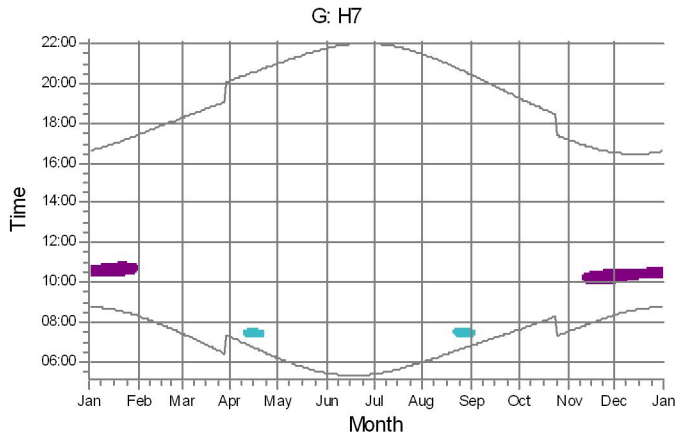


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

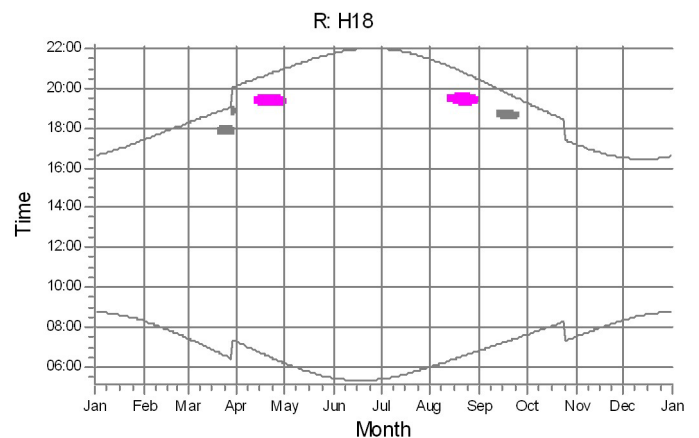
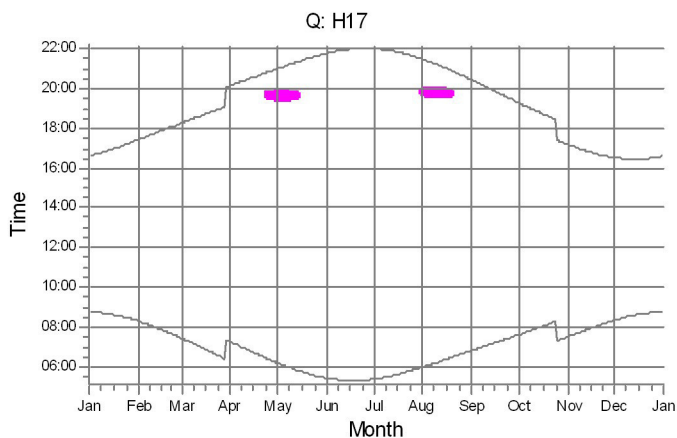
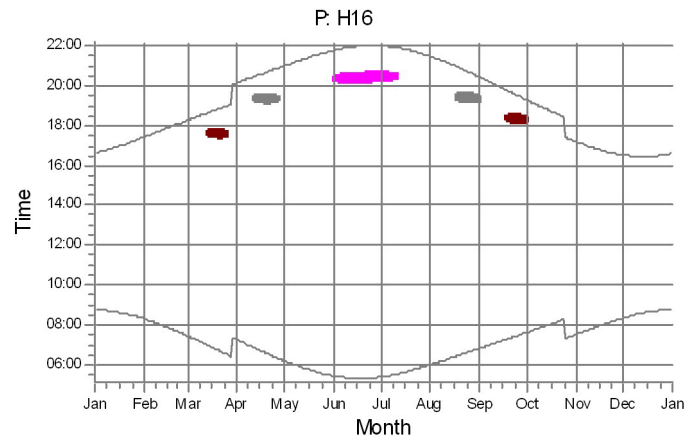
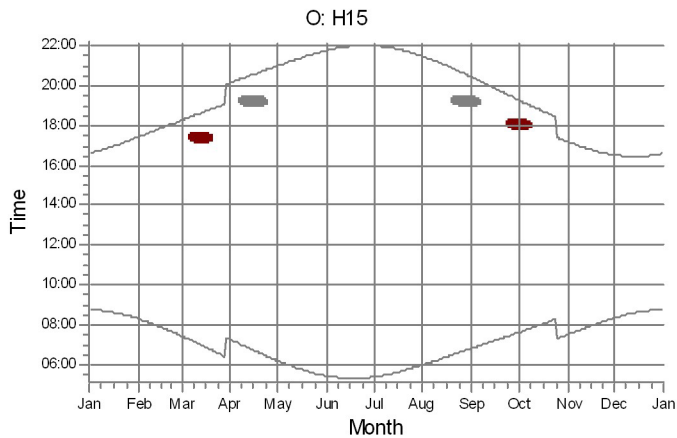
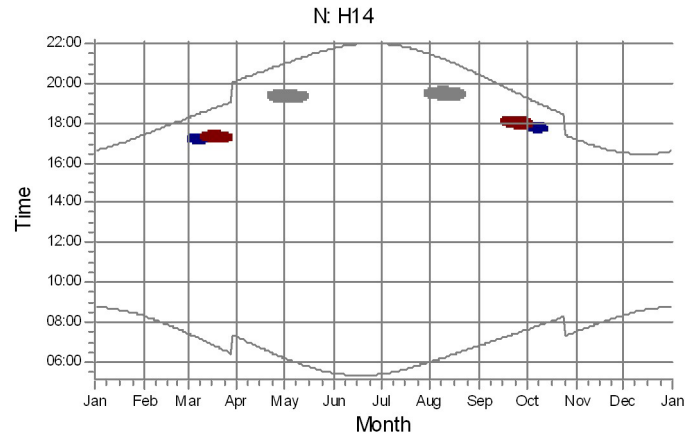
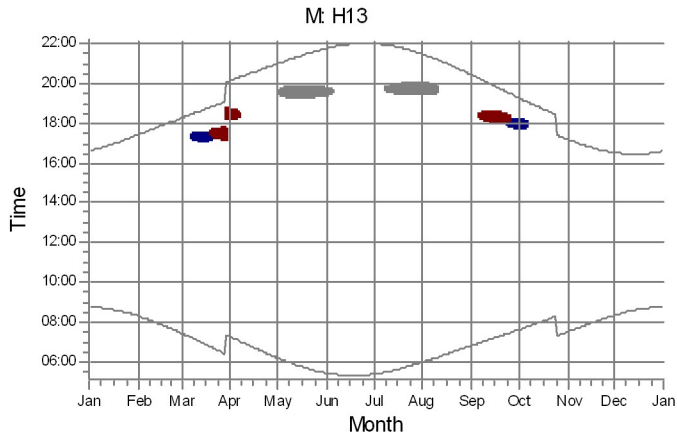


WTGs

3: T03	8: T09	13: Shehy More WF
4: T04	11: Shehy More WF	14: Shehy More WF
7: T08	12: Shehy More WF	19: Shehy More WF

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

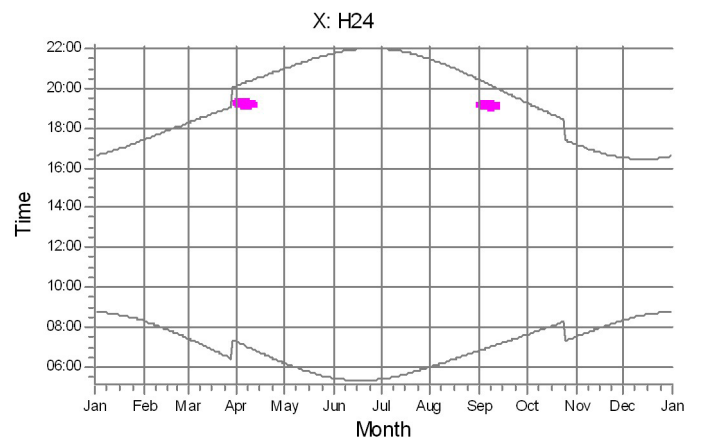
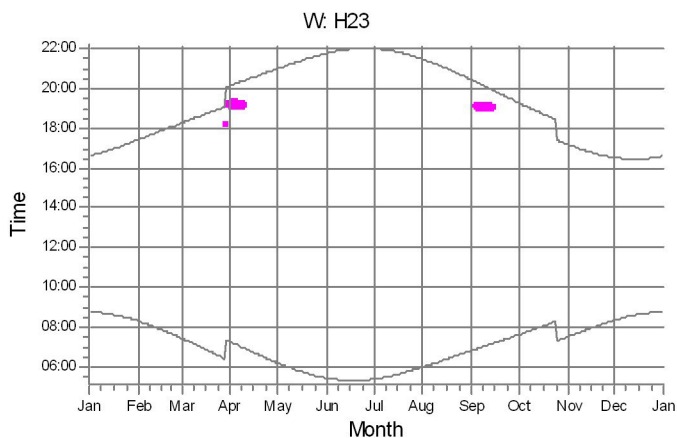
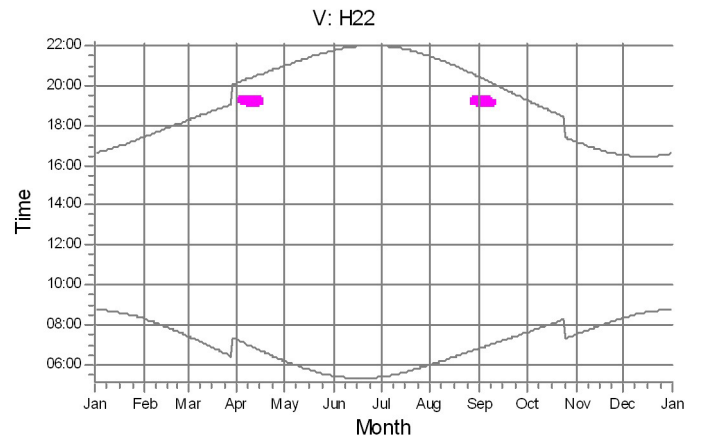
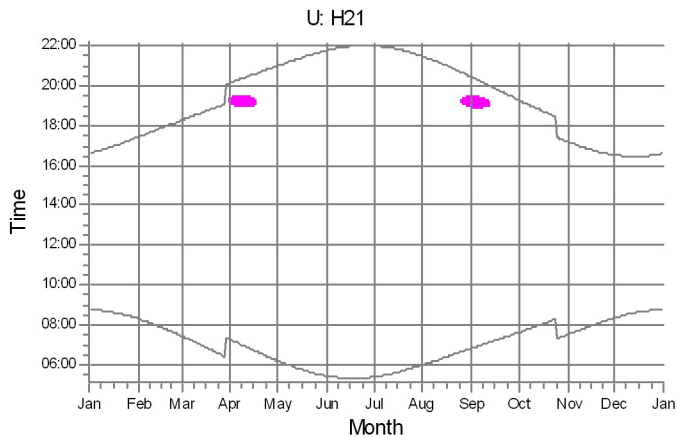
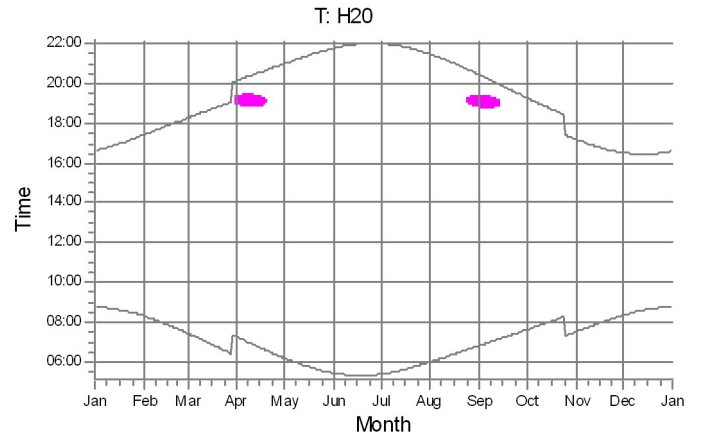
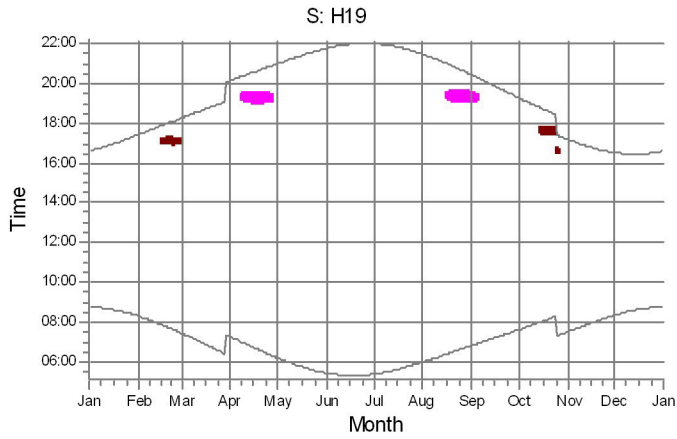


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case



WTGs



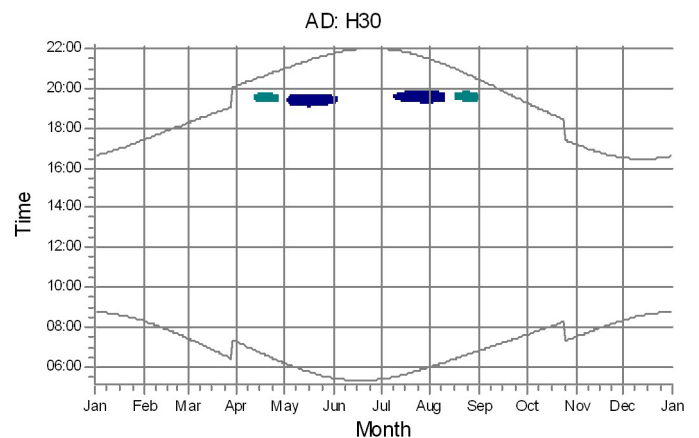
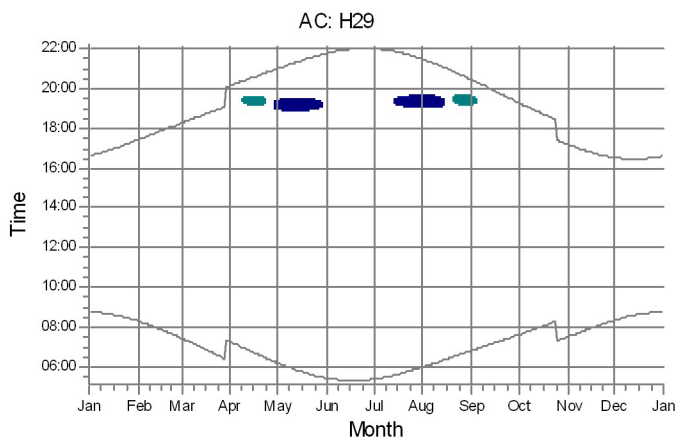
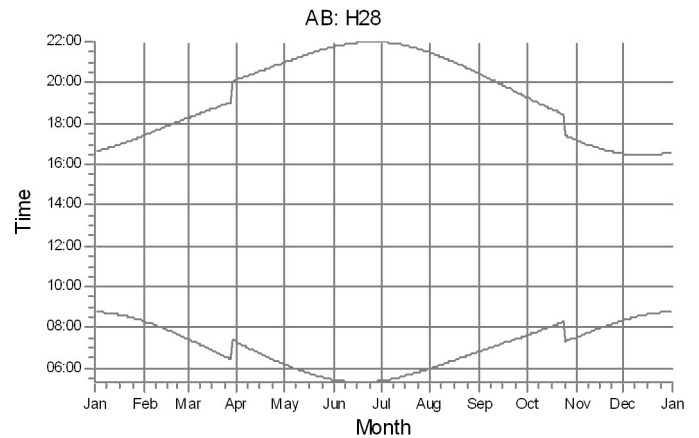
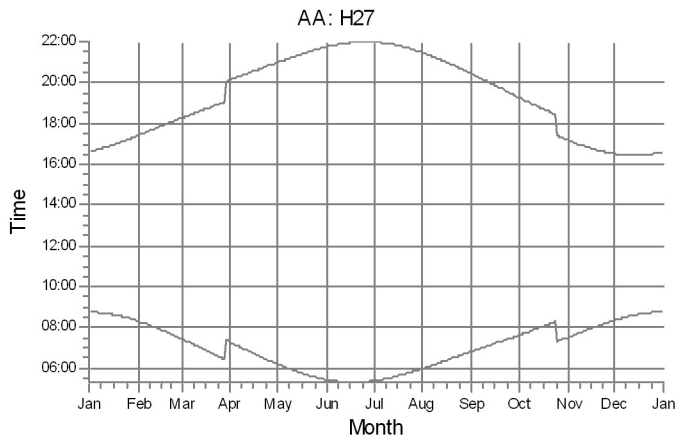
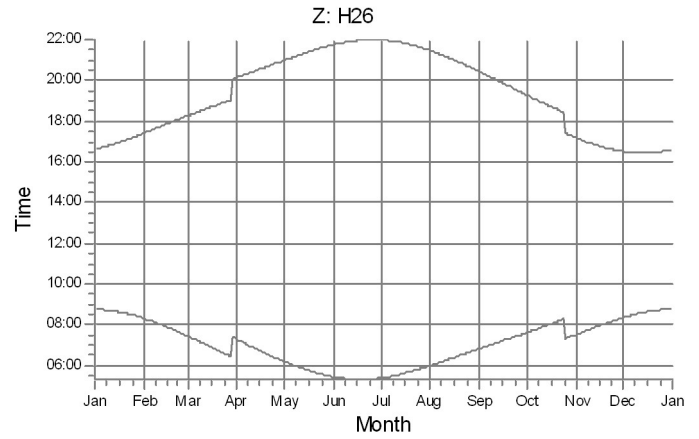
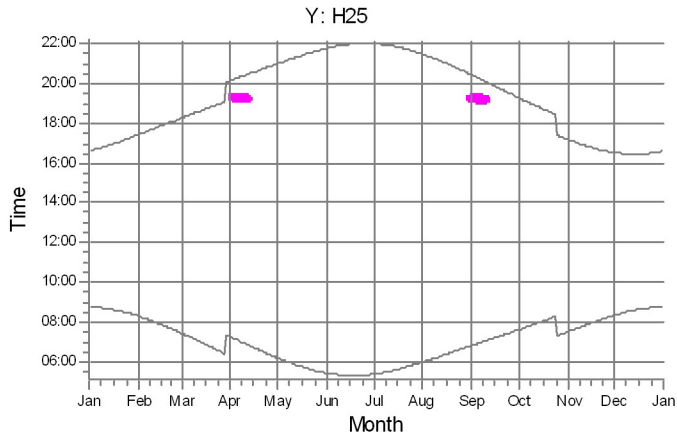
5: T06



8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

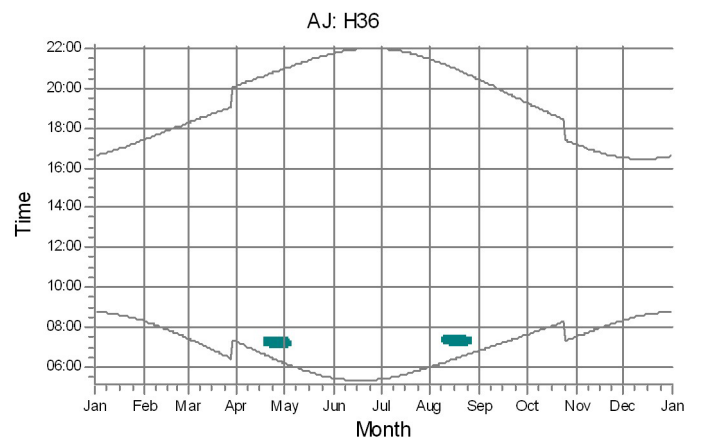
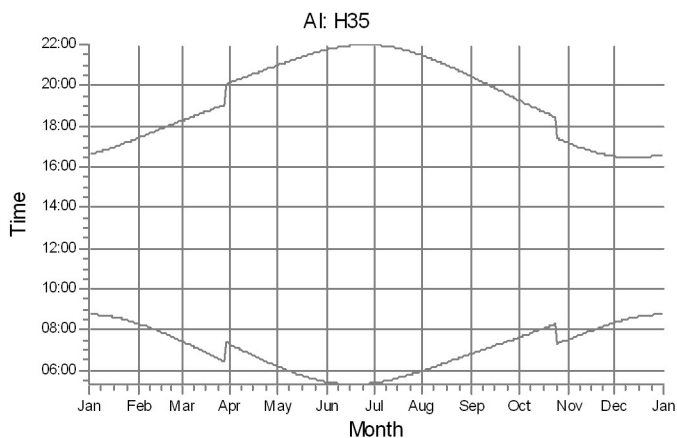
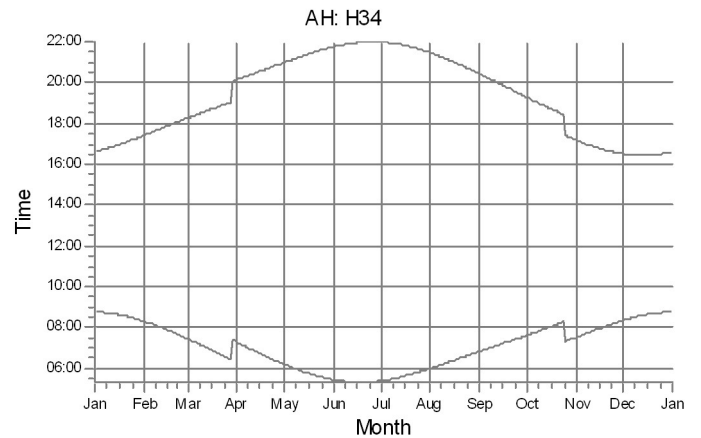
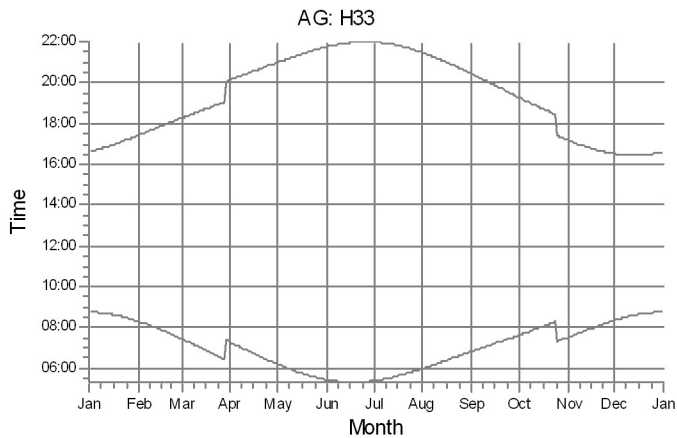
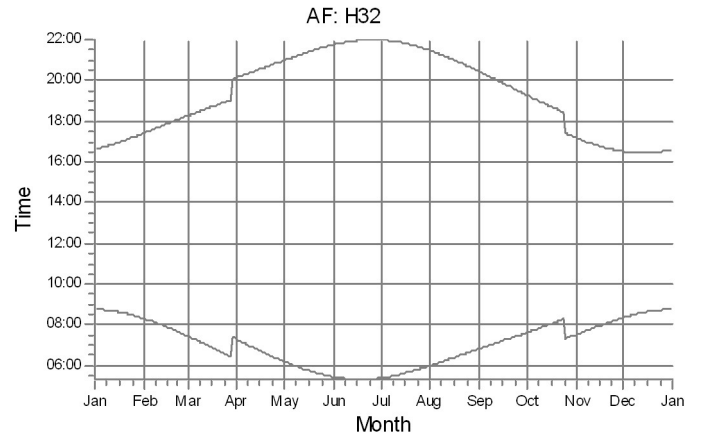
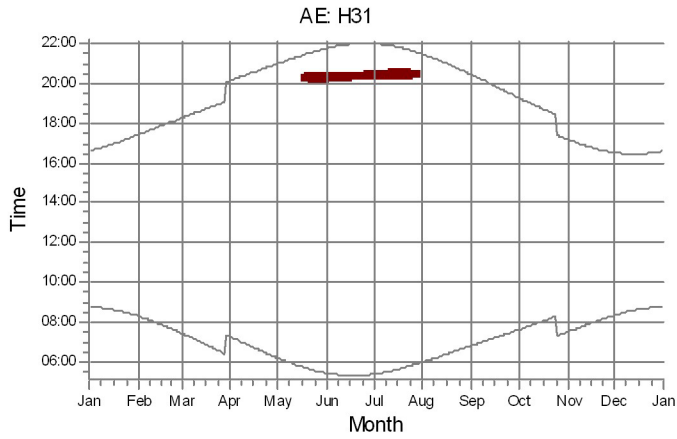


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case



WTGs



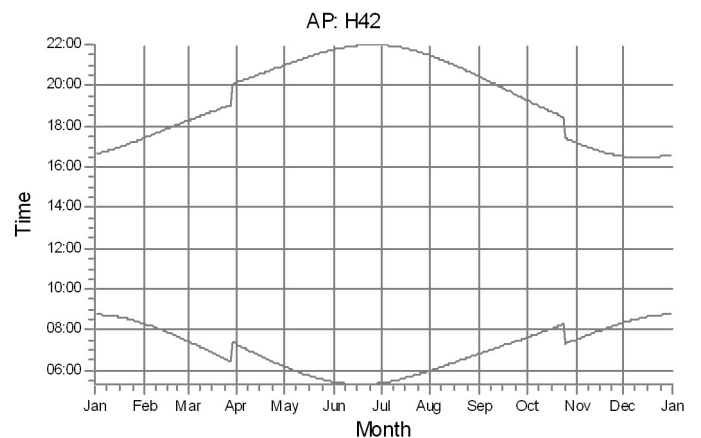
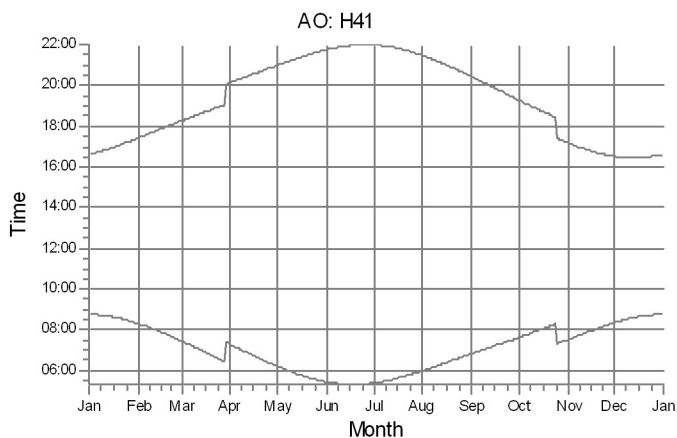
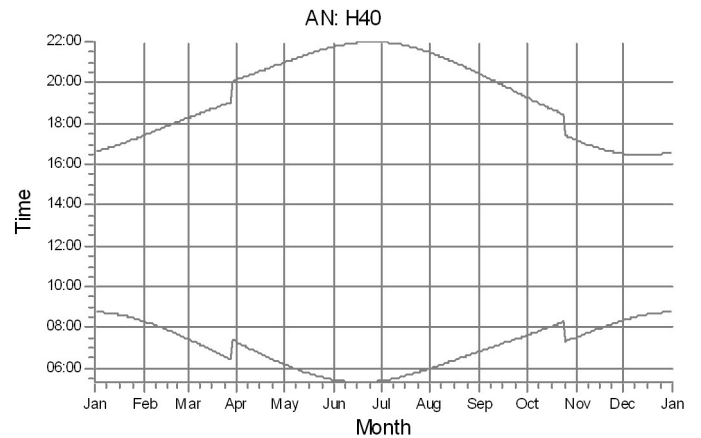
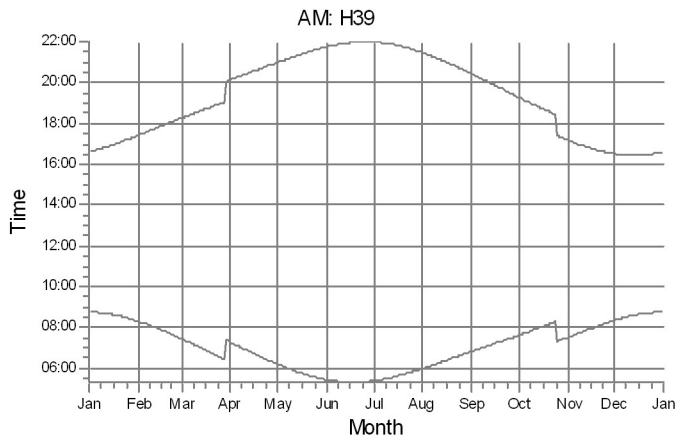
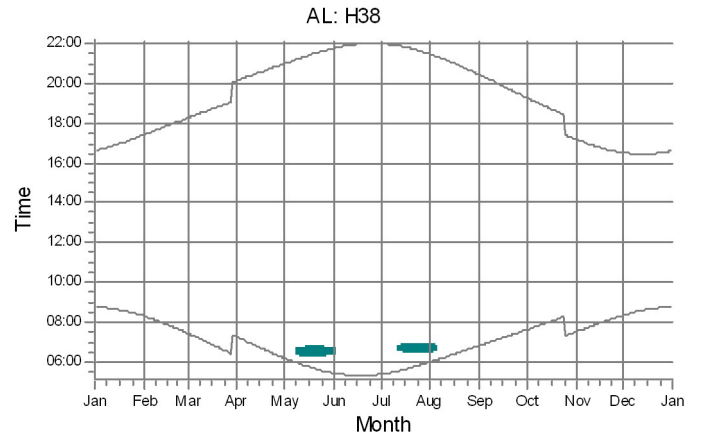
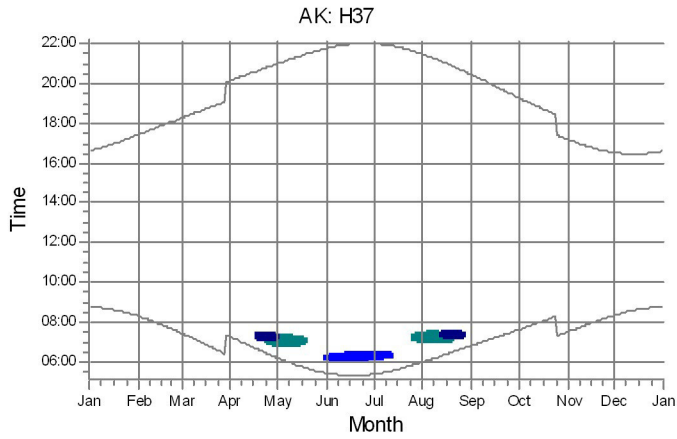
6: T07



8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

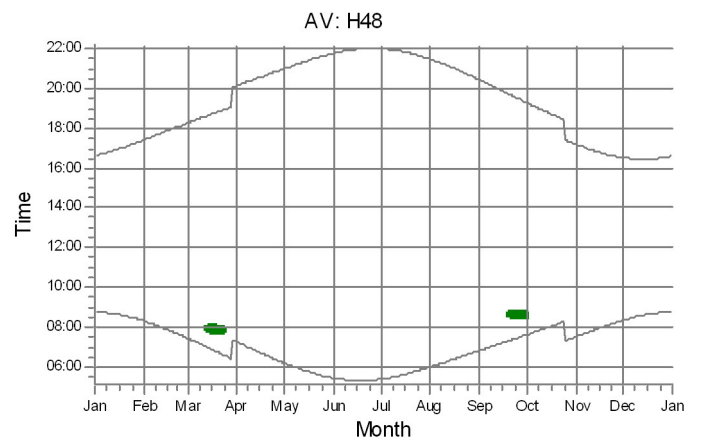
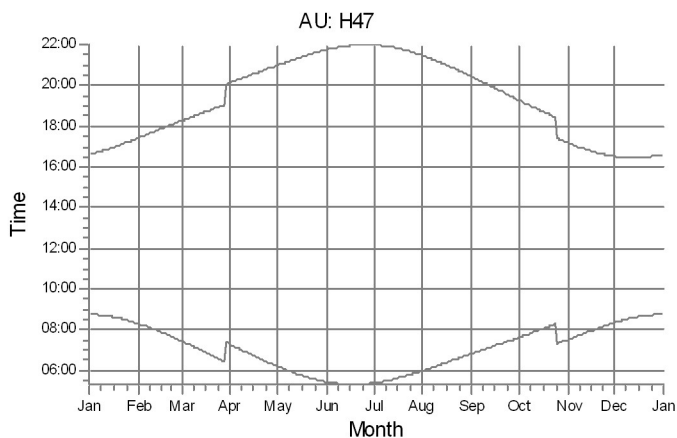
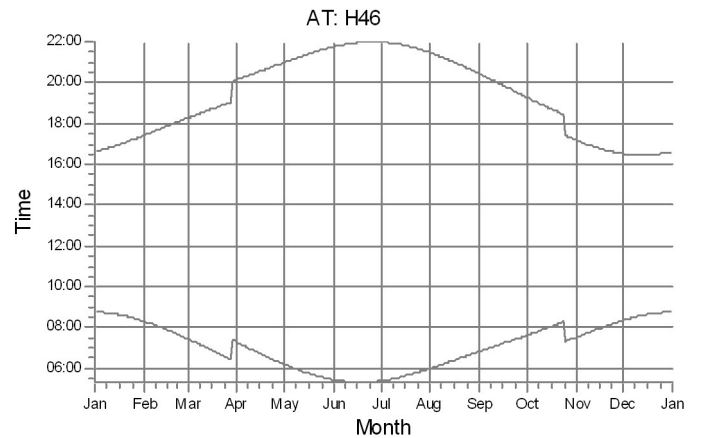
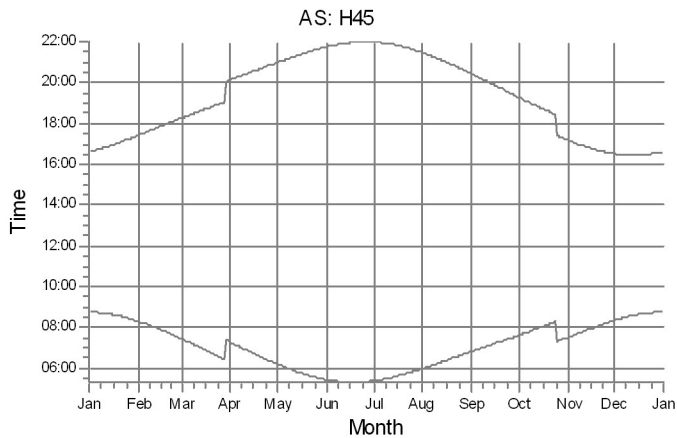
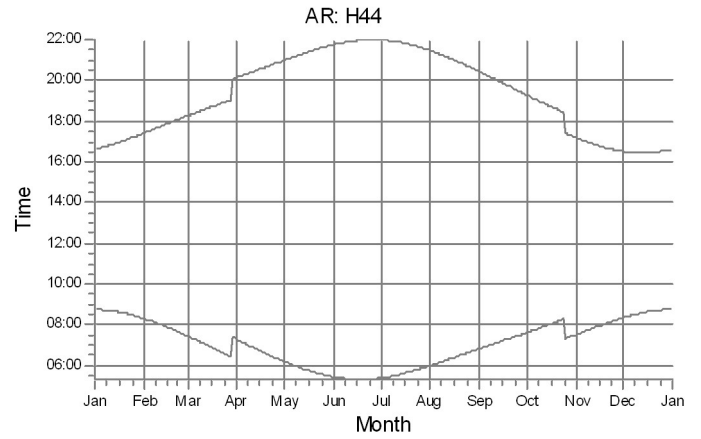
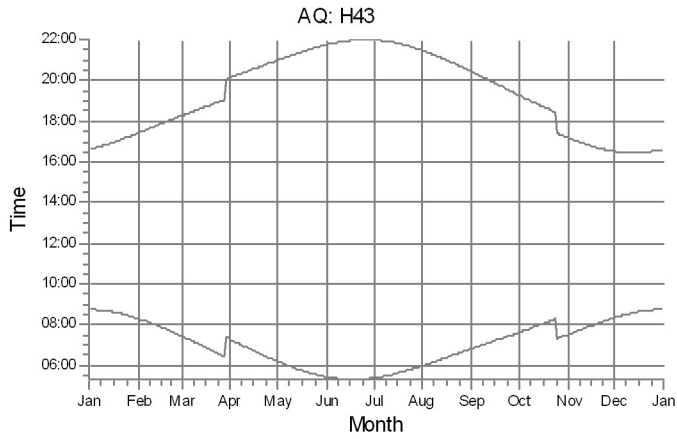


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

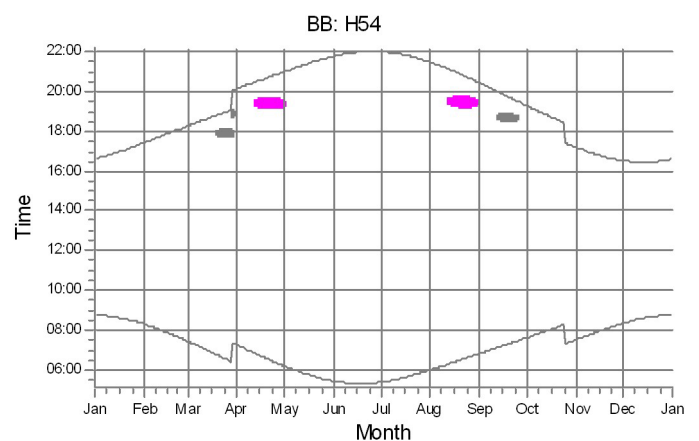
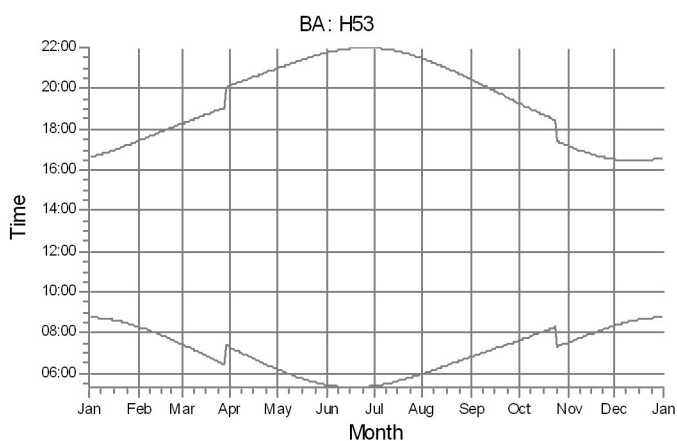
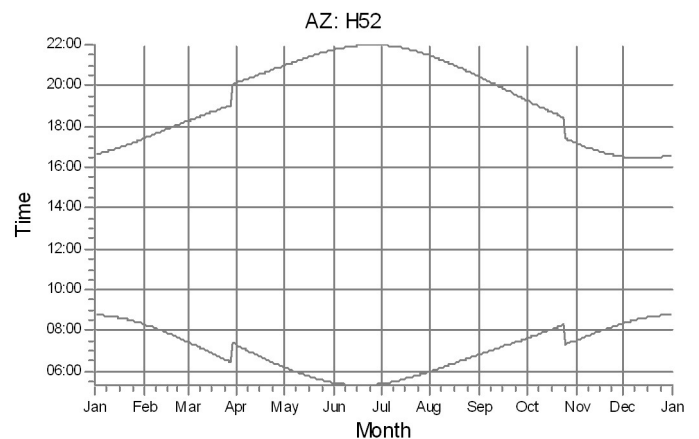
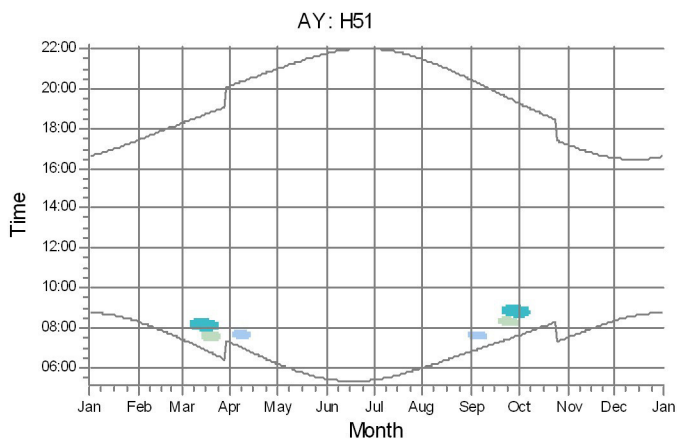
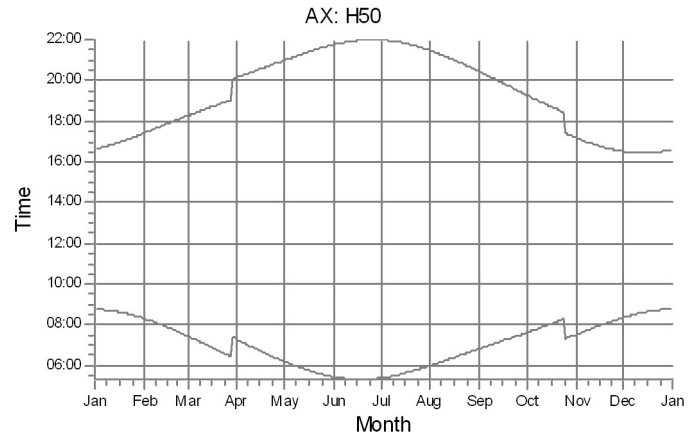
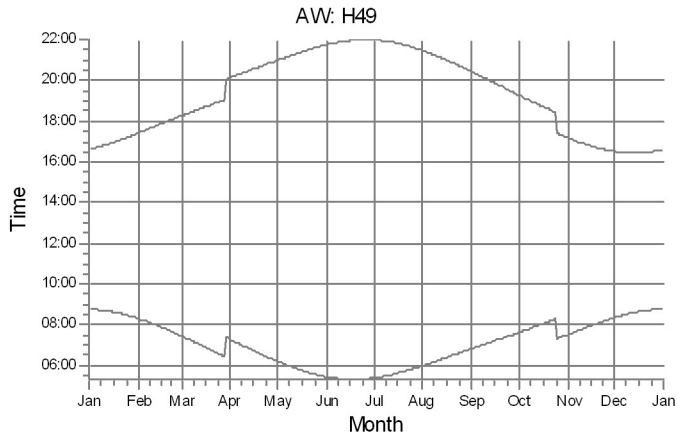


WTGs

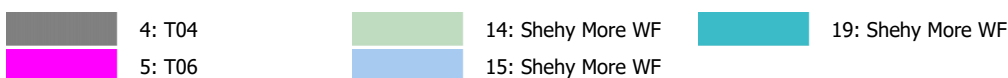
1: T01

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

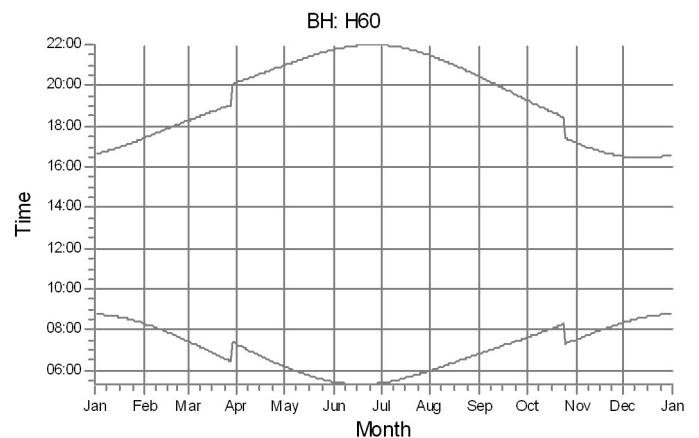
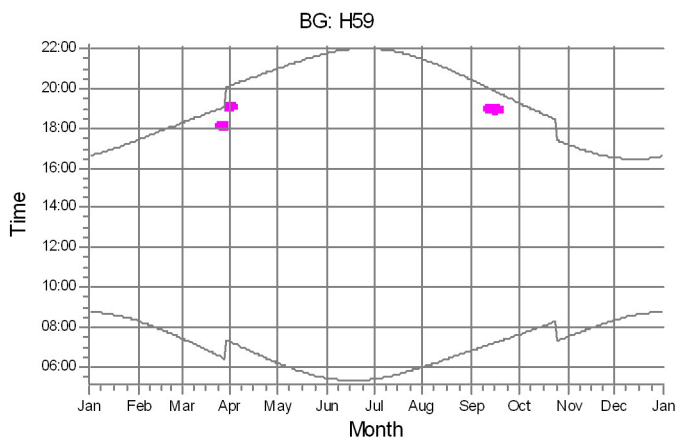
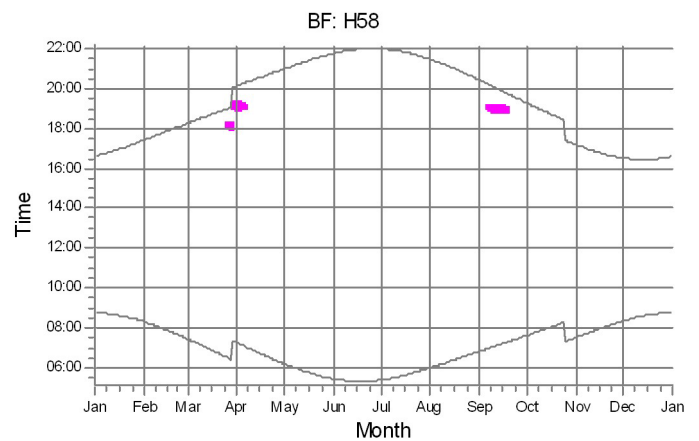
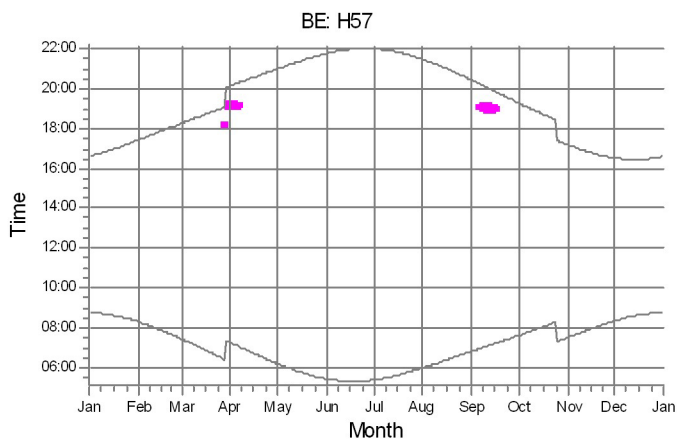
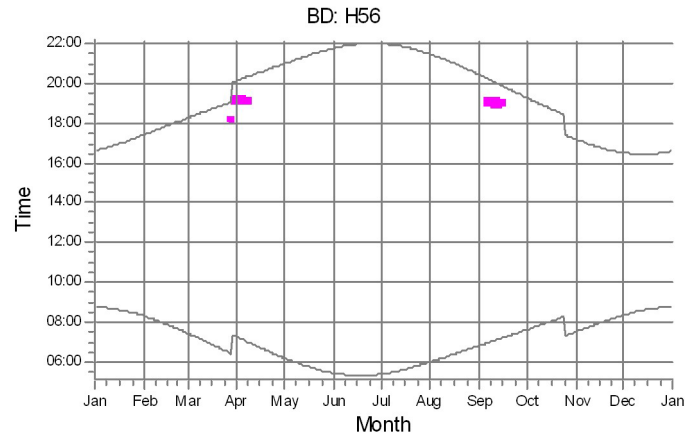
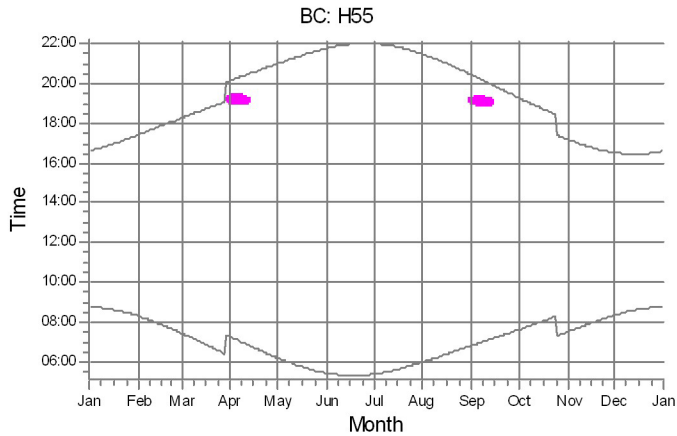


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

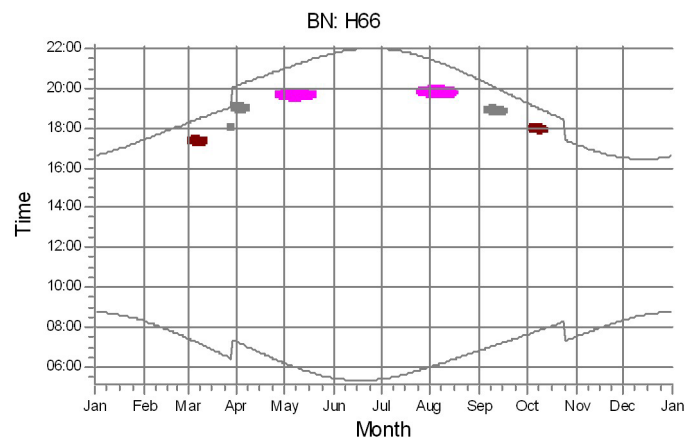
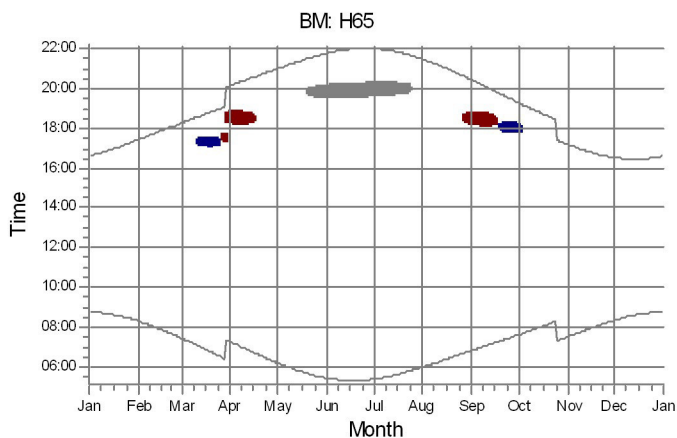
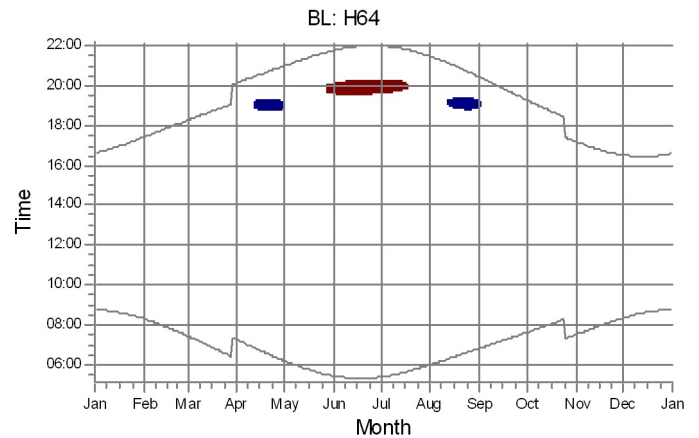
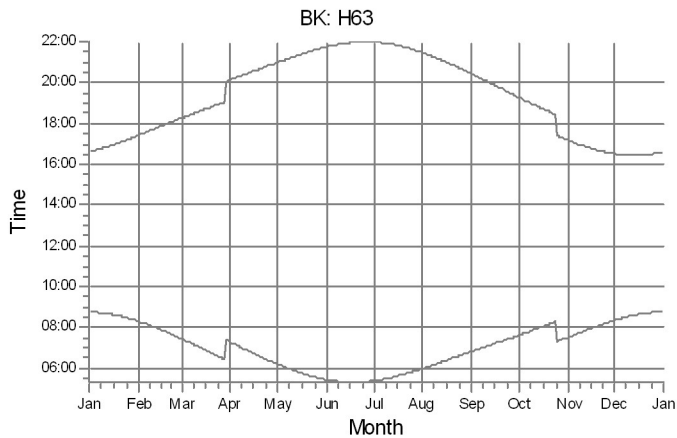
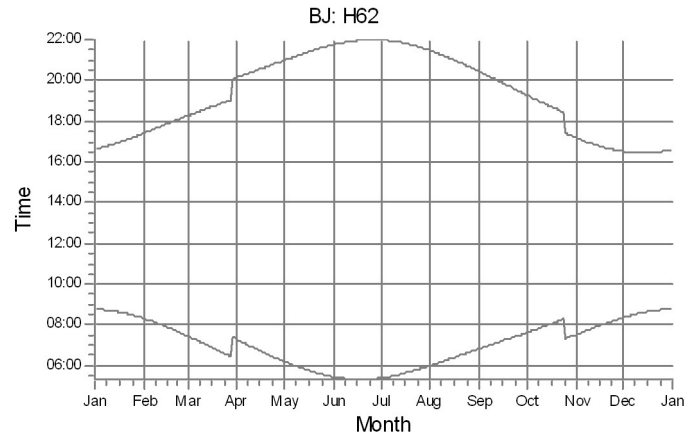
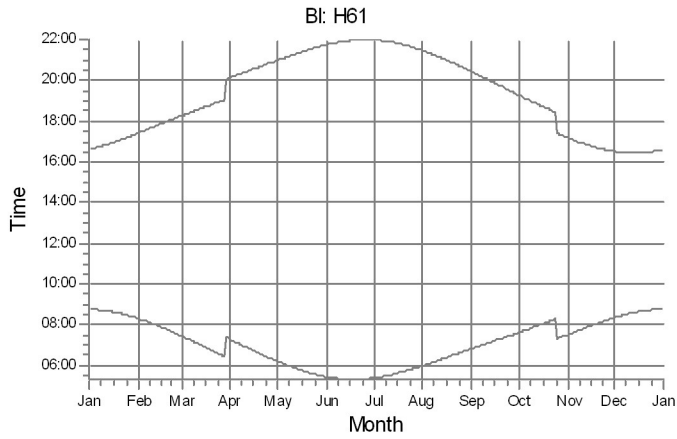


WTGs

5: T06

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

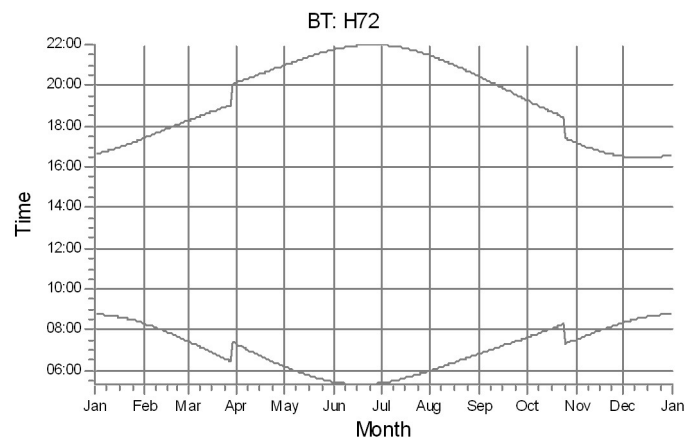
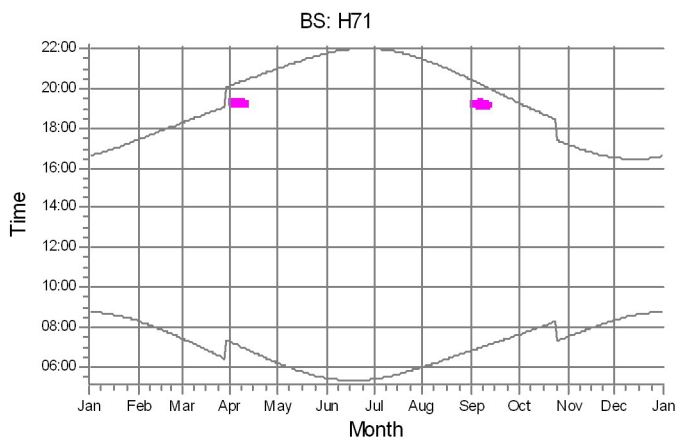
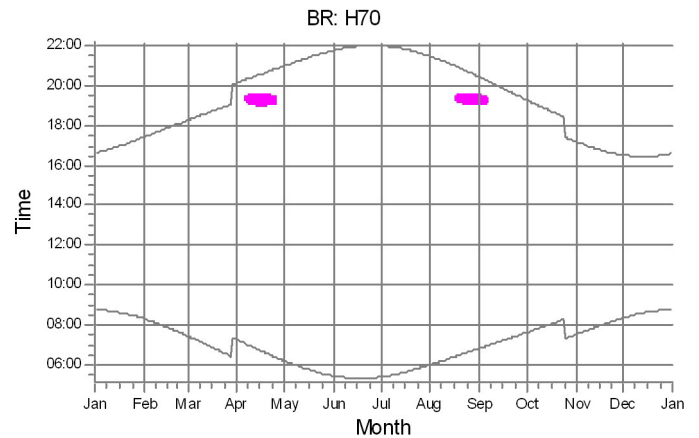
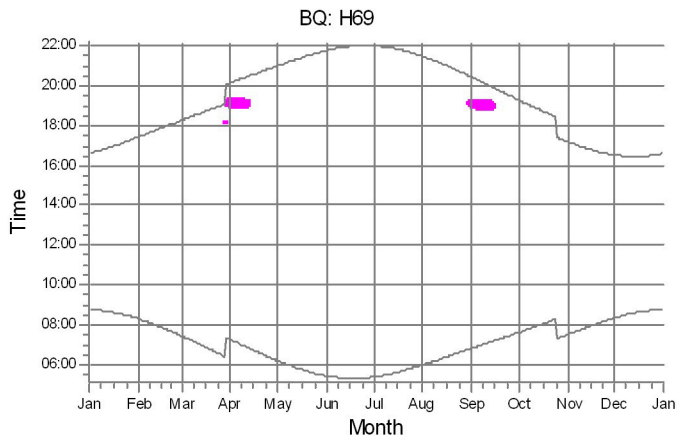
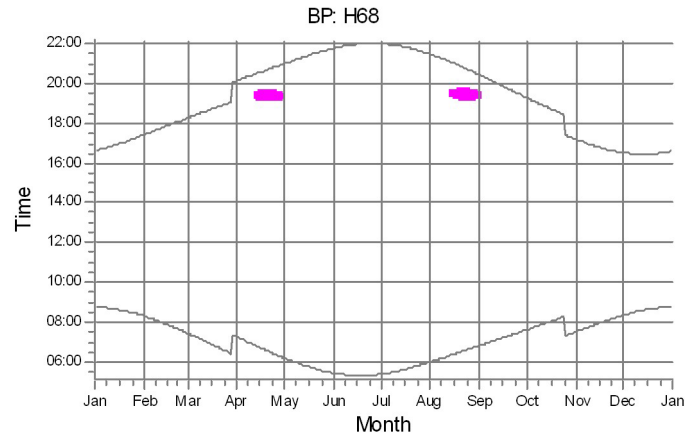
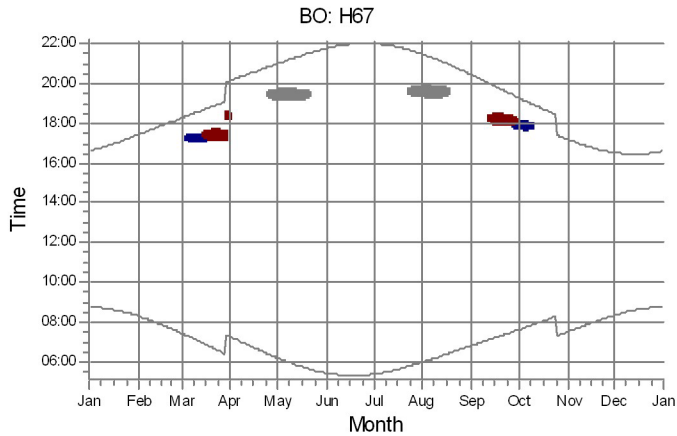


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

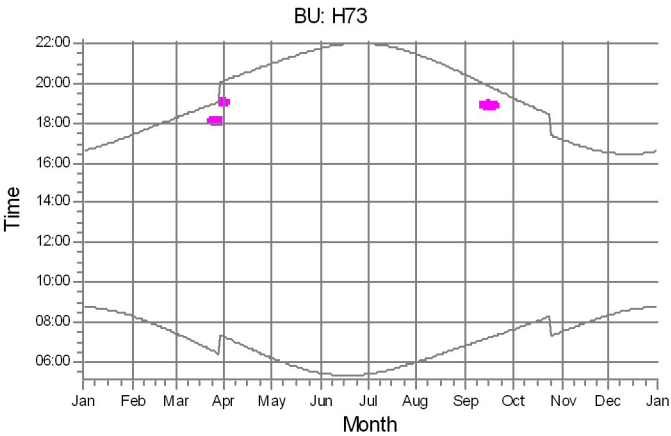


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case



WTGs

5: T06

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations**WTG:** 1 - T01

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	16:37	08:18	17:25	18:16	07:25	18:16		07:15	08:57-09:39/42		06:10	08:15-08:52/37		05:25		
2	08:45	16:38	08:17	17:27	18:18	07:23	18:18		20:10	08:27-08:48/21		21:00			21:46		
3	08:45	16:39	08:15	17:28	18:20	07:21	18:20		07:12	08:57-09:38/41		06:08	08:16-08:51/35		05:24		
4	08:44	16:40	08:13	17:30	18:21	07:18	18:21		20:11	08:28-08:46/18		21:02			21:47		
5	08:44	16:42	08:12	17:32	18:23	07:16	18:23		07:10	08:57-09:38/41		06:06	08:16-08:49/33		05:24		
6	08:44	16:43	08:10	17:34	18:25	07:14	18:25		20:13	08:30-08:44/14		21:04			21:48		
7	08:43	16:44	08:08	17:36	18:27	07:12	18:27		07:08	08:58-09:37/39	08:32-08:40/8	06:05	08:17-08:47/30		05:23		
8	08:43	16:45	08:07	17:38	18:28	07:10	18:28		20:15	08:06-08:17/11		21:05			21:49		
9	08:42	16:47	08:05	17:39	18:30	07:07	18:30		07:06	08:57-09:36/39		06:03	08:19-08:46/27		05:22		
10	08:42	16:48	08:03	17:41	18:32	07:05	18:32		20:16	08:03-08:18/15		21:07			21:50		
11	08:41	16:50	08:01	17:43	18:34	07:03	18:34		07:03	08:38-08:43/5	08:01-08:20/19	06:01	08:20-08:44/24		05:22		
12	08:41	16:51	07:59	17:45	18:35	07:01	07:53-07:58/5		20:18	08:57-09:35/38		21:09			21:51		
13	08:40	16:52	07:58	17:47	18:37	06:58	07:49-08:00/11		07:01	08:32-08:49/17	08:00-08:21/21	05:59	08:21-08:42/21		05:21		
14	08:39	16:54	07:56	17:49	18:39	06:56	07:47-08:02/15		20:20	08:58-09:34/36		21:10			21:52		
15	08:38	16:55	07:54	17:51	18:41	06:54	07:46-08:03/17		06:59	08:29-08:52/23	07:59-08:22/23	05:57	08:24-08:40/16		05:21		
16	08:38	16:57	07:52	17:52	18:42	06:51	07:44-08:03/19		20:22	08:59-09:33/34		21:12			21:53		
17	08:37	16:59	07:50	17:54	18:44	06:49	07:44-08:03/19		06:57	08:26-08:53/27	07:57-08:21/24	05:56	08:28-08:35/7		05:20		
18	08:36	17:00	07:48	17:56	18:46	06:47	07:43-08:03/20		20:23	08:59-09:30/31		21:13			21:54		
19	08:35	17:02	07:46	17:58	18:48	06:45	07:40-08:02/22		06:54	08:24-08:55/31	07:57-08:21/24	05:54			05:20		
20	08:34	17:04	07:44	18:00	18:49	06:42	07:38-08:02/24		20:25	09:00-09:29/29		21:15			21:54		
21	08:33	17:05	07:42	18:02	18:51	06:40	07:37-08:01/24		06:52	08:22-08:56/34	07:57-08:21/24	05:52			05:19		
22	08:32	17:07	07:40	18:03	18:53	06:38	07:34-07:59/25		20:27	09:01-09:27/26		21:17			21:55		
23	08:30	17:09	07:38	18:05	18:54	06:35	07:32-07:58/26		06:50	07:57-08:57/60		05:51			05:19		
24	08:29	17:10	07:36	18:07	18:56	06:33	07:30-07:59/29		20:28	09:03-09:24/21		21:18			21:56		
25	08:28	17:12	07:34	18:09	18:58	06:31	08:02-08:39/37		06:48	07:57-08:58/61		05:49			05:19		
26	08:27	17:14	07:31	18:11	19:00	06:28	08:01-08:39/38		20:30	09:06-09:21/15		21:20			21:56		
27	08:25	17:16	07:29	18:12	19:01	06:26	08:01-08:40/39		06:45	07:56-08:58/62		05:47			05:18		
28	08:24	17:17	07:27	18:14	19:03	06:24	07:59-08:39/40		20:32	09:11-09:14/3		21:21			21:57		
29	08:23	17:19			20:05	08:26-08:54/28			06:43	07:56-08:58/62		05:46			05:18		
30	08:21	17:21			20:06	08:27-08:52/25			20:33			21:23			21:58		
31	08:20	17:23			20:08	08:27-08:50/23			06:41	07:57-08:59/62		05:44			05:18		
Potential sun hours		260	278	367	416	416	1753	230	485	498	0						
Sum of minutes with flicker		0	0	879	1753	230	498	0									

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 1 - T01**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 21:28	06:48 20:26	08:21-08:55/34 07:56-08:20/24	07:37 19:17	08:30-08:39/9 17:11
2	05:23 21:59	06:00 21:26	06:50 20:24	08:23-08:54/31 07:56-08:20/24	07:38 19:15	07:32 17:09
3	05:24 21:59	06:02 21:25	06:51 20:22	08:24-08:51/27 07:55-08:19/24	07:40 19:13	07:34 17:08
4	05:25 21:59	06:03 21:23	06:53 20:20	08:26-08:49/23 07:56-08:19/23	07:42 19:10	07:36 17:06
5	05:25 21:58	06:05 21:21	06:55 20:17	08:28-08:45/17 07:56-08:17/21	07:43 19:08	07:37 17:04
6	05:26 21:58	06:06 21:19	06:56 20:15	08:34-08:40/6 07:57-08:16/19	07:45 19:06	07:39 17:02
7	05:27 21:57	06:08 21:18	06:58 20:13	08:52-09:31/39 07:58-08:14/16	07:47 19:03	07:41 17:01
8	05:28 21:56	06:10 21:16	06:59 20:10	08:52-09:32/40 08:27-08:34/7	07:48 19:01	07:43 16:59
9	05:29 21:56	06:11 21:14	07:01 20:08	08:50-09:31/41 08:24-08:38/14	07:50 18:59	07:45 16:57
10	05:30 21:55	06:13 21:12	07:03 20:06	08:50-09:32/42 08:21-08:40/19	07:52 18:57	07:46 16:56
11	05:31 21:54	06:14 21:10	07:04 20:03	08:50-09:32/42 08:20-08:41/21	07:54 18:54	07:48 16:54
12	05:32 21:53	06:16 21:08	07:06 20:01	08:49-09:31/42 08:19-08:41/22	07:55 18:52	07:50 16:53
13	05:33 21:52	06:17 21:06	07:07 19:59	08:50-09:31/41 08:18-08:43/25	07:57 18:50	07:52 16:51
14	05:34 21:52	06:19 21:04	07:09 19:57	08:49-09:30/41 08:17-08:44/27	07:59 18:48	07:53 16:50
15	05:35 21:51	06:21 21:02	07:11 19:54	08:49-09:30/41 08:17-08:45/28	08:00 18:46	07:55 16:48
16	05:37 21:50	06:22 21:00	07:12 19:52	08:49-09:28/39 08:17-08:46/29	08:02 18:44	07:57 16:47
17	05:38 21:49	06:24 20:58	07:14 19:50	08:50-09:28/38 08:16-08:45/29	08:04 18:41	07:59 16:46
18	05:39 21:47	06:25 20:56	07:16 19:47	08:51-09:27/36 08:17-08:46/29	08:06 18:39	08:00 16:44
19	05:40 21:46	06:27 20:54	07:17 19:45	08:17-08:45/28 08:51-09:25/34	08:07 18:37	08:02 16:43
20	05:42 21:45	06:29 20:52	07:19 19:43	08:18-08:45/27 08:52-09:24/32	08:09 18:35	08:04 16:42
21	05:43 21:44	06:30 20:50	07:20 19:40	08:19-08:44/25 08:52-09:22/30	08:11 18:33	08:05 16:41
22	05:44 21:43	06:32 20:48	07:22 19:38	08:21-08:45/24 08:54-09:20/26	08:13 18:31	08:07 16:39
23	05:46 21:41	06:34 20:46	07:24 19:36	08:23-08:46/23 08:56-09:18/22	08:14 18:29	08:09 16:38
24	05:47 21:40	06:35 20:44	07:25 19:33	08:23-08:46/23 08:58-09:14/16	08:16 18:27	08:10 16:37
25	05:48 21:39	06:37 20:42	07:27 19:31	08:25-08:46/21 08:26-08:46/20	07:18 17:25	08:12 16:36
26	05:50 21:37	06:38 20:39	07:29 19:29	08:26-08:46/20 08:26-08:45/19	07:20 17:23	08:13 16:35
27	05:51 21:36	06:40 20:37	07:30 19:26	08:26-08:45/19 08:26-08:44/18	07:21 17:21	08:15 16:34
28	05:53 21:34	06:42 20:35	07:32 19:24	08:26-08:44/18 08:27-08:43/16	07:23 17:19	08:17 16:34
29	05:54 21:33	06:43 20:33	07:33 19:22	08:27-08:43/16 09:11-09:15/4	07:25 17:17	08:18 16:33
30	05:56 21:31	06:45 20:31	07:35 19:19	08:28-08:41/13 09:06-09:21/15	07:27 17:15	08:20 16:32
31	05:57 21:30	06:47 20:28	07:57-08:57/60 09:03-09:24/21		07:28 17:13	08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	0	1239	1642	9	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case WTG: 2 - T02

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December			
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	07:48-08:09/21	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	08:13-08:38/25	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:45 16:38	08:17 17:26	07:23 18:18	07:12 20:11	06:08 21:02	07:49-08:08/19	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	08:14-08:38/24	07:38 19:15	07:32 17:09	08:22 16:31	
3	08:44 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	07:49-08:06/17	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	08:13-08:37/24	07:40 19:12	07:34 17:08	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	07:51-08:04/13	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:19	08:14-08:36/22	07:42 19:10	07:36 17:06	08:25 16:29	
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:16	06:03 21:07	07:54-08:02/8	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	08:14-08:34/20	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	08:20-08:37/17	05:22 21:51	05:26 21:58	06:06 21:19	06:56 20:15	08:16-08:33/17	07:45 19:06	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	08:18-08:38/20	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	08:17-08:30/13	07:47 19:03	07:41 17:01	08:29 16:28	
8	08:43 16:45	08:07 17:38	07:10 18:28	06:59 20:22	05:57 21:12	08:17-08:39/22	05:20 21:53	05:28 21:56	06:09 21:16	08:02-08:13/11	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	08:15-08:39/24	05:20 21:54	05:29 21:56	06:11 21:14	08:00-08:14/14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:27	
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	08:15-08:39/24	05:20 21:54	05:30 21:55	06:13 21:12	07:58-08:15/17	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27	
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	08:14-08:39/25	05:19 21:55	05:31 21:54	06:14 21:10	07:57-08:17/20	07:04 20:03	07:54 18:54	07:48 16:54	08:34 16:27	
12	08:41 16:51	07:59 17:45	07:01 18:35	06:50 20:28	05:51 21:18	08:14-08:39/25	05:19 21:56	05:32 21:53	06:16 21:08	07:55-08:17/22	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27	
13	08:40 16:52	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	08:14-08:39/25	05:19 21:56	05:33 21:52	06:17 21:06	07:55-08:18/23	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27	
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	08:13-08:38/25	05:18 21:57	05:34 21:52	06:19 21:04	07:55-08:19/24	07:09 19:56	07:59 18:48	07:53 16:50	08:37 16:27	
15	08:38 16:55	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	08:13-08:37/24	05:18 21:58	05:35 21:51	06:21 21:02	07:54-08:19/25	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27	
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	07:58-08:05/7	05:18 21:58	05:37 21:50	06:22 21:00	07:54-08:20/26	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27	
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	07:55-08:08/13	05:18 21:59	05:38 21:49	06:24 20:58	07:53-08:19/26	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27	
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	07:53-08:10/17	05:18 21:59	05:39 21:47	06:25 20:56	07:53-08:20/27	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28	
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	08:15-08:34/19	05:18 21:59	05:40 21:46	06:27 20:54	07:53-08:19/26	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28	
20	08:34 17:04	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	07:50-08:12/22	05:18 22:00	05:42 21:45	06:29 20:52	07:53-08:19/26	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28	
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	08:18-08:30/12	05:18 22:00	05:43 21:44	06:30 20:50	07:53-08:18/25	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29	
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	07:48-08:13/25	05:18 22:00	05:44 21:43	06:32 20:48	07:54-08:17/23	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29	
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	07:47-08:13/26	05:19 22:00	05:46 21:41	06:34 20:46	07:54-08:16/22	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30	
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:33 21:36	07:47-08:13/26	05:19 22:00	05:47 21:40	06:35 20:44	07:55-08:15/20	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	07:46-08:13/27	05:19 22:00	05:48 21:39	06:37 20:42	07:56-08:13/17	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31	
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	07:46-08:13/27	05:20 22:00	05:50 21:37	06:38 20:39	07:58-08:11/13	07:29 19:29	07:20 17:23	08:13 16:35	08:44 16:32	
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	07:46-08:12/26	05:20 22:00	05:51 21:36	06:40 20:37	08:01-08:06/5	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	07:46-08:11/25	05:21 22:00	05:53 21:34	06:42 20:35	08:15-08:39/24	07:32 19:24	07:23 17:19	08:16 16:34	08:44 16:33	
29	08:23 17:19	07:22 18:05	06:24 19:02	06:14 20:57	05:28 21:42	07:46-08:11/25	05:21 22:00	05:54 21:33	06:43 20:33	08:14-08:39/25	07:33 19:22	07:25 17:17	08:18 16:33	08:45 16:34	
30	08:21 17:21	07:19 18:06	06:12 20:06	06:12 20:59	05:27 21:43	07:47-08:10/23	05:22 22:00	05:56 21:31	06:45 20:31	08:14-08:39/25	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35	
31	08:20 17:23	07:17 18:08	06:11 20:08	06:11 20:59	05:26 21:45	07:47-08:10/23	05:26 22:00	05:57 21:30	06:46 20:28	08:14-08:39/25	07:35 19:19	07:28 17:13	08:19 16:32	08:45 16:36	
Potential sun hours	260	278	367	416	485		498	501	453		381	332	267	244	0
Sum of minutes with flicker	0	0	0	677	78		0	0	612		149	0	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case WTG: 3 - T03

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:25	07:25 08:30-08:54/24 18:16	07:15 18:51-19:13/22 20:10	06:10 21:00	05:25 06:09-06:17/8 21:46
2	08:45 16:38	08:17 17:27	07:23 08:30-08:54/24 18:18	07:12 18:51-19:12/21 20:11	06:08 21:02	05:24 06:08-06:18/10 21:47
3	08:44 16:39	08:15 17:28	07:21 08:30-08:54/24 18:20	07:10 18:52-19:12/20 20:13	06:06 21:04	05:24 06:08-06:20/12 21:48
4	08:44 16:40	08:13 17:30	07:18 08:30-08:53/23 18:21	07:08 18:52-19:10/18 20:15	06:05 21:05	05:23 06:07-06:20/13 21:49
5	08:44 16:42	08:12 17:32	07:16 08:31-08:53/22 18:23	07:06 18:53-19:09/16 20:16	06:03 21:07	05:22 06:06-06:20/14 21:50
6	08:44 16:43	08:10 17:34	07:14 08:31-08:51/20 18:25	07:03 18:55-19:06/11 20:18	06:01 21:09	05:22 06:06-06:22/16 21:51
7	08:43 16:44	08:08 17:36	07:12 08:32-08:49/17 18:27	07:01 18:59-19:01/2 20:20	05:59 21:10	05:21 06:05-06:22/17 21:52
8	08:43 16:45	08:07 17:38	07:10 08:34-08:47/13 18:28	06:59 20:22	05:57 21:12	05:21 06:05-06:23/18 21:53
9	08:42 16:47	08:05 17:39	07:07 08:37-08:43/6 18:30	06:57 20:23	05:56 21:13	05:20 06:06-06:23/17 21:54
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 06:05-06:23/18 21:54
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 06:05-06:24/19 21:55
12	08:41 16:51	07:59 17:45	07:01 18:35	06:50 20:28	05:51 21:18	05:19 06:05-06:24/19 21:56
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 06:06-06:25/19 21:56
14	08:39 16:54	07:56 08:56-09:06/10 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 06:05-06:25/20 21:57
15	08:38 16:55	07:54 08:53-09:08/15 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 06:05-06:25/20 21:58
16	08:38 16:57	07:52 08:52-09:09/17 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 06:05-06:25/20 21:58
17	08:37 16:59	07:50 08:51-09:10/19 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 06:05-06:26/21 21:59
18	08:36 17:00	07:48 08:50-09:11/21 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 06:06-06:26/20 21:59
19	08:35 17:02	07:46 08:50-09:12/22 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 06:06-06:26/20 21:59
20	08:34 17:04	07:44 08:49-09:12/23 18:00	06:42 18:49	06:32 20:42	05:39 21:30	05:18 06:07-06:27/20 22:00
21	08:33 17:05	07:42 08:49-09:12/23 18:02	06:40 18:51	06:30 20:43	05:37 21:32	05:18 06:07-06:27/20 22:00
22	08:32 17:07	07:40 08:39-08:48/9 18:03 08:49-09:12/23	06:38 18:53	06:28 20:45	05:36 21:33	05:18 06:07-06:27/20 22:00
23	08:30 17:09	07:38 08:37-09:12/35 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 06:07-06:27/20 22:00
24	08:29 17:10	07:36 08:34-09:10/36 18:07	06:33 18:56	06:24 20:49	05:33 21:36	05:19 06:08-06:28/20 22:00
25	08:28 17:12	07:33 08:33-09:09/36 18:09	06:31 18:02-18:04/2 18:58	06:22 20:50	05:32 21:37	05:19 06:07-06:28/21 22:00
26	08:27 17:14	07:31 08:32-09:08/36 18:11	06:28 17:58-18:09/11 18:59	06:20 20:52	05:31 21:38	05:20 06:07-06:27/20 22:00
27	08:25 17:16	07:29 08:31-09:07/36 18:12	06:26 17:56-18:11/15 19:01	06:18 20:54	05:30 21:40	05:20 06:08-06:28/20 22:00
28	08:24 17:17	07:27 08:31-09:04/33 18:14	06:24 17:54-18:12/18 19:03	06:16 20:55	05:29 21:41	05:21 06:08-06:28/20 22:00
29	08:22 17:19		07:22 18:53-19:13/20 20:05	06:14 20:57	05:28 21:42	05:21 06:09-06:28/19 22:00
30	08:21 17:21		07:19 18:52-19:13/21 20:06	06:12 20:59	05:27 21:43	05:22 06:09-06:28/19 22:00
31	08:20 17:23		07:17 18:51-19:13/22 20:08		05:26 06:12-06:14/2 21:45	
Potential sun hours	260	278	367	416	485	498
Sum of minutes with flicker	0	394	282	110	2	540

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

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

SHADOW - Calendar per WTG**Calculation:** 6460 Gortloughra Cumulative Worst Case **WTG:** 3 - T03**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	06:09-06:28/19	05:59	06:48			07:37		07:30	08:21		
	22:00		21:28	20:26			19:17		17:11	16:31		
2	05:23	06:10-06:28/18	06:00	06:50			07:38		07:32	08:22		
	21:59		21:26	20:24			19:15		17:09	16:31		
3	05:24	06:10-06:28/18	06:02	06:51			07:40		07:34	08:24		
	21:59		21:25	20:22			19:12		17:08	16:30		
4	05:25	06:11-06:28/17	06:03	06:53			07:42		07:36	08:25		
	21:58		21:23	20:19			19:10		17:06	16:29		
5	05:25	06:11-06:28/17	06:05	06:55	18:56-18:57/1		07:43	09:12-09:23/11	07:37	08:26		
	21:58		21:21	20:17			19:08		17:04	16:29		
6	05:26	06:12-06:28/16	06:06	06:56	18:51-19:02/11		07:45	09:09-09:24/15	07:39	08:28		
	21:58		21:19	20:15			19:06		17:02	16:28		
7	05:27	06:13-06:28/15	06:08	06:58	18:48-19:04/16		07:47	09:08-09:26/18	07:41	08:29		
	21:57		21:18	20:13			19:03		17:01	16:28		
8	05:28	06:13-06:27/14	06:10	06:59	18:47-19:05/18		07:48	09:07-09:27/20	07:43	08:30		
	21:56		21:16	20:10			19:01		16:59	16:28		
9	05:29	06:14-06:26/12	06:11	07:01	18:45-19:05/20		07:50	09:05-09:27/22	07:45	08:31		
	21:56		21:14	20:08			18:59		16:57	16:27		
10	05:30	06:15-06:26/11	06:13	07:03	18:44-19:06/22		07:52	09:04-09:28/24	07:46	08:32		
	21:55		21:12	20:06			18:57		16:56	16:27		
11	05:31	06:16-06:25/9	06:14	07:04	18:43-19:05/22		07:54	09:04-09:28/24	07:48	08:34		
	21:54		21:10	20:03			18:54		16:54	16:27		
12	05:32	06:18-06:23/5	06:16	07:06	18:43-19:05/22		07:55	09:04-09:28/24	07:50	08:35		
	21:53		21:08	20:01			18:52		16:53	16:27		
13	05:33		06:17	07:07	18:43-19:05/22		07:57	09:04-09:28/24	07:52	08:36		
	21:52		21:06	19:59			18:50	09:31-09:34/3	16:51	16:27		
14	05:34		06:19	07:09	18:43-19:03/20		07:59	09:03-09:38/35	07:53	08:36		
	21:52		21:04	19:56			18:48		16:50	16:27		
15	05:35		06:21	07:11	18:44-19:02/18		08:00	09:04-09:40/36	07:55	08:37		
	21:51		21:02	19:54			18:46		16:48	16:27		
16	05:37		06:22	07:12	18:44-19:00/16		08:02	09:04-09:41/37	07:57	08:38		
	21:50		21:00	19:52			18:44		16:47	16:27		
17	05:38		06:24	07:14	18:46-18:58/12		08:04	09:05-09:42/37	07:59	08:39		
	21:48		20:58	19:50			18:41		16:46	16:27		
18	05:39		06:25	07:16	18:48-18:53/5		08:06	09:07-09:43/36	08:00	08:40		
	21:47		20:56	19:47			18:39		16:44	16:28		
19	05:40		06:27	07:17			08:07	09:08-09:42/34	08:02	08:41		
	21:46		20:54	19:45			18:37		16:43	16:28		
20	05:42		06:29	07:19			08:09	09:11-09:17/6	08:04	08:41		
	21:45		20:52	19:43			18:35	09:20-09:42/22	16:42	16:28		
21	05:43		06:30	07:20			08:11	09:20-09:42/22	08:05	08:42		
	21:44		20:50	19:40			18:33		16:41	16:29		
22	05:44		06:32	07:22			08:12	09:20-09:42/22	08:07	08:42		
	21:43		20:48	19:38			18:31		16:39	16:29		
23	05:46		06:34	07:24			08:14	09:20-09:42/22	08:09	08:43		
	21:41		20:46	19:36			18:29		16:38	16:30		
24	05:47		06:35	07:25			08:16	09:21-09:41/20	08:10	08:43		
	21:40		20:44	19:33			18:27		16:37	16:30		
25	05:48		06:37	07:27			07:18	08:22-08:40/18	08:12	08:44		
	21:39		20:42	19:31			17:25		16:36	16:31		
26	05:50		06:38	07:29			07:20	08:22-08:38/16	08:13	08:44		
	21:37		20:39	19:29			17:23		16:35	16:32		
27	05:51		06:40	07:30			07:21	08:23-08:37/14	08:15	08:44		
	21:36		20:37	19:26			17:21		16:34	16:32		
28	05:53		06:42	07:32			07:23	08:26-08:34/8	08:16	08:44		
	21:34		20:35	19:24			17:19		16:34	16:33		
29	05:54		06:43	07:33			07:25		08:18	08:45		
	21:33		20:33	19:22			17:17		16:33	16:34		
30	05:56		06:45	07:35			07:27		08:19	08:45		
	21:31		20:31	19:19			17:15		16:32	16:35		
31	05:57		06:46				07:28			08:45		
	21:30		20:28				17:13			16:36		
Potential sun hours	501		453	381			332		267	244		
Sum of minutes with flicker		171		0	225		570		0	0		

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

WTG: 4 - T04

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January			February			March			April			May			June		
1	08:45	16:37	18:16	08:18	17:25	18:16	07:25	18:16	18:16	07:15	18:52-19:12/20	20:10	06:10	19:04-19:39/35	21:00	05:25	19:29-20:07/38	
2	08:45	16:38	18:18	08:16	17:26	18:18	07:23	18:18	18:18	07:12	18:52-19:12/20	20:11	06:08	19:04-19:40/36	21:02	05:24	19:30-20:07/37	
3	08:44	16:39	18:20	08:15	17:28	18:20	07:21	18:20	18:20	07:10	18:52-19:11/19	20:13	06:06	19:03-19:41/38	21:04	05:24	19:31-20:07/36	
4	08:44	16:40	18:21	08:13	17:30	18:21	07:18	18:21	18:21	07:08	18:52-19:10/18	20:15	06:04	19:02-19:42/40	21:05	05:23	19:35-20:08/33	
5	08:44	16:42	18:23	08:12	17:32	18:23	07:16	18:23	18:23	07:05	18:53-19:09/16	20:16	06:03	19:02-19:43/41	21:07	05:22	19:36-20:08/32	
6	08:44	16:43	18:25	08:10	17:34	18:25	07:14	18:25	18:25	07:03	18:54-19:08/14	20:18	06:01	19:02-19:45/43	21:08	05:22	19:36-20:09/33	
7	08:43	16:44	18:27	08:08	17:36	18:27	07:12	18:27	18:27	07:01	18:56-19:06/10	20:20	05:59	19:01-19:46/45	21:10	05:21	19:36-20:09/33	
8	08:43	16:45	18:28	08:07	17:38	18:28	07:09	18:28	18:28	06:59	19:07-19:21/14	20:21	05:57	19:00-19:46/46	21:12	05:20	19:36-20:09/33	
9	08:42	16:47	18:30	08:05	17:39	18:30	07:07	18:30	18:30	06:56	19:06-19:23/17	20:23	05:56	19:01-19:47/46	21:13	05:20	19:36-20:09/33	
10	08:42	16:48	18:32	08:03	17:41	18:32	07:05	18:32	18:32	06:54	19:04-19:24/20	20:25	05:54	19:00-19:47/47	21:15	05:20	19:36-20:10/34	
11	08:41	16:49	18:34	08:01	17:43	18:34	07:03	18:34	18:34	06:52	19:03-19:25/22	20:27	05:52	19:01-19:48/47	21:17	05:19	19:37-20:10/33	
12	08:41	16:51	18:35	07:59	17:45	18:35	07:00	18:35	18:35	06:50	19:02-19:29/27	20:28	05:51	19:01-19:48/47	21:18	05:19	19:37-20:11/34	
13	08:40	16:52	18:37	07:57	17:47	18:37	06:58	18:37	18:37	06:48	19:01-19:29/28	20:30	05:49	19:01-19:49/48	21:20	05:19	19:36-20:10/34	
14	08:39	16:54	18:39	07:56	17:49	18:39	06:56	18:39	18:39	06:45	19:01-19:31/30	20:32	05:47	19:01-19:48/47	21:21	05:18	19:37-20:11/34	
15	08:38	16:55	18:41	07:54	17:50	18:41	06:54	18:41	18:41	06:43	19:00-19:31/31	20:33	05:46	19:02-19:49/47	21:23	05:18	19:37-20:11/34	
16	08:38	16:57	18:42	07:52	17:52	18:42	06:51	18:42	18:42	06:41	19:00-19:32/32	20:35	05:44	19:01-19:48/47	21:24	05:18	19:37-20:11/34	
17	08:37	16:59	18:44	07:50	17:54	18:44	06:49	18:44	18:44	06:39	19:01-19:32/31	20:37	05:43	19:02-19:49/47	21:26	05:18	19:37-20:11/34	
18	08:36	17:00	18:46	07:48	17:56	18:46	06:47	18:46	18:46	06:37	19:01-19:32/31	20:38	05:41	19:03-19:49/46	21:27	05:18	19:38-20:12/34	
19	08:35	17:02	18:47	07:46	17:58	18:47	06:44	18:47	18:47	06:35	19:02-19:32/30	20:40	05:40	19:04-19:49/45	21:29	05:18	19:38-20:12/34	
20	08:34	17:03	18:49	07:44	18:00	18:49	06:42	18:49	18:49	06:32	19:02-19:31/29	20:42	05:39	19:03-19:54/51	21:30	05:18	19:38-20:12/34	
21	08:33	17:05	18:51	07:42	18:01	18:51	06:40	18:51	18:51	06:30	19:04-19:31/27	20:43	05:37	19:04-19:57/53	21:32	05:18	19:39-20:13/34	
22	08:31	17:07	18:53	07:40	18:03	18:53	06:38	18:53	18:53	06:28	19:05-19:30/25	20:45	05:36	19:05-19:59/54	21:33	05:18	19:39-20:13/34	
23	08:30	17:09	18:54	07:38	18:05	18:54	06:35	18:54	18:54	06:26	19:08-19:32/24	20:47	05:35	19:06-20:00/54	21:34	05:19	19:39-20:13/34	
24	08:29	17:10	18:56	07:36	18:07	18:56	06:33	18:56	18:56	06:24	19:11-19:33/22	20:49	05:33	19:07-20:01/54	21:36	05:19	19:39-20:13/34	
25	08:28	17:12	18:58	07:33	18:09	18:58	06:31	18:58	18:58	06:22	19:10-19:34/24	20:50	05:32	19:08-20:02/54	21:37	05:19	19:40-20:13/33	
26	08:27	17:14	18:59	07:31	18:11	18:59	06:28	18:59	18:59	06:20	19:09-19:35/26	20:52	05:31	19:09-20:03/54	21:38	05:20	19:39-20:13/34	
27	08:25	17:16	19:01	07:29	18:12	19:01	06:26	19:01	19:01	06:18	19:08-19:36/28	20:54	05:30	19:10-20:04/54	21:40	05:20	19:40-20:14/34	
28	08:24	17:17	19:03	07:27	18:14	19:03	06:24	19:03	19:03	06:16	19:07-19:37/30	20:55	05:29	19:11-20:05/54	21:41	05:21	19:40-20:14/34	
29	08:22	17:19	19:05	07:21	18:16	19:05	07:21	18:16	18:16	06:14	19:06-19:38/32	20:57	05:28	19:12-20:05/53	21:42	05:21	19:41-20:14/33	
30	08:21	17:21	19:06	07:19	18:18	19:06	07:19	18:18	18:18	06:12	19:05-19:39/34	20:59	05:27	19:13-20:05/52	21:43	05:22	19:40-20:14/34	
31	08:20	17:23	19:07	07:17	18:12	19:07	07:17	18:12	18:12	06:10	19:04-19:39/35	21:00	05:26	19:14-20:06/52	21:45	05:20	19:40-20:14/34	
Potential sun hours	260	278	367							416			485			498		
Sum of minutes with flicker	0	0	235							738			1477			1037		

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case WTG: 4 - T04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 19:41-20:14/33 22:00	05:59 19:11-19:58/47 21:28	06:48 19:02-19:24/22 20:26	07:37 19:17 17:11	07:30 16:31	08:21 16:31
2	05:23 19:40-20:14/34 21:59	06:00 19:11-19:59/48 21:26	06:50 19:02-19:22/20 20:24	07:38 19:15 17:09	07:32 16:31	08:22 16:31
3	05:24 19:41-20:14/33 21:59	06:02 19:11-19:58/47 21:25	06:51 19:04-19:21/17 20:22	07:40 19:12 17:08	07:34 16:30	08:24 16:30
4	05:24 19:41-20:15/34 21:58	06:03 19:10-19:57/47 21:23	06:53 19:05-19:19/14 20:19	07:42 19:10 17:06	07:36 16:29	08:25 16:29
5	05:25 19:42-20:15/33 21:58	06:05 19:11-19:56/45 21:21	06:55 18:52-19:02/10 20:17	07:43 19:08 17:04	07:37 16:29	08:26 16:29
6	05:26 19:41-20:14/33 21:57	06:06 19:11-19:55/44 21:19	06:56 18:50-19:04/14 20:15	07:45 19:06 17:02	07:39 16:28	08:28 16:28
7	05:27 19:42-20:14/32 21:57	06:08 19:11-19:54/43 21:18	06:58 18:48-19:04/16 20:13	07:47 19:03 17:01	07:41 16:28	08:29 16:28
8	05:28 19:42-20:15/33 21:56	06:09 19:11-19:52/41 21:16	06:59 18:47-19:05/18 20:10	07:48 19:01 16:59	07:43 16:28	08:30 16:28
9	05:29 19:40-20:15/35 21:56	06:11 19:12-19:51/39 21:14	07:01 18:46-19:05/19 20:08	07:50 18:59 16:57	07:44 16:27	08:31 16:27
10	05:30 19:38-20:15/37 21:55	06:13 19:12-19:49/37 21:12	07:03 18:45-19:05/20 20:06	07:52 18:57 16:56	07:46 16:27	08:32 16:27
11	05:31 19:37-20:14/37 21:54	06:14 19:13-19:49/36 21:10	07:04 18:44-19:04/20 20:03	07:53 18:54 16:54	07:48 16:27	08:33 16:27
12	05:32 19:23-20:14/51 21:53	06:16 19:13-19:47/34 21:08	07:06 18:45-19:04/19 20:01	07:55 18:52 16:53	07:50 16:27	08:35 16:27
13	05:33 19:22-20:14/52 21:52	06:17 19:14-19:47/33 21:06	07:07 18:40-19:04/24 19:59	07:57 18:50 16:51	07:52 16:27	08:36 16:27
14	05:34 19:21-20:14/53 21:51	06:19 19:14-19:45/31 21:04	07:09 18:37-19:02/25 19:56	07:59 18:48 16:50	07:53 16:27	08:36 16:27
15	05:35 19:20-20:13/53 21:51	06:21 19:15-19:44/29 21:02	07:11 18:35-19:01/26 19:54	08:00 18:46 16:48	07:55 16:27	08:37 16:27
16	05:37 19:19-20:13/54 21:50	06:22 19:15-19:42/27 21:00	07:12 18:33-18:58/25 19:52	08:02 18:43 16:47	07:57 16:27	08:38 16:27
17	05:38 19:19-20:13/54 21:48	06:24 19:16-19:42/26 20:58	07:14 18:33-18:54/21 19:49	08:04 18:41 16:45	07:58 16:27	08:39 16:27
18	05:39 19:18-20:12/54 21:47	06:25 19:16-19:40/24 20:56	07:15 18:32-18:50/18 19:47	08:05 18:39 16:44	08:00 16:28	08:40 16:28
19	05:40 19:17-20:11/54 21:46	06:27 19:17-19:39/22 20:54	07:17 18:32-18:50/18 19:45	08:07 18:37 16:43	08:02 16:28	08:40 16:28
20	05:42 19:16-20:10/54 21:45	06:29 19:12-19:37/25 20:52	07:19 18:32-18:50/18 19:43	08:09 18:35 16:42	08:04 16:28	08:41 16:28
21	05:43 19:15-20:09/54 21:44	06:30 19:10-19:35/25 20:50	07:20 18:32-18:48/16 19:40	08:11 18:33 16:41	08:05 16:29	08:42 16:29
22	05:44 19:15-20:08/53 21:43	06:32 19:07-19:35/28 20:48	07:22 18:33-18:47/14 19:38	08:12 18:31 16:39	08:07 16:29	08:42 16:29
23	05:46 19:14-20:06/52 21:41	06:33 19:06-19:35/29 20:46	07:24 18:33-18:45/12 19:36	08:14 18:29 16:38	08:09 16:30	08:43 16:30
24	05:47 19:14-20:02/48 21:40	06:35 19:05-19:36/31 20:44	07:25 18:36-18:42/6 19:33	08:16 18:27 16:37	08:10 16:30	08:43 16:30
25	05:48 19:14-19:59/45 21:39	06:37 19:04-19:35/31 20:42	07:27 19:31 17:25	07:18 16:36 16:31	08:12 16:31	08:44 16:31
26	05:50 19:13-19:59/46 21:37	06:38 19:03-19:35/32 20:39	07:28 19:29 17:23	07:19 16:35 16:31	08:13 16:31	08:44 16:31
27	05:51 19:12-19:59/47 21:36	06:40 19:02-19:34/32 20:37	07:30 19:26 17:21	07:21 16:34 16:32	08:15 16:32	08:44 16:32
28	05:53 19:13-20:00/47 21:34	06:42 19:02-19:33/31 20:35	07:32 19:24 17:19	07:23 16:33 16:33	08:16 16:33	08:44 16:33
29	05:54 19:12-19:59/47 21:33	06:43 19:01-19:31/30 20:33	07:33 19:22 17:17	07:25 16:33 16:34	08:18 16:34	08:45 16:34
30	05:56 19:11-19:59/48 21:31	06:45 19:02-19:30/28 20:31	07:35 19:19 17:15	07:27 16:32 16:32	08:19 16:35	08:45 16:35
31	05:57 19:12-19:59/47 21:30	06:46 19:01-19:27/26 20:28	07:28 17:13 16:36	07:28 16:36 16:36	08:45 16:36	08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	1400	1048	440	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case

WTG: 5 - T06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January			February			March			April			May			June		
1	08:45	16:37	18:16	08:18	17:25	18:16	07:25	18:16	18:16	07:15	18:58-19:24/26	20:10	06:10	19:26-19:52/26	21:00	05:25	20:19-20:24/5	
2	08:45	16:38	18:18	08:16	17:26	18:18	07:23	18:18	18:18	07:12	18:57-19:25/28	20:11	06:08	19:27-19:54/27	21:02	05:24	20:16-20:26/10	
3	08:44	16:39	18:19	08:15	17:28	18:19	07:21	18:19	18:19	07:10	18:56-19:26/30	20:13	06:06	19:27-19:54/27	21:04	05:24	20:15-20:27/12	
4	08:44	16:40	18:21	08:13	17:30	18:21	07:18	18:21	18:21	07:08	18:55-19:26/31	20:15	06:04	19:26-19:54/28	21:05	05:23	20:14-20:29/15	
5	08:44	16:41	18:23	08:12	17:32	18:23	07:16	18:23	18:23	07:05	18:55-19:26/31	20:16	06:03	19:26-19:54/28	21:07	05:22	20:13-20:29/16	
6	08:44	16:43	18:25	08:10	17:34	18:25	07:14	18:25	18:25	07:03	18:55-19:27/32	20:18	06:01	19:27-19:54/27	21:08	05:22	20:13-20:31/18	
7	08:43	16:44	18:27	08:08	17:36	18:27	07:12	18:27	18:27	07:01	18:55-19:27/32	20:20	05:59	19:26-19:54/28	21:10	05:21	20:12-20:31/19	
8	08:43	16:45	18:28	08:07	17:37	18:28	07:09	18:28	18:28	06:59	18:54-19:26/32	20:21	05:57	19:26-19:53/27	21:12	05:20	20:12-20:32/20	
9	08:42	16:47	18:30	08:05	17:39	18:30	07:07	18:30	18:30	06:56	18:54-19:29/35	20:23	05:56	19:27-19:54/27	21:13	05:20	20:12-20:32/20	
10	08:42	16:48	18:32	08:03	17:41	18:32	07:05	18:32	18:32	06:54	18:54-19:30/36	20:25	05:54	19:27-19:53/26	21:15	05:19	20:12-20:33/21	
11	08:41	16:49	18:34	08:01	17:43	18:34	07:03	18:34	18:34	06:52	18:55-19:32/37	20:27	05:52	19:28-19:53/25	21:17	05:19	20:12-20:34/22	
12	08:41	16:51	18:35	07:59	17:45	18:35	07:00	18:35	18:35	06:50	18:55-19:33/38	20:28	05:50	19:28-19:52/24	21:18	05:19	20:11-20:33/22	
13	08:40	16:52	18:37	07:57	17:47	18:37	06:58	18:37	18:37	06:48	18:55-19:32/37	20:30	05:49	19:29-19:52/23	21:20	05:19	20:11-20:34/23	
14	08:39	16:54	18:39	07:56	17:49	18:39	06:56	18:39	18:39	06:45	18:56-19:33/37	20:32	05:47	19:29-19:51/22	21:21	05:18	20:11-20:35/24	
15	08:38	16:55	18:41	07:54	17:50	18:41	06:54	18:41	18:41	06:43	18:57-19:34/37	20:33	05:46	19:30-19:51/21	21:23	05:18	20:12-20:35/23	
16	08:38	16:57	18:42	07:52	17:52	18:42	06:51	18:42	18:42	06:41	18:58-19:35/37	20:35	05:44	19:30-19:49/19	21:24	05:18	20:12-20:36/24	
17	08:37	16:59	18:44	07:50	17:54	18:44	06:49	18:44	18:44	06:39	19:00-19:36/36	20:37	05:43	19:32-19:48/16	21:26	05:18	20:12-20:36/24	
18	08:36	17:00	18:46	07:48	17:56	18:46	06:47	18:46	18:46	06:37	19:04-19:36/32	20:38	05:41	19:34-19:47/13	21:27	05:18	20:12-20:36/24	
19	08:35	17:02	18:47	07:46	17:58	18:47	06:44	18:47	18:47	06:34	19:04-19:37/33	20:40	05:40	19:35-19:45/10	21:29	05:18	20:12-20:36/24	
20	08:34	17:03	18:49	07:44	18:00	18:49	06:42	18:49	18:49	06:32	19:04-19:37/33	20:42	05:39	19:39-19:41/2	21:30	05:18	20:12-20:36/24	
21	08:33	17:05	18:51	07:42	18:01	18:51	06:40	18:51	18:51	06:30	19:05-19:37/32	20:43	05:37		21:32	05:18	20:12-20:36/24	
22	08:31	17:07	18:53	07:40	18:03	18:53	06:38	18:05-18:10/5	18:05-18:10/5	06:28	19:05-19:37/32	20:45	05:36		21:33	05:18	20:13-20:37/24	
23	08:30	17:09	18:54	07:38	18:05	18:54	06:35	18:02-18:13/11	18:02-18:13/11	06:26	19:06-19:36/30	20:47	05:35		21:34	05:19	20:13-20:37/24	
24	08:29	17:10	18:56	07:36	18:07	18:56	06:33	17:59-18:14/15	17:59-18:14/15	06:24	19:07-19:45/38	20:48	05:33		21:36	05:19	20:13-20:37/24	
25	08:28	17:12	18:58	07:33	18:09	18:58	06:31	17:58-18:15/17	17:58-18:15/17	06:22	19:08-19:47/39	20:50	05:32		21:37	05:19	20:14-20:38/24	
26	08:27	17:14	18:59	07:31	18:11	18:59	06:28	17:57-18:16/19	17:57-18:16/19	06:20	19:10-19:48/38	20:52	05:31		21:38	05:20	20:14-20:38/24	
27	08:25	17:16	19:01	07:29	18:12	19:01	06:26	17:57-18:17/20	17:57-18:17/20	06:18	19:13-19:49/36	20:54	05:30		21:40	05:20	20:15-20:38/23	
28	08:24	17:17	19:03	07:27	18:14	19:03	06:24	17:56-18:18/22	17:56-18:18/22	06:16	19:14-19:50/36	20:55	05:29		21:41	05:21	20:14-20:38/24	
29	08:22	17:19	19:05				07:21	18:56-19:19/23	18:56-19:19/23	06:14	19:16-19:51/35	20:57	05:28		21:42	05:21	20:15-20:38/23	
30	08:21	17:21	19:06				07:19	18:57-19:20/23	18:57-19:20/23	06:12	19:18-19:52/34	20:59	05:27		21:43	05:22	20:15-20:38/23	
31	08:20	17:23	19:08				07:17	18:57-19:21/24	18:57-19:21/24				05:26		21:45			
Potential sun hours	260	278	367							416			485			498		
Sum of minutes with flicker	0	0	179							1020			446			627		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 5 - T06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	20:16-20:38/22	05:59	19:38-20:03/25	06:48	18:54-19:31/37	07:37	07:30	08:21			
	22:00		21:28		20:26		19:17	17:11	16:31			
2	05:23	20:16-20:37/21	06:00	19:38-20:04/26	06:50	18:52-19:28/36	07:38	07:32	08:22			
	21:59		21:26		20:24		19:15	17:09	16:30			
3	05:24	20:17-20:37/20	06:02	19:37-20:04/27	06:51	18:52-19:27/35	07:40	07:34	08:24			
	21:59		21:25		20:22		19:12	17:08	16:30			
4	05:24	20:17-20:37/20	06:03	19:36-20:03/27	06:53	18:51-19:25/34	07:42	07:36	08:25			
	21:58		21:23		20:19		19:10	17:06	16:29			
5	05:25	20:18-20:37/19	06:05	19:37-20:04/27	06:54	18:51-19:23/32	07:43	07:37	08:26			
	21:58		21:21		20:17		19:08	17:04	16:29			
6	05:26	20:18-20:36/18	06:06	19:36-20:03/27	06:56	18:51-19:23/32	07:45	07:39	08:28			
	21:57		21:19		20:15		19:06	17:02	16:28			
7	05:27	20:19-20:36/17	06:08	19:36-20:04/28	06:58	18:50-19:22/32	07:47	07:41	08:29			
	21:57		21:18		20:13		19:03	17:01	16:28			
8	05:28	20:20-20:35/15	06:09	19:36-20:03/27	06:59	18:50-19:21/31	07:48	07:43	08:30			
	21:56		21:16		20:10		19:01	16:59	16:28			
9	05:29	20:21-20:35/14	06:11	19:36-20:03/27	07:01	18:49-19:19/30	07:50	07:44	08:31			
	21:56		21:14		20:08		18:59	16:57	16:27			
10	05:30	20:23-20:34/11	06:13	19:35-20:02/27	07:03	18:50-19:18/28	07:52	07:46	08:32			
	21:55		21:12		20:06		18:57	16:56	16:27			
11	05:31	20:25-20:32/7	06:14	19:35-20:02/27	07:04	18:50-19:16/26	07:53	07:48	08:33			
	21:54		21:10		20:03		18:54	16:54	16:27			
12	05:32		06:16	19:35-20:01/26	07:06	18:49-19:14/25	07:55	07:50	08:35			
	21:53		21:08	19:29-19:32/3	20:01		18:52	16:53	16:27			
13	05:33		06:17	19:25-20:00/35	07:07	18:47-19:11/24	07:57	07:52	08:36			
	21:52		21:06		19:59		18:50	16:51	16:27			
14	05:34		06:19	19:23-19:58/35	07:09	18:47-19:09/22	07:59	07:53	08:36			
	21:51		21:04		19:56		18:48	16:50	16:27			
15	05:35		06:21	19:21-19:57/36	07:11	18:46-19:09/23	08:00	07:55	08:37			
	21:51		21:02		19:54		18:46	16:48	16:27			
16	05:36		06:22	19:18-19:56/38	07:12	18:45-19:06/21	08:02	07:57	08:38			
	21:50		21:00		19:52		18:43	16:47	16:27			
17	05:38		06:24	19:16-19:55/39	07:14	18:46-19:05/19	08:04	07:58	08:39			
	21:48		20:58		19:49		18:41	16:45	16:27			
18	05:39		06:25	19:13-19:52/39	07:15	18:45-19:03/18	08:05	08:00	08:40			
	21:47		20:56		19:47		18:39	16:44	16:27			
19	05:40		06:27	19:12-19:41/29	07:17	18:46-19:01/15	08:07	08:02	08:40			
	21:46		20:54	19:42-19:50/8	19:45		18:37	16:43	16:28			
20	05:42		06:29	19:10-19:41/31	07:19	18:48-19:00/12	08:09	08:04	08:41			
	21:45		20:52		19:42		18:35	16:42	16:28			
21	05:43		06:30	19:10-19:41/31	07:20	18:49-18:56/7	08:11	08:05	08:42			
	21:44		20:50		19:40		18:33	16:40	16:29			
22	05:44		06:32	19:08-19:41/33	07:22		08:12	08:07	08:42			
	21:43		20:48		19:38		18:31	16:39	16:29			
23	05:46		06:33	19:08-19:41/33	07:24		08:14	08:09	08:43			
	21:41		20:46		19:35		18:29	16:38	16:30			
24	05:47	19:47-19:54/7	06:35	19:08-19:41/33	07:25		08:16	08:10	08:43			
	21:40		20:44		19:33		18:27	16:37	16:30			
25	05:48	19:44-19:56/12	06:37	19:07-19:39/32	07:27		07:18	08:12	08:44			
	21:39		20:42		19:31		17:25	16:36	16:31			
26	05:50	19:43-19:58/15	06:38	19:03-19:39/36	07:28		07:19	08:13	08:44			
	21:37		20:39		19:29		17:23	16:35	16:31			
27	05:51	19:42-19:59/17	06:40	19:00-19:37/37	07:30		07:21	08:15	08:44			
	21:36		20:37		19:26		17:21	16:34	16:32			
28	05:53	19:41-20:01/20	06:42	18:58-19:36/38	07:32		07:23	08:16	08:44			
	21:34		20:35		19:24		17:19	16:33	16:33			
29	05:54	19:40-20:01/21	06:43	18:56-19:34/38	07:33		07:25	08:18	08:45			
	21:33		20:33		19:22		17:17	16:33	16:34			
30	05:56	19:39-20:02/23	06:45	18:56-19:33/37	07:35		07:27	08:19	08:45			
	21:31		20:31		19:19		17:15	16:32	16:35			
31	05:57	19:39-20:03/24	06:46	18:54-19:31/37			07:28		08:45			
	21:30		20:28				17:13		16:36			
Potential sun hours		501	453		381		332	267	244			
Sum of minutes with flicker		323	999		539		0	0	0			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 6 - T07**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	07:25	07:15					06:10	06:51-07:22/31	05:25	06:33-06:34/1
	16:37	17:25	18:16	20:10					21:00		21:46	
2	08:45	08:17	07:23	07:12					06:08	06:50-07:20/30	05:24	
	16:38	17:27	18:18	20:11					21:02		21:47	
3	08:44	08:15	07:21	07:10					06:06	06:49-07:19/30	05:24	
	16:39	17:28	18:20	20:13					21:04		21:48	
4	08:44	08:13	07:18	07:08					06:05	06:49-07:18/29	05:23	
	16:40	17:30	18:21	20:15					21:05		21:49	
5	08:44	08:12	07:16	07:06					06:03	06:50-07:19/29	05:22	
	16:42	17:32	18:23	20:16					21:07		21:50	
6	08:44	08:10	07:14	07:03					06:01	06:49-07:18/29	05:22	
	16:43	17:34	18:25	20:18					21:09		21:51	
7	08:43	08:08	07:12	07:01					05:59	06:49-07:18/29	05:21	
	16:44	17:36	18:27	20:20					21:10		21:52	
8	08:43	08:07	07:10	06:59					05:57	06:50-07:18/28	05:21	
	16:45	17:38	18:28	20:22					21:12		21:53	
9	08:42	08:05	07:07	06:57	19:23-19:27/4				05:56	06:28-06:36/8	05:20	
	16:47	17:39	18:30	20:23					21:13	06:50-07:17/27	21:54	
10	08:42	08:03	07:05	06:54	19:19-19:30/11				05:54	06:26-06:38/12	05:20	
	16:48	17:41	18:32	20:25					21:15	06:50-07:16/26	21:54	
11	08:41	08:01	07:03	06:52	19:17-19:32/15				05:52	06:25-06:40/15	05:19	
	16:50	17:43	18:34	20:27					21:17	06:51-07:16/25	21:55	
12	08:41	07:59	07:01	06:50	19:16-19:33/17				05:51	06:24-06:40/16	05:19	
	16:51	17:45	18:35	20:28					21:18	06:51-07:15/24	21:56	
13	08:40	07:57	06:58	06:48	19:14-19:37/23				05:49	06:23-06:41/18	05:19	
	16:52	17:47	18:37	20:30					21:20	06:52-07:14/22	21:56	
14	08:39	07:56	06:56	06:45	19:14-19:39/25				05:47	06:22-06:41/19	05:18	
	16:54	17:49	18:39	20:32					21:21	06:53-07:13/20	21:57	
15	08:38	07:54	06:54	06:43	19:13-19:40/27				05:46	06:22-06:42/20	05:18	
	16:56	17:51	18:41	20:33					21:23	06:54-07:12/18	21:58	
16	08:38	07:52	06:51	06:41	19:13-19:41/28				05:44	06:22-06:43/21	05:18	
	16:57	17:52	18:42	20:35					21:24	06:56-07:11/15	21:58	
17	08:37	07:50	06:49	06:39	19:13-19:41/28				05:43	06:22-06:42/20	05:18	
	16:59	17:54	18:44	20:37					21:26	06:57-07:08/11	21:59	
18	08:36	07:48	06:47	06:37	07:10-07:20/10				05:41	06:22-06:43/21	05:18	
	17:00	17:56	18:46	20:38	19:14-19:41/27				21:27	07:01-07:05/4	21:59	
19	08:35	07:46	06:45	06:35	07:08-07:22/14				05:40	06:22-06:43/21	05:18	
	17:02	17:58	18:48	20:40	19:14-19:41/27				21:29		21:59	
20	08:34	07:44	06:42	06:32	07:06-07:23/17				05:39	06:22-06:43/21	05:18	
	17:04	18:00	18:49	20:42	19:15-19:41/26				21:30		22:00	
21	08:33	07:42	06:40	06:30	07:05-07:24/19				05:37	06:22-06:42/20	05:18	
	17:05	18:02	18:51	20:44	19:16-19:40/24				21:32		22:00	
22	08:32	07:40	06:38	06:28	07:04-07:25/21				05:36	06:22-06:42/20	05:18	
	17:07	18:03	18:53	20:45	19:18-19:40/22				21:33		22:00	
23	08:30	07:38	06:35	06:26	07:03-07:25/22				05:35	06:23-06:42/19	05:19	
	17:09	18:05	18:54	20:47	19:24-19:38/14				21:34		22:00	
24	08:29	07:36	06:33	06:24	07:00-07:25/25				05:34	06:23-06:42/19	05:19	
	17:10	18:07	18:56	20:49	19:25-19:37/12				21:36		22:00	
25	08:28	07:33	06:31	06:22	06:57-07:25/28				05:32	06:24-06:41/17	05:19	
	17:12	18:09	18:58	20:50	19:27-19:35/8				21:37		22:00	
26	08:27	07:31	06:28	06:20	06:55-07:25/30				05:31	06:25-06:41/16	05:20	
	17:14	18:11	18:59	20:52					21:38		22:00	
27	08:25	07:29	06:26	06:18	06:54-07:24/30				05:30	06:25-06:40/15	05:20	
	17:16	18:12	19:01	20:54					21:40		22:00	
28	08:24	07:27	06:24	06:16	06:52-07:24/32				05:29	06:26-06:40/14	05:21	
	17:17	18:14	19:03	20:55					21:41		22:00	
29	08:22		07:22	06:14	06:51-07:23/32				05:28	06:27-06:39/12	05:21	
	17:19		20:05	20:57					21:42		22:00	
30	08:21		07:19	06:12	06:50-07:22/32				05:27	06:28-06:38/10	05:22	
	17:21		20:06	20:59					21:43		22:00	
31	08:20		07:17						05:26	06:30-06:37/7		
	17:23		20:08						21:45			
Potential sun hours	260	278	367	416					485		498	
Sum of minutes with flicker	0	0	0	650					808		1	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG: 6 - T07****Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 06:34-06:50/16 21:28 07:01-07:26/25	06:48 19:16-19:31/15 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	05:23 21:59	06:00 06:36-06:50/14 21:26 07:01-07:27/26	06:50 19:17-19:28/11 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	05:24 21:59	06:02 06:37-06:48/11 21:25 07:00-07:27/27	06:51 19:21-19:25/4 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	05:25 21:58	06:03 06:40-06:46/6 21:23 07:00-07:28/28	06:53 20:19	07:42 19:10	07:36 17:06	08:25 16:29
5	05:25 21:58	06:05 06:59-07:28/29 21:21	06:55 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	05:26 21:57	06:06 06:59-07:28/29 21:19	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:29
7	05:27 21:57	06:08 06:59-07:28/29 21:18	06:58 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	05:28 21:56	06:10 06:59-07:28/29 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	05:29 21:56	06:11 06:59-07:28/29 21:14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:28
10	05:30 21:55	06:13 06:59-07:28/29 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	05:31 21:54	06:14 06:59-07:29/30 21:10	07:04 20:03	07:54 18:54	07:48 16:54	08:34 16:27
12	05:32 06:38-06:44/6 21:53	06:16 06:59-07:31/32 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27
13	05:33 06:37-06:46/9 21:52	06:17 06:59-07:31/32 21:06	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	05:34 06:36-06:47/11 21:52	06:19 07:00-07:32/32 21:04	07:09 19:57	07:59 18:48	07:53 16:50	08:36 16:27
15	05:35 06:36-06:49/13 21:51	06:21 07:00-07:32/32 21:02	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27
16	05:37 06:35-06:50/15 21:50	06:22 07:02-07:32/30 21:00	07:12 19:52	08:02 18:44	07:57 16:47	08:38 16:27
17	05:38 06:34-06:50/16 21:48	06:24 07:02-07:32/30 20:58	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27
18	05:39 06:34-06:51/17 21:47	06:26 07:04-07:32/28 20:56 19:32-19:41/9	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28
19	05:40 06:33-06:51/18 21:46	06:27 07:06-07:31/25 20:54 19:30-19:43/13	07:17 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	05:42 06:33-06:51/18 21:45	06:29 07:09-07:31/22 20:52 19:28-19:43/15	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	05:43 06:33-06:53/20 21:44	06:30 07:09-07:29/20 20:50 19:23-19:44/21	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	05:44 06:33-06:53/20 21:43	06:32 07:10-07:29/19 20:48 19:21-19:45/24	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	05:46 06:32-06:53/21 21:41	06:34 07:10-07:27/17 20:46 19:19-19:45/26	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	05:47 06:32-06:53/21 21:40	06:35 07:12-07:26/14 20:44 19:18-19:45/27	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	05:48 06:32-06:53/21 21:39	06:37 07:13-07:23/10 20:42 19:16-19:44/28	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	05:50 06:32-06:53/21 21:37 07:10-07:18/8	06:38 19:16-19:44/28 20:39	07:29 19:29	07:20 17:23	08:13 16:35	08:44 16:32
27	05:51 06:32-06:53/21 21:36 07:07-07:20/13	06:40 19:15-19:43/28 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	05:53 06:33-06:53/20 21:34 07:06-07:22/16	06:42 19:15-19:42/27 20:35	07:32 19:24	07:23 17:19	08:16 16:34	08:44 16:33
29	05:54 06:33-06:52/19 21:33 07:04-07:23/19	06:43 19:15-19:40/25 20:33	07:33 19:22	07:25 17:17	08:18 16:33	08:45 16:34
30	05:56 06:34-06:52/18 21:31 07:04-07:25/21	06:45 19:15-19:38/23 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	05:57 06:34-06:51/17 21:30 07:02-07:25/23	06:47 19:15-19:32/17 20:28		07:28 17:13		08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	442	1011	30	0	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG: 7 - T08****Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	08:45	08:18	07:25	16:49-17:17/28	07:15	16:49-17:17/28	06:10	19:01-19:19/18	05:25	19:23-19:32/9
	16:37	17:25	16:37	17:25	18:16		20:10		21:00		21:46	
2	08:45	08:16	08:45	08:16	07:23	16:49-17:20/31	07:12	16:49-17:20/31	06:08	19:01-19:21/20	05:24	19:24-19:30/6
	16:38	17:27	16:38	17:27	18:18		20:11		21:02		21:47	
3	08:44	08:15	08:44	08:15	07:21	16:49-17:21/32	07:10	16:49-17:21/32	06:06	19:24-19:26/2	05:24	
	16:39	17:28	16:39	17:28	18:20		20:13		21:04	18:59-19:22/23	21:48	
4	08:44	08:13	08:44	08:13	07:18	16:49-17:22/33	07:08	16:49-17:22/33	06:05	18:58-19:31/33	05:23	
	16:40	17:30	16:40	17:30	18:21		20:15		21:05		21:49	
5	08:44	08:12	08:44	08:12	07:16	16:49-17:23/34	07:06	16:49-17:23/34	06:03	18:57-19:32/35	05:22	
	16:42	17:32	16:42	17:32	18:23		20:16		21:07		21:50	
6	08:44	08:10	08:44	08:10	07:14	16:50-17:24/34	07:03	16:50-17:24/34	06:01	18:57-19:35/38	05:22	
	16:43	17:34	16:43	17:34	18:25		20:18		21:08		21:51	
7	08:43	08:08	08:43	08:08	07:12	16:51-17:25/34	07:01	16:51-17:25/34	05:59	18:56-19:35/39	05:21	
	16:44	17:36	16:44	17:36	18:27		20:20		21:10		21:52	
8	08:43	08:07	08:43	08:07	07:10	16:52-17:26/34	06:59	16:52-17:26/34	05:57	18:55-19:36/41	05:21	
	16:45	17:38	16:45	17:38	18:28		20:21		21:12		21:53	
9	08:42	08:05	08:42	08:05	07:07	16:53-17:27/34	06:56	16:53-17:27/34	05:56	18:55-19:37/42	05:20	
	16:47	17:39	16:47	17:39	18:30		20:23		21:13		21:53	
10	08:42	08:03	08:42	08:03	07:05	16:58-17:28/30	06:54	16:58-17:28/30	05:54	18:55-19:37/42	05:20	
	16:48	17:41	16:48	17:41	18:32		20:25		21:15		21:54	
11	08:41	08:01	08:41	08:01	07:03	17:02-17:29/27	06:52	17:02-17:29/27	05:52	18:55-19:38/43	05:19	
	16:50	17:43	16:50	17:43	18:34		20:27		21:17		21:55	
12	08:41	07:59	08:41	07:59	07:01	17:04-17:29/25	06:50	19:00-19:08/8	05:51	18:55-19:38/43	05:19	
	16:51	17:45	16:51	17:45	18:35		20:28		21:18		21:56	
13	08:40	07:57	08:40	07:57	06:58	17:04-17:30/26	06:48	18:56-19:10/14	05:49	18:55-19:39/44	05:19	
	16:52	17:47	16:52	17:47	18:37		20:30		21:20		21:56	
14	08:39	07:56	08:39	07:56	06:56	17:05-17:31/26	06:45	18:54-19:12/18	05:47	18:55-19:38/43	05:18	
	16:54	17:49	16:54	17:49	18:39		20:32		21:21		21:57	
15	08:38	07:54	08:38	07:54	06:54	17:06-17:31/25	06:43	18:53-19:13/20	05:46	18:56-19:39/43	05:18	
	16:55	17:51	16:55	17:51	18:41		20:33		21:23		21:58	
16	08:38	07:52	08:38	07:52	06:51	17:08-17:31/23	06:41	18:52-19:14/22	05:44	18:56-19:38/42	05:18	
	16:57	17:52	16:57	17:52	18:42		20:35		21:24		21:58	
17	08:37	07:50	08:37	07:50	06:49	17:10-17:32/22	06:39	18:51-19:14/23	05:43	18:56-19:39/43	05:18	
	16:59	17:54	16:59	17:54	18:44		20:37	07:13-07:23/10	21:26		21:58	
18	08:36	07:48	08:36	07:48	06:47	17:09-17:31/22	06:37	18:50-19:15/25	05:41	18:57-19:39/42	05:18	
	17:00	17:56	17:00	17:56	18:46		20:38	07:11-07:25/14	21:27		21:59	
19	08:35	07:46	08:35	07:46	06:45	17:09-17:31/22	06:35	18:50-19:15/25	05:40	18:58-19:39/41	05:18	
	17:02	17:58	17:02	17:58	18:48		20:40	07:10-07:26/16	21:29		21:59	
20	08:34	07:44	08:34	07:44	06:42	17:10-17:30/20	06:32	18:49-19:15/26	05:39	18:58-19:38/40	05:18	
	17:04	18:00	17:04	18:00	18:49		20:42	07:09-07:26/17	21:30		22:00	
21	08:33	07:42	08:33	07:42	06:40	17:10-17:30/20	06:30	18:49-19:15/26	05:37	18:59-19:38/39	05:18	
	17:05	18:02	17:05	18:02	18:51		20:43	07:08-07:27/19	21:32		22:00	
22	08:31	07:40	08:31	07:40	06:38	17:11-17:27/16	06:28	18:49-19:15/26	05:36	19:00-19:38/38	05:18	
	17:07	18:03	17:07	18:03	18:53		20:45	07:08-07:27/19	21:33		22:00	
23	08:30	07:38	08:30	07:38	06:35	17:12-17:26/14	06:26	18:50-19:14/24	05:35	19:01-19:38/37	05:19	
	17:09	18:05	17:09	18:05	18:54		20:47	07:07-07:27/20	21:34		22:00	
24	08:29	07:36	16:57-17:05/8	07:36	06:33	17:15-17:23/8	06:24	18:50-19:13/23	05:33	19:02-19:37/35	05:19	
	17:10	18:07	17:10	18:07	18:56		20:49	07:07-07:26/19	21:36		22:00	
25	08:28	07:33	16:54-17:08/14	07:33	06:31		06:22	18:50-19:13/23	05:32	19:03-19:37/34	05:19	
	17:12	18:09	17:12	18:09	18:58		20:50	07:07-07:26/19	21:37		22:00	
26	08:27	07:31	16:53-17:10/17	07:31	06:28		06:20	18:51-19:11/20	05:31	19:04-19:37/33	05:20	
	17:14	18:11	17:14	18:11	18:59		20:52	07:08-07:25/17	21:38		22:00	
27	08:25	07:29	16:52-17:14/22	07:29	06:26		06:18	18:52-19:10/18	05:30	19:06-19:36/30	05:20	
	17:16	18:12	17:16	18:12	19:01		20:54	07:08-07:24/16	21:40		22:00	
28	08:24	07:27	16:51-17:16/25	07:27	06:24		06:16	18:53-19:08/15	05:29	19:17-19:35/18	05:21	
	17:17	18:14	17:17	18:14	19:03		20:55	07:09-07:23/14	21:41	19:08-19:16/8	22:00	
29	08:22				07:22		06:14	18:55-19:06/11	05:28	19:18-19:34/16	05:21	
	17:19				20:05		20:57	07:10-07:21/11	21:42		22:00	
30	08:21				07:19		06:12	07:13-07:18/5	05:27	19:19-19:33/14	05:22	
	17:21				20:06		20:59	19:04-19:17/13	21:43		22:00	
31	08:20				07:17				05:26	19:20-19:32/12		
	17:23				20:08				21:45			
Potential sun hours	260	278	260	278	367		416		485		498	
Sum of minutes with flicker	0	86	0	86	620		601		1071		15	

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case WTG: 7 - T08

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 19:05-19:48/43 21:28	06:48 20:26	07:37 17:44-18:09/25 19:17	07:30 17:11	08:21 16:31
2	05:23 21:59	06:00 19:06-19:49/43 21:26	06:50 20:24	07:38 17:41-18:07/26 19:15	07:32 17:09	08:22 16:31
3	05:24 21:59	06:02 19:05-19:47/42 21:25	06:51 20:22	07:40 17:38-18:07/29 19:12	07:34 17:08	08:24 16:30
4	05:25 21:58	06:03 19:06-19:47/41 21:23	06:53 20:19	07:42 17:33-18:06/33 19:10	07:36 17:06	08:25 16:29
5	05:25 21:58	06:05 19:06-19:46/40 21:21	06:55 20:17	07:43 17:29-18:03/34 19:08	07:37 17:04	08:26 16:29
6	05:26 21:57	06:06 19:05-19:44/39 21:19	06:56 20:15	07:45 17:27-18:02/35 19:06	07:39 17:02	08:28 16:28
7	05:27 21:57	06:08 19:06-19:44/38 21:18	06:58 20:13	07:47 17:26-18:01/35 19:03	07:41 17:01	08:29 16:28
8	05:28 21:56	06:10 19:06-19:41/35 21:16	06:59 20:10	07:48 17:25-18:00/35 19:01	07:43 16:59	08:30 16:28
9	05:29 21:56	06:11 19:08-19:39/31 21:14	07:01 20:08	07:50 17:24-17:56/32 18:59	07:44 16:57	08:31 16:27
10	05:30 19:34-19:35/1 21:55	06:13 19:08-19:30/22 21:12	07:03 20:06	07:52 17:23-17:56/33 18:57	07:46 16:56	08:32 16:27
11	05:31 19:31-19:38/7 21:54	06:14 19:10-19:29/19 21:10	07:04 20:03	07:53 17:23-17:55/32 18:54	07:48 16:54	08:33 16:27
12	05:32 19:29-19:40/11 21:53	06:16 19:10-19:27/17 21:08	07:06 20:01	07:55 17:23-17:53/30 18:52	07:50 16:53	08:35 16:27
13	05:33 19:28-19:41/13 21:52	06:17 19:06-19:12/6 19:13-19:25/12 21:06 07:20-07:27/7	07:07 19:59	07:57 17:23-17:49/26 18:50	07:52 16:51	08:36 16:27
14	05:34 19:27-19:43/16 21:51	06:19 19:02-19:14/12 21:04 07:18-07:30/12	07:09 19:56	07:59 17:23-17:47/24 18:48	07:53 16:50	08:36 16:27
15	05:35 19:26-19:43/17 21:51 19:18-19:23/5	06:21 19:01-19:16/15 21:02 07:16-07:31/15	07:11 19:54	08:00 17:24-17:45/21 18:46	07:55 16:48	08:37 16:27
16	05:37 19:15-19:44/29 21:50	06:22 18:58-19:17/19 21:00 07:16-07:32/16	07:12 19:52	08:02 17:25-17:41/16 18:43	07:57 16:47	08:38 16:27
17	05:38 19:15-19:46/31 21:48	06:24 18:57-19:18/21 20:58 07:14-07:32/18	07:14 19:50	08:04 17:27-17:40/13 18:41	07:58 16:46	08:39 16:27
18	05:39 19:13-19:46/33 21:47	06:25 18:56-19:18/22 20:56 07:14-07:33/19	07:16 19:47	08:05 17:29-17:35/6 18:39	08:00 16:44	08:40 16:28
19	05:40 19:12-19:47/35 21:46	06:27 18:55-19:19/24 20:54 07:13-07:32/19	07:17 18:02-18:09/7 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	05:42 19:11-19:47/36 21:45	06:29 18:54-19:19/25 20:52 07:13-07:32/19	07:19 17:59-18:12/13 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	05:43 19:10-19:47/37 21:44	06:30 18:54-19:19/25 20:50 07:12-07:32/20	07:20 17:57-18:13/16 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	05:44 19:10-19:49/39 21:43	06:32 18:54-19:20/26 20:48 07:13-07:31/18	07:22 17:55-18:14/19 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	05:46 19:09-19:49/40 21:41	06:34 18:53-19:19/26 20:46 07:13-07:30/17	07:24 17:53-18:14/21 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	05:47 19:08-19:49/41 21:40	06:35 18:54-19:19/25 20:44 07:14-07:29/15	07:25 17:53-18:14/21 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	05:48 19:08-19:50/42 21:39	06:37 18:53-19:18/25 20:42 07:14-07:27/13	07:27 17:53-18:14/21 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	05:50 19:07-19:49/42 21:37	06:38 18:54-19:17/23 20:39 07:17-07:26/9	07:29 17:51-18:13/22 19:29	07:20 17:23	08:13 16:35	08:44 16:32
27	05:51 19:06-19:49/43 21:36	06:40 18:54-19:16/22 20:37	07:30 17:51-18:13/22 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	05:53 19:07-19:50/43 21:34	06:42 18:55-19:15/20 20:35	07:32 17:48-18:13/25 19:24	07:23 17:19	08:16 16:34	08:44 16:33
29	05:54 19:06-19:49/43 21:33	06:43 18:55-19:13/18 20:33	07:33 17:46-18:11/25 19:22	07:25 17:17	08:18 16:33	08:45 16:34
30	05:56 19:05-19:49/44 21:31	06:45 18:57-19:11/14 20:31	07:35 17:44-18:10/26 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	05:57 19:06-19:49/43 21:30	06:46 19:00-19:07/7 20:28		07:28 17:13		08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	691	1014	238	485	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case WTG: 8 - T09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June		
1	08:45	08:18	07:25	17:20-17:28/8		07:15	18:14-18:48/34		06:10		05:25	19:41-20:02/21	
	16:37	17:25	18:16			20:10			21:00		21:46	20:08-20:29/21	
2	08:45	08:16	07:23	17:18-17:30/12		07:12	18:16-18:49/33		06:08		05:24	19:40-20:03/23	
	16:38	17:26	18:18			20:11			21:02		21:47	20:08-20:29/21	
3	08:44	08:15	07:21	17:16-17:32/16		07:10	18:17-18:49/32		06:06		05:24	19:39-20:03/24	
	16:39	17:28	18:20			20:13			21:04		21:48	20:08-20:29/21	
4	08:44	08:13	07:18	17:16-17:33/17		07:08	18:17-18:49/32		06:04		05:23	19:39-20:04/25	
	16:40	17:30	18:21			20:15			21:05		21:49	20:09-20:29/20	
5	08:44	08:12	07:16	17:14-17:32/18		07:05	18:16-18:49/33		06:03		05:22	19:38-20:05/27	
	16:42	17:32	18:23	17:01-17:12/11		20:16			21:07		21:50	20:09-20:29/20	
6	08:44	08:10	07:14	16:57-17:32/35		07:03	18:16-18:49/33		06:01		05:22	19:38-20:06/28	
	16:43	17:34	18:25			20:18			21:08		21:51	20:10-20:29/19	
7	08:43	08:08	07:12	16:55-17:34/39		07:01	18:17-18:49/32		05:59		05:21	19:38-20:06/28	
	16:44	17:36	18:27			20:20			21:10		21:52	20:10-20:29/19	
8	08:43	08:07	07:09	16:54-17:34/40		06:59	18:16-18:47/31		05:57		05:20	19:38-20:07/29	
	16:45	17:38	18:28			20:21			21:12		21:53	20:10-20:29/19	
9	08:42	08:05	07:07	16:52-17:36/44		06:56	18:16-18:47/31		05:56		05:20	19:37-20:07/30	
	16:47	17:39	18:30			20:23			21:13		21:53	20:10-20:28/18	
10	08:42	08:03	07:05	16:51-17:36/45		06:54	18:17-18:46/29		05:54		05:20	19:37-20:08/31	
	16:48	17:41	18:32			20:25			21:15		21:54	20:11-20:29/18	
11	08:41	08:01	07:03	16:50-17:37/47		06:52	18:18-18:46/28		05:52		05:19	19:38-20:08/30	
	16:49	17:43	18:34			20:27			21:17		21:55	20:12-20:29/17	
12	08:41	07:59	07:00	16:48-17:36/48		06:50	18:19-18:45/26		05:51		05:19	19:38-20:09/31	
	16:51	17:45	18:35			20:28			21:18		21:56	20:13-20:29/16	
13	08:40	07:57	06:58	16:48-17:43/55		06:48	18:19-18:42/23		05:49		05:19	19:37-20:09/32	
	16:52	17:47	18:37			20:30			21:20		21:56	20:12-20:28/16	
14	08:39	07:56	06:56	16:48-17:46/58		06:45	18:20-18:41/21		05:47		05:18	19:37-20:09/32	
	16:54	17:49	18:39			20:32			21:21		21:57	20:13-20:28/15	
15	08:38	07:54	06:54	16:47-17:46/59		06:43	18:22-18:39/17		05:46		05:18	19:37-20:10/33	
	16:55	17:50	18:41			20:33			21:23		21:58	20:13-20:29/16	
16	08:38	07:52	06:51	16:47-17:47/60		06:41	18:25-18:35/10		05:44	20:12-20:21/9	05:18	19:38-20:10/32	
	16:57	17:52	18:42			20:35			21:24		21:58	20:14-20:29/15	
17	08:37	07:50	06:49	16:47-17:48/61		06:39			05:43	20:11-20:23/12	05:18	19:38-20:10/32	
	16:59	17:54	18:44			20:37			21:26		21:58	20:14-20:29/15	
18	08:36	07:48	06:47	16:47-17:47/60		06:37			05:41	20:10-20:24/14	05:18	19:38-20:11/33	
	17:00	17:56	18:46			20:38			21:27		21:59	20:14-20:29/15	
19	08:35	07:46	06:44	16:47-17:47/60		06:35			05:40	20:09-20:26/17	05:18	19:38-20:11/33	
	17:02	17:58	18:47			20:40			21:29		21:59	20:15-20:29/14	
20	08:34	07:44	06:42	16:48-17:47/59		06:32			05:39	20:08-20:26/18	05:18	19:38-20:11/33	
	17:04	18:00	18:49			20:42			21:30		22:00	20:15-20:29/14	
21	08:33	07:42	06:40	16:49-17:46/57		06:30			05:37	20:07-20:26/19	05:18	19:39-20:12/33	
	17:05	18:02	18:51			20:43			21:32		22:00	20:16-20:30/14	
22	08:31	07:40	06:38	16:49-17:45/56		06:28			05:36	20:07-20:27/20	05:18	19:39-20:12/33	
	17:07	18:03	18:53			20:45			21:33		22:00	20:16-20:30/14	
23	08:30	07:38	06:35	16:51-17:44/53		06:26			05:35	20:07-20:28/21	05:19	19:39-20:12/33	
	17:09	18:05	18:54			20:47			21:34		22:00	20:16-20:30/14	
24	08:29	07:36	06:33	16:53-17:43/50		06:24			05:33	20:07-20:28/21	05:19	19:39-20:12/33	
	17:10	18:07	18:56			20:48			21:36		22:00	20:15-20:30/15	
25	08:28	07:33	06:31	16:55-17:43/48		06:22			05:32	20:07-20:28/21	05:19	19:40-20:12/32	
	17:12	18:09	18:58			20:50			21:37		22:00	20:16-20:31/15	
26	08:27	07:31	06:28	17:06-17:44/38		06:20			05:31	20:07-20:29/22	05:20	19:40-20:12/32	
	17:14	18:11	18:59			20:52			21:38		22:00	20:16-20:31/15	
27	08:25	07:29	06:26	17:09-17:44/35		06:18			05:30	20:07-20:29/22	05:20	19:40-20:13/33	
	17:16	18:12	19:01			20:54			21:40		22:00	20:16-20:32/16	
28	08:24	07:27	06:24	17:08-17:43/35		06:16			05:29	19:45-19:55/10	05:21	19:40-20:12/32	
	17:17	18:14	19:03			20:55			21:41	20:07-20:29/22	22:00	20:16-20:32/16	
29	08:22		07:21	18:09-18:45/36		06:14			05:28	19:43-19:58/15	05:21	19:41-20:13/32	
	17:19		20:05			20:57			21:42	20:07-20:29/22	22:00	20:16-20:32/16	
30	08:21		07:19	18:11-18:47/36		06:12			05:27	19:42-19:59/17	05:22	19:41-20:12/31	
	17:21		20:06			20:59			21:43	20:07-20:29/22	22:00	20:16-20:32/16	
31	08:20		07:17	18:11-18:47/36					05:26	19:41-20:00/19			
	17:23		20:08						21:45	20:07-20:29/22			
Potential sun hours	260	278	367			416			485		498		
Sum of minutes with flicker	0	183	1332			445			365		1411		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 8 - T09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	19:42-20:13/31	05:59		06:48	18:17-18:44/27	07:37	18:17-18:20/3	07:30		08:21	
	22:00	20:16-20:33/17	21:28		20:26		19:17	17:28-18:16/48	17:11		16:31	
2	05:23	19:42-20:13/31	06:00		06:50	18:15-18:44/29	07:38	17:28-18:15/47	07:32		08:22	
	21:59	20:15-20:33/18	21:26		20:24		19:15		17:09		16:31	
3	05:24	19:42-20:12/30	06:02		06:51	18:14-18:45/31	07:40	17:28-18:15/47	07:34		08:24	
	21:59	20:16-20:34/18	21:25		20:22		19:12		17:08		16:30	
4	05:25	19:43-20:12/29	06:03		06:53	18:14-18:45/31	07:42	17:29-18:14/45	07:36		08:25	
	21:58	20:16-20:34/18	21:23		20:19		19:10		17:06		16:29	
5	05:25	19:44-20:12/28	06:05		06:55	18:13-18:45/32	07:43	17:29-18:12/43	07:37		08:26	
	21:58	20:16-20:35/19	21:21		20:17		19:08		17:04		16:29	
6	05:26	19:44-20:12/28	06:06		06:56	18:13-18:45/32	07:45	17:30-18:11/41	07:39		08:28	
	21:57	20:15-20:35/20	21:19		20:15		19:06		17:02		16:28	
7	05:27	19:44-20:11/27	06:08		06:58	18:12-18:44/32	07:47	17:32-18:09/37	07:41		08:29	
	21:57	20:15-20:35/20	21:18		20:13		19:03		17:01		16:28	
8	05:28	19:45-20:11/26	06:09		06:59	18:12-18:44/32	07:48	17:35-18:08/33	07:43		08:30	
	21:56	20:15-20:36/21	21:16		20:10		19:01		16:59		16:28	
9	05:29	19:46-20:11/25	06:11		07:01	18:11-18:43/32	07:50	17:49-18:07/18	07:44		08:31	
	21:56	20:15-20:36/21	21:14		20:08		18:59	17:38-17:44/6	16:57		16:27	
10	05:30	19:47-20:10/23	06:13		07:03	18:09-18:42/33	07:52	17:50-18:06/16	07:46		08:32	
	21:55	20:15-20:36/21	21:12		20:06		18:57		16:56		16:27	
11	05:31	19:48-20:10/22	06:14		07:04	18:06-18:40/34	07:53	17:51-18:05/14	07:48		08:33	
	21:54	20:15-20:37/22	21:10		20:03		18:54		16:54		16:27	
12	05:32	19:49-20:09/20	06:16		07:06	18:04-18:40/36	07:55	17:53-18:04/11	07:50		08:34	
	21:53	20:15-20:37/22	21:08		20:01		18:52		16:53		16:27	
13	05:33	19:50-20:08/18	06:17		07:07	18:02-18:38/36	07:57	17:55-18:00/5	07:52		08:35	
	21:52	20:15-20:37/22	21:06		19:59		18:50		16:51		16:27	
14	05:34	19:51-20:07/16	06:19		07:09	18:00-18:36/36	07:59	17:37-17:41/4	07:53		08:36	
	21:51	20:15-20:37/22	21:04		19:56		18:48		16:50		16:27	
15	05:35	19:53-20:05/12	06:21		07:11	17:59-18:34/35	08:00	17:33-17:44/11	07:55		08:37	
	21:51	20:15-20:37/22	21:02		19:54		18:46		16:48		16:27	
16	05:37	19:55-20:02/7	06:22		07:12	17:57-18:32/35	08:02	17:32-17:46/14	07:57		08:38	
	21:49	20:15-20:37/22	21:00		19:52		18:43		16:47		16:27	
17	05:38	20:16-20:38/22	06:24		07:14	17:55-18:32/37	08:04	17:29-17:46/17	07:58		08:39	
	21:48		20:58		19:49		18:41		16:46		16:27	
18	05:39	20:16-20:38/22	06:25		07:15	17:44-18:31/47	08:05	17:29-17:46/17	08:00		08:40	
	21:47		20:56		19:47		18:39		16:44		16:28	
19	05:40	20:16-20:38/22	06:27		07:17	17:40-18:30/50	08:07	17:28-17:47/19	08:02		08:40	
	21:46		20:54		19:45		18:37		16:43		16:28	
20	05:42	20:16-20:37/21	06:29		07:19	17:38-18:30/52	08:09	17:28-17:47/19	08:04		08:41	
	21:45		20:52		19:42		18:35		16:42		16:28	
21	05:43	20:17-20:37/20	06:30		07:20	17:35-18:31/56	08:11	17:28-17:47/19	08:05		08:42	
	21:44		20:50		19:40		18:33		16:41		16:29	
22	05:44	20:18-20:37/19	06:32		07:22	17:34-18:31/57	08:12	17:29-17:46/17	08:07		08:42	
	21:43		20:48		19:38		18:31		16:39		16:29	
23	05:46	20:18-20:37/19	06:34		07:24	17:32-18:31/59	08:14	17:29-17:46/17	08:09		08:43	
	21:41		20:46		19:36		18:29		16:38		16:30	
24	05:47	20:18-20:36/18	06:35		07:25	17:31-18:31/60	08:16	17:29-17:44/15	08:10		08:43	
	21:40		20:44		19:33		18:27		16:37		16:30	
25	05:48	20:20-20:36/16	06:37		07:27	17:31-18:31/60	07:18	16:30-16:43/13	08:12		08:44	
	21:39		20:42		19:31		17:25		16:36		16:31	
26	05:50	20:21-20:34/13	06:38		07:28	17:29-18:30/61	07:19	16:33-16:40/7	08:13		08:44	
	21:37		20:39		19:29		17:23		16:35		16:32	
27	05:51	20:22-20:32/10	06:40	18:27-18:38/11	07:30	17:29-18:29/60	07:21		08:15		08:44	
	21:36		20:37		19:26		17:21		16:34		16:32	
28	05:53	20:25-20:31/6	06:42	18:24-18:41/17	07:32	17:29-18:28/59	07:23		08:16		08:44	
	21:34		20:35		19:24		17:19		16:33		16:33	
29	05:54		06:43	18:21-18:42/21	07:33	17:28-18:26/58	07:25		08:18		08:44	
	21:33		20:33		19:22		17:17		16:33		16:34	
30	05:56		06:45	18:20-18:43/23	07:35	17:28-18:24/56	07:27		08:19		08:45	
	21:31		20:31		19:19		17:15		16:32		16:35	
31	05:57		06:46	18:17-18:43/26			07:28				08:45	
	21:30		20:28				17:13				16:36	
Potential sun hours	501		453		381		332		267		244	
Sum of minutes with flicker	906		98		1295		603		0		0	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 9 - Shehy More WF**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

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

1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 06:13-06:25/12 21:46 06:44-06:53/9	05:22 06:15-06:35/20 22:00	05:59 06:50-07:04/14 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 06:12-06:26/14 21:47 06:45-06:51/6	05:23 06:16-06:35/19 21:59	06:00 06:52-07:03/11 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	05:24 06:11-06:26/15 21:48	05:24 06:15-06:34/19 21:59	06:02 06:54-07:00/6 21:25	06:51 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	05:23 06:11-06:28/17 21:49	05:24 06:16-06:35/19 21:59	06:03 21:23	06:53 20:19	07:42 19:10	07:36 17:06	08:25 16:29
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:16	06:03 21:07	05:22 06:11-06:28/17 21:50	05:25 06:17-06:35/18 21:58	06:05 21:21	06:55 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 06:11-06:29/18 21:51	05:26 06:17-06:35/18 21:58	06:06 21:19	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 06:10-06:29/19 21:52	05:27 06:17-06:34/17 21:57	06:08 21:18	06:58 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:28	06:59 20:22	05:57 21:12	05:20 06:11-06:29/18 21:53	05:28 06:18-06:34/16 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	05:20 06:10-06:29/19 21:54	05:29 06:18-06:34/16 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 06:43-06:51/8 21:15	05:20 06:11-06:30/19 21:54	05:30 06:19-06:34/15 21:55	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 06:41-06:53/12 21:17	05:19 06:11-06:30/19 21:55	05:31 06:20-06:33/13 21:54	06:14 21:10	07:04 20:03	07:54 18:54	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:35	06:50 20:28	05:51 06:39-06:54/15 21:18	05:19 06:11-06:31/20 21:56	05:32 06:21-06:33/12 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27
13	08:40 16:52	07:58 17:47	06:58 18:37	06:48 20:30	05:49 06:39-06:55/16 21:20	05:19 06:11-06:30/19 21:56	05:33 06:22-06:32/10 21:53	06:17 21:06	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 06:38-06:55/17 21:21	05:18 06:11-06:31/20 21:57	05:34 06:23-06:31/8 21:52	06:19 21:04	07:09 19:57	07:59 18:48	07:53 16:50	08:37 16:27
15	08:38 16:55	07:54 17:49	06:54 18:39	06:43 20:33	05:46 06:37-06:56/19 21:23	05:18 06:11-06:31/20 21:58	05:35 06:26-06:28/2 21:51	06:21 21:02	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 06:37-06:57/20 21:24	05:18 06:11-06:31/20 21:58	05:37 06:49-07:05/16 21:50	06:22 21:00	07:12 19:52	08:02 18:44	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 06:36-06:57/21 21:26	05:18 06:12-06:32/20 21:59	05:38 06:48-07:06/18 21:49	06:24 20:58	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 06:37-06:57/20 21:27	05:18 06:12-06:32/20 21:59	05:39 06:48-07:06/18 21:47	06:25 20:56	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 06:37-06:58/21 21:29	05:18 06:12-06:32/20 21:59	05:40 06:47-07:06/19 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:32 20:42	05:39 06:36-06:57/21 21:30	05:18 06:12-06:32/20 22:00	05:42 06:47-07:07/20 21:45	06:29 20:52	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 06:36-06:57/21 21:32	05:18 06:13-06:33/20 22:00	05:43 06:48-07:08/20 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 06:37-06:57/20 21:33	05:18 06:13-06:33/20 22:00	05:44 06:47-07:08/21 21:43	06:32 20:48	07:22 19:38	08:13 18:31	08:07 16:39	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 06:37-06:57/20 21:35	05:19 06:13-06:33/20 22:00	05:46 06:47-07:08/21 21:41	06:34 20:46	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:33 06:38-06:57/19 21:36	05:19 06:13-06:33/20 22:00	05:47 06:47-07:07/20 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 06:38-06:57/19 21:37	05:19 06:14-06:34/20 22:00	05:48 06:47-07:08/21 21:39	06:37 20:42	07:27 19:31	08:18 17:25	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 06:39-06:56/17 21:39	05:20 06:13-06:34/21 22:00	05:50 06:47-07:08/21 21:37	06:38 20:39	07:29 19:29	08:20 17:23	08:13 16:35	08:44 16:32
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	05:30 06:39-06:56/17 21:40	05:20 06:14-06:34/20 22:00	05:51 06:47-07:07/20 21:36	06:40 20:37	07:30 19:26	08:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 06:40-06:55/15 21:41	05:21 06:14-06:34/20 22:00	05:53 06:48-07:07/19 21:34	06:42 20:35	07:32 19:24	08:23 17:19	08:17 16:33	08:44 16:33
29	08:23 17:19	07:22 18:05	06:14 19:01	06:14 20:57	05:28 06:15-06:21/6 21:42	05:21 06:15-06:35/20 22:00	05:54 06:48-07:07/19 21:33	06:43 20:33	07:33 19:22	08:25 17:17	08:18 16:33	08:45 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:59	05:27 06:14-06:23/9 21:44	05:22 06:14-06:34/20 22:00	05:56 06:48-07:06/18 21:31	06:45 20:31	07:35 19:19	08:27 17:15	08:20 16:32	08:45 16:35
31	08:20 17:23	07:17 18:08	06:11 19:08	06:11 20:58	05:26 06:14-06:25/11 21:45	05:26 06:14-06:25/11 21:45	05:57 06:50-07:05/15 21:30	06:46 20:28	07:36 19:18	08:28 17:13	08:21 16:32	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Sum of minutes with flicker	0	0	0	0	403	582	592	31	0	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case WTG: 10 - Shehy More WF

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:59	06:03 21:23	06:53 20:19	07:42 19:10	07:36 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:06 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:19	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:28	06:59 20:22	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:33 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:54 18:54	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:35	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27
13	08:40 16:52	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	05:33 21:53	06:17 21:06	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:04	07:09 19:57	07:59 18:48	07:53 16:50	08:37 16:27
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:02	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:00	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:58	07:14 19:50	08:04 18:41	07:59 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	05:18 22:00	05:42 21:45	06:29 20:52	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:13 18:31	08:07 16:39	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:39	06:37 20:42	07:27 19:31	08:18 17:25	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:39	05:20 22:00	05:50 21:37	06:38 20:39	07:29 19:29	08:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	08:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	06:42 21:34	07:32 20:35	07:32 19:24	08:23 17:19	08:17 16:33	08:44 16:33
29	08:23 17:19		07:22 20:05	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:22	08:25 17:17	08:18 16:33	08:45 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	08:27 17:15	08:20 16:32	08:45 16:35
31	08:20 17:23		07:17 20:08		05:26 21:45		05:57 21:30	06:46 20:28		07:28 17:13		08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 11 - Shehy More WF**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March	April	May	June	July	August	September	October	November	December	
1	08:45	10:21-10:44/23	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30		08:21	10:04-10:33/29
	16:37		17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11		16:31	
2	08:45	10:21-10:45/24	08:17	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32		08:22	10:04-10:33/29
	16:38		17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09		16:30	
3	08:45	10:21-10:45/24	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34		08:24	10:05-10:33/28
	16:39		17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08		16:30	
4	08:44	10:21-10:46/25	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:36		08:25	10:06-10:33/27
	16:40		17:30	18:21	20:15	21:05	21:49	21:59	21:23	20:19	19:10	17:06		16:29	
5	08:44	10:22-10:47/25	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:55	07:43	07:37		08:26	10:07-10:34/27
	16:41		17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04		16:29	
6	08:44	10:21-10:47/26	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39		08:28	10:07-10:34/27
	16:43		17:34	18:25	20:18	21:09	21:51	21:58	21:19	20:15	19:06	17:02		16:28	
7	08:43	10:22-10:49/27	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41		08:29	10:08-10:33/25
	16:44		17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01		16:28	
8	08:43	10:22-10:49/27	08:07	07:10	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43		08:30	10:09-10:34/25
	16:45		17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59		16:28	
9	08:42	10:21-10:49/28	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:45		08:31	10:10-10:34/24
	16:47		17:39	18:30	20:23	21:13	21:54	21:56	21:14	20:08	18:59	16:57		16:27	
10	08:42	10:22-10:51/29	08:03	07:05	06:54	05:54	05:19	05:30	06:13	07:03	07:52	07:46		08:32	10:10-10:34/24
	16:48		17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56		16:27	
11	08:41	10:22-10:51/29	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	10:09-10:17/8	08:34	10:11-10:34/23
	16:49		17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54		16:27	
12	08:41	10:22-10:51/29	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	10:06-10:20/14	08:35	10:12-10:34/22
	16:51		17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53		16:27	
13	08:40	10:22-10:52/30	07:57	06:58	06:48	05:49	05:18	05:33	06:17	07:07	07:57	07:52	10:04-10:22/18	08:36	10:12-10:34/22
	16:52		17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51		16:27	
14	08:39	10:22-10:52/30	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	10:03-10:24/21	08:37	10:13-10:34/21
	16:54		17:49	18:39	20:32	21:21	21:57	21:52	21:04	19:56	18:48	16:50		16:27	
15	08:38	10:23-10:53/30	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	10:03-10:26/23	08:37	10:14-10:35/21
	16:55		17:50	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48		16:27	
16	08:38	10:23-10:53/30	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	10:02-10:27/25	08:38	10:15-10:35/20
	16:57		17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:43	16:47		16:27	
17	08:37	10:23-10:54/31	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	10:02-10:28/26	08:39	10:16-10:36/20
	16:59		17:54	18:44	20:37	21:26	21:59	21:49	20:58	19:50	18:41	16:45		16:27	
18	08:36	10:24-10:54/30	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:06	08:00	10:02-10:29/27	08:40	10:15-10:35/20
	17:00		17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44		16:27	
19	08:35	10:24-10:54/30	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	10:01-10:29/28	08:41	10:16-10:36/20
	17:02		17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43		16:28	
20	08:34	10:25-10:55/30	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	10:01-10:29/28	08:41	10:17-10:37/20
	17:03		18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42		16:28	
21	08:33	10:26-10:55/29	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	10:01-10:30/29	08:42	10:17-10:37/20
	17:05		18:01	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:40		16:29	
22	08:32	10:26-10:54/28	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	10:01-10:31/30	08:42	10:18-10:38/20
	17:07		18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39		16:29	
23	08:30	10:27-10:55/28	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:09	10:01-10:31/30	08:43	10:18-10:38/20
	17:09		18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38		16:30	
24	08:29	10:28-10:55/27	07:36	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	10:01-10:31/30	08:43	10:19-10:39/20
	17:10		18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37		16:30	
25	08:28	10:28-10:54/26	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	10:01-10:32/31	08:44	10:19-10:39/20
	17:12		18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36		16:31	
26	08:27	10:29-10:54/25	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	10:02-10:32/30	08:44	10:20-10:39/19
	17:14		18:11	18:59	20:52	21:39	22:00	21:37	20:39	19:29	17:23	16:35		16:31	
27	08:25	10:30-10:53/23	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	10:03-10:33/30	08:44	10:20-10:40/20
	17:16		18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34		16:32	
28	08:24	10:31-10:52/21	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:17	10:02-10:32/30	08:44	10:20-10:41/21
	17:17		18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33		16:33	
29	08:23	10:33-10:50/17		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	10:03-10:33/30	08:45	10:20-10:41/21
	17:19			20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33		16:34	
30	08:21	10:35-10:49/14		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	10:03-10:32/29	08:45	10:20-10:42/22
	17:21			20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32		16:35	
31	08:20	10:38-10:46/8		07:17		05:26		05:57	06:46		07:28			08:45	10:20-10:43/23
	17:23			20:08		21:45		21:30	20:28		17:13			16:36	
Potential sun hours	260		278	367	416	485	498	501	453	381	332	267		244	
Sum of minutes with flicker	803		0	0	0	0	0	0	0	0	0	517		700	

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case Assumptions for shadow calculations

WTG: 12 - Shehy More WF

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18 15:00-16:17/77	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30 14:33-15:52/79	08:21 14:55-15:02/7
2	16:37	17:24	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
3	08:45	08:16 15:00-16:17/77	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32 14:33-15:52/79	08:22
4	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
5	08:44	08:15 15:01-16:19/78	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34 14:32-15:52/80	08:24
6	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:07	16:30
7	08:44	08:13 15:01-16:20/79	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35 14:32-15:52/80	08:25
8	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
9	08:44	08:12 15:01-16:20/79	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37 14:31-15:50/79	08:26
10	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
11	08:44	08:10 15:01-16:21/80	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39 14:31-15:50/79	08:28
12	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
13	08:43	08:08 15:02-16:22/80	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41 14:31-15:49/78	08:29
14	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:00	16:28
15	08:43	08:06 15:03-16:22/79	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43 14:31-15:49/78	08:30
16	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
17	08:42	08:05 15:03-16:22/79	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44 14:31-15:48/77	08:31
18	16:46	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:27
19	08:42	08:03 15:04-16:23/79	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46 14:31-15:47/76	08:32
20	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
21	08:41	15:14-15:19/5	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48 14:31-15:47/76	08:33
22	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
23	08:41	15:11-15:23/12	07:59	15:05-16:23/78	07:00	06:50	05:50	05:32	06:16	07:06	07:50 14:32-15:46/74	08:34
24	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
25	08:40	15:09-15:25/16	07:57	15:06-16:23/77	06:58	06:47	05:49	05:33	06:17	07:07	07:51 15:17-15:45/28	08:35
26	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51 14:32-15:16/44	16:27
27	08:39	15:07-15:27/20	07:55	15:08-16:22/74	06:56	06:45	05:47	05:18	05:34	06:19	07:53 15:19-15:43/24	08:36
28	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50 14:33-15:16/43	16:27
29	08:38	15:06-15:29/23	07:54	15:09-16:22/73	06:54	06:43	05:46	05:18	05:35	06:20	07:11 08:00	08:37
30	16:55	17:50	18:40	20:33	21:23	21:58	21:50	21:02	19:54	18:45	16:48 14:34-15:15/41	16:27
31	08:38	15:05-15:31/26	07:52	15:40-16:22/42	06:51	06:41	05:44	05:18	05:36	06:22	07:12 08:02 16:26-16:40/14	08:38
32	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47 14:34-15:15/41	16:27
33	08:37	15:05-15:32/27	07:50	15:40-16:21/41	06:49	06:39	05:43	05:18	05:38	06:24	07:14 08:04 16:23-16:43/20	08:39
34	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45 14:35-15:15/40	16:27
35	08:36	15:04-15:34/30	07:48	15:41-16:21/40	06:47	06:37	05:41	05:18	05:39	06:25	07:15 08:05 16:19-16:45/26	08:40
36	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
37	08:35	15:04-15:35/31	07:46	15:42-16:20/38	06:44	06:34	05:40	05:18	05:40	06:27	07:17 08:07 16:17-16:46/29	08:40
38	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
39	08:34	15:03-15:37/34	07:44	15:43-16:19/36	06:42	06:32	05:38	05:18	05:41	06:29	07:19 08:09 16:16-16:48/32	08:41
40	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:42	18:35	16:42	16:28
41	08:33	15:02-15:37/35	07:42	15:44-16:18/34	06:40	06:30	05:37	05:18	05:43	06:30	07:20 08:11 16:14-16:49/35	08:42
42	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
43	08:31	15:02-15:38/36	07:40	15:46-16:17/31	06:37	06:28	05:36	05:18	05:44	06:32	07:22 08:12 16:13-16:50/37	08:42
44	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
45	08:30	15:02-15:40/38	07:38	15:47-16:15/28	06:35	06:26	05:34	05:18	05:45	06:33	07:23 08:14 16:12-16:51/39	08:43
46	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	15:52-15:59/7	16:38
47	08:29	15:01-15:40/39	07:35	15:49-16:13/24	06:33	06:24	05:33	05:19	05:47	06:35	07:25 08:16 16:10-16:50/40	08:43
48	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	15:46-16:03/17	16:37
49	08:28	15:53-16:03/10	07:33	15:52-16:10/18	06:31	06:22	05:32	05:19	05:48	06:37	07:27 07:18 15:10-15:51/41	08:12 14:43-15:10/27
50	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	14:43-15:05/22	16:36
51	08:27	15:50-16:07/17	07:31	15:56-16:06/10	06:28	06:20	05:31	05:19	05:50	06:38	07:28 07:19 15:09-15:51/42	08:13 14:44-15:10/26
52	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	14:40-15:07/27	16:35
53	08:25	15:48-16:09/21	07:29	15:54-16:09/21	06:26	06:18	05:30	05:20	05:51	06:40	07:30 07:21 14:38-15:52/74	08:15 14:45-15:08/23
54	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
55	08:24	15:47-16:11/24	07:27	15:51-16:06/11	06:24	06:16	05:29	05:20	05:53	06:41	07:32 07:23 14:37-15:52/75	08:16 14:47-15:07/20
56	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
57	08:22	15:45-16:13/28	07:21	15:44-16:09/11	06:14	06:06	05:28	05:21	05:54	06:43	07:33 07:25 14:36-15:52/76	08:18 14:50-15:06/16
58	17:19	18:16	19:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:32	16:34
59	08:21	15:00-16:14/74	07:19	15:00-16:14/74	06:12	06:04	05:27	05:22	05:55	06:45	07:35 07:27 14:35-15:52/77	08:19 14:51-15:04/13
60	17:21	18:18	19:07	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
61	08:19	15:00-16:16/76	07:17	15:00-16:16/76	06:10	06:02	05:26	05:21	05:57	06:46	07:28 07:13 14:34-15:52/78	08:15 14:45-15:08/23
62	17:23	18:20	19:09	20:58	21:45	22:00	21:32	20:32	19:20	17:13	16:31	16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Sum of minutes with flicker	831	1573	0	0	0	0	0	0	0	808	1612	7

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 13 - Shehy More WF

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

 N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:58 21:28	06:48 20:26	07:37 19:17	18:07-18:26/19	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	18:08-18:23/15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:04	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:40 19:12	18:10-18:21/11	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	18:14-18:17/3	07:36 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08		07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:06		07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:47 19:03		07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01		07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59		07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	07:52 18:57		07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54		07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52		07:50 16:53	08:35 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:57 18:50		07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:04	07:09 19:56	07:59 18:48		07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:20 21:02	07:11 19:54	08:00 18:46		07:55 16:48	08:37 16:27
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:50	06:22 21:00	07:12 19:52	08:02 18:43		07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:48	06:24 20:58	07:14 19:49	18:33-18:39/6	08:04	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 18:29-18:41/12	08:05 18:39		08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:27-18:43/16	08:07	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00	05:41 21:45	06:29 20:52	07:19 18:26-18:44/18	08:09 18:35		08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 18:14-18:44/30	08:11 18:33		08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:43	06:32 20:48	07:22 19:38	18:12-18:44/32	08:12	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:24 19:35	18:09-18:43/34	08:14	08:09 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	18:09-18:43/34	08:16	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:39	06:37 20:42	07:27 19:31	18:08-18:43/35	07:18	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	18:07-18:42/35	07:19	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	18:06-18:41/35	07:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	18:07-18:40/33	07:23	08:16 16:33	08:44 16:33
29	08:22 17:19		07:21 20:04	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:22	18:06-18:37/31	07:25	08:18 16:33	08:45 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	18:07-18:34/27	07:27	08:19 16:32	08:45 16:35
31	08:20 17:23		07:17 20:08		05:26 21:45		05:57 21:30	06:46 20:28		07:28 17:13			08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332		267	244
Sum of minutes with flicker	0	0	418	0	0	0	0	0	383	48		0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

WTG: 14 - Shehy More WF

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:24	07:25 18:16	07:15 20:10	06:10 21:00	19:45-20:15/30 21:46
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	19:45-20:16/31 21:47
3	08:44 16:39	08:15 17:28	07:21 18:19	07:10 20:13	06:06 21:04	19:45-20:16/31 21:48
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	19:45-20:16/31 21:49
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	19:45-20:15/30 21:50
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	19:46-20:16/30 21:51
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	19:46-20:15/29 21:52
8	08:43 16:45	08:07 17:37	07:09 18:28	06:59 20:21	05:57 21:12	19:46-20:14/28 21:53
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	19:47-20:13/26 21:54
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	19:48-20:12/24 21:54
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	19:50-20:11/21 21:55
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	19:51-20:09/18 21:56
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	19:55-19:58/3 21:56
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:53-20:03/10 21:37	05:19 22:00
26	08:27 17:14	07:31 18:10	06:28 18:59	06:20 20:52	19:50-20:11/21 21:38	05:19 22:00
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:54	19:49-20:13/24 21:40	05:20 22:00
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:48-20:14/26 21:41	05:20 22:00
29	08:22 17:19		07:21 20:04	06:14 20:57	19:46-20:15/29 21:42	05:21 22:00
30	08:21 17:21		07:19 20:06	06:12 20:59	19:46-20:15/29 21:43	05:22 22:00
31	08:20 17:23		07:17 20:08		05:26 21:45	
Potential sun hours	259	278	367	416	485	498
Sum of minutes with flicker	0	0	144	139	332	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 14 - Shehy More WF

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:58 21:28	20:00-20:20/20 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	05:23 21:59	06:00 21:26	19:58-20:21/23 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	05:24 21:59	06:02 21:25	19:58-20:23/25 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	05:24 21:59	06:03 21:23	19:56-20:23/27 20:19	07:42 19:10	07:36 17:06	08:25 16:29
5	05:25 21:58	06:05 21:21	19:56-20:24/28 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	05:26 21:58	06:06 21:19	19:55-20:24/29 20:15	07:45 19:06	07:39 17:02	08:28 16:28
7	05:27 21:57	06:08 21:18	19:55-20:25/30 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	05:28 21:56	06:09 21:16	19:54-20:25/31 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	05:29 21:56	06:11 21:14	19:54-20:25/31 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	05:30 21:55	06:12 21:12	19:54-20:25/31 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	05:31 21:54	06:14 21:10	19:54-20:25/31 20:03	07:53 18:54	07:48 16:54	08:34 16:27
12	05:32 21:53	06:16 21:08	19:54-20:24/30 20:01	07:55 18:52	07:50 16:52	08:35 16:27
13	05:33 21:52	06:17 21:06	19:54-20:24/30 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	05:34 21:52	06:19 21:04	19:54-20:22/28 19:56	07:59 18:48	07:53 16:50	08:37 16:27
15	05:35 21:51	06:20 21:02	19:55-20:21/26 19:54	08:00 18:46	07:55 16:48	08:37 16:27
16	05:36 21:50	06:22 21:00	19:56-20:19/23 19:52	08:02 18:43	07:57 16:47	08:38 16:27
17	05:38 21:48	06:24 20:58	19:57-20:17/20 19:49	08:04 18:41	07:58 16:45	08:39 16:27
18	05:39 21:47	06:25 20:56	19:59-20:08/9 19:47	08:05 18:39	08:00 16:44	08:40 16:27
19	05:40 21:46	06:27 20:54	08:17-08:21/4 19:45	08:07 18:37	08:02 16:43	08:41 16:28
20	05:41 21:45	06:29 20:52	08:14-08:24/10 19:42	08:09 18:35	08:04 16:42	08:41 16:28
21	05:43 21:44	06:30 20:50	08:11-08:25/14 19:40	08:11 18:33	08:05 16:40	08:42 16:28
22	05:44 21:43	06:32 20:48	08:10-08:26/16 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	05:45 21:41	06:33 20:46	08:10-08:26/16 19:35	08:14 18:29	08:09 16:38	08:43 16:29
24	05:47 21:40	06:35 20:44	08:09-08:26/17 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	05:48 21:39	06:37 20:42	08:09-08:26/17 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	05:50 21:37	06:38 20:39	08:08-08:24/16 19:28	07:19 17:23	08:13 16:35	08:44 16:31
27	05:51 21:36	06:40 20:37	08:09-08:23/14 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	05:53 21:34	06:41 20:35	08:10-08:22/12 19:24	07:23 17:19	08:16 16:33	08:44 16:33
29	05:54 21:33	06:43 20:33	08:11-08:19/8 19:22	07:25 17:17	08:18 16:33	08:45 16:34
30	05:55 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	05:57 21:30	20:13-20:18/5 20:03-20:10/7 20:28	06:46 20:28	07:28 17:13	08:45 16:36	08:45 16:36
Potential sun hours		501	453	381	332	267
Sum of minutes with flicker		12	472	144	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 15 - Shehy More WF**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:58 21:28	06:48 20:26	07:32-07:43/11 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:30-07:43/13 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:04	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:29-07:44/15 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:59	06:03 21:23	06:53 20:19	07:29-07:44/15 19:10	07:42 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:28-07:43/15 19:08	07:43 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:58	06:06 21:19	06:56 20:15	07:29-07:43/14 19:06	07:45 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:28-07:41/13 19:03	07:47 17:00	08:29 16:28
8	08:43 16:45	08:07 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:30-07:40/10 19:01	07:48 16:59	08:30 16:28
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	07:31-07:37/6 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	07:32-07:45/13 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:33-07:44/11 18:54	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:35-07:41/6 18:52	07:50 16:52	08:35 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:04	07:09 19:56	07:59 18:48	07:53 16:50	08:37 16:27
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:20 21:02	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:50	06:22 21:00	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:58	07:14 19:49	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00	05:41 21:45	06:29 20:52	07:19 19:42	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:42 16:28
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:24 19:35	08:14 18:29	08:09 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:39	06:37 20:42	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:52 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19		07:21 20:04	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:22	07:25 17:17	08:18 16:32	08:45 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:43	05:21 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	08:20 17:23		07:17 20:08		05:26 21:45		05:57 21:30	07:34-07:41/7 20:28		07:28 17:13		08:45 16:36
Potential sun hours	259	278	367	416	485	498	501	453	381	332	267	244
Sum of minutes with flicker	0	0	0	118	0	0	0	7	112	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case WTG: 16 - Shehy More WF

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:04	05:23 21:48	05:23 21:59	06:01 21:25	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:36 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:58	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:35	07:12 18:26	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:27
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:52	08:35 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:04	07:09 19:56	07:59 18:48	07:53 16:49	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:20 21:02	07:11 19:54	08:00 18:45	07:55 16:48	08:37 16:27
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:50	06:22 21:00	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:48	06:24 20:58	07:14 19:49	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00	05:41 21:45	06:28 20:52	07:19 19:42	08:09 18:35	08:04 16:41	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:09 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:39	06:37 20:42	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:52 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19		07:21 20:04	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:22	07:25 17:17	08:18 16:32	08:45 16:34
30	08:21 17:21			06:12 20:59	05:27 21:43	05:21 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	08:20 17:23				05:26 21:45		05:57 21:30	06:46 20:28		07:28 17:13		08:45 16:35
Potential sun hours	259	278	367	416	485	498	501	453	381	332	267	244
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 17 - Shehy More WF

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:49 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:23 21:59	06:01 21:25	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:42	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:35	07:12 18:26	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:12	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:27
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:33	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:52	08:35 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:57 18:50	07:51 16:51	08:36 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	07:58 18:48	07:53 16:49	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:20 21:02	07:10 19:54	08:00 18:45	07:55 16:48	08:37 16:27
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:50	06:22 21:00	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:37 21:48	06:24 20:58	07:14 19:49	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:36 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 17:59	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00	05:41 21:45	06:28 20:52	07:19 19:42	08:09 18:35	08:04 16:41	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:09 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:39	06:37 20:41	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:52 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19		07:21 20:04	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:25 17:17	08:18 16:32	08:45 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:43	05:21 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23		07:17 20:08		05:26 21:45		05:57 21:30	06:46 20:28		07:28 17:13		08:45 16:35
Potential sun hours	259	278	367	416	485	498	501	453	381	332	267	244
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 18 - Shehy More WF

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	06:10 21:00	05:25 21:46	05:22 22:00	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:49 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:23 21:59	06:01 21:25	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:42	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:35	07:12 18:26	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:12	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:27
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	07:52 18:56	07:46 16:55	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:33	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:52	08:35 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:57 18:50	07:51 16:51	08:36 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	07:58 18:48	07:53 16:49	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:20 21:02	07:10 19:54	08:00 18:45	07:55 16:48	08:37 16:27
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:50	06:22 21:00	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:37 21:48	06:24 20:58	07:14 19:49	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:36 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 17:59	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00	05:41 21:45	06:28 20:52	07:19 19:42	08:09 18:35	08:04 16:41	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:09 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:39	06:37 20:41	07:27 19:31	07:18 17:24	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:19 22:00	05:49 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:52 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19		07:21 20:04	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:25 17:17	08:18 16:32	08:45 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:43	05:21 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:34
31	08:19 17:23		07:17 20:08		05:26 21:45		05:57 21:30	06:46 20:28		07:28 17:13		08:45 16:35
Potential sun hours	259	278	367	416	485	498	501	453	381	332	267	244
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case
Assumptions for shadow calculations

WTG: 19 - Shehy More WF

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47
3	08:44 16:39	08:15 17:28	07:21 18:19	07:10 20:13	06:06 21:04	05:23 21:48
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:21 21:51
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52
8	08:43 16:45	08:07 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:54
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:18 22:00
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:33 21:36	05:19 22:00
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00
26	08:27 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00
29	08:22 17:19		07:21 20:05	06:14 20:57	05:28 21:42	05:21 22:00
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:43	05:22 22:00
31	08:20 17:23		07:17 20:08		05:26 21:45	
Potential sun hours	259	278	367	416	485	498
Sum of minutes with flicker	0	0	315	367	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:52/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra Cumulative Worst Case **WTG:** 19 - Shehy More WF**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

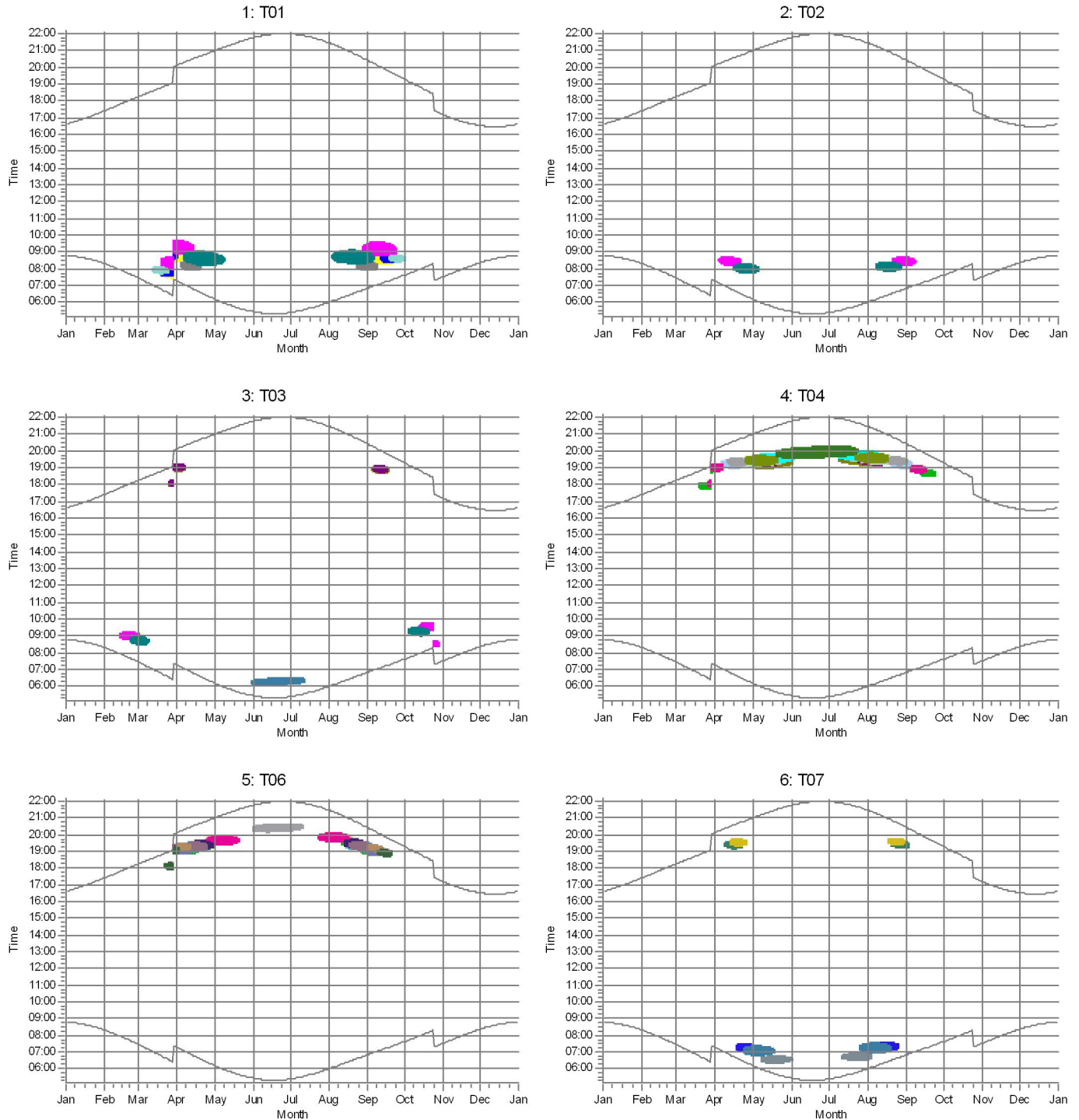
	July	August	September	October	November	December
1	05:22 22:00	05:59 21:28	06:48 19:43-19:52/9 20:26 07:20-07:31/11	07:37 19:17	08:36-09:01/25	07:30 17:11
2	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	08:36-08:59/23	07:32 17:09
3	05:24 21:59	06:02 21:25	06:51 20:22	07:40 19:12	08:36-08:58/22	07:34 17:07
4	05:24 21:59	06:03 21:23	06:53 20:19	07:42 19:10	08:38-08:57/19	07:36 17:06
5	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	08:38-08:55/17	07:37 17:04
6	05:26 21:58	06:06 21:19	06:56 20:15	07:45 19:06	08:40-08:53/13	07:39 17:02
7	05:27 21:57	06:08 21:18	06:58 20:13	07:47 19:03	08:44-08:48/4	07:41 17:01
8	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01		07:43 16:59
9	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59		07:44 16:57
10	05:30 21:55	06:13 21:12	07:03 20:06	07:52 18:57		07:46 16:56
11	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54		07:48 16:54
12	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52		07:50 16:53
13	05:33 21:52	06:17 21:06	07:07 19:59	07:57 18:50		07:52 16:51
14	05:34 21:52	06:19 21:04	07:09 19:56	07:59 18:48		07:53 16:50
15	05:35 21:51	06:21 21:02	07:11 19:54	08:00 18:46		07:55 16:48
16	05:36 21:50	06:22 21:00	07:12 19:52	08:02 18:43		07:57 16:47
17	05:38 21:49	06:24 20:58	07:14 19:49	08:04 18:41		07:59 16:45
18	05:39 21:47	06:25 20:56	07:15 19:47	08:05 18:39		08:00 16:44
19	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37		08:02 16:43
20	05:41 21:45	06:29 20:52	07:19 19:42	08:09 18:35		08:04 16:42
21	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33		08:05 16:40
22	05:44 21:43	06:32 20:48	07:22 19:38	08:12 18:31		08:07 16:39
23	05:45 21:41	06:33 20:46	07:24 19:35	08:14 18:29		08:09 16:38
24	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27		08:10 16:37
25	05:48 21:39	06:37 20:42	07:27 19:31	08:18 18:25		08:12 16:36
26	05:50 21:37	06:38 20:39	07:28 19:29	08:19 18:23		08:13 16:35
27	05:51 21:36	06:40 20:37	07:30 19:26	08:21 18:21		08:15 16:34
28	05:53 21:34	06:41 20:35	07:32 19:24	08:23 18:19		08:16 16:33
29	05:54 21:33	06:43 20:33	07:33 19:22	08:25 18:17		08:18 16:32
30	05:55 21:31	06:45 20:31	07:35 19:19	08:27 18:15		08:19 16:31
31	05:57 21:30	06:46 20:28	07:37 19:13	08:29 18:13		08:21 16:30
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	0	345	221	123	0	0

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

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

SHADOW - Calendar per WTG, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

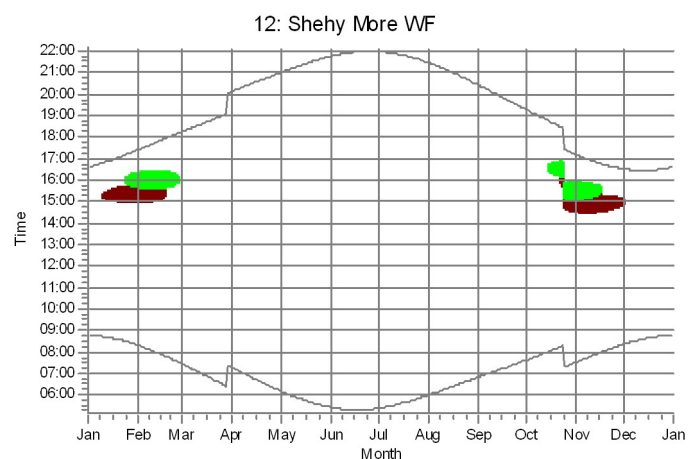
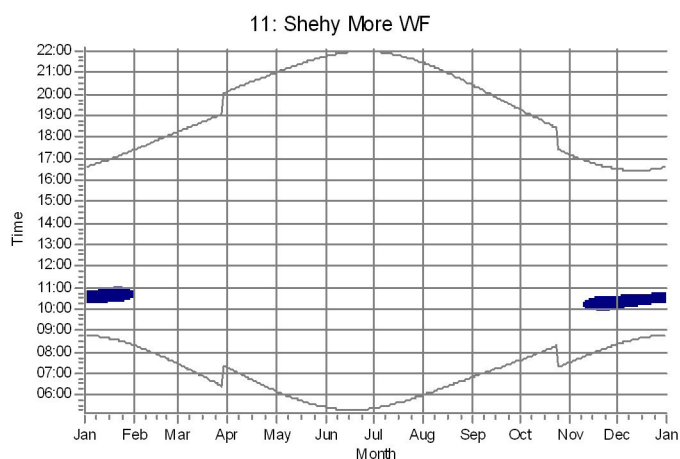
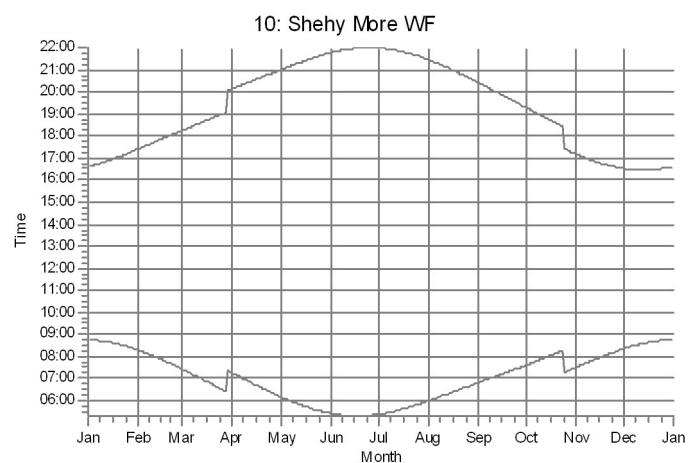
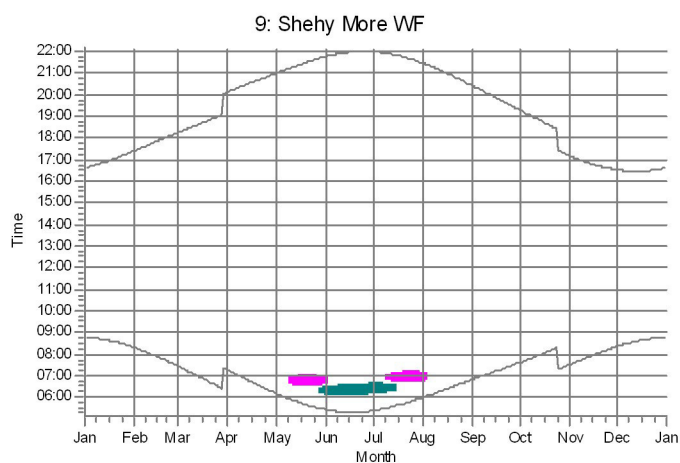
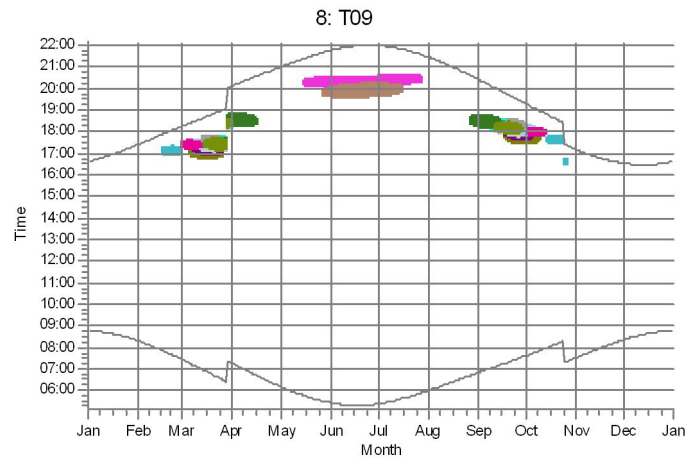
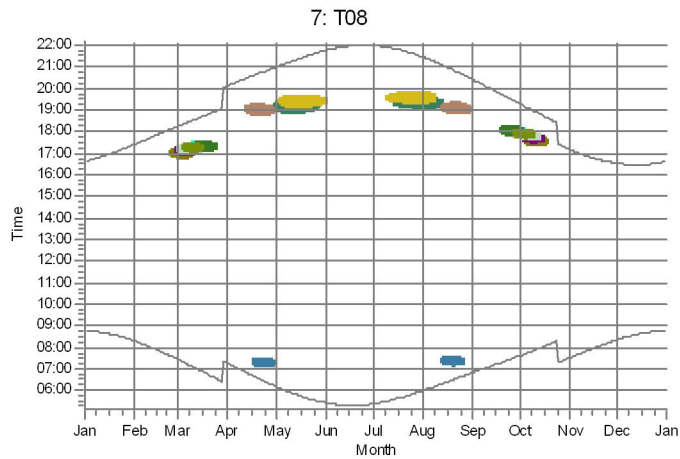


Shadow receptors

A: H1	J: H10	P: H16	V: H22	AJ: H36	BD: H56	BO: H67
B: H2	K: H11	Q: H17	W: H23	AK: H37	BE: H57	BP: H68
C: H3	L: H12	R: H18	X: H24	AL: H38	BF: H58	BQ: H69
D: H4	M: H13	S: H19	Y: H25	AV: H48	BG: H59	BR: H70
E: H5	N: H14	T: H20	AC: H29	BB: H54	BM: H65	BS: H71
F: H6	O: H15	U: H21	AD: H30	BC: H55	BN: H66	BU: H73

SHADOW - Calendar per WTG, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

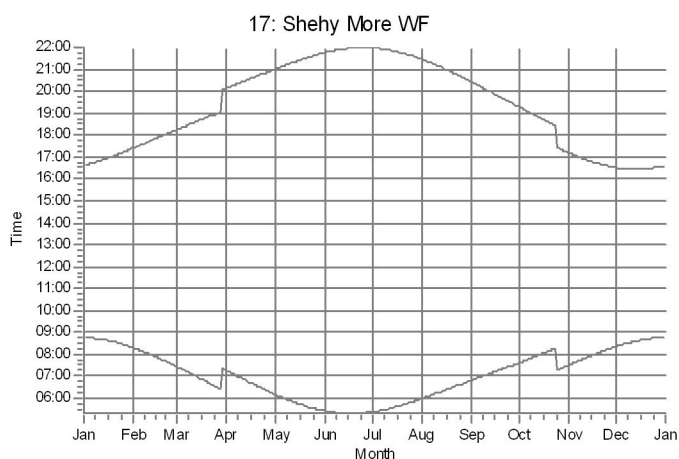
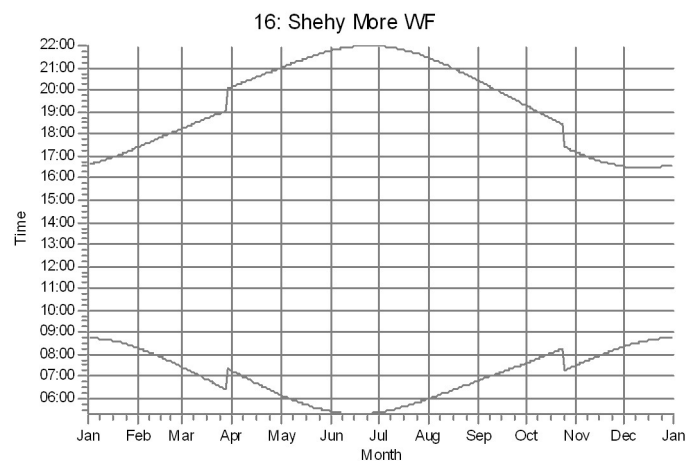
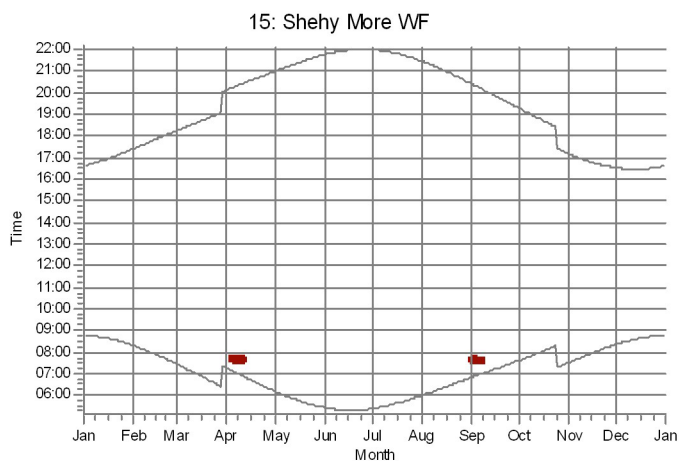
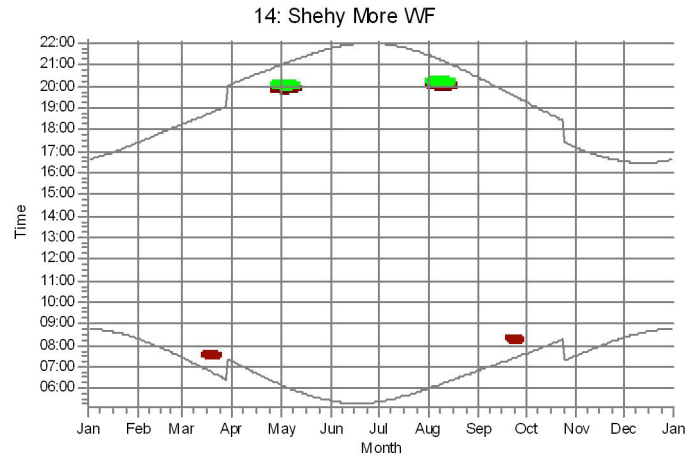
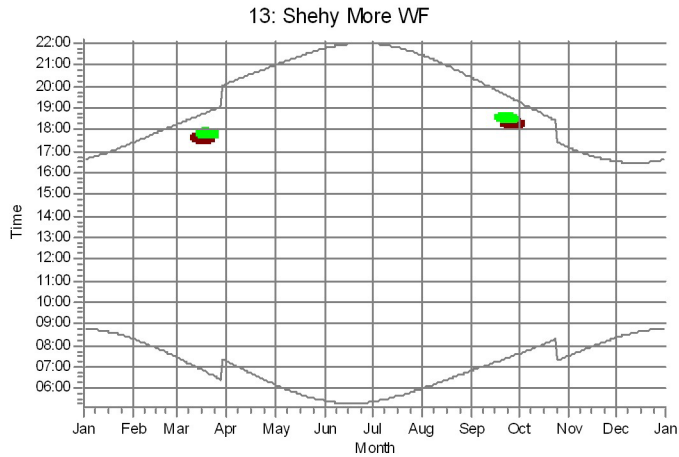


Shadow receptors

E: H5	H: H8	K: H11	N: H14	S: H19	AE: H31	BM: H65
F: H6	I: H9	L: H12	O: H15	AC: H29	AK: H37	BN: H66
G: H7	J: H10	M: H13	P: H16	AD: H30	BL: H64	BO: H67

SHADOW - Calendar per WTG, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

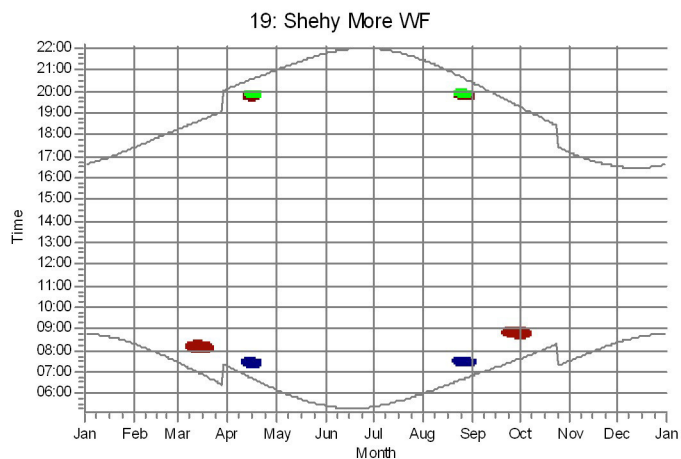


Shadow receptors

H: H8
 I: H9
 AY: H51

SHADOW - Calendar per WTG, graphical

Calculation: 6460 Gortloughra Cumulative Worst Case

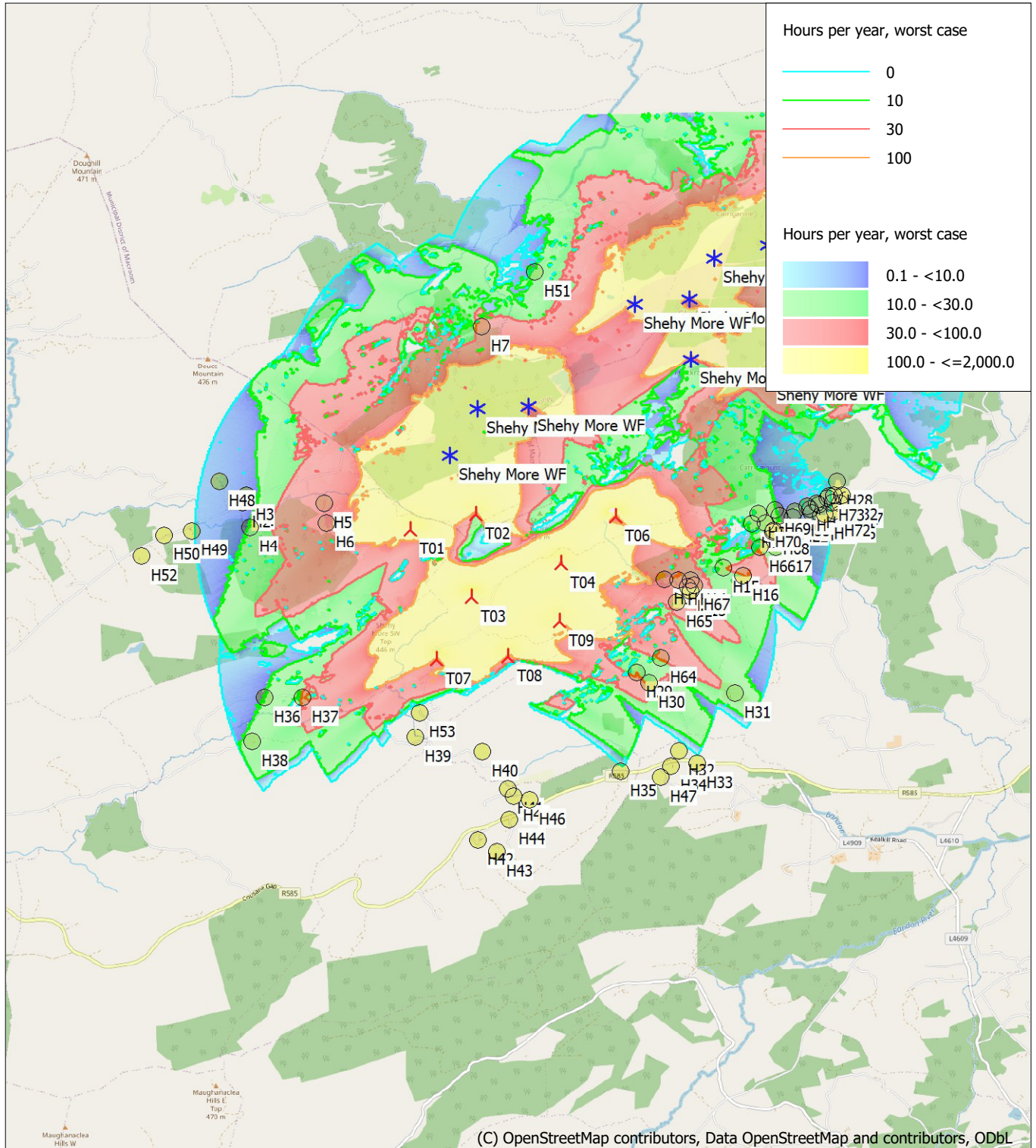


Shadow receptors

G: H7
 H: H8
 I: H9
 AY: H51

SHADOW - Map

Calculation: 6460 Gortloughra Cumulative Worst Case



Map: EMD OpenStreetMap, Print scale 1:50,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 514,950 North: 559,570
 New WTG Existing WTG Shadow receptor
 Flicker map level: Height Contours: CONTOURLINE_6460 Gortloughra WF_1.wpo (1)
 Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

SHADOW - Main Result

Calculation: 6460 Gortloughra WF only (Real Case)

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
136	297	373	423	216	252	408	617	382	612	1,601	1,598

W	WNW	NW	NNW	Sum
456	331	428	630	8,760

Monthly aggregation of real case reduction

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:
DHM: Height Contours: CONTOURLINE_6460 Gortloughra WF_1.wpo (1)
Receptor grid resolution: 1.0 m

All coordinates are in
Irish ITM-IRENET95 (IE), geocentric, GRS80

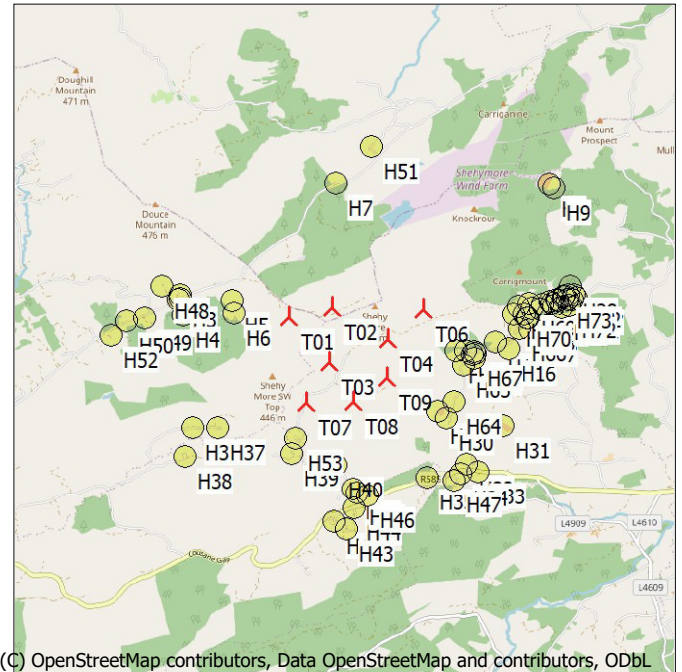
WTGs

	Easting	Northing	Z	Row data/Description	WTG type		Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.				Calculation distance [m]	RPM [RPM]
1	514,007	559,976	363.6	T01	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902
2	514,579	560,100	445.0	T02	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902
3	514,530	559,377	388.0	T03	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902
4	515,323	559,654	363.4	T04	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902
5	515,804	560,057	339.5	T06	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902
6	514,219	558,839	339.8	T07	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902
7	514,846	558,858	391.8	T08	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902
8	515,300	559,151	345.2	T09	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
A	H1	512,574	560,249	173.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
B	H2	512,548	560,240	173.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
C	H3	512,576	560,296	179.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
D	H4	512,607	560,021	179.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
E	H5	513,258	560,218	201.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
F	H6	513,280	560,045	213.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
G	H7	514,664	561,741	242.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
H	H8	517,491	561,675	226.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
I	H9	517,560	561,620	238.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
J	H10	516,223	559,500	202.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
K	H11	516,345	559,495	191.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
L	H12	516,426	559,436	166.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
M	H13	516,455	559,391	159.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
N	H14	516,453	559,491	179.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
O	H15	516,742	559,597	178.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
P	H16	516,913	559,519	155.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Q	H17	517,205	559,763	150.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
R	H18	517,186	559,907	166.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...



SHADOW - Main Result

Calculation: 6460 Gortloughra WF only (Real Case)

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
S	H19	516,995	559,974	207.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
T	H20	517,058	560,064	205.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
U	H21	517,237	560,043	189.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
V	H22	517,355	560,026	175.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
W	H23	517,505	560,096	175.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
X	H24	517,525	560,068	166.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Y	H25	517,602	560,034	162.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Z	H26	517,766	560,044	154.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AA	H27	517,833	560,174	162.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AB	H28	517,746	560,332	180.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AC	H29	515,967	558,698	134.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AD	H30	516,071	558,608	133.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AE	H31	516,831	558,505	145.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AF	H32	516,331	558,002	116.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AG	H33	516,489	557,893	121.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AH	H34	516,258	557,871	124.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AI	H35	515,815	557,831	123.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AJ	H36	512,706	558,535	242.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AK	H37	513,035	558,529	262.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AL	H38	512,590	558,155	239.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AM	H39	514,019	558,165	211.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AN	H40	514,606	558,023	147.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AO	H41	514,826	557,698	125.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AP	H42	514,556	557,258	157.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AQ	H43	514,715	557,154	169.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AR	H44	514,833	557,430	137.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AS	H45	514,870	557,636	126.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AT	H46	515,012	557,597	127.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AU	H47	516,168	557,781	135.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AV	H48	512,339	560,424	168.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AW	H49	512,089	560,001	161.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AX	H50	511,856	559,964	174.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AY	H51	515,138	562,209	216.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AZ	H52	511,651	559,779	202.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BA	H53	514,062	558,379	240.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BB	H54	517,177	559,907	167.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BC	H55	517,375	560,081	186.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BD	H56	517,485	560,120	183.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BE	H57	517,582	560,131	176.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BF	H58	517,565	560,150	179.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BG	H59	517,665	560,186	178.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BH	H60	517,712	560,152	174.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BI	H61	517,770	560,146	168.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BJ	H62	517,793	560,211	170.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BK	H63	517,724	560,209	177.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BL	H64	516,185	558,817	149.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BM	H65	516,326	559,301	160.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BN	H66	517,061	559,769	165.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BO	H67	516,482	559,447	165.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BP	H68	517,190	559,916	168.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BQ	H69	517,202	560,097	199.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BR	H70	517,121	559,978	187.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BS	H71	517,638	560,049	163.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BT	H72	517,727	560,072	162.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BU	H73	517,677	560,204	178.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5

SHADOW - Main Result

Calculation: 6460 Gortloughra WF only (Real Case)

Calculation Results

Shadow receptor

Shadow, worst case				Shadow, expected values	
No.	Name	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	H1	9:09	31	0:24	1:30
B	H2	8:52	30	0:23	1:29
C	H3	9:04	30	0:24	1:25
D	H4	10:37	32	0:24	2:12
E	H5	49:48	99	0:56	8:22
F	H6	63:10	100	1:11	12:20
G	H7	0:00	0	0:00	0:00
H	H8	0:00	0	0:00	0:00
I	H9	0:00	0	0:00	0:00
J	H10	70:03	164	0:39	13:11
K	H11	54:01	138	0:34	10:14
L	H12	45:29	121	0:32	8:32
M	H13	46:22	129	0:31	8:43
N	H14	39:25	105	0:31	7:28
O	H15	19:30	63	0:25	3:45
P	H16	29:29	100	0:24	5:18
Q	H17	13:12	41	0:25	2:36
R	H18	17:28	59	0:25	3:24
S	H19	21:42	65	0:29	4:09
T	H20	13:19	38	0:28	2:46
U	H21	10:09	33	0:25	2:06
V	H22	8:41	30	0:22	1:48
W	H23	7:07	28	0:21	1:25
X	H24	6:59	28	0:20	1:26
Y	H25	6:30	26	0:20	1:20
Z	H26	0:00	0	0:00	0:00
AA	H27	0:00	0	0:00	0:00
AB	H28	0:00	0	0:00	0:00
AC	H29	30:42	88	0:31	6:12
AD	H30	28:21	88	0:28	5:33
AE	H31	22:17	74	0:22	3:50
AF	H32	0:00	0	0:00	0:00
AG	H33	0:00	0	0:00	0:00
AH	H34	0:00	0	0:00	0:00
AI	H35	0:00	0	0:00	0:00
AJ	H36	10:26	34	0:24	2:18
AK	H37	36:46	107	0:31	7:58
AL	H38	12:51	48	0:21	2:51
AM	H39	0:00	0	0:00	0:00
AN	H40	0:00	0	0:00	0:00
AO	H41	0:00	0	0:00	0:00
AP	H42	0:00	0	0:00	0:00
AQ	H43	0:00	0	0:00	0:00
AR	H44	0:00	0	0:00	0:00
AS	H45	0:00	0	0:00	0:00
AT	H46	0:00	0	0:00	0:00
AU	H47	0:00	0	0:00	0:00
AV	H48	6:32	26	0:20	1:01
AW	H49	0:00	0	0:00	0:00
AX	H50	0:00	0	0:00	0:00
AY	H51	0:00	0	0:00	0:00
AZ	H52	0:00	0	0:00	0:00
BA	H53	0:00	0	0:00	0:00
BB	H54	17:50	61	0:26	3:29
BC	H55	8:26	30	0:22	1:43
BD	H56	7:09	26	0:21	1:24
BE	H57	6:29	26	0:19	1:15
BF	H58	6:33	26	0:20	1:14
BG	H59	5:48	24	0:19	1:03
BH	H60	0:00	0	0:00	0:00
BI	H61	0:00	0	0:00	0:00
BJ	H62	0:00	0	0:00	0:00

To be continued on next page...

SHADOW - Main Result

Calculation: 6460 Gortloughra WF only (Real Case)

...continued from previous page

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]
BK	H63	0:00	0	0:00	0:00
BL	H64	34:47	87	0:33	6:23
BM	H65	57:57	136	0:34	10:43
BN	H66	29:49	99	0:28	5:40
BO	H67	39:39	109	0:30	7:28
BP	H68	11:50	36	0:25	2:25
BQ	H69	10:28	33	0:25	2:07
BR	H70	12:36	37	0:26	2:36
BS	H71	6:07	24	0:19	1:15
BT	H72	0:00	0	0:00	0:00
BU	H73	5:44	24	0:19	1:01

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

No.	Name	Worst case	Expected
		[h/year]	[h/year]
1	T01	95:52	17:57
2	T02	25:16	5:18
3	T03	38:14	6:09
4	T04	106:15	20:06
5	T06	68:53	13:18
6	T07	49:02	10:43
7	T08	80:21	15:26
8	T09	110:38	19:40

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

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

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Real Case)**Worst case, Shadow hours per year [h/year]**

Receptor	WTG	Total							
	1	2	3	4	5	6	7	8	
A	9:09	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:09
B	8:52	0:00	0:00	0:00	0:00	0:00	0:00	0:00	8:52
C	9:04	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:04
D	10:37	0:00	0:00	0:00	0:00	0:00	0:00	0:00	10:37
E	29:02	11:33	9:13	0:00	0:00	0:00	0:00	0:00	49:48
F	39:24	13:43	10:04	0:00	0:00	0:00	0:00	0:00	63:10
G	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
H	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
I	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
J	0:00	0:00	6:54	37:12	0:00	0:00	8:45	19:22	70:03
K	0:00	0:00	6:04	25:43	0:00	0:00	7:32	15:41	54:01
L	0:00	0:00	0:00	24:25	0:00	0:00	6:58	14:06	45:29
M	0:00	0:00	0:00	25:49	0:00	0:00	6:48	13:45	46:22
N	0:00	0:00	0:00	19:52	0:00	0:00	6:42	13:11	39:25
O	0:00	0:00	0:00	10:49	0:00	0:00	0:00	8:41	19:30
P	0:00	0:00	0:00	8:51	13:31	0:00	0:00	7:07	29:29
Q	0:00	0:00	0:00	0:00	13:12	0:00	0:00	0:00	13:12
R	0:00	0:00	0:00	5:35	11:53	0:00	0:00	0:00	17:28
S	0:00	0:00	0:00	0:00	15:30	0:00	0:00	6:12	21:42
T	0:00	0:00	0:00	0:00	13:19	0:00	0:00	0:00	13:19
U	0:00	0:00	0:00	0:00	10:09	0:00	0:00	0:00	10:09
V	0:00	0:00	0:00	0:00	8:41	0:00	0:00	0:00	8:41
W	0:00	0:00	0:00	0:00	7:07	0:00	0:00	0:00	7:07
X	0:00	0:00	0:00	0:00	6:59	0:00	0:00	0:00	6:59
Y	0:00	0:00	0:00	0:00	6:30	0:00	0:00	0:00	6:30
Z	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AA	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AB	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AC	0:00	0:00	0:00	0:00	0:00	7:14	23:28	0:00	30:42
AD	0:00	0:00	0:00	0:00	0:00	6:32	21:49	0:00	28:21
AE	0:00	0:00	0:00	0:00	0:00	0:00	0:00	22:17	22:17
AF	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AG	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AH	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AI	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AJ	0:00	0:00	0:00	0:00	0:00	10:26	0:00	0:00	10:26
AK	0:00	0:00	11:53	0:00	0:00	19:14	7:13	0:00	36:46
AL	0:00	0:00	0:00	0:00	0:00	12:51	0:00	0:00	12:51
AM	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AN	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AO	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AP	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AQ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AR	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AS	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AT	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AU	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AV	6:32	0:00	0:00	0:00	0:00	0:00	0:00	0:00	6:32
AW	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AX	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AY	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AZ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BA	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BB	0:00	0:00	0:00	5:42	12:08	0:00	0:00	0:00	17:50
BC	0:00	0:00	0:00	0:00	8:26	0:00	0:00	0:00	8:26
BD	0:00	0:00	0:00	0:00	7:09	0:00	0:00	0:00	7:09
BE	0:00	0:00	0:00	0:00	6:29	0:00	0:00	0:00	6:29
BF	0:00	0:00	0:00	0:00	6:33	0:00	0:00	0:00	6:33
BG	0:00	0:00	0:00	0:00	5:48	0:00	0:00	0:00	5:48
BH	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BI	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BJ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BK	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BL	0:00	0:00	0:00	0:00	0:00	0:00	12:22	22:25	34:47

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Real Case)

...continued from previous page

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
BM	0:00	0:00	0:00	31:56	0:00	0:00	8:04	17:57	57:57
BN	0:00	0:00	0:00	6:37	17:24	0:00	0:00	5:48	29:49
BO	0:00	0:00	0:00	20:28	0:00	0:00	6:27	12:44	39:39
BP	0:00	0:00	0:00	0:00	11:50	0:00	0:00	0:00	11:50
BQ	0:00	0:00	0:00	0:00	10:28	0:00	0:00	0:00	10:28
BR	0:00	0:00	0:00	0:00	12:36	0:00	0:00	0:00	12:36
BS	0:00	0:00	0:00	0:00	6:07	0:00	0:00	0:00	6:07
BT	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BU	0:00	0:00	0:00	0:00	5:44	0:00	0:00	0:00	5:44
Total	95:52	25:16	38:14	106:15	68:53	49:02	80:21	110:38	

Worst case, Shadow days per year [days/year]

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
A	31	0	0	0	0	0	0	0	31
B	30	0	0	0	0	0	0	0	30
C	30	0	0	0	0	0	0	0	30
D	32	0	0	0	0	0	0	0	32
E	54	36	31	0	0	0	0	0	99
F	68	40	32	0	0	0	0	0	100
G	0	0	0	0	0	0	0	0	0
H	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0
J	0	0	28	77	0	0	30	43	164
K	0	0	24	59	0	0	27	39	138
L	0	0	0	61	0	0	26	38	121
M	0	0	0	67	0	0	26	38	129
N	0	0	0	50	0	0	26	36	105
O	0	0	0	34	0	0	0	29	63
P	0	0	0	32	41	0	0	27	100
Q	0	0	0	0	41	0	0	0	41
R	0	0	0	23	36	0	0	0	59
S	0	0	0	0	40	0	0	25	65
T	0	0	0	0	38	0	0	0	38
U	0	0	0	0	33	0	0	0	33
V	0	0	0	0	30	0	0	0	30
W	0	0	0	0	28	0	0	0	28
X	0	0	0	0	28	0	0	0	28
Y	0	0	0	0	26	0	0	0	26
Z	0	0	0	0	0	0	0	0	0
AA	0	0	0	0	0	0	0	0	0
AB	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	28	60	0	88
AD	0	0	0	0	0	26	62	0	88
AE	0	0	0	0	0	0	0	74	74
AF	0	0	0	0	0	0	0	0	0
AG	0	0	0	0	0	0	0	0	0
AH	0	0	0	0	0	0	0	0	0
AI	0	0	0	0	0	0	0	0	0
AJ	0	0	0	0	0	34	0	0	34
AK	0	0	43	0	0	50	28	0	107
AL	0	0	0	0	0	48	0	0	48
AM	0	0	0	0	0	0	0	0	0
AN	0	0	0	0	0	0	0	0	0
AO	0	0	0	0	0	0	0	0	0
AP	0	0	0	0	0	0	0	0	0
AQ	0	0	0	0	0	0	0	0	0
AR	0	0	0	0	0	0	0	0	0
AS	0	0	0	0	0	0	0	0	0
AT	0	0	0	0	0	0	0	0	0
AU	0	0	0	0	0	0	0	0	0
AV	26	0	0	0	0	0	0	0	26
AW	0	0	0	0	0	0	0	0	0
AX	0	0	0	0	0	0	0	0	0
AY	0	0	0	0	0	0	0	0	0

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Real Case)

...continued from previous page

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
AZ	0	0	0	0	0	0	0	0	0
BA	0	0	0	0	0	0	0	0	0
BB	0	0	0	24	37	0	0	0	61
BC	0	0	0	0	30	0	0	0	30
BD	0	0	0	0	26	0	0	0	26
BE	0	0	0	0	26	0	0	0	26
BF	0	0	0	0	26	0	0	0	26
BG	0	0	0	0	24	0	0	0	24
BH	0	0	0	0	0	0	0	0	0
BI	0	0	0	0	0	0	0	0	0
BJ	0	0	0	0	0	0	0	0	0
BK	0	0	0	0	0	0	0	0	0
BL	0	0	0	0	0	0	37	50	87
BM	0	0	0	66	0	0	28	42	136
BN	0	0	0	25	50	0	0	24	99
BO	0	0	0	53	0	0	25	35	109
BP	0	0	0	0	36	0	0	0	36
BQ	0	0	0	0	33	0	0	0	33
BR	0	0	0	0	37	0	0	0	37
BS	0	0	0	0	24	0	0	0	24
BT	0	0	0	0	0	0	0	0	0
BU	0	0	0	0	24	0	0	0	24
Total	271	76	158	571	714	186	375	500	

Worst case, Max shadow hours per day [h/day]

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
A	0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
B	0:23	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:23
C	0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
D	0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
E	0:42	0:25	0:23	0:00	0:00	0:00	0:00	0:00	0:56
F	0:46	0:27	0:24	0:00	0:00	0:00	0:00	0:00	1:11
G	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
H	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
I	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
J	0:00	0:00	0:21	0:39	0:00	0:00	0:23	0:34	0:39
K	0:00	0:00	0:19	0:34	0:00	0:00	0:21	0:31	0:34
L	0:00	0:00	0:00	0:32	0:00	0:00	0:20	0:29	0:32
M	0:00	0:00	0:00	0:31	0:00	0:00	0:21	0:29	0:31
N	0:00	0:00	0:00	0:31	0:00	0:00	0:20	0:28	0:31
O	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:23	0:25
P	0:00	0:00	0:00	0:22	0:24	0:00	0:00	0:21	0:24
Q	0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:25
R	0:00	0:00	0:00	0:19	0:25	0:00	0:00	0:00	0:25
S	0:00	0:00	0:00	0:00	0:29	0:00	0:00	0:19	0:29
T	0:00	0:00	0:00	0:00	0:28	0:00	0:00	0:00	0:28
U	0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:25
V	0:00	0:00	0:00	0:00	0:22	0:00	0:00	0:00	0:22
W	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:21
X	0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:20
Y	0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:20
Z	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AA	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AB	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AC	0:00	0:00	0:00	0:00	0:00	0:20	0:31	0:00	0:31
AD	0:00	0:00	0:00	0:00	0:00	0:19	0:28	0:00	0:28
AE	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:22	0:22
AF	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AG	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AH	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AI	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AJ	0:00	0:00	0:00	0:00	0:00	0:24	0:00	0:00	0:24
AK	0:00	0:00	0:21	0:00	0:00	0:30	0:20	0:00	0:31
AL	0:00	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:21

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Real Case)

...continued from previous page

Receptor	WTG	Total							
	1	2	3	4	5	6	7	8	
AM	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AN	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AO	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AP	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AQ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AR	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AS	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AT	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AU	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AV	0:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:20
AW	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AX	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AY	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AZ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BA	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BB	0:00	0:00	0:00	0:19	0:26	0:00	0:00	0:00	0:26
BC	0:00	0:00	0:00	0:00	0:22	0:00	0:00	0:00	0:22
BD	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:21
BE	0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:19
BF	0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:20
BG	0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:19
BH	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BI	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BJ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BK	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BL	0:00	0:00	0:00	0:00	0:00	0:00	0:26	0:33	0:33
BM	0:00	0:00	0:00	0:34	0:00	0:00	0:22	0:33	0:34
BN	0:00	0:00	0:00	0:20	0:28	0:00	0:00	0:19	0:28
BO	0:00	0:00	0:00	0:30	0:00	0:00	0:20	0:28	0:30
BP	0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:25
BQ	0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:25
BR	0:00	0:00	0:00	0:00	0:26	0:00	0:00	0:00	0:26
BS	0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:19
BT	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BU	0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:19
Total	3:23	0:52	1:48	5:36	8:28	1:54	4:12	5:49	

Real case, Shadow hours per year [h/year]

Receptor	WTG	Total							
	1	2	3	4	5	6	7	8	
A	1:31	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:30
B	1:29	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:29
C	1:26	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:25
D	2:12	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:12
E	4:57	2:21	1:04	0:00	0:00	0:00	0:00	0:00	8:22
F	8:07	2:57	1:17	0:00	0:00	0:00	0:00	0:00	12:20
G	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
H	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
I	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
J	0:00	0:00	1:20	7:22	0:00	0:00	1:26	3:26	13:11
K	0:00	0:00	1:10	5:11	0:00	0:00	1:15	2:48	10:14
L	0:00	0:00	0:00	4:48	0:00	0:00	1:11	2:34	8:32
M	0:00	0:00	0:00	4:57	0:00	0:00	1:11	2:35	8:43
N	0:00	0:00	0:00	4:03	0:00	0:00	1:07	2:22	7:28
O	0:00	0:00	0:00	2:15	0:00	0:00	0:00	1:30	3:45
P	0:00	0:00	0:00	1:49	2:12	0:00	0:00	1:16	5:18
Q	0:00	0:00	0:00	0:00	2:37	0:00	0:00	0:00	2:36
R	0:00	0:00	0:00	0:59	2:26	0:00	0:00	0:00	3:24
S	0:00	0:00	0:00	0:00	3:12	0:00	0:00	0:57	4:09
T	0:00	0:00	0:00	0:00	2:47	0:00	0:00	0:00	2:46
U	0:00	0:00	0:00	0:00	2:07	0:00	0:00	0:00	2:06
V	0:00	0:00	0:00	0:00	1:48	0:00	0:00	0:00	1:48
W	0:00	0:00	0:00	0:00	1:26	0:00	0:00	0:00	1:25
X	0:00	0:00	0:00	0:00	1:26	0:00	0:00	0:00	1:26
Y	0:00	0:00	0:00	0:00	1:21	0:00	0:00	0:00	1:20

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Real Case)

...continued from previous page

Receptor	WTG	1	2	3	4	5	6	7	8	Total
Z		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AA		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AB		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AC		0:00	0:00	0:00	0:00	0:00	1:29	4:43	0:00	6:12
AD		0:00	0:00	0:00	0:00	0:00	1:20	4:13	0:00	5:33
AE		0:00	0:00	0:00	0:00	0:00	0:00	0:00	3:50	3:50
AF		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AG		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AH		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AI		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AJ		0:00	0:00	0:00	0:00	0:00	2:18	0:00	0:00	2:18
AK		0:00	0:00	2:25	0:00	0:00	4:20	1:35	0:00	7:58
AL		0:00	0:00	0:00	0:00	0:00	2:52	0:00	0:00	2:51
AM		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AN		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AO		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AP		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AQ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AR		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AS		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AT		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AU		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AV		1:01	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:01
AW		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AX		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AY		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AZ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BA		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BB		0:00	0:00	0:00	1:00	2:29	0:00	0:00	0:00	3:29
BC		0:00	0:00	0:00	0:00	1:43	0:00	0:00	0:00	1:43
BD		0:00	0:00	0:00	0:00	1:24	0:00	0:00	0:00	1:24
BE		0:00	0:00	0:00	0:00	1:15	0:00	0:00	0:00	1:15
BF		0:00	0:00	0:00	0:00	1:15	0:00	0:00	0:00	1:14
BG		0:00	0:00	0:00	0:00	1:03	0:00	0:00	0:00	1:03
BH		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BI		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BJ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BK		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BL		0:00	0:00	0:00	0:00	0:00	0:00	2:36	3:48	6:23
BM		0:00	0:00	0:00	5:32	0:00	0:00	1:27	3:44	10:43
BN		0:00	0:00	0:00	1:18	3:25	0:00	0:00	0:58	5:40
BO		0:00	0:00	0:00	4:05	0:00	0:00	1:06	2:18	7:28
BP		0:00	0:00	0:00	0:00	2:25	0:00	0:00	0:00	2:25
BQ		0:00	0:00	0:00	0:00	2:07	0:00	0:00	0:00	2:07
BR		0:00	0:00	0:00	0:00	2:37	0:00	0:00	0:00	2:36
BS		0:00	0:00	0:00	0:00	1:16	0:00	0:00	0:00	1:15
BT		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BU		0:00	0:00	0:00	0:00	1:02	0:00	0:00	0:00	1:01
Total		17:57	5:19	6:09	20:07	13:18	10:44	15:26	19:41	

Total time can be different from the sum in case of concurrent Shadow flicker events

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** A - H1**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August	September		October	November	December	
1	08:45	08:18	07:25		07:15	19	08:29 (1)	06:10	05:25	05:22	05:59	06:48		07:37	07:30	08:21
	16:37	17:25	18:16		20:10		08:48 (1)	21:00	21:46	22:00	21:28	20:26		19:17	17:11	16:31
2	08:45	08:17	07:23		07:12		08:31 (1)	06:08	05:25	05:23	06:00	06:50		07:39	07:32	08:22
	16:38	17:27	18:18		20:11	15	08:46 (1)	21:02	21:47	21:59	21:26	20:24		19:15	17:10	16:31
3	08:45	08:15	07:21		07:10		08:32 (1)	06:06	05:24	05:24	06:02	06:51		07:40	07:34	08:24
	16:39	17:28	18:20		20:13	12	08:44 (1)	21:04	21:48	21:59	21:25	20:22		19:13	17:08	16:30
4	08:44	08:13	07:19		07:08		08:37 (1)	06:05	05:23	05:25	06:03	06:53		07:42	07:36	08:25
	16:40	17:30	18:21		20:15	3	08:40 (1)	21:05	21:49	21:59	21:23	20:20		19:10	17:06	16:30
5	08:44	08:12	07:16		07:06			06:03	05:22	05:25	06:05	06:55		07:44	07:38	08:27
	16:42	17:32	18:23		20:17			21:07	21:50	21:58	21:21	20:17		19:08	17:04	16:29
6	08:44	08:10	07:14		07:03			06:01	05:22	05:26	06:06	06:56		07:45	07:39	08:28
	16:43	17:34	18:25		20:18			21:09	21:51	21:58	21:20	20:15		19:06	17:02	16:29
7	08:43	08:08	07:12		07:01			05:59	05:21	05:27	06:08	06:58		07:47	07:41	08:29
	16:44	17:36	18:27		20:20			21:10	21:52	21:57	21:18	20:13		19:03	17:01	16:28
8	08:43	08:07	07:10		06:59			05:57	05:21	05:28	06:10	07:00	08:32 (1)	07:49	07:43	08:30
	16:45	17:38	18:29		20:22			21:12	21:53	21:56	21:16	20:10	1	08:33 (1)	19:01	16:59
9	08:43	08:05	07:07		06:57			05:56	05:20	05:29	06:11	07:01		08:27 (1)	07:50	07:45
	16:47	17:40	18:30		20:23			21:14	21:54	21:56	21:14	20:08	11	08:38 (1)	18:59	16:57
10	08:42	08:03	07:05		06:54			05:54	05:20	05:30	06:13	07:03		08:24 (1)	07:52	07:46
	16:48	17:41	18:32		20:25			21:15	21:54	21:55	21:12	20:06	16	08:40 (1)	18:57	16:56
11	08:41	08:01	07:03		06:52			05:52	05:19	05:31	06:14	07:04		08:23 (1)	07:54	07:48
	16:50	17:43	18:34		20:27			21:17	21:55	21:54	21:10	20:04	18	08:41 (1)	18:55	16:54
12	08:41	07:59	07:01		06:50			05:51	05:19	05:32	06:16	07:06		08:21 (1)	07:55	07:50
	16:51	17:45	18:36		20:28			21:18	21:56	21:53	21:08	20:01	20	08:41 (1)	18:52	16:53
13	08:40	07:58	06:58		06:48			05:49	05:19	05:33	06:18	07:08		08:20 (1)	07:57	07:52
	16:53	17:47	18:37		20:30			21:20	21:57	21:53	21:06	19:59	22	08:42 (1)	18:50	16:51
14	08:39	07:56	06:56		06:46			05:47	05:18	05:34	06:19	07:09		08:19 (1)	07:59	07:53
	16:54	17:49	18:39		20:32			21:21	21:57	21:52	21:05	19:57	23	08:42 (1)	18:48	16:50
15	08:39	07:54	06:54		06:43			05:46	05:18	05:35	06:21	07:11		08:19 (1)	08:00	07:55
	16:56	17:51	18:41		20:33			21:23	21:58	21:51	21:03	19:54	23	08:42 (1)	18:46	16:48
16	08:38	07:52	06:52		06:41			05:44	05:18	05:37	06:22	07:12		08:19 (1)	08:02	07:57
	16:57	17:52	18:42		20:35			21:24	21:58	21:50	21:01	19:52	23	08:42 (1)	18:44	16:47
17	08:37	07:50	06:49		06:39			05:43	05:18	05:38	06:24	07:14		08:18 (1)	08:04	07:59
	16:59	17:54	18:44		20:37			21:26	21:59	21:49	20:59	19:50	23	08:41 (1)	18:41	16:46
18	08:36	07:48	06:47		06:37			05:41	05:18	05:39	06:26	07:16		08:18 (1)	08:06	08:00
	17:00	17:56	18:46		20:39			21:27	21:59	21:48	20:56	19:47	23	08:41 (1)	18:39	16:44
19	08:35	07:46	06:45		06:35			05:40	05:18	05:40	06:27	07:17		08:18 (1)	08:07	08:02
	17:02	17:58	18:48		20:40			21:29	21:59	21:46	20:54	19:45	21	08:39 (1)	18:37	16:43
20	08:34	07:44	06:42		06:33			05:39	05:18	05:42	06:29	07:19		08:19 (1)	08:09	08:04
	17:04	18:00	18:49		20:42			21:30	22:00	21:45	20:52	19:43	19	08:38 (1)	18:35	16:42
21	08:33	07:42	06:40	07:38 (1)	06:30			05:37	05:18	05:43	06:30	07:20		08:19 (1)	08:11	08:05
	17:05	18:02	18:51	10	07:48 (1)	20:44		21:32	22:00	21:44	20:50	19:40	17	08:36 (1)	18:33	16:41
22	08:32	07:40	06:38		07:34 (1)	06:28		05:36	05:19	05:44	06:32	07:22		08:21 (1)	08:13	08:07
	17:07	18:03	18:53	16	07:50 (1)	20:45		21:33	22:00	21:43	20:48	19:38	13	08:34 (1)	18:31	16:40
23	08:30	07:38	06:35		07:33 (1)	06:26		05:35	05:19	05:46	06:34	07:24		08:25 (1)	08:14	08:09
	17:09	18:05	18:54	18	07:51 (1)	20:47		21:35	22:00	21:41	20:46	19:36	5	08:30 (1)	18:29	16:38
24	08:29	07:36	06:33		07:32 (1)	06:24		05:34	05:19	05:47	06:35	07:25			08:16	08:10
	17:10	18:07	18:56	20	07:52 (1)	20:49		21:36	22:01	21:40	20:44	19:33			18:27	16:37
25	08:28	07:34	06:31		07:30 (1)	06:22		05:32	05:19	05:48	06:37	07:27			07:18	08:12
	17:12	18:09	18:58	22	07:52 (1)	20:50		21:37	22:01	21:39	20:42	19:31			17:25	16:36
26	08:27	07:31	06:29		07:30 (1)	06:20		05:31	05:20	05:50	06:38	07:29			07:20	08:14
	17:14	18:11	19:00	22	07:52 (1)	20:52		21:39	22:01	21:37	20:40	19:29			17:23	16:35
27	08:25	07:29	06:26		07:29 (1)	06:18		05:30	05:20	05:51	06:40	07:30			07:21	08:15
	17:16	18:13	19:01	24	07:53 (1)	20:54		21:40	22:00	21:36	20:37	19:26			17:21	16:34
28	08:24	07:27	06:24		07:29 (1)	06:16		05:29	05:21	05:53	06:42	07:32			07:23	08:17
	17:18	18:14	19:03	24	07:53 (1)	20:55		21:41	22:00	21:34	20:35	19:24			17:19	16:34
29	08:23		07:22		08:28 (1)	06:14		05:28	05:21	05:54	06:43	07:34			07:25	08:18
	17:19		20:05	23	08:51 (1)	20:57		21:42	22:00	21:33	20:33	19:22			17:17	16:33
30	08:21		07:19		08:29 (1)	06:12		05:27	05:22	05:56	06:45	07:35			07:27	08:20
	17:21		20:06	22	08:51 (1)	20:59		21:44	22:00		21:31	20:31	19:19		17:15	16:32
31	08:20		07:17		08:29 (1)			05:26			05:57	06:47			07:29	08:45
	17:23		20:08	21	08:50 (1)			21:45			21:30	20:29			17:13	16:36
Potential sun hours	260	278	367		416			485	498	501	453	381		332	267	244
Total, worst case				222			49						278			
Sun reduction				0.24			0.35						0.28			
Oper. time red.				1.00			1.00						1.00			
Wind dir. red.				0.60			0.60						0.60			
Total reduction				0.15			0.21						0.17			
Total, real				33			11						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)

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** B - H2**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	19 08:27 (1) 21:00	06:10 21:46	05:25 22:00	05:22 21:28	05:59 20:26		07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	17 08:28 (1) 21:02	06:08 21:47	05:25 21:59	05:23 21:26	06:00 20:24		07:39 19:15	07:32 17:10	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	13 08:30 (1) 21:04	06:06 21:48	05:24 21:59	06:02 21:25	06:51 20:22		07:40 19:13	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:19 18:21	07:08 20:15	8 08:32 (1) 21:05	06:05 21:49	05:23 21:59	06:03 21:23	06:53 20:20		07:42 19:10	07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17		07:44 19:08	07:38 17:04	08:27 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15		07:45 19:06	07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13		07:47 19:04	07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:29	06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10	08:27 (1)	07:49 19:01	07:43 16:59	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	7 08:34 (1)	07:50 18:59	07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06	13 08:37 (1)	07:52 18:57	07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04	17 08:21 (1)	07:54 18:55	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	19 08:38 (1)	07:55 18:52	07:50 16:53	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:06	07:08 19:59	20 08:39 (1)	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57	22 08:40 (1)	07:59 18:48	07:53 16:50	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54	23 08:17 (1)	08:00 18:46	07:55 16:48	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52	23 08:17 (1)	08:02 18:44	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59	07:14 19:50	23 08:16 (1)	08:04 18:41	07:59 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:41 21:27	05:18 21:59	05:39 21:48	06:26 20:56	07:16 19:47	23 08:19 (1)	08:06 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	21 08:17 (1)	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	05:18 22:00	05:42 21:45	06:29 20:52	07:19 19:43	19 08:18 (1)	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	17 08:19 (1)	08:11 18:33	08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	05:44 21:43	06:32 20:48	07:22 19:38	13 08:22 (1)	08:13 18:31	08:07 16:40	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	8 08:30 (1)	08:14 18:29	08:09 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	05:19 22:01	05:47 21:40	06:35 20:44	07:25 19:33		08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:01	05:48 21:39	06:37 20:42	07:27 19:31		08:17 17:25	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29		08:20 17:23	08:14 16:35	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26		08:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24		08:22 17:19	08:17 16:34	08:45 16:33
29	08:23 17:19		07:22 20:05	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22		08:23 17:17	08:18 16:33	08:45 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19		08:24 17:15	08:20 16:32	08:45 16:35
31	08:20 17:23		07:17 20:08	06:11 20:58	05:26 21:45	05:21 22:00	05:57 21:30	06:47 20:29			08:25 17:13	08:21 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			207	57					268				
Sun reduction			0.24	0.35					0.28				
Oper. time red.			1.00	1.00					1.00				
Wind dir. red.			0.61	0.61					0.61				
Total reduction			0.15	0.22					0.17				
Total, real			31	12					46				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** C - H3**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16		07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26		07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18		07:12 20:11	06:08 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24		07:39 19:15	07:32 17:10	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20		07:10 20:13	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22		07:40 19:13	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:19 18:21		07:08 20:15	06:05 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20		07:42 19:10	07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23		07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17		07:44 19:08	07:38 17:04	08:27 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15		07:45 19:06	07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27		07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13		07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:29		06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10		07:49 19:01	07:43 16:59	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30		06:57 20:23	05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08		07:50 18:59	07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06		07:52 18:57	07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34		06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04		07:54 18:55	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36		06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	8	08:32 (1) 08:40 (1)	07:55 18:52	08:35 16:53
13	08:40 16:53	07:58 17:47	06:58 18:37		06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:06	07:08 19:59	14	08:29 (1) 08:43 (1)	07:57 18:50	08:36 16:51
14	08:39 16:54	07:56 17:49	06:56 18:39		06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57	18	08:26 (1) 08:44 (1)	07:59 18:48	08:37 16:50
15	08:39 16:56	07:54 17:51	06:54 18:41		06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54	20	08:25 (1) 08:45 (1)	08:00 18:46	08:38 16:48
16	08:38 16:57	07:52 17:52	06:52 18:42		06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52	21	08:25 (1) 08:46 (1)	08:02 18:44	08:38 16:47
17	08:37 16:59	07:50 17:54	06:49 18:44		06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59	07:14 19:50	22	08:23 (1) 08:45 (1)	08:04 18:41	08:39 16:46
18	08:36 17:00	07:48 17:56	06:47 18:46	4	07:51 (1) 07:43 (1)	20:37 06:37	21:26 05:41	21:49 05:39	20:59 06:26	19:50 07:16	23	08:23 (1) 08:46 (1)	18:41 18:39	16:27 16:44
19	08:35 17:02	07:46 17:58	06:45 18:48	12	07:40 (1) 07:56 (1)	06:35 20:40	05:40 21:29	05:40 21:46	06:27 20:54	07:17 19:45	23	08:22 (1) 08:45 (1)	08:07 18:37	08:41 16:43
20	08:34 17:04	07:44 18:00	06:42 18:49	16	07:38 (1) 07:57 (1)	06:33 20:42	05:39 21:30	05:42 21:45	06:29 20:52	07:19 19:43	23	08:22 (1) 08:45 (1)	08:09 18:35	08:41 16:42
21	08:33 17:05	07:42 18:02	06:40 18:51	19	07:37 (1) 07:58 (1)	06:30 20:44	05:37 21:32	05:43 21:44	06:30 20:50	07:20 19:40	23	08:21 (1) 08:44 (1)	08:11 18:33	08:42 16:41
22	08:32 17:07	07:40 18:03	06:38 18:53	21	07:36 (1) 07:58 (1)	06:28 20:45	05:36 21:33	05:44 21:43	06:32 20:48	07:22 19:38	23	08:22 (1) 08:43 (1)	08:13 18:31	08:07 16:40
23	08:30 17:09	07:38 18:05	06:35 18:54	22	07:35 (1) 07:58 (1)	06:26 20:47	05:35 21:35	05:46 21:41	06:34 20:46	07:24 19:36	21	08:23 (1) 08:42 (1)	08:14 18:29	08:09 16:38
24	08:29 17:10	07:36 18:07	06:33 18:56	23	07:35 (1) 07:59 (1)	06:24 20:49	05:34 21:36	05:47 22:01	06:35 20:44	07:25 19:33	19	08:23 (1) 08:40 (1)	08:16 18:27	08:10 16:37
25	08:28 17:12	07:34 18:09	06:31 18:58	24	07:34 (1) 07:57 (1)	06:22 20:50	05:32 21:37	05:48 21:39	06:37 20:42	07:27 19:31	17	08:25 (1) 08:39 (1)	07:18 17:25	08:12 16:36
26	08:27 17:14	07:31 18:11	06:29 19:00	23	07:35 (1) 07:57 (1)	06:20 20:52	05:31 21:39	05:50 22:01	06:38 20:40	07:29 19:29	14	08:28 (1) 08:36 (1)	07:20 17:23	08:14 16:35
27	08:25 17:16	07:29 18:13	06:26 19:01	22	07:35 (1) 07:57 (1)	06:18 20:54	05:30 21:40	05:51 21:36	06:40 20:37	07:30 19:26	8	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	22	07:36 (1) 07:56 (1)	06:16 20:55	05:29 21:41	05:53 21:54	06:42 20:35	07:32 19:24	22	07:23 17:19	08:17 16:34	08:45 16:33
29	08:23 17:19	07:22 18:05	06:22 19:05	20	08:36 (1) 08:54 (1)	06:14 20:57	05:28 21:42	05:21 22:00	06:43 21:33	07:34 19:22	20	07:25 17:17	08:18 16:33	08:45 16:34
30	08:21 17:21	07:19 18:06	06:21 19:06	18	08:37 (1) 08:52 (1)	06:12 20:59	05:27 21:44	05:56 22:00	06:45 20:31	07:35 19:19	18	07:27 17:15	08:20 16:32	08:45 16:35
31	08:20 17:23	07:17 18:08	06:20 19:08	15	08:40 (1) 08:49 (1)	07:17 21:45	05:26 21:45	05:57 21:30	06:47 20:29	07:29 19:19	15	07:29 17:13	08:45 16:35	08:45 16:36
Potential sun hours	260	278	367		416	485	498	501	453	381		332	267	244
Total, worst case			270							274				
Sun reduction			0.24							0.28				
Oper. time red.			1.00							1.00				
Wind dir. red.			0.60							0.60				
Total reduction			0.15							0.17				
Total, real			39							46				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** D - H4**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	07:56 (1) 08:20 (1)	07:37 19:17	07:30 17:11
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:56 (1) 08:20 (1)	07:39 19:15	07:32 17:10
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:55 (1) 08:19 (1)	07:40 19:13	07:34 17:08
4	08:44 16:40	08:13 17:30	07:19 18:21	07:08 20:15	06:05 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20	07:56 (1) 08:19 (1)	07:42 19:10	07:36 17:06
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	07:56 (1) 08:17 (1)	07:44 19:08	07:38 17:04
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15	07:57 (1) 08:16 (1)	07:45 19:06	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:58 (1) 08:14 (1)	07:47 19:03	07:41 17:01
8	08:43 16:45	08:07 17:38	07:10 18:29	06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10	08:00 (1) 08:11 (1)	07:49 19:01	07:43 16:59
9	08:43 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:13	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04	07:54 18:55	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:06	07:08 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57	07:59 18:48	07:53 16:50	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54	08:00 18:46	07:55 16:48	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52	08:02 18:44	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:41 21:27	05:18 21:59	05:39 21:48	06:26 20:56	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	05:18 22:00	05:42 21:45	06:29 20:52	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:13 18:31	08:07 16:40	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:16	08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:01	05:49 21:39	06:37 20:42	07:27 19:31	08:02 (1) 08:17 (1)	07:27 19:31	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29	08:01 (1) 08:19 (1)	07:29 19:30	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:59 (1) 08:19 (1)	07:30 19:26	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24	07:58 (1) 08:20 (1)	07:32 19:24	08:45 16:33
29	08:23 17:19	07:22 18:05	06:14 19:02	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22	07:57 (1) 08:20 (1)	07:34 19:22	08:45 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	07:57 (1) 08:21 (1)	07:35 19:19	08:45 16:35
31	08:20 17:23	07:17 18:08	06:11 19:08	06:11 20:59	05:26 21:45	05:22 22:00	05:57 21:30	06:47 20:29	07:36 19:19	07:58 (1) 08:22 (1)	07:36 19:19	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				318				157		162		
Sun reduction				0.35				0.30		0.28		
Oper. time red.				1.00				1.00		1.00		
Wind dir. red.				0.64				0.64		0.64		
Total reduction				0.23				0.19		0.18		
Total, real				73				30		30		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** E - H5**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45	08:18	07:25	07:15	08:57 (1)	06:10
	16:37	17:25	18:16	20:10	42	09:39 (1)
2	08:45	08:17	07:23	07:12	08:57 (1)	06:08
	16:38	17:27	18:18	20:11	41	09:38 (1)
3	08:45	08:15	07:21	07:10	08:57 (1)	06:06
	16:39	17:28	18:20	20:13	41	09:38 (1)
4	08:44	08:13	07:18	07:08	08:28 (2)	06:05
	16:40	17:30	18:21	20:15	42	09:37 (1)
5	08:44	08:12	07:16	07:06	08:22 (2)	06:03
	16:42	17:32	18:23	20:17	52	09:36 (1)
6	08:44	08:10	07:14	07:03	08:20 (2)	06:01
	16:43	17:34	18:25	20:18	55	09:35 (1)
7	08:43	08:08	07:12	07:01	08:18 (2)	05:59
	16:44	17:36	18:27	20:20	56	09:34 (1)
8	08:43	08:07	07:10	06:59	08:17 (2)	05:57
	16:45	17:38	18:29	20:22	56	09:33 (1)
9	08:43	08:05	07:07	06:57	08:15 (2)	05:56
	16:47	17:39	18:30	20:23	55	09:30 (1)
10	08:42	08:03	07:05	06:54	08:15 (2)	05:54
	16:48	17:41	18:32	20:25	53	09:29 (1)
11	08:41	08:01	07:03	06:52	08:14 (2)	05:52
	16:50	17:43	18:34	20:27	51	09:27 (1)
12	08:41	07:59	07:01	06:50	08:14 (2)	05:51
	16:51	17:45	18:36	20:28	46	09:24 (1)
13	08:40	07:58	06:58	06:48	08:14 (2)	05:49
	16:52	17:47	18:37	20:30	40	09:21 (1)
14	08:39	07:56	06:56	06:45	08:13 (2)	05:47
	16:54	17:49	10 09:06 (3)	20:32	28	09:14 (1)
15	08:39	07:54	06:54	06:43	08:13 (2)	05:46
	16:56	17:51	15 09:08 (3)	20:33	24	08:37 (2)
16	08:38	07:52	06:51	06:41	08:13 (2)	05:44
	16:57	17:52	17 09:09 (3)	20:35	23	08:36 (2)
17	08:37	07:50	06:49	06:39	08:14 (2)	05:43
	16:59	17:54	19 09:10 (3)	20:37	21	08:35 (2)
18	08:36	07:48	06:47	06:37	08:15 (2)	05:41
	17:00	17:56	21 09:11 (3)	20:39	19	08:34 (2)
19	08:35	07:46	06:45	08:16 (1)	06:35	08:16 (2)
	17:02	17:58	22 09:12 (3)	20:40	16	08:32 (2)
20	08:34	07:44	06:42	08:13 (1)	06:33	08:18 (2)
	17:04	18:00	23 09:12 (3)	20:42	12	08:30 (2)
21	08:33	07:42	06:40	08:10 (1)	06:30	08:21 (2)
	17:05	18:02	23 09:12 (3)	20:44	6	08:27 (2)
22	08:32	07:40	06:38	08:07 (1)	06:28	05:36
	17:07	18:03	23 09:12 (3)	20:45		21:33
23	08:30	07:38	06:35	08:06 (1)	06:26	05:35
	17:09	18:05	22 09:12 (3)	20:47		21:35
24	08:29	07:36	06:33	08:04 (1)	06:24	05:34
	17:10	18:07	21 09:10 (3)	20:49		21:36
25	08:28	07:34	06:31	08:02 (1)	06:22	05:32
	17:12	18:09	19 09:09 (3)	20:50		21:37
26	08:27	07:31	06:28	08:01 (1)	06:20	05:31
	17:14	18:11	17 09:08 (3)	20:52		21:39
27	08:25	07:29	06:26	08:01 (1)	06:18	05:30
	17:16	18:12	15 09:07 (3)	20:54		21:40
28	08:24	07:27	06:24	07:59 (1)	06:16	05:29
	17:17	18:14	9 09:04 (3)	20:55		21:41
29	08:23		07:22	08:59 (1)	06:14	05:28
	17:19		20:05	41	09:40 (1)	20:57
30	08:21		07:19	08:58 (1)	06:12	05:27
	17:21		20:06	42	09:40 (1)	20:59
31	08:20		07:17	08:58 (1)		05:26
	17:23		20:08	42	09:40 (1)	21:45
Potential sun hours	260	278	367	416	485	498
Total, worst case		276		432		779
Sun reduction		0.21		0.24		0.35
Oper. time red.		1.00		1.00		1.00
Wind dir. red.		0.52		0.58		0.61
Total reduction		0.11		0.14		0.21
Total, real		29		62		167

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** E - H5**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22	05:59	06:48	08:13 (2)	07:37	07:30
	22:00	21:28	20:26	19:17	17:11	16:31
2	05:23	06:00	06:50	08:14 (2)	07:39	07:32
	21:59	21:26	20:24	19:15	17:09	16:31
3	05:24	06:02	06:51	08:13 (2)	07:40	07:34
	21:59	21:25	20:22	19:13	17:08	16:30
4	05:25	06:03	06:53	08:14 (2)	07:42	07:36
	21:59	21:23	20:20	19:10	17:06	16:29
5	05:25	06:05	06:55	08:14 (2)	07:43	07:37
	21:58	21:21	20:17	19:08	17:04	16:29
6	05:26	06:06	06:56	08:16 (2)	07:45	07:39
	21:58	21:20	20:15	19:06	17:02	16:29
7	05:27	06:08	06:58	08:17 (2)	07:47	07:41
	21:57	21:18	20:13	19:03	17:01	16:28
8	05:28	06:10	06:59	08:22 (2)	07:49	07:43
	21:56	21:16	20:10	19:01	16:59	16:28
9	05:29	06:11	07:01	08:50 (1)	07:50	07:45
	21:56	21:14	20:08	18:59	16:57	16:28
10	05:30	06:13	07:03	08:50 (1)	07:52	07:46
	21:55	21:12	20:06	18:57	16:56	16:27
11	05:31	06:14	07:04	08:50 (1)	07:54	07:48
	21:54	21:10	20:04	18:55	16:54	16:27
12	05:32	06:16	07:06	08:49 (1)	07:55	07:50
	21:53	21:08	20:01	18:52	16:53	16:27
13	05:33	06:18	07:08	08:50 (1)	07:57	07:52
	21:53	21:06	19:59	18:50	16:51	16:27
14	05:34	06:19	07:09	08:49 (1)	07:59	07:53
	21:52	21:04	19:57	18:48	16:50	16:27
15	05:35	06:21	07:11	08:49 (1)	08:00	07:55
	21:51	21:03	19:54	18:46	16:48	16:27
16	05:37	06:22	07:12	08:49 (1)	08:02	07:57
	21:50	21:01	19:52	18:44	16:47	16:27
17	05:38	06:24	07:14	08:50 (1)	08:04	07:59
	21:49	20:58	19:50	18:41	16:46	16:27
18	05:39	06:26	07:16	08:51 (1)	08:06	07:59
	21:48	20:56	19:47	18:39	16:44	16:28
19	05:40	06:27	07:17	08:51 (1)	08:07	08:02
	21:46	20:54	19:45	18:37	16:43	16:28
20	05:42	06:29	07:19	08:52 (1)	08:09	08:04
	21:45	20:52	19:43	18:35	16:42	16:28
21	05:43	06:30	07:20	08:52 (1)	08:11	08:05
	21:44	20:50	19:40	18:33	16:41	16:29
22	05:44	06:32	08:25 (2)	07:22	08:13	08:07
	21:43	20:48	19:38	18:31	16:39	16:29
23	05:46	06:34	08:21 (2)	07:24	08:14	08:09
	21:41	20:46	19:36	18:29	16:38	16:30
24	05:47	06:35	08:19 (2)	07:25	08:16	08:10
	21:40	20:44	19:33	18:27	16:37	16:30
25	05:48	06:37	08:17 (2)	07:27	07:18	08:12
	21:39	20:42	19:31	17:25	16:36	16:31
26	05:50	06:38	08:17 (2)	07:29	07:20	08:13
	21:37	20:40	19:29	17:23	16:35	16:32
27	05:51	06:40	08:15 (2)	07:30	07:21	08:15
	21:36	20:37	19:26	17:21	16:34	16:32
28	05:53	06:42	08:15 (2)	07:32	07:23	08:17
	21:34	20:35	19:24	17:19	16:34	16:33
29	05:54	06:43	08:14 (2)	07:34	07:25	08:18
	21:33	20:33	19:22	17:17	16:33	16:34
30	05:56	06:45	08:14 (2)	07:35	07:27	08:20
	21:31	20:31	19:19	17:15	16:32	16:35
31	05:57	06:47	08:14 (2)	07:29		08:45
	21:30	20:29	19:24 (1)	17:13		16:36
Potential sun hours	501	453	381	332	267	244
Total, worst case						
Sun reduction		240	984	277		
Oper. time red.		0.30	0.28	0.24		
Wind dir. red.		1.00	1.00	1.00		
Total reduction		0.62	0.59	0.52		
Total, real		0.19	0.17	0.12		
		45	165	34		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** F - H6**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	08:18		07:25		08:30 (3)	07:15	06:10		07:48 (2)	05:25
	16:37	17:25		18:16	24	08:54 (3)	20:10	21:00	58	08:52 (1)	21:46
2	08:45	08:17		07:23		08:30 (3)	07:12	06:08		07:49 (2)	05:24
	16:38	17:27		18:18	24	08:54 (3)	20:11	21:02	54	08:51 (1)	21:47
3	08:45	08:15		07:21		08:30 (3)	07:10	06:06		07:49 (2)	05:24
	16:39	17:28		18:20	24	08:54 (3)	20:13	21:04	50	08:49 (1)	21:48
4	08:44	08:13		07:18		08:30 (3)	07:08	06:05		07:51 (2)	05:23
	16:40	17:30		18:21	23	08:53 (3)	20:15	21:05	43	08:47 (1)	21:49
5	08:44	08:12		07:16		08:31 (3)	07:06	06:03		07:54 (2)	05:22
	16:42	17:32		18:23	22	08:53 (3)	20:17	21:07	35	08:46 (1)	21:50
6	08:44	08:10		07:14		08:31 (3)	07:03	06:01		08:20 (1)	05:22
	16:43	17:34		18:25	20	08:51 (3)	20:18	21:09	24	08:44 (1)	21:51
7	08:43	08:08		07:12		08:32 (3)	07:01	05:59		08:21 (1)	05:21
	16:44	17:36		18:27	17	08:49 (3)	20:20	21:10	21	08:42 (1)	21:52
8	08:43	08:07		07:10		08:34 (3)	06:59	05:57		08:24 (1)	05:21
	16:45	17:38		18:29	13	08:47 (3)	20:22	21:12	16	08:40 (1)	21:53
9	08:43	08:05		07:07		08:37 (3)	06:57	05:56		08:28 (1)	05:20
	16:47	17:39		18:30	6	08:43 (3)	20:23	21:13	7	08:35 (1)	21:54
10	08:42	08:03		07:05		06:54	20:24	05:54			05:20
	16:48	17:41		18:32		20:25	31	08:55 (1)	21:15		21:54
11	08:41	08:01		07:03		06:52		08:22 (1)	05:52		05:19
	16:50	17:43		18:34		20:27	34	08:56 (1)	21:17		21:55
12	08:41	07:59		07:01		06:50		08:21 (1)	05:51		05:19
	16:51	17:45		18:36		20:28	36	08:57 (1)	21:18		21:56
13	08:40	07:58		06:58		06:48		08:19 (1)	05:49		05:19
	16:52	17:47		18:37		20:30	39	08:58 (1)	21:20		21:57
14	08:39	07:56		06:56		06:45		08:17 (1)	05:47		05:18
	16:54	17:49		18:39		20:32	41	08:58 (1)	21:21		21:57
15	08:39	07:54		06:54		06:43		08:17 (1)	05:46		05:18
	16:56	17:51		18:41		20:33	41	08:58 (1)	21:23		21:58
16	08:38	07:52		06:51		06:41		07:58 (2)	05:44		05:18
	16:57	17:52		18:42		20:35	50	08:59 (1)	21:24		21:58
17	08:37	07:50		06:49		06:39		07:55 (2)	05:43		05:18
	16:59	17:54		18:44		20:37	57	08:59 (1)	21:26		21:59
18	08:36	07:48		06:47		06:37		07:53 (2)	05:41		05:18
	17:00	17:56		18:46		20:39	61	08:59 (1)	21:27		21:59
19	08:35	07:46		06:45		06:35		07:51 (2)	05:40		05:18
	17:02	17:58		18:48		20:40	65	08:59 (1)	21:29		21:59
20	08:34	07:44		06:42		06:33		07:50 (2)	05:39		05:18
	17:04	18:00		18:49		20:42	67	08:59 (1)	21:30		22:00
21	08:33	07:42		06:40		06:30		07:49 (2)	05:37		05:18
	17:05	18:02		18:51		20:44	70	08:59 (1)	21:32		22:00
22	08:32	07:40		06:38		06:28		07:48 (2)	05:36		05:18
	17:07	18:03	9	08:48 (3)	18:53	20:45	71	08:59 (1)	21:33		22:00
23	08:30	07:38		08:37 (3)	06:35	06:26		07:47 (2)	05:35		05:19
	17:09	18:05	14	08:51 (3)	18:54	20:47	71	08:58 (1)	21:35		22:00
24	08:29	07:36		08:34 (3)	06:33	06:24		07:47 (2)	05:34		05:19
	17:10	18:07	17	08:51 (3)	18:56	20:49	71	08:58 (1)	21:36		22:00
25	08:28	07:34		08:33 (3)	06:31	06:22		07:46 (2)	05:32		05:19
	17:12	18:09	20	08:53 (3)	18:58	20:50	71	08:57 (1)	21:37		22:01
26	08:27	07:31		08:32 (3)	06:28	06:20		07:46 (2)	05:31		05:20
	17:14	18:11	22	08:54 (3)	19:00	20:52	70	08:56 (1)	21:39		22:01
27	08:25	07:29		08:31 (3)	06:26	06:18		07:46 (2)	05:30		05:20
	17:16	18:12	23	08:54 (3)	19:01	20:54	68	08:55 (1)	21:40		22:00
28	08:24	07:27		08:31 (3)	06:24	06:16		07:46 (2)	05:29		05:21
	17:17	18:14	24	08:55 (3)	19:03	20:55	67	08:55 (1)	21:41		22:00
29	08:23			07:22		06:14		07:46 (2)	05:28		05:21
	17:19			20:05		20:57	65	08:53 (1)	21:42		22:00
30	08:21			07:19		06:12		07:47 (2)	05:27		05:22
	17:21			20:06		20:59	61	08:52 (1)	21:44		22:00
31	08:20			07:17				05:26			
	17:23			20:08				21:45			
Potential sun hours	260	278		367		416		485		498	
Total, worst case					173		1279		308		
Sun reduction			0.21		0.24		0.35		0.37		
Oper. time red.			1.00		1.00		1.00		1.00		
Wind dir. red.			0.55		0.55		0.64		0.64		
Total reduction			0.11		0.13		0.23		0.24		
Total, real			14		23		289		73		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** F - H6**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 21:28	06:48 20:26	08:21 (1) 07:37	07:30 17:11	08:21 16:31
2	05:23 21:59	06:00 21:26	06:50 20:24	08:23 (1) 07:38	07:32 17:09	08:22 16:31
3	05:24 21:59	06:02 21:25	06:51 20:22	08:24 (1) 07:40	07:34 17:08	08:24 16:30
4	05:25 21:59	06:03 21:23	06:53 20:20	08:26 (1) 07:42	07:36 17:06	08:25 16:29
5	05:25 21:58	06:05 21:21	06:55 20:17	08:33 (1) 07:43	09:12 (3) 07:37	08:26 16:29
6	05:26 21:58	06:06 21:20	06:56 20:15	08:34 (1) 07:45	09:09 (3) 07:39	08:28 16:29
7	05:27 21:57	06:08 21:18	06:58 20:13	08:40 (1) 07:47	09:24 (3) 07:02	08:29 16:28
8	05:28 21:56	06:10 21:16	06:59 20:10	07:49 19:01	09:07 (3) 07:43	08:30 16:28
9	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	09:27 (3) 16:57	08:31 16:28
10	05:30 21:55	06:13 21:12	07:03 20:06	07:52 18:57	09:27 (3) 16:56	08:33 16:27
11	05:31 21:54	06:14 21:10	07:04 20:04	07:54 18:55	09:28 (3) 16:54	08:34 16:27
12	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	09:04 (3) 16:53	08:35 16:27
13	05:33 21:53	06:18 21:06	07:08 19:59	07:57 18:50	09:04 (3) 16:51	08:36 16:27
14	05:34 21:52	06:19 21:04	07:09 19:57	07:59 18:48	09:03 (3) 16:50	08:37 16:27
15	05:35 21:51	06:21 21:03	07:11 19:54	08:00 18:46	09:04 (3) 16:48	08:37 16:27
16	05:37 21:50	06:22 21:01	07:12 19:52	08:02 18:44	09:04 (3) 16:47	08:38 16:27
17	05:38 21:49	06:24 20:58	07:14 19:50	08:04 18:41	09:05 (3) 16:46	08:39 16:27
18	05:39 21:47	06:26 20:56	07:16 19:47	08:06 18:39	09:07 (3) 16:44	08:40 16:28
19	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	09:08 (3) 16:43	08:41 16:28
20	05:42 21:45	06:29 20:52	07:19 19:43	08:09 18:35	09:11 (3) 16:42	08:41 16:28
21	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	09:17 (3) 16:41	08:42 16:29
22	05:44 21:43	06:32 20:48	07:22 19:38	08:13 18:31	08:07 16:39	08:42 16:29
23	05:46 21:41	06:34 20:46	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	05:48 21:39	06:37 20:42	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	05:50 21:37	06:38 20:40	07:29 19:29	07:20 17:23	08:13 16:35	08:44 16:32
27	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	05:53 21:34	06:42 20:35	07:32 19:24	07:23 17:19	08:17 16:34	08:45 16:33
29	05:54 21:33	06:43 20:33	07:34 19:22	07:25 17:17	08:18 16:33	08:45 16:34
30	05:56 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:20 16:32	08:45 16:35
31	05:57 21:30	06:47 20:29	07:36 19:17	07:29 17:13	08:21 16:31	08:45 16:36
Potential sun hours	501	453	381	332	267	244
Total, worst case		1461	138	302		
Sun reduction		0.30	0.28	0.24		
Oper. time red.		1.00	1.00	1.00		
Wind dir. red.		0.64	0.63	0.55		
Total reduction		0.19	0.18	0.13		
Total, real		277	25	39		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** G - H7**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:45	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:59	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:43	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:54	21:56	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:49	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:18	05:33	06:17	07:07	07:57	07:52	08:36
	16:52	17:47	18:37	20:30	21:20	21:57	21:53	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:04	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:58	19:50	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:29
22	08:32	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	07:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:39	22:01	21:37	20:39	19:29	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	07:23	08:17	08:45
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	07:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: H - H8

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:23	06:01	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:35	18:26	20:20	21:10	21:52	21:57	21:18	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:27
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:49	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:58	21:50	21:02	19:54	18:45	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:04	08:41
	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:42	18:35	16:41	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:09	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:41	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	07:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:52	06:41	07:32	07:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:21	05:55	06:45	07:35	07:27	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** I - H9**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:23	06:01	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:35	18:26	20:20	21:10	21:52	21:57	21:18	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:27
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:49	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:58	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:04	08:41
	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:42	18:35	16:41	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:52	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:21	05:55	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** J - H10

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

January		February		March		April		May		June	
1	08:45	08:18		07:25		16:49 (7)	07:15	18:51 (3)	06:10	19:05 (4)	05:25
	16:37	17:25		18:16	22	17:11 (7)	20:10	19:11 (3)	21:00	19:35 (4)	21:46
2	08:45	08:16		07:23		16:49 (7)	07:12	18:51 (3)	06:08	19:04 (4)	05:24
	16:38	17:26		18:18	23	17:12 (7)	20:11	19:11 (3)	21:02	19:37 (4)	21:47
3	08:44	08:15		07:20		16:49 (7)	07:10	18:52 (3)	06:06	19:03 (4)	05:24
	16:39	17:28		18:19	23	17:12 (7)	20:13	19:10 (3)	21:03	19:37 (4)	21:48
4	08:44	08:13		07:18		16:49 (7)	07:08	18:52 (3)	06:04	19:02 (4)	05:23
	16:40	17:30		18:21	23	17:12 (7)	20:15	19:09 (3)	21:05	19:37 (4)	21:49
5	08:44	08:12		07:16		16:49 (7)	07:05	18:53 (3)	06:03	19:02 (4)	05:22
	16:41	17:32		18:23	23	17:12 (8)	20:16	19:07 (3)	21:07	19:37 (4)	21:50
6	08:44	08:10		07:14		16:50 (7)	07:03	18:55 (3)	06:01	19:02 (4)	05:22
	16:43	17:34		18:25	25	17:15 (8)	20:18	19:05 (3)	21:08	19:38 (4)	21:51
7	08:43	08:08		07:12		16:51 (7)	07:01	18:59 (3)	05:59	19:01 (4)	05:21
	16:44	17:36		18:27	26	17:17 (8)	20:20	19:01 (3)	21:10	19:38 (4)	21:52
8	08:43	08:06		07:09		16:52 (7)	06:59		05:57	19:00 (4)	05:20
	16:45	17:37		18:28	27	17:19 (8)	20:21		21:12	19:38 (4)	21:53
9	08:42	08:05		07:07		16:52 (8)	06:56		05:56	19:01 (4)	05:20
	16:47	17:39		18:30	28	17:20 (8)	20:23		21:13	19:39 (4)	21:53
10	08:42	08:03		07:05		16:51 (8)	06:54		05:54	19:00 (4)	05:19
	16:48	17:41		18:32	30	17:21 (8)	20:25		21:15	19:39 (4)	21:54
11	08:41	08:01		07:03		16:50 (8)	06:52		05:52	19:01 (4)	05:19
	16:49	17:43		18:34	31	17:21 (8)	20:27		21:16	19:39 (4)	21:55
12	08:41	07:59		07:00		16:48 (8)	06:50		05:50	19:01 (4)	05:19
	16:51	17:45		18:35	33	17:21 (8)	20:28		21:18	19:39 (4)	21:56
13	08:40	07:57		06:58		16:48 (8)	06:48		05:49	19:01 (4)	05:19
	16:52	17:47		18:37	34	17:22 (8)	20:30		21:20	19:39 (4)	21:56
14	08:39	07:56		06:56		16:48 (8)	06:45		05:47	19:01 (4)	05:18
	16:54	17:49		18:39	34	17:22 (8)	20:32		21:21	19:38 (4)	21:57
15	08:38	07:54		06:54		16:47 (8)	06:43		05:46	19:02 (4)	05:18
	16:55	17:50		18:41	34	17:21 (8)	20:33		21:23	19:38 (4)	21:57
16	08:37	07:52		06:51		16:47 (8)	06:41		05:44	19:01 (4)	05:18
	16:57	17:52		18:42	34	17:21 (8)	20:35		21:24	19:38 (4)	21:58
17	08:37	07:50		06:49		16:47 (8)	06:39		05:43	19:02 (4)	05:18
	16:59	17:54		18:44	34	17:21 (8)	20:37		21:26	19:38 (4)	21:58
18	08:36	07:48		06:47		16:47 (8)	06:37		05:41	19:03 (4)	05:18
	17:00	17:56		18:46	33	17:20 (8)	20:38		21:27	19:38 (4)	21:59
19	08:35	07:46		06:44		16:47 (8)	06:34		05:40	19:04 (4)	05:18
	17:02	17:58		18:47	32	17:19 (8)	20:40		21:29	19:38 (4)	21:59
20	08:34	07:44		06:42		16:48 (8)	06:32		05:39	19:03 (4)	05:18
	17:03	18:00		18:49	31	17:19 (8)	20:42		21:30	19:36 (4)	22:00
21	08:33	07:42		06:40		16:49 (8)	06:30		05:37	19:04 (4)	05:18
	17:05	18:01		18:51	29	17:18 (8)	20:43		21:32	19:36 (4)	22:00
22	08:31	07:40		06:38		16:49 (8)	06:28		05:36	19:05 (4)	05:18
	17:07	18:03		18:53	27	17:16 (8)	20:45		21:33	19:36 (4)	22:00
23	08:30	07:38		06:35		16:51 (8)	06:26		05:35	19:06 (4)	05:19
	17:09	18:05		18:54	23	17:14 (8)	20:47		21:34	19:35 (4)	22:00
24	08:29	07:35	16:57 (7)	06:33		16:53 (8)	06:24		05:33	19:07 (4)	05:19
	17:10	18:07	8	17:05 (7)	18:56	17:12 (8)	20:48		21:36	19:35 (4)	22:00
25	08:28	07:33		06:31		16:55 (8)	06:22		05:32	19:08 (4)	05:19
	17:12	18:09	14	17:08 (7)	18:58	18:04 (3)	20:50		21:37	19:34 (4)	22:00
26	08:27	07:31		06:28		17:58 (3)	06:20	19:15 (4)	05:31	19:09 (4)	05:20
	17:14	18:11	17	17:10 (7)	18:59	18:09 (3)	20:52	13	19:28 (4)	19:34 (4)	22:00
27	08:25	07:29		06:26		17:56 (3)	06:18		05:30	19:10 (4)	05:20
	17:16	18:12	19	17:11 (7)	19:01	18:11 (3)	20:53	18	19:30 (4)	19:33 (4)	22:00
28	08:24	07:27		06:24		17:54 (3)	06:16		05:29	19:11 (4)	05:21
	17:17	18:14	21	17:12 (7)	19:03	18:11 (3)	20:55	23	19:32 (4)	19:32 (4)	22:00
29	08:22			07:21		18:53 (3)	06:14		05:28	19:12 (4)	05:21
	17:19			20:04	19	19:12 (3)	20:57	26	19:33 (4)	19:31 (4)	22:00
30	08:21			07:19		18:52 (3)	06:12		05:27	19:13 (4)	05:22
	17:21			20:06	20	19:12 (3)	20:59	28	19:34 (4)	19:30 (4)	22:00
31	08:19			07:17		18:51 (3)			05:26	19:14 (4)	
	17:23			20:08	20	19:11 (3)			21:45	19:29 (4)	
Potential sun hours	260	278		367		416			485	498	
Total, worst case				796		209			983		18
Sun reduction		0.21		0.24		0.35			0.37		0.30
Oper. time red.		1.00		1.00		1.00			1.00		1.00
Wind dir. red.		0.70		0.69		0.64			0.61		0.61
Total reduction		0.14		0.17		0.23			0.23		0.18
Total, real		11		134		47			222		3

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** J - H10**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:11 (4)	06:48		07:37	17:28 (8)	07:30	08:21	
	22:00		21:28	38	19:49 (4)	20:26	19:17	33	18:01 (8)	17:11	16:31
2	05:23		06:00		19:11 (4)	06:50		07:38	17:28 (8)	07:32	08:22
	21:59		21:26	39	19:50 (4)	20:24	19:15	32	18:00 (8)	17:09	16:30
3	05:24		06:02		19:11 (4)	06:51		07:40	17:28 (8)	07:34	08:24
	21:59		21:25	38	19:49 (4)	20:22	19:12	31	17:59 (8)	17:08	16:30
4	05:24		06:03		19:10 (4)	06:53		07:42	17:29 (8)	07:35	08:25
	21:58		21:23	38	19:48 (4)	20:19	19:10	29	17:58 (8)	17:06	16:29
5	05:25		06:05		19:11 (4)	06:54		07:43	17:29 (7)	07:37	08:26
	21:58		21:21	38	19:49 (4)	20:17	1	18:56 (3)	17:56 (8)	17:04	16:29
6	05:26		06:06		19:11 (4)	06:56		07:45	17:27 (7)	07:39	08:28
	21:57		21:19	37	19:48 (4)	20:15	10	18:51 (3)	17:54 (8)	17:02	16:28
7	05:27		06:08		19:11 (4)	06:58		07:47	17:26 (7)	07:41	08:29
	21:57		21:18	37	19:48 (4)	20:13	14	19:02 (3)	17:52 (8)	17:01	16:28
8	05:28		06:09		19:11 (4)	06:59		07:48	17:25 (7)	07:43	08:30
	21:56		21:16	36	19:47 (4)	20:10	17	19:04 (3)	17:50 (8)	16:59	16:28
9	05:29		06:11		19:12 (4)	07:01		07:50	17:24 (7)	07:44	08:31
	21:56		21:14	35	19:47 (4)	20:08	19	19:04 (3)	17:46 (7)	16:57	16:27
10	05:30		19:28 (4)	06:13	19:12 (4)	07:03		07:52	17:23 (7)	07:46	08:32
	21:55	3	19:31 (4)	21:12	33	19:45 (4)	20:06	20	19:04 (3)	18:57	16:56
11	05:31		19:25 (4)	06:14		19:13 (4)	07:04		18:43 (3)	07:53	16:56
	21:54	10	19:35 (4)	21:10	32	19:45 (4)	20:03	20	19:03 (3)	18:54	16:54
12	05:32		19:23 (4)	06:16		19:13 (4)	07:06		18:43 (3)	07:55	16:54
	21:53	13	19:36 (4)	21:08	30	19:43 (4)	20:01	21	19:04 (3)	18:52	16:53
13	05:33		19:22 (4)	06:17		19:15 (4)	07:07		18:43 (3)	07:57	16:53
	21:52	16	19:38 (4)	21:06	28	19:43 (4)	19:59	20	19:03 (3)	18:50	16:51
14	05:34		19:21 (4)	06:19		19:15 (4)	07:09		18:43 (3)	07:59	16:53
	21:51	18	19:39 (4)	21:04	25	19:40 (4)	19:56	19	19:02 (3)	18:48	16:50
15	05:35		19:20 (4)	06:21		19:17 (4)	07:11		18:44 (3)	08:00	16:51
	21:50	20	19:40 (4)	21:02	22	19:39 (4)	19:54	17	19:01 (3)	18:46	16:48
16	05:36		19:19 (4)	06:22		19:19 (4)	07:12		18:44 (3)	08:02	16:51
	21:49	22	19:41 (4)	21:00	17	19:36 (4)	19:52	15	18:59 (3)	18:43	16:47
17	05:38		19:19 (4)	06:24		19:22 (4)	07:14		18:46 (3)	08:04	16:47
	21:48	24	19:43 (4)	20:58	11	19:33 (4)	19:49	11	18:57 (3)	18:41	16:45
18	05:39		19:18 (4)	06:25		19:15 (4)	07:15		17:44 (8)	08:05	16:45
	21:47	26	19:44 (4)	20:56		19:47	16	18:53 (3)	18:39	6	17:35 (7)
19	05:40		19:17 (4)	06:27		19:17			17:40 (8)	08:07	16:44
	21:46	27	19:44 (4)	20:54		19:45	18	17:58 (8)	18:37		16:43
20	05:42		19:16 (4)	06:29		19:19			17:38 (8)	08:09	16:43
	21:45	29	19:45 (4)	20:52		19:42	22	18:00 (8)	18:35		16:42
21	05:43		19:15 (4)	06:30		19:20			17:35 (8)	08:11	16:42
	21:44	30	19:45 (4)	20:50		19:40	26	18:01 (8)	18:33		16:40
22	05:44		19:15 (4)	06:32		19:22			17:34 (8)	08:12	16:39
	21:43	32	19:47 (4)	20:48		19:38	28	18:02 (8)	18:31		16:39
23	05:46		19:14 (4)	06:33		19:24			17:32 (8)	08:14	16:38
	21:41	33	19:47 (4)	20:46		19:35	30	18:02 (8)	18:29		16:38
24	05:47		19:14 (4)	06:35		19:25			17:31 (8)	08:16	16:37
	21:40	33	19:47 (4)	20:44		19:33	32	18:03 (8)	18:27		16:37
25	05:48		19:14 (4)	06:37		19:27			17:31 (8)	07:18	16:36
	21:38	34	19:48 (4)	20:42		19:31	32	18:03 (8)	17:25		16:36
26	05:50		19:13 (4)	06:38		19:28			17:29 (8)	07:19	16:35
	21:37	35	19:48 (4)	20:39		19:29	34	18:03 (8)	17:23		16:35
27	05:51		19:12 (4)	06:40		19:30			17:29 (8)	07:21	16:34
	21:36	36	19:48 (4)	20:37		19:26	34	18:03 (8)	17:21		16:34
28	05:53		19:13 (4)	06:42		19:32			17:29 (8)	07:23	16:33
	21:34	36	19:49 (4)	20:35		19:24	34	18:03 (8)	17:19		16:33
29	05:54		19:12 (4)	06:43		19:33			17:28 (8)	07:25	16:33
	21:33	37	19:49 (4)	20:33		19:22	34	18:02 (8)	17:17		16:33
30	05:56		19:11 (4)	06:45		19:35			17:28 (8)	07:27	16:32
	21:31	38	19:49 (4)	20:31		19:19	34	18:02 (8)	17:15		16:32
31	05:57		19:12 (4)	06:46					17:28		16:31
	21:29	37	19:49 (4)	20:28					17:13		16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		589		534		578		417			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.61		0.61		0.68		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		96		97		112		69			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** K - H11**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	08:18		07:25		16:59 (7)	07:15	18:54 (3)	06:10	19:04 (4)	05:25
	16:37	17:25		18:16	17	17:16 (7)	20:10	19:13 (3)	21:00	19:37 (4)	21:46
2	08:45	08:16		07:23		16:58 (7)	07:12	18:54 (3)	06:08	19:05 (4)	05:24
	16:38	17:26		18:18	19	17:17 (7)	20:11	19:12 (3)	21:02	19:38 (4)	21:47
3	08:44	08:15		07:20		16:58 (7)	07:10	18:54 (3)	06:06	19:04 (4)	05:24
	16:39	17:28		18:19	20	17:18 (7)	20:13	19:12 (3)	21:03	19:38 (4)	21:48
4	08:44	08:13		07:18		16:57 (7)	07:08	18:54 (3)	06:04	19:04 (4)	05:23
	16:40	17:30		18:21	21	17:18 (7)	20:15	19:10 (3)	21:05	19:37 (4)	21:49
5	08:44	08:12		07:16		16:56 (7)	07:05	18:56 (3)	06:03	19:03 (4)	05:22
	16:41	17:32		18:23	21	17:17 (7)	20:16	19:09 (3)	21:07	19:37 (4)	21:50
6	08:44	08:10		07:14		16:56 (7)	07:03	18:58 (3)	06:01	19:04 (4)	05:22
	16:43	17:34		18:25	21	17:17 (7)	20:18	19:06 (3)	21:08	19:38 (4)	21:51
7	08:43	08:08		07:12		16:57 (7)	07:01		05:59	19:04 (4)	05:21
	16:44	17:36		18:27	20	17:17 (7)	20:20		21:10	19:37 (4)	21:52
8	08:43	08:06		07:09		16:58 (7)	06:59		05:57	19:04 (4)	05:20
	16:45	17:37		18:28	24	17:22 (8)	20:21		21:12	19:37 (4)	21:53
9	08:42	08:05		07:07		16:58 (7)	06:56		05:56	19:04 (4)	05:20
	16:47	17:39		18:30	26	17:24 (8)	20:23		21:13	19:37 (4)	21:53
10	08:42	08:03		07:05		16:59 (7)	06:54		05:54	19:04 (4)	05:19
	16:48	17:41		18:32	27	17:26 (8)	20:25		21:15	19:36 (4)	21:54
11	08:41	08:01		07:03		17:02 (7)	06:52		05:52	19:05 (4)	05:19
	16:49	17:43		18:34	25	17:27 (8)	20:27		21:16	19:36 (4)	21:55
12	08:41	07:59		07:00		17:01 (8)	06:50		05:50	19:05 (4)	05:19
	16:51	17:45		18:35	27	17:28 (8)	20:28		21:18	19:35 (4)	21:56
13	08:40	07:57		06:58		17:01 (8)	06:48		05:49	19:07 (4)	05:18
	16:52	17:47		18:37	28	17:29 (8)	20:30		21:20	19:35 (4)	21:56
14	08:39	07:55		06:56		17:00 (8)	06:45		05:47	19:07 (4)	05:18
	16:54	17:49		18:39	29	17:29 (8)	20:32		21:21	19:34 (4)	21:57
15	08:38	07:54		06:54		16:59 (8)	06:43		05:46	19:08 (4)	05:18
	16:55	17:50		18:41	30	17:29 (8)	20:33		21:23	19:34 (4)	21:57
16	08:37	07:52		06:51		16:58 (8)	06:41		05:44	19:08 (4)	05:18
	16:57	17:52		18:42	31	17:29 (8)	20:35		21:24	19:32 (4)	21:58
17	08:37	07:50		06:49		16:58 (8)	06:39		05:43	19:10 (4)	05:18
	16:59	17:54		18:44	31	17:29 (8)	20:37		21:26	19:32 (4)	21:58
18	08:36	07:48		06:47		16:58 (8)	06:37		05:41	19:11 (4)	05:18
	17:00	17:56		18:46	30	17:28 (8)	20:38		21:27	19:31 (4)	21:59
19	08:35	07:46		06:44		16:58 (8)	06:34		05:40	19:13 (4)	05:18
	17:02	17:58		18:47	30	17:28 (8)	20:40		21:29	19:30 (4)	21:59
20	08:34	07:44		06:42		16:58 (8)	06:32		05:38	19:14 (4)	05:18
	17:03	18:00		18:49	30	17:28 (8)	20:42		21:30	19:27 (4)	22:00
21	08:33	07:42		06:40		16:59 (8)	06:30		05:37	19:17 (4)	05:18
	17:05	18:01		18:51	28	17:27 (8)	20:43		21:32	19:25 (4)	22:00
22	08:31	07:40		06:38		16:59 (8)	06:28		05:36		05:18
	17:07	18:03		18:53	26	17:25 (8)	20:45		21:33		22:00
23	08:30	07:38		06:35		17:00 (8)	06:26	19:17 (4)	05:35		05:19
	17:09	18:05		18:54	24	17:24 (8)	20:47	19:28 (4)	21:34		22:00
24	08:29	07:35		06:33		17:02 (8)	06:24	19:14 (4)	05:33		05:19
	17:10	18:07		18:56	21	17:23 (8)	20:48	19:31 (4)	21:36		22:00
25	08:28	07:33		06:31		17:03 (8)	06:22	19:11 (4)	05:32		05:19
	17:12	18:09		18:58	17	17:20 (8)	20:50	19:33 (4)	21:37		22:00
26	08:26	07:31		06:28		17:06 (8)	06:20	19:10 (4)	05:31		05:20
	17:14	18:11		18:59	19	18:09 (3)	20:52	19:34 (4)	21:38		22:00
27	08:25	07:29		06:26		17:59 (3)	06:18	19:08 (4)	05:30		05:20
	17:16	18:12	11	17:14 (7)	12	18:11 (3)	20:53	19:35 (4)	21:40		22:00
28	08:24	07:27		06:24		17:57 (3)	06:16	19:07 (4)	05:29		05:21
	17:17	18:14	15	17:16 (7)	19:03	18:12 (3)	20:55	19:36 (4)	21:41		22:00
29	08:22			07:21		18:56 (3)	06:14	19:06 (4)	05:28		05:21
	17:19			20:04	17	19:13 (3)	20:57	19:36 (4)	21:42		22:00
30	08:21			07:19		18:55 (3)	06:12	19:05 (4)	05:27		05:22
	17:21			20:06	18	19:13 (3)	20:58	19:36 (4)	21:43		22:00
31	08:19			07:17		18:54 (3)			05:26		
	17:23			20:08	19	19:13 (3)			21:45		
Potential sun hours	260	278		367		416		485		498	
Total, worst case				723		283		578			
Sun reduction		0.21		0.24		0.35		0.37			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.70		0.69		0.63		0.61			
Total reduction		0.14		0.17		0.22		0.23			
Total, real		4		121		63		132			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** K - H11**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:16 (4)	06:48		07:37	17:41 (8)	07:30	08:21	
	22:00		21:28	30	19:46 (4)	20:26	19:17	27	18:08 (8)	17:11	16:31
2	05:23		06:00		19:16 (4)	06:50	07:38		17:41 (7)	07:32	08:22
	21:59		21:26	31	19:47 (4)	20:24	19:15	25	18:06 (8)	17:09	16:30
3	05:24		06:02		19:15 (4)	06:51	07:40		17:38 (7)	07:34	08:24
	21:59		21:25	32	19:47 (4)	20:22	19:12	27	18:05 (8)	17:08	16:30
4	05:24		06:03		19:14 (4)	06:53	07:42		17:36 (7)	07:35	08:25
	21:58		21:23	32	19:46 (4)	20:19	19:10	27	18:03 (8)	17:06	16:29
5	05:25		06:05		19:14 (4)	06:54	07:43		17:34 (7)	07:37	08:26
	21:58		21:21	33	19:47 (4)	20:17	19:08	25	17:59 (8)	17:04	16:29
6	05:26		06:06		19:13 (4)	06:56	18:54 (3)	07:45	17:33 (7)	07:39	08:28
	21:57		21:19	34	19:47 (4)	20:15	8	19:02 (3)	19:06	22	17:55 (8)
7	05:27		06:08		19:13 (4)	06:58	18:51 (3)	07:47	17:33 (7)	07:41	08:29
	21:57		21:18	34	19:47 (4)	20:13	13	19:04 (3)	19:03	20	17:53 (7)
8	05:28		06:09		19:13 (4)	06:59	18:50 (3)	07:48	17:32 (7)	07:43	08:30
	21:56		21:16	34	19:47 (4)	20:10	15	19:05 (3)	19:01	21	17:53 (7)
9	05:29		06:11		19:13 (4)	07:01	18:48 (3)	07:50	17:31 (7)	07:44	08:31
	21:56		21:14	34	19:47 (4)	20:08	17	19:05 (3)	18:59	21	17:52 (7)
10	05:30		06:13		19:13 (4)	07:03	18:47 (3)	07:52	17:31 (7)	07:46	08:32
	21:55		21:12	33	19:46 (4)	20:06	19	19:06 (3)	18:57	21	17:52 (7)
11	05:31		06:14		19:13 (4)	07:04	18:46 (3)	07:53	17:32 (7)	07:48	08:33
	21:54		21:10	33	19:46 (4)	20:03	19	19:05 (3)	18:54	20	17:52 (7)
12	05:32		06:16		19:13 (4)	07:06	18:46 (3)	07:55	17:33 (7)	07:50	08:34
	21:53		21:08	32	19:45 (4)	20:01	19	19:05 (3)	18:52	18	17:51 (7)
13	05:33		06:17		19:14 (4)	07:07	18:46 (3)	07:57	17:33 (7)	07:51	08:35
	21:52		21:06	31	19:45 (4)	19:59	19	19:05 (3)	18:50	16	17:49 (7)
14	05:34		06:19		19:14 (4)	07:09	18:46 (3)	07:59	17:34 (7)	07:53	08:36
	21:51		21:04	29	19:43 (4)	19:56	17	19:03 (3)	18:48	13	17:47 (7)
15	05:35		06:21		19:15 (4)	07:11	18:47 (3)	08:00	17:37 (7)	07:55	08:37
	21:50		21:02	28	19:43 (4)	19:54	15	19:02 (3)	18:46	8	17:45 (7)
16	05:36		06:22		19:15 (4)	07:12	18:47 (3)	08:02		07:57	08:38
	21:49		21:00	26	19:41 (4)	19:52	13	19:00 (3)	18:43		16:47
17	05:38		06:24		19:17 (4)	07:14	17:55 (8)	08:04		07:58	08:39
	21:48		20:58	23	19:40 (4)	19:49	19	18:58 (3)	18:41		16:45
18	05:39		06:25		19:17 (4)	07:15	17:51 (8)	08:05		08:00	08:40
	21:47		20:56	21	19:38 (4)	19:47	16	18:07 (8)	18:39		16:44
19	05:40		06:27		19:20 (4)	07:17	17:49 (8)	08:07		08:02	08:40
	21:46		20:54	16	19:36 (4)	19:45	20	18:09 (8)	18:37		16:43
20	05:42		06:29		19:22 (4)	07:19	17:47 (8)	08:09		08:04	08:41
	21:45		20:52	10	19:32 (4)	19:42	23	18:10 (8)	18:35		16:42
21	05:43		06:30			07:20	17:45 (8)	08:11		08:05	08:42
	21:44		20:50			19:40	26	18:11 (8)	18:33		16:40
22	05:44		06:32			07:22	17:44 (8)	08:12		08:07	08:42
	21:42	3	19:30 (4)			19:38	27	18:11 (8)	18:31		16:39
23	05:46		06:33			07:24	17:42 (8)	08:14		08:08	08:43
	21:41	11	19:27 (4)			19:35	29	18:11 (8)	18:29		16:38
24	05:47		06:35			07:25	17:42 (8)	08:16		08:10	08:43
	21:40	15	19:29 (4)			19:33	30	18:12 (8)	18:27		16:37
25	05:48		06:37			07:27	17:41 (8)	07:18		08:12	08:44
	21:38	18	19:41 (4)			19:31	31	18:12 (8)	17:25		16:36
26	05:50		06:38			07:28	17:40 (8)	07:19		08:13	08:44
	21:37	21	19:42 (4)			19:28	31	18:11 (8)	17:23		16:35
27	05:51		06:40			07:30	17:40 (8)	07:21		08:15	08:44
	21:36	22	19:42 (4)			19:26	31	18:11 (8)	17:21		16:34
28	05:53		06:42			07:32	17:40 (8)	07:23		08:16	08:44
	21:34	25	19:44 (4)			19:24	31	18:11 (8)	17:19		16:33
29	05:54		06:43			07:33	17:40 (8)	07:25		08:18	08:44
	21:33	26	19:44 (4)			19:22	29	18:09 (8)	17:17		16:33
30	05:56		06:45			07:35	17:40 (8)	07:27		08:19	08:45
	21:31	28	19:45 (4)			19:19	29	18:09 (8)	17:15		16:32
31	05:57		06:46					07:28			08:45
	21:29	29	19:46 (4)			20:28		17:13			16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		198		576	546		311				
Sun reduction		0.27		0.30	0.28		0.24				
Oper. time red.		1.00		1.00	1.00		1.00				
Wind dir. red.		0.61		0.61	0.68		0.69				
Total reduction		0.16		0.18	0.19		0.16				
Total, real		33		105	105		51				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** L - H12**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	08:18	07:25						07:15			18:14 (8)	06:10		19:17 (4)	05:25	
	16:37	17:25	18:16						20:10			14 18:28 (8)	21:00		21 19:38 (4)	21:46	
2	08:45	08:16	07:23						07:12				06:08		19:16 (4)	05:24	
	16:38	17:26	18:18						20:11			6 18:24 (8)	21:02		24 19:40 (4)	21:47	
3	08:44	08:15	07:20						07:10				06:06		19:15 (4)	05:24	
	16:39	17:28	18:19						20:13				21:03		25 19:40 (4)	21:48	
4	08:44	08:13	07:18					17:13 (7)	07:08				06:04		19:14 (4)	05:23	
	16:40	17:30	18:21			6	17:19 (7)	20:15					21:05		27 19:41 (4)	21:49	
5	08:44	08:12	07:16					17:09 (7)	07:05				06:03		19:13 (4)	05:22	
	16:41	17:32	18:23			12	17:21 (7)	20:16					21:07		28 19:41 (4)	21:50	
6	08:44	08:10	07:14					17:07 (7)	07:03				06:01		19:13 (4)	05:22	
	16:43	17:34	18:25			16	17:23 (7)	20:18					21:08		29 19:42 (4)	21:51	
7	08:43	08:08	07:12					17:06 (7)	07:01				05:59		19:12 (4)	05:21	
	16:44	17:36	18:27			18	17:24 (7)	20:20					21:10		30 19:42 (4)	21:52	
8	08:43	08:06	07:09					17:06 (7)	06:59				05:57		19:12 (4)	05:20	
	16:45	17:37	18:28			19	17:25 (7)	20:21					21:12		30 19:42 (4)	21:53	
9	08:42	08:05	07:07					17:04 (7)	06:56				05:56		19:12 (4)	05:20	
	16:47	17:39	18:30			20	17:24 (7)	20:23					21:13		31 19:43 (4)	21:53	
10	08:42	08:03	07:05					17:04 (7)	06:54				05:54		19:11 (4)	05:19	
	16:48	17:41	18:32			20	17:24 (7)	20:25					21:15		32 19:43 (4)	21:54	
11	08:41	08:01	07:03					17:04 (7)	06:52				05:52		19:12 (4)	05:19	
	16:49	17:43	18:34			20	17:24 (7)	20:26					21:16		31 19:43 (4)	21:55	
12	08:41	07:59	07:00					17:04 (7)	06:50				05:50		19:12 (4)	05:19	
	16:51	17:45	18:35			19	17:23 (7)	20:28					21:18		31 19:43 (4)	21:56	
13	08:40	07:57	06:58					17:04 (7)	06:47				05:49		19:12 (4)	05:18	
	16:52	17:47	18:37			19	17:23 (7)	20:30					21:20		31 19:43 (4)	21:56	
14	08:39	07:55	06:56					17:05 (7)	06:45				05:47		19:12 (4)	05:18	
	16:54	17:49	18:39			17	17:22 (7)	20:32					21:21		30 19:42 (4)	21:57	
15	08:38	07:54	06:54					17:06 (7)	06:43				05:46		19:13 (4)	05:18	
	16:55	17:50	18:41			18	17:27 (8)	20:33					21:23		29 19:42 (4)	21:57	
16	08:37	07:52	06:51					17:08 (7)	06:41				05:44		19:12 (4)	05:18	
	16:57	17:52	18:42			23	17:32 (8)	20:35					21:24		30 19:42 (4)	21:58	
17	08:37	07:50	06:49					17:16 (8)	06:39				05:43		19:13 (4)	05:18	
	16:59	17:54	18:44			18	17:34 (8)	20:37					21:26		29 19:42 (4)	21:58	
18	08:36	07:48	06:47					17:13 (8)	06:37				05:41		19:14 (4)	05:18	
	17:00	17:56	18:46			22	17:35 (8)	20:38					21:27		27 19:41 (4)	21:59	
19	08:35	07:46	06:44					17:12 (8)	06:34				05:40		19:15 (4)	05:18	
	17:02	17:58	18:47			24	17:36 (8)	20:40					21:29		26 19:41 (4)	21:59	
20	08:34	07:44	06:42					17:11 (8)	06:32				05:38		19:15 (4)	05:18	
	17:03	18:00	18:49			26	17:37 (8)	20:42					21:30		25 19:40 (4)	22:00	
21	08:33	07:42	06:40					17:09 (8)	06:30				05:37		19:16 (4)	05:18	
	17:05	18:01	18:51			28	17:37 (8)	20:43					21:32		24 19:40 (4)	22:00	
22	08:31	07:40	06:38					17:09 (8)	06:28				05:36		19:17 (4)	05:18	
	17:07	18:03	18:53			28	17:37 (8)	20:45					21:33		22 19:39 (4)	22:00	
23	08:30	07:38	06:35					17:09 (8)	06:26				05:35		19:18 (4)	05:19	
	17:09	18:05	18:54			29	17:38 (8)	20:47					21:34		20 19:38 (4)	22:00	
24	08:29	07:35	06:33					17:09 (8)	06:24				05:33		19:19 (4)	05:19	
	17:10	18:07	18:56			29	17:38 (8)	20:48					21:36		19 19:38 (4)	22:00	
25	08:28	07:33	06:31					17:08 (8)	06:22				05:32		19:20 (4)	05:19	
	17:12	18:09	18:58			29	17:37 (8)	20:50					21:37		17 19:37 (4)	22:00	
26	08:26	07:31	06:28					17:08 (8)	06:20				05:31		19:22 (4)	05:20	
	17:14	18:11	18:59			29	17:37 (8)	20:52					21:38		13 19:35 (4)	22:00	
27	08:25	07:29	06:26					17:09 (8)	06:18				05:30		19:24 (4)	05:20	
	17:16	18:12	19:01			27	17:36 (8)	20:53					21:40		10 19:34 (4)	22:00	
28	08:24	07:27	06:24					17:08 (8)	06:16				19:26 (4)		05:29	19:27 (4)	05:21
	17:17	18:14	19:03			27	17:35 (8)	20:55				4 19:30 (4)	21:41		4 19:31 (4)	22:00	
29	08:22		07:21					18:09 (8)	06:14				19:21 (4)		05:28		05:21
	17:19		20:04			25	18:34 (8)	20:57				14 19:35 (4)	21:42			22:00	
30	08:21		07:19					18:11 (8)	06:12				19:19 (4)		05:27		05:22
	17:21		20:06			21	18:32 (8)	20:58				17 19:36 (4)	21:43			22:00	
31	08:19		07:17					18:11 (8)					05:26				
	17:23		20:08			19	18:30 (8)						21:45				
Potential sun hours	260	278	367					416					485			498	
Total, worst case						608					55				695		
Sun reduction						0.24					0.35				0.37		
Oper. time red.						1.00					1.00				1.00		
Wind dir. red.						0.69					0.63				0.60		
Total reduction						0.17					0.22				0.22		
Total, real						102					12				155		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** L - H12**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:22 (4)	06:48		07:37	17:44 (7)	07:30	08:21	
	21:59		21:28	31 19:53 (4)	20:26		19:17	19 18:03 (7)	17:11	16:31	
2	05:23		06:00	19:22 (4)	06:50		07:38	17:42 (7)	07:32	08:22	
	21:59		21:26	32 19:54 (4)	20:24		19:15	20 18:02 (7)	17:09	16:30	
3	05:24		06:02	19:22 (4)	06:51		07:40	17:42 (7)	07:34	08:24	
	21:59		21:25	31 19:53 (4)	20:22		19:12	20 18:02 (7)	17:08	16:30	
4	05:24		06:03	19:21 (4)	06:53		07:42	17:42 (7)	07:35	08:25	
	21:58		21:23	31 19:52 (4)	20:19		19:10	20 18:02 (7)	17:06	16:29	
5	05:25		06:05	19:22 (4)	06:54		07:43	17:41 (7)	07:37	08:26	
	21:58		21:21	31 19:53 (4)	20:17		19:08	20 18:01 (7)	17:04	16:29	
6	05:26		06:06	19:22 (4)	06:56		07:45	17:42 (7)	07:39	08:28	
	21:57		21:19	30 19:52 (4)	20:15		19:06	18 18:00 (7)	17:02	16:28	
7	05:27		06:08	19:23 (4)	06:58		07:47	17:43 (7)	07:41	08:29	
	21:57		21:18	29 19:52 (4)	20:13		19:03	16 17:59 (7)	17:01	16:28	
8	05:28		06:09	19:23 (4)	06:59		07:48	17:44 (7)	07:43	08:30	
	21:56		21:16	27 19:50 (4)	20:10		19:01	14 17:58 (7)	16:59	16:28	
9	05:29		06:11	19:24 (4)	07:01		07:50	17:45 (7)	07:44	08:31	
	21:56		21:14	26 19:50 (4)	20:08		18:59	10 17:55 (7)	16:57	16:27	
10	05:30		06:13	19:24 (4)	07:03	18:12 (8)	07:52		07:46	08:32	
	21:55		21:12	25 19:49 (4)	20:06	4 18:16 (8)	18:57		16:56	16:27	
11	05:31		06:14	19:25 (4)	07:04	18:06 (8)	07:53		07:48	08:33	
	21:54		21:10	23 19:48 (4)	20:03	14 18:20 (8)	18:54		16:54	16:27	
12	05:32		06:16	19:26 (4)	07:06	18:04 (8)	07:55		07:50	08:34	
	21:53		21:08	20 19:46 (4)	20:01	18 18:22 (8)	18:52		16:53	16:27	
13	05:33		06:17	19:28 (4)	07:07	18:02 (8)	07:57		07:51	08:35	
	21:52		21:06	17 19:45 (4)	19:59	22 18:24 (8)	18:50		16:51	16:27	
14	05:34		06:19	19:30 (4)	07:09	18:00 (8)	07:59		07:53	08:36	
	21:51		21:04	11 19:41 (4)	19:56	24 18:24 (8)	18:48		16:50	16:27	
15	05:35		06:21		07:11	17:59 (8)	08:00		07:55	08:37	
	21:50		21:02		19:54	26 18:25 (8)	18:46		16:48	16:27	
16	05:36	19:33 (4)	06:22		07:12	17:57 (8)	08:02		07:57	08:38	
	21:49	8 19:41 (4)	21:00		19:52	27 18:24 (8)	18:43		16:47	16:27	
17	05:38	19:32 (4)	06:24		07:14	17:57 (8)	08:04		07:58	08:39	
	21:48	12 19:44 (4)	20:58		19:49	28 18:25 (8)	18:41		16:45	16:27	
18	05:39	19:31 (4)	06:25		07:15	17:55 (8)	08:05		08:00	08:40	
	21:47	15 19:46 (4)	20:56		19:47	29 18:24 (8)	18:39		16:44	16:27	
19	05:40	19:29 (4)	06:27		07:17	17:55 (8)	08:07		08:02	08:40	
	21:46	18 19:47 (4)	20:54		19:45	29 18:24 (8)	18:37		16:43	16:28	
20	05:42	19:28 (4)	06:29		07:19	17:55 (8)	08:09		08:04	08:41	
	21:45	20 19:48 (4)	20:52		19:42	29 18:24 (8)	18:35		16:42	16:28	
21	05:43	19:27 (4)	06:30		07:20	17:55 (8)	08:11		08:05	08:42	
	21:44	21 19:48 (4)	20:50		19:40	28 18:23 (8)	18:33		16:40	16:29	
22	05:44	19:27 (4)	06:32		07:22	17:55 (8)	08:12		08:07	08:42	
	21:42	23 19:50 (4)	20:48		19:38	28 18:23 (8)	18:31		16:39	16:29	
23	05:46	19:26 (4)	06:33		07:24	17:54 (8)	08:14		08:08	08:43	
	21:41	24 19:50 (4)	20:46		19:35	27 18:21 (8)	18:29		16:38	16:30	
24	05:47	19:25 (4)	06:35		07:25	17:55 (8)	08:16		08:10	08:43	
	21:40	26 19:51 (4)	20:44		19:33	25 18:20 (8)	18:27		16:37	16:30	
25	05:48	19:25 (4)	06:37		07:27	17:56 (8)	07:18		08:12	08:43	
	21:38	27 19:52 (4)	20:42		19:31	23 18:19 (8)	17:25		16:36	16:31	
26	05:50	19:24 (4)	06:38		07:28	17:57 (8)	07:19		08:13	08:44	
	21:37	28 19:52 (4)	20:39		19:28	20 18:17 (8)	17:23		16:35	16:31	
27	05:51	19:23 (4)	06:40		07:30	17:51 (7)	07:21		08:15	08:44	
	21:36	29 19:52 (4)	20:37		19:26	23 18:15 (8)	17:21		16:34	16:32	
28	05:53	19:24 (4)	06:42		07:32	17:48 (7)	07:23		08:16	08:44	
	21:34	29 19:53 (4)	20:35		19:24	22 18:11 (8)	17:19		16:33	16:33	
29	05:54	19:23 (4)	06:43		07:33	17:46 (7)	07:25		08:18	08:44	
	21:33	30 19:52 (4)	20:33		19:22	15 18:01 (7)	17:17		16:33	16:34	
30	05:56	19:22 (4)	06:45		07:35	17:44 (7)	07:27		08:19	08:45	
	21:31	31 19:53 (4)	20:31		19:19	18 18:02 (7)	17:15		16:32	16:35	
31	05:57	19:23 (4)	06:46				07:28			08:45	
	21:29	30 19:53 (4)	20:28				17:13			16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case		371		364	479		157				
Sun reduction		0.27		0.30	0.28		0.24				
Oper. time red.		1.00		1.00	1.00		1.00				
Wind dir. red.		0.60		0.60	0.68		0.69				
Total reduction		0.16		0.18	0.19		0.16				
Total, real		60		65	93		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)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** M - H13**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	16:37	08:18	17:25	18:16	07:25	18:21	19:16	07:15	18:15 (8)	06:10	05:25	19:29 (4)				
2	08:45	16:38	08:16	17:26	18:18	07:23	18:21	19:18	07:12	18:16 (8)	06:08	05:24	19:30 (4)				
3	08:44	16:39	08:15	17:28	18:19	07:20	18:21	19:20	07:10	18:17 (8)	06:06	05:24	19:31 (4)				
4	08:44	16:40	08:13	17:30	18:21	07:18	18:21	19:21	07:08	18:18 (8)	06:04	05:23	19:35 (4)				
5	08:44	16:41	08:12	17:32	18:23	07:16	18:23	19:23	07:05	18:20 (8)	06:03	05:22	19:38 (4)				
6	08:44	16:43	08:10	17:34	18:25	07:14	18:25	19:25	07:03	18:24 (8)	06:01	05:22					
7	08:43	16:44	08:08	17:36	18:27	07:12	18:27	19:27	07:01	18:29 (8)	06:01	05:21					
8	08:43	16:45	08:06	17:37	18:28	07:09	18:28	19:28	06:59		05:57	05:20					
9	08:42	16:47	08:05	17:39	18:30	07:07	18:30	19:30	06:56		05:54	05:19					
10	08:42	16:48	08:03	17:41	18:32	07:05	18:32	19:32	06:54		05:52	05:19					
11	08:41	16:49	08:01	17:43	18:34	07:03	18:34	19:34	06:52		05:50	05:18					
12	08:41	16:51	07:59	17:45	18:35	07:00	18:35	19:35	06:50		05:48	05:17					
13	08:40	16:52	07:57	17:47	18:37	06:58	18:37	19:37	06:47		05:46	05:16					
14	08:39	16:54	07:55	17:49	18:39	06:56	18:39	19:39	06:45		05:44	05:15					
15	08:38	16:55	07:54	17:50	18:41	06:54	18:41	19:41	06:43		05:42	05:14					
16	08:37	16:57	07:52	17:52	18:42	06:51	18:42	19:42	06:41		05:40	05:13					
17	08:37	16:59	07:50	17:54	18:44	06:49	18:44	19:44	06:39		05:38	05:12					
18	08:36	17:00	07:48	17:56	18:46	06:47	18:46	19:46	06:37		05:36	05:11					
19	08:35	17:02	07:46	17:58	18:47	06:44	18:47	19:47	06:34		05:34	05:10					
20	08:34	17:03	07:44	18:00	18:49	06:42	18:49	19:49	06:32		05:32	05:09					
21	08:33	17:05	07:42	18:01	18:51	06:40	18:51	19:51	06:30		05:30	05:08					
22	08:31	17:07	07:40	18:03	18:53	06:38	18:53	19:53	06:28		05:28	05:07					
23	08:30	17:09	07:38	18:05	18:54	06:35	18:54	19:54	06:26		05:26	05:06					
24	08:29	17:10	07:35	18:07	18:56	06:33	18:56	19:56	06:24		05:24	05:05					
25	08:28	17:12	07:33	18:09	18:58	06:31	18:58	19:58	06:22		05:22	05:04					
26	08:26	17:14	07:31	18:11	18:59	06:28	18:59	19:59	06:20		05:20	05:03					
27	08:25	17:16	07:29	18:12	19:01	06:26	19:01	20:01	06:18		05:18	05:02					
28	08:24	17:17	07:27	18:14	19:03	06:24	19:03	20:03	06:16		05:16	05:01					
29	08:22	17:19			20:04	06:21	20:04	21:04	06:14		05:14	05:00					
30	08:21	17:21			20:06	06:19	20:06	21:06	06:12		05:12	04:59					
31	08:19	17:23			20:08	06:17	20:08	21:08	06:10		05:10	04:57					
Potential sun hours	260	278	367						416		485	498					
Total, worst case						503			108		738	37					
Sun reduction						0.24			0.35		0.37	0.30					
Oper. time red.						1.00			1.00		1.00	1.00					
Wind dir. red.						0.68			0.68		0.60	0.60					
Total reduction						0.17			0.24		0.22	0.18					
Total, real						84			26		163	7					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** M - H13**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:29 (4)	06:48		07:37	17:48 (7)	07:30	08:21	
	21:59		21:28	29	19:58 (4)	20:26	19:17	21	18:09 (7)	17:11	16:31
2	05:23		06:00		19:30 (4)	06:50			17:48 (7)	07:32	08:22
	21:59		21:26	29	19:59 (4)	20:24	19:15	19	18:07 (7)	17:09	16:30
3	05:24		06:02		19:30 (4)	06:51			17:48 (7)	07:34	08:24
	21:59		21:25	28	19:58 (4)	20:22	19:12	19	18:07 (7)	17:08	16:30
4	05:24		06:03		19:30 (4)	06:53			17:49 (7)	07:35	08:25
	21:58		21:23	27	19:57 (4)	20:19	19:10	17	18:06 (7)	17:06	16:29
5	05:25		06:05		19:31 (4)	06:54			17:50 (7)	07:37	08:26
	21:58		21:21	25	19:56 (4)	20:17	19:08	13	18:03 (7)	17:04	16:29
6	05:26		06:06		19:31 (4)	06:56	18:21 (8)		17:52 (7)	07:39	08:28
	21:57		21:19	24	19:55 (4)	20:15	4	18:25 (8)	19:06	17:02	16:28
7	05:27		06:08		19:32 (4)	06:58			18:15 (8)	07:47	08:29
	21:57		21:18	22	19:54 (4)	20:13	14	18:29 (8)	19:03	17:01	16:28
8	05:28		06:09		19:33 (4)	06:59			18:13 (8)	07:48	08:30
	21:56		21:16	19	19:52 (4)	20:10	18	18:31 (8)	19:01	16:59	16:28
9	05:29		19:40 (4)	06:11	19:35 (4)	07:01			18:11 (8)	07:50	08:31
	21:56	6	19:46 (4)	21:14	16	19:51 (4)	20:08	20	18:31 (8)	18:59	16:57
10	05:30		19:38 (4)	06:13		19:37 (4)	07:03		18:09 (8)	07:52	08:32
	21:55	10	19:48 (4)	21:12	11	19:48 (4)	20:06	24	18:33 (8)	18:57	16:56
11	05:31		19:37 (4)	06:14		07:04	20:03	26	18:07 (8)	07:53	08:33
	21:54	13	19:50 (4)	21:10		20:03	26	18:33 (8)	18:54	16:54	16:27
12	05:32		19:36 (4)	06:16		07:06	20:01	26	18:07 (8)	07:55	08:34
	21:53	15	19:51 (4)	21:08		07:07	20:01	26	18:33 (8)	18:52	16:53
13	05:33		19:35 (4)	06:17		07:09	20:01	26	18:06 (8)	07:57	08:35
	21:52	17	19:52 (4)	21:06		07:11	20:01	28	18:34 (8)	18:50	16:51
14	05:34		19:34 (4)	06:19		07:09	20:01	28	18:05 (8)	07:59	08:36
	21:51	19	19:53 (4)	21:04		07:11	20:01	28	18:33 (8)	18:48	16:50
15	05:35		19:33 (4)	06:21		07:11	20:01	28	18:05 (8)	08:00	08:37
	21:50	21	19:54 (4)	21:02		07:11	20:01	28	18:33 (8)	18:46	16:48
16	05:36		19:33 (4)	06:22		07:12	20:01	28	18:04 (8)	08:02	08:38
	21:49	21	19:54 (4)	21:00		07:14	20:01	28	18:32 (8)	18:43	16:47
17	05:38		19:33 (4)	06:24		07:14	20:01	28	18:04 (8)	08:04	08:39
	21:48	23	19:56 (4)	20:58		07:15	20:01	28	18:32 (8)	18:41	16:45
18	05:39		19:32 (4)	06:25		07:15	20:01	28	18:03 (8)	08:05	08:40
	21:47	24	19:56 (4)	20:56		07:17	20:01	28	18:31 (8)	18:39	16:44
19	05:40		19:31 (4)	06:27		07:17	20:01	26	18:04 (8)	08:07	08:40
	21:46	26	19:57 (4)	20:54		07:19	20:01	26	18:30 (8)	18:37	16:43
20	05:42		19:31 (4)	06:29		07:19	20:01	24	18:05 (8)	08:09	08:41
	21:45	26	19:57 (4)	20:52		07:20	20:01	24	18:29 (8)	18:35	16:42
21	05:43		19:30 (4)	06:30		07:20	20:01	22	18:05 (8)	08:11	08:42
	21:44	27	19:57 (4)	20:50		07:22	20:01	22	18:27 (8)	18:33	16:40
22	05:44		19:30 (4)	06:32		07:22	20:01	20	18:06 (8)	08:12	08:42
	21:42	28	19:58 (4)	20:48		07:24	20:01	16	18:26 (8)	18:31	16:39
23	05:46		19:30 (4)	06:33		07:24	20:01	13	18:07 (8)	08:14	08:43
	21:41	28	19:58 (4)	20:46		07:25	20:01	13	18:23 (8)	18:29	16:38
24	05:47		19:29 (4)	06:35		07:25	20:01	13	17:58 (7)	08:16	08:43
	21:40	29	19:58 (4)	20:44		07:27	20:01	12	18:19 (8)	18:27	16:37
25	05:48		19:30 (4)	06:37		07:27	20:01	12	17:55 (7)	07:18	08:12
	21:38	29	19:59 (4)	20:42		07:28	20:01	12	18:07 (7)	17:25	16:36
26	05:50		19:29 (4)	06:38		07:28	20:01	15	17:52 (7)	07:19	08:13
	21:37	30	19:59 (4)	20:39		07:30	20:01	15	18:07 (7)	17:23	16:35
27	05:51		19:29 (4)	06:40		07:30	20:01	17	17:51 (7)	07:21	08:15
	21:36	30	19:59 (4)	20:37		07:32	20:01	17	18:08 (7)	17:21	16:34
28	05:53		19:29 (4)	06:42		07:32	20:01	19	17:50 (7)	07:23	08:16
	21:34	31	20:00 (4)	20:35		07:33	20:01	19	18:09 (7)	17:19	16:33
29	05:54		19:29 (4)	06:43		07:33	20:01	19	17:49 (7)	07:25	08:18
	21:33	30	19:59 (4)	20:33		07:35	20:01	19	18:08 (7)	17:17	16:33
30	05:56		19:28 (4)	06:45		07:35	20:01	21	17:48 (7)	07:27	08:19
	21:31	31	19:59 (4)	20:31		07:35	20:01	21	18:09 (7)	17:15	16:32
31	05:57		19:29 (4)	06:46		07:35	20:01		07:28		08:45
	21:29	30	19:59 (4)	20:28		07:35	20:01		17:13		16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		544		230		524		98			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.60		0.60		0.68		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		87		41		101		16			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** N - H14**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	08:18	07:25			17:09 (7)	07:15					06:10		19:05 (4)	05:25		
	16:37	17:25	18:16	8		17:17 (7)	20:10					21:00	31	19:36 (4)	21:46		
2	08:45	08:16	07:23			17:06 (7)	07:12					06:08		19:06 (4)	05:24		
	16:38	17:26	18:18	14		17:20 (7)	20:11					21:02	31	19:37 (4)	21:47		
3	08:44	08:15	07:20			17:05 (7)	07:10					06:06		19:06 (4)	05:24		
	16:39	17:28	18:19	16		17:21 (7)	20:13					21:03	30	19:36 (4)	21:48		
4	08:44	08:13	07:18			17:04 (7)	07:08					06:04		19:06 (4)	05:23		
	16:40	17:30	18:21	18		17:22 (7)	20:15					21:05	30	19:36 (4)	21:49		
5	08:44	08:12	07:16			17:03 (7)	07:05					06:03		19:06 (4)	05:22		
	16:41	17:32	18:23	19		17:22 (7)	20:16					21:07	29	19:35 (4)	21:50		
6	08:44	08:10	07:14			17:02 (7)	07:03					06:01		19:07 (4)	05:22		
	16:43	17:34	18:25	20		17:22 (7)	20:18					21:08	28	19:35 (4)	21:51		
7	08:43	08:08	07:12			17:02 (7)	07:01					05:59		19:07 (4)	05:21		
	16:44	17:36	18:27	20		17:22 (7)	20:20					21:10	28	19:35 (4)	21:52		
8	08:43	08:06	07:09			17:03 (7)	06:59					05:57		19:07 (4)	05:20		
	16:45	17:37	18:28	19		17:22 (7)	20:21					21:12	27	19:34 (4)	21:53		
9	08:42	08:05	07:07			17:02 (7)	06:56					05:56		19:08 (4)	05:20		
	16:47	17:39	18:30	19		17:21 (7)	20:23					21:13	25	19:33 (4)	21:53		
10	08:42	08:03	07:05			17:03 (7)	06:54					05:54		19:09 (4)	05:19		
	16:48	17:41	18:32	23		17:26 (8)	20:25					21:15	23	19:32 (4)	21:54		
11	08:41	08:01	07:03			17:04 (7)	06:52					05:52		19:10 (4)	05:19		
	16:49	17:43	18:34	25		17:29 (8)	20:26					21:16	22	19:32 (4)	21:55		
12	08:41	07:59	07:00			17:05 (7)	06:50					05:50		19:11 (4)	05:19		
	16:51	17:45	18:35	26		17:31 (8)	20:28					21:18	19	19:30 (4)	21:56		
13	08:40	07:57	06:58			17:09 (7)	06:47					05:49		19:13 (4)	05:18		
	16:52	17:47	18:37	23		17:32 (8)	20:30					21:20	16	19:29 (4)	21:56		
14	08:39	07:55	06:56			17:09 (8)	06:45					05:47		19:14 (4)	05:18		
	16:54	17:49	18:39	25		17:34 (8)	20:32					21:21	13	19:27 (4)	21:57		
15	08:38	07:54	06:54			17:08 (8)	06:43					05:46		19:17 (4)	05:18		
	16:55	17:50	18:41	25		17:33 (8)	20:33					21:23	8	19:25 (4)	21:57		
16	08:37	07:52	06:51			17:07 (8)	06:41					05:44			05:18		
	16:57	17:52	18:42	27		17:34 (8)	20:35					21:24			21:58		
17	08:37	07:50	06:49			17:07 (8)	06:39					05:43			05:18		
	16:59	17:54	18:44	28		17:35 (8)	20:37					21:26			21:58		
18	08:36	07:48	06:47			17:06 (8)	06:37					05:41			05:18		
	17:00	17:56	18:46	28		17:34 (8)	20:38					21:27			21:59		
19	08:35	07:46	06:44			17:06 (8)	06:34					05:40			05:18		
	17:02	17:58	18:47	28		17:34 (8)	20:40					21:29			21:59		
20	08:34	07:44	06:42			17:06 (8)	06:32					05:38			05:18		
	17:03	18:00	18:49	28		17:34 (8)	20:42					21:30			22:00		
21	08:33	07:42	06:40			17:05 (8)	06:30				19:18 (4)	05:37			05:18		
	17:05	18:01	18:51	27		17:32 (8)	20:43	10			19:28 (4)	21:32			22:00		
22	08:31	07:40	06:38			17:06 (8)	06:28				19:15 (4)	05:36			05:18		
	17:07	18:03	18:53	26		17:32 (8)	20:45	15			19:30 (4)	21:33			22:00		
23	08:30	07:38	06:35			17:07 (8)	06:26				19:13 (4)	05:35			05:19		
	17:09	18:05	18:54	24		17:31 (8)	20:47	19			19:32 (4)	21:34			22:00		
24	08:29	07:35	06:33			17:08 (8)	06:24				19:11 (4)	05:33			05:19		
	17:10	18:07	18:56	22		17:30 (8)	20:48	22			19:33 (4)	21:36			22:00		
25	08:28	07:33	06:31			17:08 (8)	06:22				19:10 (4)	05:32			05:19		
	17:12	18:09	18:58	20		17:28 (8)	20:50	24			19:34 (4)	21:37			22:00		
26	08:26	07:31	06:28			17:10 (8)	06:20				19:09 (4)	05:31			05:20		
	17:14	18:11	18:59	16		17:26 (8)	20:52	26			19:35 (4)	21:38			22:00		
27	08:25	07:29	06:26			17:14 (8)	06:18				19:08 (4)	05:30			05:20		
	17:16	18:12	19:01	9		17:23 (8)	20:53	28			19:36 (4)	21:40			22:00		
28	08:24	07:27	06:24				06:16				19:07 (4)	05:29			05:21		
	17:17	18:14	19:03				20:55	29			19:36 (4)	21:41			22:00		
29	08:22		07:21				06:14				19:06 (4)	05:28			05:21		
	17:19		20:04				20:57	30			19:36 (4)	21:42			22:00		
30	08:21		07:19				06:12				19:06 (4)	05:27			05:22		
	17:21		20:06				20:58	30			19:36 (4)	21:43			22:00		
31	08:19		07:17									05:26					
	17:23		20:08									21:45					
Potential sun hours	260	278	367			416					485				498		
Total, worst case				583		233					360						
Sun reduction				0.24		0.35					0.37						
Oper. time red.				1.00		1.00					1.00						
Wind dir. red.				0.69		0.62					0.62						
Total reduction				0.17		0.22					0.23						
Total, real				98		51					82						

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** N - H14**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22	05:59	19:21 (4)	06:48		07:37	17:46 (7)	07:30	08:21		
	21:59	21:28	20	19:41 (4)	20:26	19:17	25	18:11 (8)	17:11	16:31	
2	05:23	06:00	19:20 (4)	06:50		07:38	17:43 (7)	07:32	08:22		
	21:59	21:26	23	19:43 (4)	20:24	19:15	25	18:08 (8)	17:09	16:30	
3	05:24	06:02	19:19 (4)	06:51		07:40	17:41 (7)	07:34	08:24		
	21:59	21:25	24	19:43 (4)	20:22	19:12	25	18:06 (8)	17:08	16:30	
4	05:24	06:03	19:17 (4)	06:53		07:42	17:40 (7)	07:35	08:25		
	21:58	21:23	26	19:43 (4)	20:19	19:10	18	17:58 (7)	17:06	16:29	
5	05:25	06:05	19:17 (4)	06:54		07:43	17:39 (7)	07:37	08:26		
	21:58	21:21	27	19:44 (4)	20:17	19:08	19	17:58 (7)	17:04	16:29	
6	05:26	06:06	19:16 (4)	06:56		07:45	17:38 (7)	07:39	08:28		
	21:57	21:19	28	19:44 (4)	20:15	19:06	20	17:58 (7)	17:02	16:28	
7	05:27	06:08	19:16 (4)	06:58		07:47	17:38 (7)	07:41	08:29		
	21:57	21:18	29	19:45 (4)	20:13	19:03	20	17:58 (7)	17:01	16:28	
8	05:28	06:09	19:15 (4)	06:59		07:48	17:38 (7)	07:43	08:30		
	21:56	21:16	30	19:45 (4)	20:10	19:01	20	17:58 (7)	16:59	16:28	
9	05:29	06:11	19:15 (4)	07:01		07:50	17:38 (7)	07:44	08:31		
	21:56	21:14	30	19:45 (4)	20:08	18:59	18	17:56 (7)	16:57	16:27	
10	05:30	06:13	19:14 (4)	07:03		07:52	17:39 (7)	07:46	08:32		
	21:55	21:12	31	19:45 (4)	20:06	18:57	17	17:56 (7)	16:56	16:27	
11	05:31	06:14	19:15 (4)	07:04		07:53	17:40 (7)	07:48	08:33		
	21:54	21:10	30	19:45 (4)	20:03	18:54	15	17:55 (7)	16:54	16:27	
12	05:32	06:16	19:14 (4)	07:06		07:55	17:41 (7)	07:50	08:34		
	21:53	21:08	30	19:44 (4)	20:01	18:52	12	17:53 (7)	16:53	16:27	
13	05:33	06:17	19:14 (4)	07:07		07:57	17:43 (7)	07:51	08:35		
	21:52	21:06	30	19:44 (4)	19:59	18:50	6	17:49 (7)	16:51	16:27	
14	05:34	06:19	19:14 (4)	07:09		07:59		07:53	08:36		
	21:51	21:04	29	19:43 (4)	19:56	18:48		16:50	16:27		
15	05:35	06:21	19:15 (4)	07:11		08:00		07:55	08:37		
	21:50	21:02	28	19:43 (4)	19:54	18:46		16:48	16:27		
16	05:36	06:22	19:15 (4)	07:12	18:03 (8)	08:02		07:57	08:38		
	21:49	21:00	27	19:42 (4)	19:52	8	18:11 (8)	18:43	16:47	16:27	
17	05:38	06:24	19:16 (4)	07:14	17:59 (8)	08:04		07:58	08:39		
	21:48	20:58	26	19:42 (4)	19:49	15	18:14 (8)	18:41	16:45	16:27	
18	05:39	06:25	19:16 (4)	07:15	17:56 (8)	08:05		08:00	08:40		
	21:47	20:56	24	19:40 (4)	19:47	19	18:15 (8)	18:39	16:44	16:27	
19	05:40	06:27	19:17 (4)	07:17	17:55 (8)	08:07		08:02	08:40		
	21:46	20:54	22	19:39 (4)	19:45	21	18:16 (8)	18:37	16:43	16:28	
20	05:41	06:29	19:18 (4)	07:19	17:54 (8)	08:09		08:04	08:41		
	21:45	20:52	19	19:37 (4)	19:42	23	18:17 (8)	18:35	16:42	16:28	
21	05:43	06:30	19:20 (4)	07:20	17:52 (8)	08:11		08:05	08:42		
	21:44	20:50	15	19:35 (4)	19:40	25	18:17 (8)	18:33	16:40	16:29	
22	05:44	06:32	19:24 (4)	07:22	17:51 (8)	08:12		08:07	08:42		
	21:42	20:48	8	19:32 (4)	19:38	27	18:18 (8)	18:31	16:39	16:29	
23	05:46	06:33		07:24	17:50 (8)	08:14		08:08	08:43		
	21:41	20:46		19:35	18:17 (8)	18:29		16:38	16:30		
24	05:47	06:35		07:25	17:49 (8)	08:16		08:10	08:43		
	21:40	20:44		19:33	18:17 (8)	18:27		16:37	16:30		
25	05:48	06:37		07:27	17:49 (8)	07:18		08:12	08:43		
	21:38	20:42		19:31	18:17 (8)	17:25		16:36	16:31		
26	05:50	06:38		07:28	17:48 (8)	07:19		08:13	08:44		
	21:37	20:39		19:28	18:16 (8)	17:23		16:35	16:31		
27	05:51	06:40		07:30	17:49 (8)	07:21		08:15	08:44		
	21:36	20:37		19:26	18:16 (8)	17:21		16:34	16:32		
28	05:53	06:42		07:32	17:49 (8)	07:23		08:16	08:44		
	21:34	20:35		19:24	18:15 (8)	17:19		16:33	16:33		
29	05:54	19:26 (4)	06:43	07:33	17:49 (8)	07:25		08:18	08:44		
	21:33	19:37 (4)	20:33	19:22	18:14 (8)	17:17		16:33	16:34		
30	05:56	19:24 (4)	06:45	07:35	17:50 (8)	07:27		08:19	08:45		
	21:31	19:38 (4)	20:31	19:19	18:13 (8)	17:15		16:32	16:35		
31	05:57	19:22 (4)	06:46			07:28			08:45		
	21:29	19:40 (4)	20:28			17:13			16:36		
Potential sun hours	501	453		381		332		267	244		
Total, worst case			556		350		240				
Sun reduction	0.27		0.30		0.28		0.24				
Oper. time red.	1.00		1.00		1.00		1.00				
Wind dir. red.	0.62		0.62		0.69		0.69				
Total reduction	0.17		0.18		0.19		0.16				
Total, real	7		102		68		39				

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)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

6460 Gortloughra WF 8 no. turbine wind farm Gortloughra Co.Cork

8 no. turbine wind farm Gortloughra Co.Cork

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com
Calculated:
31/03/2026 14:31/4.2.285

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** O - H15

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** P - H16**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45	08:18	07:25	07:15	06:10	05:25
	16:37	17:25	18:16	20:10	21:00	20:19 (5)
2	08:44	08:16	07:23	07:12	06:08	05:24
	16:38	17:26	18:18	20:11	21:02	20:16 (5)
3	08:44	08:15	07:20	07:10	06:06	05:24
	16:39	17:28	18:19	20:13	21:03	20:15 (5)
4	08:44	08:13	07:18	07:08	06:04	05:23
	16:40	17:30	18:21	20:15	21:05	20:14 (5)
5	08:44	08:12	07:16	07:05	06:03	05:22
	16:41	17:32	18:23	20:16	21:07	20:13 (5)
6	08:44	08:10	07:14	07:03	06:01	05:21
	16:43	17:34	18:25	20:18	21:08	20:29 (5)
7	08:43	08:08	07:12	07:01	05:59	05:21
	16:44	17:36	18:27	20:20	21:10	20:12 (5)
8	08:43	08:06	07:09	06:59	05:57	05:20
	16:45	17:37	18:28	20:21	21:12	20:31 (5)
9	08:42	08:05	07:07	06:56	05:55	05:20
	16:47	17:39	18:30	20:23	21:13	20:12 (5)
10	08:42	08:03	07:05	06:54	05:54	05:19
	16:48	17:41	18:32	20:25	21:15	20:32 (5)
11	08:41	08:01	07:03	06:52	19:21 (4)	05:19
	16:49	17:43	18:34	20:26	19:25 (4)	20:12 (5)
12	08:41	07:59	07:00	06:50	19:17 (4)	21:55
	16:51	17:45	18:35	20:28	19:19 (4)	22:34 (5)
13	08:40	07:57	06:58	17:34 (8)	19:14 (4)	20:11 (5)
	16:52	17:47	18:37	17:43 (8)	19:14 (4)	20:33 (5)
14	08:39	07:55	06:56	17:32 (8)	19:13 (4)	20:34 (5)
	16:54	17:49	18:39	17:46 (8)	19:13 (4)	20:11 (5)
15	08:38	07:54	06:54	17:30 (8)	19:12 (4)	20:35 (5)
	16:55	17:50	18:41	17:46 (8)	19:12 (4)	20:12 (5)
16	08:37	07:52	06:51	17:29 (8)	19:11 (4)	20:35 (5)
	16:57	17:52	18:42	17:47 (8)	19:11 (4)	20:12 (5)
17	08:37	07:50	06:49	17:28 (8)	19:10 (4)	20:36 (5)
	16:58	17:54	18:44	17:48 (8)	19:10 (4)	20:12 (5)
18	08:36	07:48	06:47	17:27 (8)	19:09 (4)	20:36 (5)
	17:00	17:56	18:46	17:47 (8)	19:09 (4)	20:12 (5)
19	08:35	07:46	06:44	17:27 (8)	19:08 (4)	20:36 (5)
	17:02	17:58	18:47	17:47 (8)	19:08 (4)	20:12 (5)
20	08:34	07:44	06:42	17:27 (8)	19:07 (4)	20:36 (5)
	17:03	18:00	18:49	17:47 (8)	19:07 (4)	20:12 (5)
21	08:33	07:42	06:40	17:26 (8)	19:06 (4)	20:36 (5)
	17:05	18:01	18:51	17:46 (8)	19:06 (4)	20:12 (5)
22	08:31	07:40	06:38	17:27 (8)	19:05 (4)	20:36 (5)
	17:07	18:03	18:53	17:45 (8)	19:05 (4)	20:12 (5)
23	08:30	07:38	06:35	17:28 (8)	19:04 (4)	20:37 (5)
	17:08	18:05	18:54	17:44 (8)	19:04 (4)	20:13 (5)
24	08:29	07:35	06:33	17:30 (8)	19:03 (4)	20:37 (5)
	17:10	18:07	18:56	17:43 (8)	19:03 (4)	20:13 (5)
25	08:28	07:33	06:31	17:32 (8)	19:02 (4)	20:37 (5)
	17:12	18:09	18:58	17:39 (8)	19:02 (4)	20:14 (5)
26	08:26	07:31	06:28	06:20	19:01 (4)	20:38 (5)
	17:14	18:10	18:59	20:52	19:01 (4)	20:14 (5)
27	08:25	07:29	06:26	06:18	05:30	20:38 (5)
	17:16	18:12	19:01	20:53	21:40	20:15 (5)
28	08:24	07:27	06:24	06:16	05:29	20:38 (5)
	17:17	18:14	19:03	20:55	21:41	20:14 (5)
29	08:22		07:21	06:14	05:28	20:38 (5)
	17:19		20:04	20:57	21:42	20:15 (5)
30	08:21		07:19	06:12	05:27	20:38 (5)
	17:21		20:06	20:58	05:22	20:15 (5)
31	08:19		07:17		21:43	20:38 (5)
	17:23		20:08		05:26	
Potential sun hours	260	278	367	416	485	498
Total, worst case			211	264		627
Sun reduction			0.24	0.35		0.30
Oper. time red.			1.00	1.00		1.00
Wind dir. red.			0.68	0.63		0.56
Total reduction			0.17	0.22		0.17
Total, real			35	59		105

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** P - H16**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22	20:16 (5)	05:59	06:48	19:20 (4)	07:37	18:17 (8)	07:30	08:21		
	21:59	22	20:38 (5)	21:28	4	19:24 (4)	19:17	3	18:20 (8)	17:11	16:31
2	05:23	20:16 (5)	06:00	06:50		07:38			07:32	08:22	
	21:59	21	20:37 (5)	21:26		19:15			17:09	16:30	
3	05:24	20:17 (5)	06:02	06:51		07:40			07:34	08:24	
	21:59	20	20:37 (5)	21:24		19:12			17:07	16:30	
4	05:24	20:17 (5)	06:03	06:53		07:42			07:35	08:25	
	21:58	20	20:37 (5)	21:23		19:10			17:06	16:29	
5	05:25	20:18 (5)	06:05	06:54		07:43			07:37	08:26	
	21:58	19	20:37 (5)	21:21		19:08			17:04	16:29	
6	05:26	20:18 (5)	06:06	06:56		07:45			07:39	08:28	
	21:57	18	20:36 (5)	21:19		19:06			17:02	16:28	
7	05:27	20:19 (5)	06:08	06:58		07:47			07:41	08:29	
	21:57	17	20:36 (5)	21:17		19:03			17:01	16:28	
8	05:28	20:20 (5)	06:09	06:59		07:48			07:43	08:30	
	21:56	15	20:35 (5)	21:16		19:01			16:59	16:28	
9	05:29	20:21 (5)	06:11	07:01		07:50			07:44	08:31	
	21:55	14	20:35 (5)	21:14		18:59			16:57	16:27	
10	05:30	20:23 (5)	06:13	07:02		07:52			07:46	08:32	
	21:55	11	20:34 (5)	21:12		18:57			16:56	16:27	
11	05:31	20:25 (5)	06:14	07:04		07:53			07:48	08:33	
	21:54	7	20:32 (5)	21:10		18:54			16:54	16:27	
12	05:32		06:16	07:06		07:55			07:50	08:34	
	21:53		21:08	20:01		18:52			16:53	16:27	
13	05:33		06:17	07:07		07:57			07:51	08:35	
	21:52		21:06	19:59		18:50			16:51	16:27	
14	05:34		06:19	07:09		07:58			07:53	08:36	
	21:51		21:04	19:56		18:48			16:50	16:27	
15	05:35		06:21	07:11		08:00			07:55	08:37	
	21:50		21:02	19:54		18:46			16:48	16:27	
16	05:36		06:22	07:12		08:02			07:57	08:38	
	21:49		21:00	19:52		18:43			16:47	16:27	
17	05:38		06:24	19:23 (4)	07:14	08:04			07:58	08:39	
	21:48	7	19:30 (4)	19:49		18:41			16:45	16:27	
18	05:39		06:25	19:20 (4)	07:15	18:20 (8)	08:05		08:00	08:40	
	21:47		20:56	12	19:32 (4)	19:47	5	18:25 (8)	18:39	16:44	16:27
19	05:40		06:27	19:18 (4)	07:17	18:17 (8)	08:07		08:02	08:40	
	21:46		20:54	16	19:34 (4)	19:45	12	18:29 (8)	18:37	16:43	16:28
20	05:41		06:29	19:16 (4)	07:19	18:15 (8)	08:09		08:03	08:41	
	21:45		20:52	18	19:34 (4)	19:42	15	18:30 (8)	18:35	16:42	16:28
21	05:43		06:30	19:16 (4)	07:20	18:13 (8)	08:11		08:05	08:42	
	21:44		20:50	19	19:35 (4)	19:40	18	18:31 (8)	18:33	16:40	16:29
22	05:44		06:32	19:14 (4)	07:22	18:12 (8)	08:12		08:07	08:42	
	21:42		20:48	21	19:35 (4)	19:38	19	18:31 (8)	18:31	16:39	16:29
23	05:45		06:33	19:14 (4)	07:23	18:11 (8)	08:14		08:08	08:43	
	21:41		20:46	21	19:35 (4)	19:35	20	18:31 (8)	18:29	16:38	16:29
24	05:47		06:35	19:14 (4)	07:25	18:10 (8)	08:16		08:10	08:43	
	21:40		20:44	22	19:36 (4)	19:33	21	18:31 (8)	18:27	16:37	16:30
25	05:48		06:37	19:13 (4)	07:27	18:10 (8)	07:18		08:12	08:43	
	21:38		20:41	22	19:35 (4)	19:31	21	18:31 (8)	17:25	16:36	16:31
26	05:50		06:38	19:13 (4)	07:28	18:10 (8)	07:19		08:13	08:44	
	21:37		20:39	22	19:35 (4)	19:28	20	18:30 (8)	17:23	16:35	16:31
27	05:51		06:40	19:13 (4)	07:30	18:10 (8)	07:21		08:15	08:44	
	21:36		20:37	21	19:34 (4)	19:26	19	18:29 (8)	17:21	16:34	16:32
28	05:53		06:41	19:14 (4)	07:32	18:11 (8)	07:23		08:16	08:44	
	21:34		20:35	19	19:33 (4)	19:24	17	18:28 (8)	17:19	16:33	16:33
29	05:54		06:43	19:14 (4)	07:33	18:11 (8)	07:25		08:18	08:44	
	21:33		20:33	17	19:31 (4)	19:22	15	18:26 (8)	17:17	16:33	16:34
30	05:56		06:45	19:15 (4)	07:35	18:13 (8)	07:27		08:19	08:45	
	21:31		20:31	15	19:30 (4)	19:19	11	18:24 (8)	17:15	16:32	16:35
31	05:57		06:46	19:16 (4)		07:28				08:45	
	21:29		20:28	11	19:27 (4)	17:13				16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case		184		263		217		3			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.56		0.63		0.68		0.68			
Total reduction		0.15		0.19		0.19		0.16			
Total, real		27		49		42		0			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** Q - H17

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Assumptions for shadow calculations

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December			
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	25 19:26 (5) 19:51 (5)	05:25 21:46 21:59	05:22 21:59	05:59 21:28	14 19:42 (5) 19:56 (5)	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	25 19:27 (5) 19:52 (5)	05:24 21:47 21:59	05:23 21:59	06:00 21:26	17 19:41 (5) 19:58 (5)	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30	
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	24 19:27 (5) 19:51 (5)	05:23 21:48 21:59	05:24 21:59	06:02 21:24	19 19:39 (5) 19:58 (5)	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	25 19:26 (5) 19:51 (5)	05:23 21:49 21:58	05:24 21:58	06:03 21:23	20 19:38 (5) 19:58 (5)	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29	
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	24 19:26 (5) 19:50 (5)	05:22 21:50 21:58	05:25 21:58	06:05 21:21	21 19:38 (5) 19:59 (5)	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	24 19:27 (5) 19:51 (5)	05:21 21:51 21:57	05:26 21:57	06:06 21:19	23 19:36 (5) 19:59 (5)	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	23 19:27 (5) 19:50 (5)	05:21 21:52 21:57	05:27 21:57	06:08 21:17	24 19:36 (5) 20:00 (5)	06:58 20:12	07:47 19:03	07:41 17:01	08:29 16:28	
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	22 19:27 (5) 19:49 (5)	05:20 21:53 21:56	05:28 21:56	06:09 21:16	24 19:36 (5) 20:00 (5)	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	20 19:29 (5) 19:49 (5)	05:20 21:53 21:55	05:29 21:55	06:11 21:14	24 19:36 (5) 20:00 (5)	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27	
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	18 19:29 (5) 19:47 (5)	05:19 21:54 21:55	05:30 21:55	06:13 21:12	25 19:35 (5) 20:00 (5)	07:02 20:06	07:52 18:57	07:46 16:56	08:32 16:27	
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	16 19:31 (5) 19:47 (5)	05:19 21:55 21:54	05:31 21:54	06:14 21:10	25 19:35 (5) 20:00 (5)	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27	
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	13 19:32 (5) 19:45 (5)	05:19 21:56 21:53	05:32 21:53	06:16 21:08	24 19:35 (5) 19:59 (5)	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27	
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	9 19:34 (5) 19:43 (5)	05:18 21:56 21:52	05:33 21:52	06:17 21:06	23 19:36 (5) 19:59 (5)	07:07 20:01	07:57 18:50	07:51 16:51	08:35 16:27	
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21		05:18 21:57 21:51	05:34 21:51	06:19 21:04	22 19:36 (5) 19:58 (5)	07:09 20:06	07:58 18:48	07:53 16:50	08:36 16:27	
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23		05:18 21:57 21:50	05:35 21:50	06:20 21:02	20 19:37 (5) 19:57 (5)	07:11 20:08	08:00 18:46	07:55 16:48	08:37 16:27	
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24		05:18 21:58 21:49	05:36 21:49	06:22 21:00	19 19:37 (5) 19:56 (5)	07:12 20:06	08:02 18:43	07:57 16:47	08:38 16:27	
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26		05:18 21:58 21:48	05:38 21:48	06:24 20:58	17 19:38 (5) 19:55 (5)	07:14 20:03	08:04 18:41	07:58 16:45	08:39 16:27	
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27		05:18 21:59 21:47	05:39 21:47	06:25 20:56	13 19:39 (5) 19:52 (5)	07:15 20:01	08:05 18:39	08:00 16:44	08:40 16:27	
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29		05:18 21:59 21:46	05:40 21:46	06:27 20:54	8 19:42 (5) 19:50 (5)	07:17 20:01	08:07 18:37	08:02 16:43	08:40 16:28	
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30		05:18 21:59 21:45	05:41 21:45	06:29 20:52		07:19 20:06	08:09 18:35	08:03 16:42	08:41 16:28	
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32		05:18 22:00 21:44	05:43 21:44	06:30 20:50		07:20 20:08	08:11 18:33	08:05 16:40	08:42 16:28	
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	05:36 21:33		05:18 22:00 21:42	05:44 21:42	06:32 20:48		07:22 20:09	08:12 18:31	08:07 16:39	08:42 16:29	
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34		05:19 22:00 21:41	05:45 21:41	06:33 20:46		07:23 20:09	08:14 18:29	08:08 16:38	08:43 16:29	
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36		05:19 22:00 21:40	05:47 21:40	06:35 20:44		07:25 20:09	08:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37		05:19 22:00 21:38	05:48 21:38	06:37 20:41		07:27 20:10	08:18 18:25	08:12 16:36	08:43 16:31	
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38		05:20 22:00 21:37	05:50 21:37	06:38 20:39		07:28 20:12	08:19 18:23	08:13 16:35	08:44 16:31	
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:39		05:20 22:00 21:36	05:51 21:36	06:40 20:37		07:30 20:16	08:21 18:23	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41		05:20 22:00 21:34	05:53 21:34	06:41 20:35		07:32 20:18	08:22 18:23	08:16 16:33	08:44 16:33	
29	08:22 17:19	07:21 18:14	06:14 19:04	06:14 20:57	05:28 21:42		05:21 22:00 21:33	05:54 21:33	06:43 20:33		07:33 20:19	08:23 18:23	08:18 16:33	08:44 16:34	
30	08:21 17:21	07:19 18:16	06:12 19:06	06:12 20:58	05:27 21:43		05:22 22:00 21:31	05:56 21:31	06:45 20:31	19:46 (5) 19:51 (5)	07:35 20:21	08:24 18:24	08:19 16:32	08:45 16:35	
31	08:19 17:23	07:17 18:18	06:11 19:07	06:11 20:59	05:26 21:44		05:22 22:00 21:29	05:56 21:31	06:46 20:28	19:44 (5) 19:55 (5)	07:36 20:22	08:25 18:25	08:20 16:32	08:45 16:36	
Potential sun hours	260	278	367	416	485		498	501	453		382	381	332	267	244
Total, worst case				126	268			16			382				
Sun reduction				0.35	0.37			0.27			0.30				
Oper. time red.				1.00	1.00			1.00			1.00				
Wind dir. red.				0.60	0.60			0.60			0.60				
Total reduction				0.21	0.22			0.16			0.18				
Total, real				27	59			3			68				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** R - H18**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30	
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29	
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:01	08:29 16:28	
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27	
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	07:52 18:57	07:46 16:56	08:32 16:27	
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27	
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27	
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	9 19:21 (5) 19:30 (5)	05:49 21:20	05:18 21:56	06:17 21:06	19:26 (5) 19:36 (5)	07:07 19:59	18:40 (4) 18:50	07:57 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	14 19:18 (5) 19:32 (5)	05:47 21:21	05:18 21:57	06:19 21:04	19:23 (5) 19:37 (5)	07:09 19:56	18:37 (4) 18:48	07:58 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	18 19:16 (5) 19:34 (5)	05:46 21:23	05:18 21:57	06:20 21:02	19:22 (5) 19:39 (5)	07:11 19:54	18:36 (4) 18:46	08:00 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	20 19:15 (5) 19:35 (5)	05:44 21:24	05:18 21:58	06:22 21:49	19:20 (5) 19:39 (5)	07:12 19:52	18:34 (4) 18:43	08:02 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	22 19:14 (5) 19:36 (5)	05:43 21:26	05:18 21:58	06:24 20:58	19:19 (5) 19:41 (5)	07:14 19:49	18:33 (4) 18:41	08:04 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	23 19:13 (5) 19:36 (5)	05:41 21:27	05:18 21:59	06:25 20:56	19:18 (5) 19:41 (5)	07:15 19:47	18:32 (4) 18:39	08:05 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	25 19:12 (5) 19:37 (5)	05:40 21:29	05:18 21:59	06:27 20:54	19:17 (5) 19:41 (5)	07:17 19:45	18:32 (4) 18:37	08:07 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	17:50 (4) 18:01 (4)	06:32 20:42	05:38 21:30	05:18 21:59	06:29 20:52	19:16 (5) 19:41 (5)	07:19 19:42	18:32 (4) 18:35	08:09 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	17:48 (4) 18:01 (4)	06:30 20:43	05:37 21:32	05:18 22:00	06:30 20:50	19:16 (5) 19:41 (5)	07:20 19:40	18:32 (4) 18:33	08:11 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	17:46 (4) 18:02 (4)	06:28 20:45	05:36 21:33	05:18 22:00	06:32 20:48	19:15 (5) 19:40 (5)	07:22 19:38	18:33 (4) 18:47 (4)	08:12 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	17:46 (4) 18:03 (4)	06:26 20:47	05:35 21:34	05:19 22:00	06:33 20:46	19:16 (5) 19:40 (5)	07:23 19:35	18:33 (4) 18:45 (4)	08:14 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	17:45 (4) 18:04 (4)	06:24 20:48	05:33 21:36	05:19 22:00	06:35 20:44	19:16 (5) 19:40 (5)	07:25 19:33	18:36 (4) 18:42 (4)	08:16 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	17:44 (4) 18:03 (4)	06:22 20:50	05:32 21:37	05:19 22:00	06:37 20:41	19:16 (5) 19:39 (5)	07:27 19:31	18:47 (4) 18:54 (4)	08:18 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	17:45 (4) 18:02 (4)	06:20 20:52	05:31 21:38	05:20 22:00	06:38 20:39	19:17 (5) 19:39 (5)	07:28 19:28	18:49 (4) 18:54 (4)	08:19 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	17:45 (4) 18:02 (4)	06:18 20:53	05:30 21:40	05:21 22:00	06:40 20:37	19:17 (5) 19:37 (5)	07:30 19:26	18:51 (4) 18:56 (4)	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	17:45 (4) 18:00 (4)	06:16 20:55	05:29 21:41	05:20 22:00	06:41 20:35	19:18 (5) 19:36 (5)	07:32 19:24	18:56 (4) 18:61 (4)	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:19	06:21 19:04	18:46 (4) 18:59 (4)	06:14 20:57	05:28 21:42	05:21 22:00	06:43 20:33	19:19 (5) 19:33 (5)	07:33 19:22	18:62 (4) 18:67 (4)	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 18:19	06:20 19:06	18:49 (4) 18:57 (4)	06:12 20:58	05:27 21:43	05:22 22:00	06:45 20:31	19:22 (5) 19:30 (5)	07:35 19:19	18:68 (4) 18:73 (4)	08:19 16:35	08:45 16:35
31	08:19 17:23	07:17 18:08	06:17 19:08	07:17 18:08	06:17 19:08	05:26 21:44	05:26 21:44	06:46 20:28	19:22 (5) 19:30 (5)	07:35 19:19	18:68 (4) 18:73 (4)	08:19 16:35	08:45 16:35
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			165	356				357	170				
Sun reduction			0.24	0.35				0.30	0.28				
Oper. time red.			1.00	1.00				1.00	1.00				
Wind dir. red.			0.67	0.63				0.63	0.67				
Total reduction			0.16	0.22				0.19	0.19				
Total, real			27	79				67	32				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** S - H19**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	19:07 (5) 19:17	07:37 19:31 (5)	07:30 17:11
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:08 (5) 19:15	07:38 19:28 (5)	07:32 17:09
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	19:09 (5) 19:12	07:40 19:27 (5)	07:34 17:07
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	19:12 (5) 19:10	07:42 19:25 (5)	07:35 17:06
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	19:25 (5) 19:08	07:43 19:06	07:37 17:04
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:57	05:26 21:19	06:06 21:19	06:56 20:15	19:06 19:06	07:45 19:06	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	19:07 (5) 19:03	07:47 19:03	07:41 17:01
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:14 (5) 21:12	05:57 21:53	05:28 21:56	06:09 21:16	06:59 20:10	19:03 19:01	07:48 19:01	07:43 16:59
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:11 (5) 21:13	05:55 21:53	05:29 21:56	06:11 21:14	07:01 20:08	19:01 18:59	07:50 18:59	07:44 16:57
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:10 (5) 21:15	05:54 21:54	05:19 21:55	06:13 21:12	07:02 20:06	19:01 18:57	07:52 18:57	07:46 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:08 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10	07:04 20:03	19:04 18:54	07:53 18:54	07:48 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:07 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08	07:06 20:01	19:06 18:52	07:55 18:52	07:50 16:53
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19:05 (5) 21:20	05:49 21:56	05:18 21:52	06:17 21:06	07:07 19:59	18:52 18:50	07:57 18:50	07:51 16:51
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	19:05 (5) 21:21	05:47 21:57	05:18 21:51	06:19 21:04	07:09 19:56	19:59 18:48	07:58 18:48	08:36 16:50
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	19:04 (5) 21:23	05:46 21:57	05:18 21:50	06:20 21:02	07:11 19:54	18:00 18:46	07:55 18:46	08:37 16:48
16	08:37 16:57	07:52 17:52	17:02 (8) 18:42	06:51 20:35	19:04 (5) 21:24	05:44 21:58	05:18 21:49	06:22 21:00	07:12 19:52	19:18 (5) 19:28 (5)	07:12 19:52	08:38 16:27
17	08:37 16:58	07:50 17:54	17:01 (8) 18:44	06:49 20:37	19:04 (5) 21:26	05:43 21:58	05:18 21:48	06:24 20:58	07:14 19:49	19:16 (5) 19:31 (5)	07:14 19:49	08:39 16:45
18	08:36 17:00	07:48 17:56	16:59 (8) 18:46	06:47 20:38	19:04 (5) 21:27	05:41 21:59	05:18 21:47	06:25 20:56	07:15 19:47	19:13 (5) 19:32 (5)	07:15 19:47	08:40 16:27
19	08:35 17:02	07:46 17:58	16:59 (8) 18:47	06:44 20:40	19:04 (5) 21:29	05:40 21:59	05:18 21:46	06:27 20:54	07:17 19:45	19:12 (5) 19:34 (5)	07:17 19:45	08:40 16:28
20	08:34 17:03	07:44 18:00	16:58 (8) 18:49	06:42 20:42	19:04 (5) 21:30	05:38 22:00	05:18 21:45	06:29 20:52	07:19 19:42	19:10 (5) 19:34 (5)	07:19 19:42	08:41 16:28
21	08:33 17:05	07:42 18:01	16:58 (8) 18:51	06:40 20:43	19:05 (5) 21:32	05:37 22:00	05:18 21:44	06:30 20:50	07:20 19:40	19:10 (5) 19:35 (5)	07:20 19:40	08:42 16:28
22	08:31 17:07	07:40 18:03	16:58 (8) 18:53	06:37 20:45	19:05 (5) 21:33	05:36 22:00	05:18 21:42	06:32 20:48	07:22 19:38	19:08 (5) 19:35 (5)	07:22 19:38	08:42 16:29
23	08:30 17:08	07:38 18:05	16:57 (8) 18:54	06:35 20:47	19:06 (5) 21:34	05:35 22:00	05:19 21:41	06:33 20:46	07:23 19:35	19:08 (5) 19:36 (5)	07:23 19:35	08:43 16:29
24	08:29 17:10	07:35 18:07	16:58 (8) 18:56	06:33 20:48	19:07 (5) 21:36	05:33 22:00	05:19 21:40	06:35 20:44	07:25 19:33	19:08 (5) 19:36 (5)	07:25 19:33	08:43 16:30
25	08:28 17:12	07:33 18:09	16:59 (8) 18:58	06:31 20:50	19:08 (5) 21:37	05:32 22:00	05:19 21:38	06:37 20:41	07:27 19:31	19:07 (5) 19:35 (5)	07:27 19:31	08:43 16:31
26	08:26 17:14	07:31 18:10	17:00 (8) 18:59	06:28 20:52	19:10 (5) 21:38	05:31 22:00	05:20 21:37	06:38 20:39	07:28 19:28	19:07 (5) 19:36 (5)	07:28 19:28	08:44 16:31
27	08:25 17:15	07:29 18:12	17:02 (8) 19:01	06:26 20:53	19:13 (5) 21:40	05:30 22:00	05:20 21:36	06:40 20:37	07:30 19:26	19:06 (5) 19:35 (5)	07:30 19:26	08:44 16:32
28	08:24 17:17	07:27 18:14	17:11 (8) 19:03	06:24 20:55	19:21 (5) 21:41	05:29 22:00	05:20 21:34	06:41 20:35	07:32 19:24	19:06 (5) 19:35 (5)	07:32 19:24	08:44 16:33
29	08:22 17:19	07:22 18:14	17:11 (8) 19:04	06:22 20:57	19:21 (5) 21:42	05:28 22:00	05:21 21:33	06:43 20:33	07:33 19:22	19:06 (5) 19:34 (5)	07:33 19:22	08:44 16:34
30	08:21 17:21	07:19 18:14	17:11 (8) 19:04	06:21 20:56	19:21 (5) 21:43	05:27 22:00	05:22 21:31	06:45 20:31	07:35 19:19	19:06 (5) 19:33 (5)	07:35 19:19	08:45 16:35
31	08:19 17:23	07:17 18:14	17:11 (8) 19:04	06:20 20:56	19:21 (5) 21:44	05:26 22:00	05:21 21:31	06:46 20:28	07:36 19:19	19:06 (5) 19:33 (5)	07:36 19:19	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case		183		462				393	75		189	
Sun reduction		0.21		0.35				0.30	0.28		0.24	
Oper. time red.		1.00		1.00				1.00	1.00		1.00	
Wind dir. red.		0.70		0.64				0.64	0.64		0.70	
Total reduction		0.14		0.23				0.19	0.18		0.17	
Total, real		26		104				74	14		31	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** T - H20**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	19:03 (5) 19:18 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	18:54 (5) 19:20 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	19:01 (5) 19:20 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	18:52 (5) 19:20 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	19:00 (5) 19:21 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	18:52 (5) 19:20 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:58 (5) 19:21 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18:51 (5) 19:19 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	18:57 (5) 19:22 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18:52 (5) 19:19 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	18:56 (5) 19:22 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	18:52 (5) 19:19 (5)	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	18:56 (5) 19:23 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:12	18:52 (5) 19:17 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	18:54 (5) 19:22 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:53 (5) 19:16 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	18:54 (5) 19:22 (5)	05:55 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	18:53 (5) 19:14 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	18:54 (5) 19:22 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	18:54 (5) 19:13 (5)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	18:55 (5) 19:21 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:55 (5) 19:10 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	18:55 (5) 19:21 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:58 (5) 19:07 (5)	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	18:55 (5) 19:19 (5)	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:57 18:50	07:57 16:51	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	18:56 (5) 19:18 (5)	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:58 18:48	07:58 16:50	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	18:57 (5) 19:17 (5)	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	18:55 (5) 19:10 (5)	07:53 18:54	07:48 16:54	08:33 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	18:58 (5) 19:15 (5)	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:54 (5) 19:13 (5)	07:52 18:43	07:47 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	19:00 (5) 19:13 (5)	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:54 (5) 19:13 (5)	07:53 18:41	07:48 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:06 (5) 19:07 (5)	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:55 (5) 18:39	07:54 16:44	07:49 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:07 (5) 21:29	05:40 21:59	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:56 (5) 18:37	07:55 16:43	07:50 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:08 (5) 21:30	05:38 22:00	05:18 21:45	05:41 21:45	06:29 20:52	07:19 19:42	18:57 (5) 18:35	07:56 16:42	07:51 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:09 (5) 21:32	05:37 22:00	05:18 21:44	05:43 21:44	06:30 20:50	07:20 19:40	18:58 (5) 18:33	07:57 16:40	07:52 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	19:10 (5) 21:33	05:36 22:00	05:18 21:42	05:44 21:42	06:32 20:48	07:22 19:38	18:59 (5) 18:31	07:58 16:39	07:53 16:39	08:43 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	19:11 (5) 21:34	05:35 22:00	05:19 21:41	05:45 21:41	06:33 20:46	07:23 19:35	18:59 (5) 18:29	07:59 16:38	07:54 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	19:12 (5) 21:36	05:33 22:00	05:19 21:40	05:47 21:40	06:35 20:44	07:25 19:33	18:59 (5) 18:27	08:00 16:37	07:55 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:13 (5) 21:37	05:32 22:00	05:19 21:38	05:48 21:41	06:37 20:41	19:07 (5) 19:11 (5)	18:59 (5) 19:03 (5)	07:27 17:25	07:18 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	19:14 (5) 21:38	05:31 22:00	05:20 21:37	05:50 21:37	06:38 20:39	19:03 (5) 19:16 (5)	18:59 (5) 19:00 (5)	07:28 17:23	07:19 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	19:15 (5) 21:40	05:30 22:00	05:21 21:36	05:51 21:36	06:40 20:37	19:04 (5) 19:17 (5)	18:59 (5) 18:58 (5)	07:30 17:21	07:21 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:16 (5) 21:41	05:29 22:00	05:20 21:34	05:53 21:34	06:41 20:35	19:05 (5) 19:18 (5)	18:59 (5) 18:56 (5)	07:32 17:19	07:23 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	07:21 19:04	06:14 20:57	19:17 (5) 21:42	05:28 22:00	05:21 21:33	05:54 21:33	06:43 20:33	19:06 (5) 19:19 (5)	18:59 (5) 18:56 (5)	07:33 17:17	07:25 16:33	08:44 16:34
30	08:21 17:21	07:19 20:06	07:19 19:06	06:12 20:58	19:18 (5) 21:43	05:27 22:00	05:22 21:31	05:56 21:31	06:45 20:31	19:07 (5) 19:20 (5)	18:59 (5) 18:54 (5)	07:35 17:15	07:27 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	07:17 19:14 (5)	05:26 21:44	19:19 (5) 21:44	05:26 22:00	05:27 21:29	05:57 20:28	06:46 20:26	19:20 (5) 19:20 (5)	18:59 (5) 18:54 (5)	07:36 17:13	07:28 16:32	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	276	267	244		
Total, worst case			7	389					127	276				
Sun reduction			0.24	0.35					0.30	0.28				
Oper. time red.			1.00	1.00					1.00	1.00				
Wind dir. red.			0.65	0.65					0.65	0.65				
Total reduction			0.16	0.23					0.19	0.18				
Total, real			1	90					25	51				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** U - H21**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April		May	June	July	August		September		October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10		19:13 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28		06:48 20:26	19:00 (5) 19:23 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	4	19:09 (5) 21:02	06:08 21:47	05:24 21:59	05:23 21:26	23	06:50 20:24	18:58 (5) 19:22 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	12	19:21 (5) 21:06	06:06 21:48	05:23 21:59	05:24 21:24	24	06:51 20:22	18:58 (5) 19:22 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	17	19:04 (5) 21:03	06:04 21:49	05:23 21:58	05:24 21:23	24	06:53 20:19	18:57 (5) 19:22 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	19	19:03 (5) 21:07	06:03 21:50	05:22 21:58	05:25 21:21	25	06:54 20:17	18:58 (5) 19:21 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	21	19:02 (5) 21:08	06:01 21:51	05:21 21:57	05:26 21:19	23	06:56 20:15	18:58 (5) 19:21 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	23	19:02 (5) 21:10	05:59 21:52	05:21 21:57	06:08 21:17	23	06:58 20:12	18:58 (5) 19:19 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	23	19:00 (5) 21:12	05:57 21:53	05:20 21:56	06:09 21:16	21	06:59 20:10	18:59 (5) 19:19 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	24	19:24 (5) 21:13	05:55 21:53	05:20 21:56	06:11 21:14	20	07:01 20:08	19:00 (5) 19:16 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	24	19:00 (5) 21:15	05:54 21:54	05:19 21:55	06:13 21:12	13	07:02 20:06	19:01 (5) 19:14 (5)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	23	19:01 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10	6	07:04 20:03	19:04 (5) 19:10 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	22	19:01 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08	7	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27	
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	20	19:01 (5) 21:20	05:49 21:56	05:18 21:52	06:17 21:06	7	07:07 19:59	07:57 18:50	07:51 16:51	08:35 16:27	
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	18	19:02 (5) 21:21	05:47 21:57	05:18 21:51	06:19 21:04	7	07:09 19:56	07:58 18:48	07:53 16:50	08:36 16:27	
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	16	19:03 (5) 21:23	05:46 21:57	05:18 21:50	06:20 21:02	7	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27	
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	11	19:05 (5) 21:24	05:44 21:58	05:18 21:49	06:22 21:00	7	07:12 19:52	18:46 18:43	07:57 16:47	08:38 16:27	
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37		19:16 (5) 21:26	05:43 21:58	05:18 21:48	06:24 20:58	7	07:14 19:49	08:04 18:41	07:58 16:45	08:39 16:27	
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38		05:41 21:27	05:18 21:59	05:18 21:47	06:25 20:56	7	07:15 19:47	08:05 18:39	08:00 16:44	08:40 16:27	
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	7	07:17 19:45	08:07 18:37	08:02 16:43	08:40 16:28	
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	7	07:19 19:42	08:09 18:35	08:03 16:42	08:41 16:28	
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43		05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	7	07:20 19:40	08:11 18:33	08:05 16:40	08:42 16:28	
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	7	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29	
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47		05:35 21:34	05:19 22:00	05:45 21:41	06:33 20:46	7	07:23 19:35	08:14 18:29	08:08 16:38	08:43 16:29	
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	7	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	7	07:27 19:31	08:18 17:25	08:12 16:36	08:43 16:31	
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	3	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31	
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	11	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	16	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33	
29	08:22 17:19	07:21 18:04	06:14 19:04	06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	18	07:33 19:22	07:25 17:17	08:18 16:33	08:44 16:34	
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58		05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	20	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35	
31	08:19 17:23	07:17 18:08	06:11 19:08	06:11 20:58		05:26 21:44	05:22 22:00	05:57 21:29	06:46 20:28	22	07:36 19:22 (5)	07:28 17:13	08:17 16:32	08:45 16:36	
Potential sun hours	260	278	367	416		485	498	501	453		381	332	267		244
Total, worst case				301					90		218				
Sun reduction				0.35					0.30		0.28				
Oper. time red.				1.00					1.00		1.00				
Wind dir. red.				0.65					0.65		0.65				
Total reduction				0.23					0.19		0.18				
Total, real				69					17		40				

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) Assumptions for shadow calculations

Shadow receptor: V - H22
Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time																																						
																			N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum			
																			136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760			

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** W - H23**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August	September		October	November	December	
1	08:45	08:18	07:25		07:14	19	19:02 (5)	06:10	05:25	05:22	05:58	06:48		07:37	07:30	08:21
	16:37	17:24	18:16		20:09		19:21 (5)	21:00	21:46	21:59	21:28	20:26		19:17	17:11	16:31
2	08:44	08:16	07:23		07:12		19:02 (5)	06:08	05:24	05:23	06:00	06:50	5	19:05 (5)	07:38	08:22
	16:38	17:26	18:18		20:11	20	19:22 (5)	21:02	21:47	21:59	21:26	20:24		19:10 (5)	19:15	17:09
3	08:44	08:15	07:20		07:10		19:01 (5)	06:06	05:23	05:24	06:02	06:51		19:02 (5)	07:40	08:24
	16:39	17:28	18:19		20:13	21	19:22 (5)	21:03	21:48	21:59	21:24	20:22	11	19:13 (5)	19:12	17:07
4	08:44	08:13	07:18		07:08		19:00 (5)	06:04	05:23	05:24	06:03	06:53		18:59 (5)	07:42	08:25
	16:40	17:30	18:21		20:15	21	19:21 (5)	21:05	21:49	21:58	21:23	20:19	15	19:14 (5)	19:10	17:06
5	08:44	08:12	07:16		07:05		19:01 (5)	06:03	05:22	05:25	06:05	06:54		18:58 (5)	07:43	08:26
	16:41	17:32	18:23		20:16	19	19:20 (5)	21:07	21:50	21:58	21:21	20:17	17	19:15 (5)	19:08	17:04
6	08:44	08:10	07:14		07:03		19:01 (5)	06:01	05:21	05:26	06:06	06:56		18:57 (5)	07:45	07:39
	16:43	17:34	18:25		20:18	19	19:20 (5)	21:08	21:51	21:57	21:19	20:15	19	19:16 (5)	19:05	17:02
7	08:43	08:08	07:12		07:01		19:02 (5)	05:59	05:21	05:27	06:08	06:58		18:56 (5)	07:47	07:41
	16:44	17:36	18:26		20:20	17	19:19 (5)	21:10	21:52	21:57	21:17	20:12	20	19:16 (5)	19:03	17:00
8	08:43	08:06	07:09		06:59		19:02 (5)	05:57	05:20	05:28	06:09	06:59		18:56 (5)	07:48	07:43
	16:45	17:37	18:28		20:21	15	19:17 (5)	21:12	21:53	21:56	21:16	20:10	20	19:16 (5)	19:01	16:59
9	08:42	08:05	07:07		06:56		19:04 (5)	05:55	05:20	05:29	06:11	07:01		18:55 (5)	07:50	07:44
	16:47	17:39	18:30		20:23	11	19:15 (5)	21:13	21:53	21:55	21:14	20:08	20	19:15 (5)	18:59	16:57
10	08:42	08:03	07:05		06:54		19:07 (5)	05:54	05:19	05:30	06:12	07:02		18:55 (5)	07:52	07:46
	16:48	17:41	18:32		20:25	5	19:12 (5)	21:15	21:54	21:55	21:12	20:06	20	19:15 (5)	18:56	16:56
11	08:41	08:01	07:03		06:52			05:52	05:19	05:31	06:14	07:04		18:54 (5)	07:53	07:48
	16:49	17:43	18:34		20:26			21:16	21:55	21:54	21:10	20:03	19	19:13 (5)	18:54	16:54
12	08:41	07:59	07:00		06:50			05:50	05:19	05:32	06:16	07:06		18:55 (5)	07:55	07:50
	16:51	17:45	18:35		20:28			21:18	21:56	21:53	21:08	20:01	18	19:13 (5)	18:52	16:52
13	08:40	07:57	06:58		06:47			05:49	05:18	05:33	06:17	07:07		18:55 (5)	07:57	07:51
	16:52	17:47	18:37		20:30			21:20	21:56	21:52	21:06	19:59	16	19:11 (5)	18:50	16:51
14	08:39	07:55	06:56		06:45			05:47	05:18	05:34	06:19	07:09		18:57 (5)	07:58	07:53
	16:54	17:48	18:39		20:32			21:21	21:57	21:51	21:04	19:56	12	19:09 (5)	18:48	16:50
15	08:38	07:54	06:54		06:43			05:46	05:18	05:35	06:20	07:11		19:01 (5)	08:00	07:55
	16:55	17:50	18:40		20:33			21:23	21:57	21:50	21:02	19:54	4	19:05 (5)	18:45	16:48
16	08:37	07:52	06:51		06:41			05:44	05:18	05:36	06:22	07:12		18:02	07:57	08:38
	16:57	17:52	18:42		20:35			21:24	21:58	21:49	21:00	19:52		18:43	16:47	16:27
17	08:37	07:50	06:49		06:39			05:43	05:18	05:38	06:24	07:14		18:04	07:58	08:39
	16:58	17:54	18:44		20:37			21:26	21:58	21:48	20:58	19:49		18:41	16:45	16:27
18	08:36	07:48	06:47		06:37			05:41	05:18	05:39	06:25	07:15		18:05	08:00	08:40
	17:00	17:56	18:46		20:38			21:27	21:59	21:47	20:56	19:47		18:39	16:44	16:27
19	08:35	07:46	06:44		06:34			05:40	05:18	05:40	06:27	07:17		18:07	08:02	08:40
	17:02	17:58	18:47		20:40			21:29	21:59	21:46	20:54	19:45		18:37	16:43	16:28
20	08:34	07:44	06:42		06:32			05:38	05:18	05:41	06:29	07:19		18:09	08:03	08:41
	17:03	18:00	18:49		20:42			21:30	21:59	21:45	20:52	19:42		18:35	16:42	16:28
21	08:33	07:42	06:40		06:30			05:37	05:18	05:43	06:30	07:20		18:11	08:05	08:42
	17:05	18:01	18:51		20:43			21:32	22:00	21:44	20:50	19:40		18:33	16:40	16:28
22	08:31	07:40	06:37		06:28			05:36	05:18	05:44	06:32	07:22		18:12	08:07	08:42
	17:07	18:03	18:52		20:45			21:33	22:00	21:42	20:48	19:38		18:31	16:39	16:29
23	08:30	07:38	06:35		06:26			05:35	05:18	05:45	06:33	07:23		18:14	08:08	08:43
	17:08	18:05	18:54		20:47			21:34	22:00	21:41	20:46	19:35		18:29	16:38	16:29
24	08:29	07:35	06:33		06:24			05:33	05:19	05:47	06:35	07:25		18:16	08:10	08:43
	17:10	18:07	18:56		20:48			21:36	22:00	21:40	20:44	19:33		18:27	16:37	16:30
25	08:28	07:33	06:31		06:22			05:32	05:19	05:48	06:37	07:27		17:18	08:12	08:43
	17:12	18:09	18:58		20:50			21:37	22:00	21:38	20:41	19:31		17:25	16:36	16:31
26	08:26	07:31	06:28		06:20			05:31	05:20	05:50	06:38	07:28		17:19	08:13	08:44
	17:14	18:10	18:59		20:52			21:38	22:00	21:37	20:39	19:28		17:23	16:35	16:31
27	08:25	07:29	06:26		06:18			05:30	05:20	05:51	06:40	07:30		17:21	08:15	08:44
	17:15	18:12	19:01		20:53			21:40	22:00	21:36	20:37	19:26		17:21	16:34	16:32
28	08:24	07:27	06:24		18:12 (5) 06:16			05:29	05:20	05:53	06:41	07:32		17:23	08:16	08:44
	17:17	18:14	19:03	1	18:13 (5) 20:55			21:41	22:00	21:34	20:35	19:24		17:19	16:33	16:33
29	08:22		07:21		19:07 (5) 06:14			05:28	05:21	05:54	06:43	07:33		17:25	08:18	08:44
	17:19		20:04	11	19:18 (5) 20:57			21:42	22:00	21:33	20:33	19:21		17:17	16:33	16:34
30	08:21		07:19		19:05 (5) 06:12			05:27	05:22	05:55	06:45	07:35		17:26	08:19	08:45
	17:21		20:06	15	19:20 (5) 20:58			21:43	22:00	21:31	20:31	19:19		17:15	16:32	16:35
31	08:19		07:17		19:03 (5) 20:58			05:26		05:57	06:46			17:28		08:45
	17:23		20:08	17	19:20 (5)			21:44		21:29	20:28			17:13		16:36
Potential sun hours	260	278	367		416			485	498	501	453	381		332	267	244
Total, worst case			44		167							216				
Sun reduction			0.24		0.35							0.28				
Oper. time red.			1.00		1.00							1.00				
Wind dir. red.			0.65		0.65							0.65				
Total reduction			0.16		0.23							0.19				
Total, real			7		39							40				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** X - H24**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	15 19:07 (5) 20:09	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	11 19:05 (5) 19:16 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	17 19:06 (5) 20:13	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	14 19:03 (5) 19:17 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	18 19:05 (5) 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	17 19:01 (5) 19:18 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	20 19:03 (5) 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18 19:00 (5) 19:18 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	20 19:03 (5) 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	20 18:59 (5) 19:19 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	20 19:03 (5) 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	20 18:59 (5) 19:19 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	20 19:03 (5) 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	20 18:58 (5) 19:18 (5)	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	18 19:03 (5) 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	20 18:58 (5) 19:18 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	17 19:03 (5) 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	19 18:58 (5) 19:17 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	14 19:05 (5) 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	17 18:59 (5) 19:16 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	11 19:06 (5) 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	15 18:59 (5) 19:14 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	3 19:10 (5) 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	11 19:01 (5) 19:12 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:07 19:59	5 19:03 (5) 19:08 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	06:19 21:04	07:09 19:56	07:09 19:56	07:58 16:50	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	06:20 21:02	07:11 19:54	07:11 19:54	07:55 16:48	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	06:22 21:00	07:12 19:52	07:12 19:52	07:57 16:47	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	06:24 20:58	07:14 19:49	07:14 19:49	07:58 16:45	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	06:25 20:56	07:15 19:47	07:15 19:47	07:59 16:44	07:59 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	06:27 20:54	07:17 19:45	07:17 19:45	07:59 16:43	07:59 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	06:29 20:52	07:19 19:42	07:19 19:42	07:59 16:42	07:59 16:42	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	06:30 20:50	07:20 19:40	07:20 19:40	07:59 16:40	07:59 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	06:32 20:48	07:22 19:38	07:22 19:38	07:59 16:39	07:59 16:39	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	06:33 20:46	07:23 19:35	07:23 19:35	07:59 16:38	07:59 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	06:35 20:44	07:25 19:33	07:25 19:33	07:59 16:37	07:59 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	06:37 20:41	07:27 19:31	07:27 19:31	07:59 16:36	07:59 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	06:38 20:39	07:28 19:28	07:28 19:28	07:59 16:35	07:59 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	06:40 20:37	07:30 19:26	07:30 19:26	07:59 16:34	07:59 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	06:41 20:35	07:32 19:24	07:32 19:24	07:59 16:33	07:59 16:33	08:44 16:33
29	08:22 17:19	07:21 18:14	06:21 19:03	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	06:43 20:33	07:33 19:21	07:33 19:21	07:59 16:32	07:59 16:32	08:44 16:34
30	08:21 17:21	07:19 18:14	06:19 19:03	06:12 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	06:45 20:31	07:35 19:19	07:35 19:19	07:59 16:32	07:59 16:32	08:45 16:35
31	08:19 17:23	07:17 18:14	06:17 19:03	06:10 20:58	05:26 21:44	05:21 22:00	05:57 21:29	06:46 20:28	06:46 20:28	07:36 19:13	07:36 19:13	07:59 16:32	07:59 16:32	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244		
Total, worst case			15	193				4	207					
Sun reduction			0.24	0.35				0.30	0.28					
Oper. time red.			1.00	1.00				1.00	1.00					
Wind dir. red.			0.65	0.65				0.65	0.65					
Total reduction			0.16	0.23				0.19	0.18					
Total, real			2	45				1	38					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** Y - H25

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Assumptions for shadow calculations

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	19:14 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28	06:48 20:26	19:08 (5) 19:22 (5)	07:37 19:17	07:30 17:11
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	19:12 (5) 21:02	06:08 21:47	05:24 21:59	05:23 21:26	06:50 20:24	19:06 (5) 19:22 (5)	07:38 19:15	07:32 17:09
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	19:10 (5) 21:03	06:06 21:48	05:23 21:59	05:24 21:24	06:51 20:22	19:05 (5) 19:23 (5)	07:40 19:12	07:34 17:07
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	19:08 (5) 21:05	06:04 21:49	05:23 21:58	05:24 21:23	06:53 20:19	19:04 (5) 19:22 (5)	07:42 19:10	07:35 17:06
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	19:08 (5) 21:07	06:03 21:50	05:22 21:58	05:25 21:21	06:54 20:17	19:03 (5) 19:23 (5)	07:43 19:08	07:37 17:04
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	19:07 (5) 21:08	06:01 21:51	05:21 21:57	05:26 21:19	06:56 20:15	19:04 (5) 19:23 (5)	07:45 19:05	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	19:07 (5) 21:10	05:59 21:52	05:21 21:57	06:08 21:17	06:58 20:12	19:03 (5) 19:22 (5)	07:47 19:03	07:41 17:00
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:06 (5) 21:12	05:57 21:53	05:20 21:56	06:09 21:16	06:59 20:10	19:03 (5) 19:21 (5)	07:48 19:01	07:43 16:59
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:07 (5) 21:13	05:55 21:53	05:20 21:55	06:11 21:14	07:01 20:08	19:03 (5) 19:19 (5)	07:50 18:59	07:44 16:57
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:08 (5) 21:15	05:54 21:54	05:19 21:55	06:12 21:12	07:02 20:06	19:05 (5) 19:18 (5)	07:52 18:56	07:46 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:09 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10	07:04 20:03	19:06 (5) 19:15 (5)	07:53 18:54	07:48 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:10 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08	07:06 20:01	19:07 (5) 18:52	07:55 16:52	07:50 16:52
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19:13 (5) 21:20	05:49 21:56	05:18 21:52	06:17 21:06	07:07 19:59	19:07 (5) 18:50	07:57 16:51	07:51 16:51
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	19:16 (5) 21:21	05:47 21:57	05:18 21:51	06:19 21:04	07:09 19:56	19:08 (5) 18:48	07:58 16:50	07:53 16:50
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	19:17 (5) 21:23	05:46 21:57	05:18 21:50	06:20 21:02	07:10 19:54	19:09 (5) 18:45	07:55 16:48	07:53 16:48
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	19:18 (5) 21:24	05:44 21:58	05:18 21:49	06:22 21:00	07:12 19:52	19:10 (5) 18:43	07:57 16:47	07:58 16:47
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	19:19 (5) 21:26	05:43 21:58	05:18 21:48	06:24 20:58	07:14 19:49	19:11 (5) 18:41	07:58 16:45	07:59 16:45
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:20 (5) 21:27	05:41 21:59	05:18 21:47	06:25 20:56	07:15 19:47	19:12 (5) 18:39	08:00 16:44	08:00 16:44
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:21 (5) 21:29	05:40 21:59	05:18 21:46	06:27 20:54	07:17 19:45	19:13 (5) 18:37	08:02 16:43	08:02 16:43
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:22 (5) 21:30	05:38 21:59	05:18 21:45	06:29 20:52	07:19 19:42	19:14 (5) 18:35	08:03 16:42	08:03 16:42
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:23 (5) 21:31	05:37 22:00	05:18 21:44	06:30 20:50	07:20 19:40	19:15 (5) 18:33	08:05 16:40	08:05 16:40
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	19:24 (5) 21:33	05:36 22:00	05:18 21:42	06:32 20:48	07:22 19:38	19:16 (5) 18:31	08:07 16:39	08:07 16:39
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47	19:25 (5) 21:34	05:35 22:00	05:18 21:41	06:33 20:46	07:23 19:35	19:17 (5) 18:29	08:08 16:38	08:08 16:38
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	19:26 (5) 21:36	05:33 22:00	05:19 21:40	06:35 20:44	07:25 19:33	19:18 (5) 18:27	08:10 16:37	08:10 16:37
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:27 (5) 21:37	05:32 22:00	05:19 21:38	06:37 20:41	07:27 19:31	19:19 (5) 17:25	08:12 16:36	08:12 16:36
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	19:28 (5) 21:38	05:31 22:00	05:50 21:37	06:38 20:39	07:28 19:28	19:20 (5) 17:23	08:13 16:35	08:13 16:35
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	19:29 (5) 21:40	05:30 22:00	05:51 21:36	06:40 20:37	07:30 19:26	19:21 (5) 17:21	08:15 16:34	08:15 16:34
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:30 (5) 21:41	05:29 22:00	05:53 21:34	06:41 20:35	07:32 19:24	19:22 (5) 17:19	08:16 16:33	08:16 16:33
29	08:22 17:19	07:21 18:04	06:14 19:04	06:14 20:57	19:31 (5) 21:42	05:28 22:00	05:54 21:33	06:43 20:33	07:33 19:21	19:23 (5) 17:17	08:18 16:33	08:18 16:33
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	19:32 (5) 21:43	05:27 22:00	05:55 21:31	06:45 20:31	07:35 19:19	19:24 (5) 17:15	08:19 16:32	08:19 16:32
31	08:19 17:23	07:17 18:08	06:11 19:08	06:11 20:58	19:33 (5) 21:44	05:26 22:00	05:57 21:29	06:46 20:28	07:36 19:20 (5)	19:25 (5) 17:13	08:45 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				194				16		180		
Sun reduction				0.35				0.30		0.28		
Oper. time red.				1.00				1.00		1.00		
Wind dir. red.				0.65				0.65		0.65		
Total reduction				0.23				0.19		0.18		
Total, real				45				3		33		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: Z - H26

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AA - H27**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	07:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	07:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	07:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:30	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AB - H28**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) Shadow receptor: AC - H29

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	19:01 (7)	05:25	05:22	05:59	19:05 (7)	06:48	07:30
2	16:37	17:25	18:16	20:10	21:00	19:19 (7)	21:46	21:59	21:28	19:36 (7)	20:26	17:11
3	08:44	08:16	07:23	07:12	06:08	19:01 (7)	05:24	05:23	06:00	19:06 (7)	06:50	07:32
4	16:38	17:26	18:18	20:11	21:02	19:21 (7)	21:47	21:59	21:26	19:36 (7)	20:24	17:09
5	08:44	08:15	07:20	07:10	06:06	18:59 (7)	05:24	05:24	06:02	19:05 (7)	06:51	07:34
6	16:39	17:28	18:20	20:13	21:03	19:22 (7)	21:48	21:59	21:25	19:35 (7)	20:22	17:08
7	08:44	08:13	07:18	07:08	06:04	18:58 (7)	05:23	05:24	06:03	19:06 (7)	06:53	07:35
8	16:40	17:30	18:21	20:15	21:05	19:23 (7)	21:49	21:58	21:23	19:36 (7)	20:19	17:06
9	08:44	08:12	07:16	07:05	06:03	18:57 (7)	05:22	05:25	06:05	19:06 (7)	06:54	07:37
10	16:42	17:32	18:23	20:16	21:07	19:23 (7)	21:50	21:58	21:21	19:35 (7)	20:17	17:04
11	08:44	08:10	07:14	07:03	06:01	18:57 (7)	05:22	05:26	06:06	19:05 (7)	06:56	07:39
12	16:43	17:34	18:25	20:18	21:08	19:24 (7)	21:51	21:57	21:19	19:34 (7)	20:15	17:02
13	08:43	08:08	07:12	07:01	05:59	18:56 (7)	05:21	05:27	06:08	19:06 (7)	06:58	07:41
14	16:44	17:36	18:27	20:20	21:10	19:25 (7)	21:52	21:57	21:18	19:34 (7)	20:13	17:01
15	08:43	08:06	07:09	06:59	05:57	18:55 (7)	05:20	05:28	06:09	19:06 (7)	06:59	07:43
16	16:45	17:38	18:28	20:21	21:12	19:25 (7)	21:53	21:56	21:16	19:32 (7)	20:10	16:59
17	08:42	08:05	07:07	06:56	19:23 (6)	05:56	18:55 (7)	05:20	06:11	19:08 (7)	07:01	07:50
18	16:47	17:39	18:30	20:23	19:27 (6)	21:13	19:25 (7)	21:53	21:14	19:32 (7)	20:08	16:57
19	08:42	08:03	07:05	06:54	19:19 (6)	05:54	18:55 (7)	05:20	06:13	19:08 (7)	07:03	07:52
20	16:48	17:41	18:32	20:25	19:30 (6)	21:15	19:25 (7)	21:54	21:12	19:30 (7)	20:06	16:56
21	08:41	08:01	07:03	06:52	19:17 (6)	05:52	18:55 (7)	05:19	06:14	19:10 (7)	07:04	07:53
22	16:49	17:43	18:34	20:27	19:32 (6)	21:16	19:26 (7)	21:55	21:10	19:29 (7)	20:03	16:54
23	08:41	07:59	07:00	06:50	19:16 (6)	05:51	18:55 (7)	05:19	06:16	19:10 (7)	07:06	07:55
24	16:51	17:45	18:35	20:28	19:33 (6)	21:18	19:25 (7)	21:56	21:08	19:27 (7)	20:01	16:53
25	08:40	07:57	06:58	06:48	19:14 (6)	05:49	18:55 (7)	05:19	06:17	19:13 (7)	07:07	07:57
26	16:52	17:47	18:37	20:30	19:33 (6)	21:20	19:26 (7)	21:56	21:12	19:25 (7)	20:06	16:51
27	08:39	07:56	06:56	06:45	19:14 (6)	05:47	18:55 (7)	05:18	06:19	19:10 (7)	07:09	07:59
28	16:54	17:49	18:39	20:32	19:33 (6)	21:21	19:25 (7)	21:57	21:04	19:26 (7)	20:04	16:50
29	08:38	07:54	06:54	06:43	19:13 (6)	05:46	18:56 (7)	05:18	06:21	19:11 (7)	07:11	07:58
30	16:55	17:50	18:41	20:33	19:33 (6)	21:23	19:25 (7)	21:57	21:06	19:26 (7)	20:02	16:48
31	08:37	07:52	06:51	06:41	19:13 (6)	05:44	18:56 (7)	05:18	06:22	19:15 (7)	07:12	07:57
32	16:57	17:52	18:42	20:35	19:33 (6)	21:24	19:25 (7)	21:58	21:09	19:26 (7)	20:01	16:47
33	08:37	07:50	06:49	06:39	19:13 (6)	05:43	18:56 (7)	05:18	06:23	19:15 (7)	07:13	07:58
34	16:59	17:54	18:44	20:37	19:33 (6)	21:26	19:24 (7)	21:58	21:10	19:28 (7)	20:05	16:45
35	08:36	07:48	06:47	06:37	19:14 (6)	05:41	18:57 (7)	05:18	06:24	19:13 (7)	07:14	07:59
36	17:00	17:56	18:46	20:38	19:32 (6)	21:27	19:24 (7)	21:59	21:11	19:29 (7)	20:06	16:44
37	08:35	07:46	06:44	06:35	19:14 (6)	05:40	18:58 (7)	05:18	06:25	19:12 (7)	07:15	07:59
38	17:02	17:58	18:47	20:40	19:31 (6)	21:29	19:24 (7)	21:59	21:12	19:30 (7)	20:07	16:43
39	08:34	07:44	06:42	06:32	19:15 (6)	05:39	18:58 (7)	05:18	06:26	19:11 (7)	07:16	07:59
40	17:03	18:00	18:49	20:42	19:30 (6)	21:30	19:23 (7)	22:00	21:13	19:31 (7)	20:08	16:42
41	08:33	07:42	06:40	06:30	19:16 (6)	05:37	18:59 (7)	05:18	06:27	19:10 (7)	07:17	07:59
42	17:05	18:01	18:51	20:43	19:29 (6)	21:32	19:23 (7)	22:00	21:14	19:32 (7)	20:09	16:41
43	08:31	07:40	06:38	06:28	19:18 (6)	05:36	19:00 (7)	05:18	06:28	19:10 (7)	07:18	07:59
44	17:07	18:03	18:53	20:45	19:26 (6)	21:33	19:22 (7)	22:00	21:15	19:33 (7)	20:10	16:39
45	08:30	07:38	06:35	06:26	19:17 (6)	05:35	19:01 (7)	05:19	06:29	19:10 (7)	07:19	07:59
46	17:09	18:05	18:54	20:47	19:28 (6)	21:34	19:22 (7)	22:00	21:16	19:33 (7)	20:11	16:38
47	08:29	07:35	06:33	06:24	19:18 (6)	05:33	19:02 (7)	05:19	06:30	19:10 (7)	07:20	07:59
48	17:10	18:07	18:56	20:48	19:29 (6)	21:35	19:21 (7)	22:00	21:17	19:34 (7)	20:12	16:37
49	08:28	07:33	06:31	06:22	19:18 (6)	05:32	19:03 (7)	05:19	06:31	19:10 (7)	07:21	07:59
50	17:12	18:09	18:58	20:50	19:30 (6)	21:36	19:20 (7)	22:00	21:18	19:35 (7)	20:13	16:36
51	08:26	07:31	06:28	06:20	19:17 (6)	05:31	19:04 (7)	05:20	06:32	19:10 (7)	07:22	07:59
52	17:14	18:11	18:59	20:52	19:31 (6)	21:37	19:19 (7)	22:00	21:19	19:36 (7)	20:14	16:35
53	08:25	07:29	06:26	06:18	19:16 (6)	05:30	19:06 (7)	05:20	06:33	19:10 (7)	07:23	07:59
54	17:16	18:12	19:01	20:53	19:32 (6)	21:38	19:18 (7)	22:00	21:20	19:37 (7)	20:15	16:34
55	08:24	07:27	06:24	06:16	19:17 (6)	05:29	19:08 (7)	05:21	06:34	19:10 (7)	07:24	07:59
56	17:17	18:14	19:03	20:55	19:33 (6)	21:39	19:16 (7)	22:00	21:21	19:38 (7)	20:16	16:33
57	08:22	07:21	06:14	06:04	19:08 (7)	05:28	19:16 (7)	05:21	06:35	19:10 (7)	07:25	07:59
58	17:19	07:20	06:04	05:54	19:13 (7)	21:42	19:22 (7)	22:00	21:22	19:39 (7)	20:17	16:32
59	08:21	07:19	06:12	06:02	19:04 (7)	05:27	19:21 (7)	22:00	21:23	19:40 (7)	20:18	07:59
60	17:21	07:20	06:06	05:56	19:17 (7)	21:43	19:23 (7)	22:00	21:24	19:41 (7)	20:19	16:31
61	08:19	07:17	06:05	05:55	19:18 (7)	21:44	19:24 (7)	22:00	21:25	19:42 (7)	20:20	07:59
62	17:23	07:16	06:00	05:50	19:19 (7)	21:45	19:25 (7)	22:00	21:26	19:43 (7)	20:21	16:30
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				234	682		381		515	30		
Sun reduction				0.35	0.37		0.27		0.30	0.28		
Oper. time red.				1.00	1.00		1.00		1.00	1.00		
Wind dir. red.				0.63	0.62		0.62		0.62	0.63		
Total reduction				0.22	0.23		0.17		0.19	0.18		
Total, real				53	156		63		96	5		

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: 6460 Gortloughra WF only (Real Case) Shadow receptor: AD - H30

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	[January	[February	[March	[April	[May	[June	[July	[August	[September	[October	[November	[December				
1	08:45	08:18	07:25	07:15	06:10	05:25	19:23 (7)	05:22	05:59	19:21 (7)	06:48	07:37	07:30	08:21		
	16:37	17:25	18:16	20:10	21:00	21:46	9	19:32 (7)	21:59	21:28	19:48 (7)	20:26	19:17	17:11		
2	08:44	08:16	07:23	07:12	06:08	05:24	19:24 (7)	05:23	06:00	19:22 (7)	06:50	07:38	07:32	08:22		
	16:38	17:26	18:18	20:11	21:02	21:47	6	19:30 (7)	21:59	21:26	19:49 (7)	20:24	19:15	17:09		
3	08:44	08:15	07:20	07:10	06:06	05:24	19:24 (7)	05:24	06:02	19:22 (7)	06:51	07:40	07:34	08:24		
	16:39	17:28	18:19	20:13	21:03	21:48	2	19:26 (7)	21:48	21:25	19:47 (7)	20:22	19:12	17:08		
4	08:44	08:13	07:18	07:08	06:04	05:23	19:19 (7)	05:23	06:03	19:23 (7)	06:53	07:42	07:35	08:25		
	16:40	17:30	18:21	20:15	21:05	21:49	12	19:31 (7)	21:49	21:23	19:47 (7)	20:19	19:10	17:06		
5	08:44	08:12	07:16	07:05	06:03	05:22	19:17 (7)	05:22	06:05	19:24 (7)	06:54	07:43	07:37	08:26		
	16:42	17:32	18:23	20:16	21:07	21:50	15	19:32 (7)	21:50	21:21	19:46 (7)	20:17	19:08	17:04		
6	08:44	08:10	07:14	07:03	06:01	05:22	19:16 (7)	05:22	06:06	19:24 (7)	06:56	07:45	07:39	08:28		
	16:43	17:34	18:25	20:18	21:08	21:51	19	19:35 (7)	21:51	21:17	19:44 (7)	20:15	19:06	17:02		
7	08:43	08:08	07:12	07:01	05:59	05:21	19:14 (7)	05:21	06:08	19:26 (7)	06:58	07:47	07:41	08:29		
	16:44	17:36	18:27	20:20	21:10	21:52	21	19:35 (7)	21:52	21:17	19:44 (7)	20:13	19:03	17:01		
8	08:43	08:06	07:09	06:59	05:57	05:20	19:13 (7)	05:20	06:09	19:27 (7)	06:59	07:48	07:43	08:30		
	16:45	17:38	18:28	20:21	21:12	21:53	23	19:36 (7)	21:53	21:16	19:41 (7)	20:10	19:01	16:59		
9	08:42	08:05	07:07	06:56	05:56	05:20	19:13 (7)	05:20	06:11	19:29 (7)	07:01	07:50	07:44	08:31		
	16:47	17:39	18:30	20:23	21:13	21:53	24	19:37 (7)	21:53	21:15	19:39 (7)	20:08	18:59	16:57		
10	08:42	08:03	07:05	06:54	05:54	05:20	19:12 (7)	05:20	06:13	19:34 (7)	07:03	07:52	07:46	08:32		
	16:48	17:41	18:32	20:25	21:15	21:54	25	19:37 (7)	21:54	21:15	1	19:35 (7)	21:12	20:06		
11	08:41	08:01	07:03	06:52	05:52	05:19	19:12 (7)	05:19	06:31	19:31 (7)	06:14	07:04	07:53	07:48		
	16:49	17:43	18:34	20:27	21:16	21:55	26	19:38 (7)	21:55	21:14	7	19:38 (7)	21:10	20:03		
12	08:41	07:59	07:00	06:50	05:51	05:19	19:11 (7)	05:19	06:32	19:29 (7)	06:16	07:06	07:55	07:50		
	16:51	17:45	18:35	20:28	21:18	21:56	27	19:38 (7)	21:56	21:13	11	19:40 (7)	21:08	20:01		
13	08:40	07:57	06:58	06:48	05:49	05:19	19:11 (7)	05:19	06:33	19:28 (7)	06:17	07:07	07:57	07:51		
	16:52	17:47	18:37	20:30	21:20	21:56	28	19:39 (7)	21:56	21:12	13	19:41 (7)	21:06	19:59		
14	08:39	07:55	06:56	06:45	05:47	05:18	19:11 (7)	05:18	06:34	19:27 (7)	06:19	07:09	07:59	07:53		
	16:54	17:49	18:39	20:32	21:21	21:57	27	19:38 (7)	21:57	21:11	16	19:43 (7)	21:04	19:56		
15	08:38	07:54	06:54	06:43	05:46	05:18	19:11 (7)	05:18	06:35	19:26 (7)	06:21	07:11	08:00	07:55		
	16:55	17:50	18:41	20:33	21:23	21:57	28	19:39 (7)	21:57	21:10	17	19:43 (7)	21:02	19:54		
16	08:37	07:52	06:51	06:41	05:44	05:18	19:10 (7)	05:18	06:37	19:25 (7)	06:22	07:12	08:02	07:57		
	16:57	17:52	18:42	20:35	21:24	21:58	28	19:38 (7)	21:58	21:49	19	19:44 (7)	21:00	19:52		
17	08:37	07:50	06:49	06:39	05:43	05:18	19:11 (7)	05:18	06:38	19:26 (7)	06:24	07:14	08:04	07:58		
	16:59	17:54	18:44	20:37	21:26	21:58	28	19:39 (7)	21:58	21:48	20	19:46 (7)	20:58	19:49		
18	08:36	07:48	06:47	06:37	05:41	05:18	19:11 (7)	05:18	06:39	19:25 (7)	06:25	07:15	08:05	08:00		
	17:00	17:56	18:46	20:38	21:27	21:59	28	19:39 (7)	21:59	21:47	21	19:46 (7)	20:56	9		
19	08:35	07:46	06:44	06:35	05:40	05:18	19:12 (7)	05:18	06:40	19:24 (7)	06:27	07:17	08:07	08:04		
	17:02	17:58	18:47	20:40	21:29	21:59	27	19:39 (7)	21:59	21:46	23	19:47 (7)	20:54	13		
20	08:34	07:44	06:42	06:32	05:39	05:18	19:11 (7)	05:18	06:42	19:23 (7)	06:29	07:19	08:09	08:03		
	17:03	18:00	18:49	20:42	21:30	21:59	27	19:38 (7)	21:59	21:45	24	19:47 (7)	20:52	15		
21	08:33	07:42	06:40	06:30	05:37	05:18	19:12 (7)	05:18	06:43	19:23 (7)	06:30	07:20	08:11	16:45		
	17:05	18:01	18:51	20:43	21:32	22:00	26	19:38 (7)	22:00	21:44	24	19:47 (7)	20:50	16		
22	08:31	07:40	06:38	06:28	05:36	05:18	19:13 (7)	05:18	06:44	19:23 (7)	06:32	07:22	08:12	16:40		
	17:07	18:03	18:53	20:45	21:33	22:00	25	19:38 (7)	22:00	21:42	26	19:49 (7)	20:48	18		
23	08:30	07:38	06:35	06:26	05:35	05:19	19:13 (7)	05:19	06:46	19:22 (7)	06:33	07:24	08:14	16:39		
	17:09	18:05	18:54	20:47	21:34	22:00	25	19:38 (7)	22:00	21:41	27	19:49 (7)	20:46	19		
24	08:29	07:35	06:33	06:24	05:33	05:19	19:14 (7)	05:19	06:47	19:22 (7)	06:35	07:25	08:16	16:38		
	17:10	18:07	18:56	20:48	21:36	22:00	23	19:37 (7)	22:00	21:40	27	19:49 (7)	20:44	19		
25	08:28	07:33	06:31	06:22	05:32	05:19	19:15 (7)	05:19	06:48	19:22 (7)	06:37	07:27	08:18	16:37		
	17:12	18:09	18:58	20:50	21:37	22:00	22	19:37 (7)	22:00	21:38	28	19:50 (7)	20:42	18		
26	08:26	07:31	06:28	06:20	05:31	05:20	19:16 (7)	05:20	06:50	19:22 (7)	06:38	07:28	08:19	16:36		
	17:14	18:11	18:59	20:52	21:38	22:00	21	19:37 (7)	22:00	21:37	27	19:49 (7)	20:39	18		
27	08:25	07:29	06:26	06:18	05:30	05:20	19:16 (7)	05:20	06:51	19:21 (7)	06:40	07:30	08:21	16:35		
	17:16	18:12	19:01	20:53	21:40	22:00	20	19:36 (7)	22:00	21:36	28	19:49 (7)	20:37	17		
28	08:24	07:27	06:24	06:16	05:29	05:21	19:17 (7)	05:21	06:53	19:22 (7)	06:42	07:32	08:23	16:34		
	17:17	18:14	19:03	20:55	21:41	22:00	18	19:35 (7)	22:00	21:34	28	19:50 (7)	20:35	15		
29	08:22	07:21	06:14	06:04	05:28	05:21	19:18 (7)	05:21	06:54	19:21 (7)	06:43	07:33	08:24	16:33		
	17:19	07:21	06:04	05:57	21:42	22:00	16	19:34 (7)	22:00	21:33	28	19:49 (7)	20:33	13		
30	08:21	07:19	06:12	06:02	05:27	05:22	19:19 (7)	05:22	06:56	19:21 (7)	06:45	07:35	08:26	16:32		
	17:21	07:21	06:06	05:58	21:43	22:00	14	19:33 (7)	22:00	21:31	28	19:49 (7)	20:31	8		
31	08:19	07:17	06:10	06:00	05:26	05:20	19:20 (7)	05:22	06:57	19:22 (7)	06:46	07:36	08:27	16:31		
	17:23	07:23	06:08	06:00	21:44	22:00	12	19:32 (7)	22:00	21:29	27	19:49 (7)	20:28			
Potential sun hours	260	278	367	416	485	498			501		453		381	332	267	244
Total, worst case				194	637	15			470		385					
Sun reduction				0.35	0.37	0.30			0.27		0.30					
Oper. time red.				1.00	1.00	1.00			1.00		1.00					
Wind dir. red.				0.62	0.60	0.60			0.60		0.61					
Total reduction				0.22	0.22	0.18			0.16		0.18					
Total, real				43	142	3			75		70					

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)

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** AE - H31**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December				
1	08:45	08:18	07:25	07:15	06:10	05:25	20:08 (8)	05:22	20:16 (8)	05:59	06:48	07:37	07:30	08:21		
	16:37	17:25	18:16	20:10	21:00	21:46	21	20:29 (8)	21:59	17	20:33 (8)	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	20:08 (8)	05:23	20:15 (8)	06:00	06:50	07:38	07:32	08:22		
	16:38	17:26	18:18	20:11	21:02	21:47	21	20:29 (8)	21:59	18	20:33 (8)	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:24	20:08 (8)	05:24	20:16 (8)	06:02	06:51	07:40	07:34	08:24		
	16:39	17:28	18:19	20:13	21:03	21:48	21	20:29 (8)	21:59	18	20:34 (8)	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	20:09 (8)	05:24	20:16 (8)	06:03	06:53	07:42	07:35	08:25		
	16:40	17:30	18:21	20:15	21:05	21:49	20	20:29 (8)	21:58	18	20:34 (8)	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	20:09 (8)	05:25	20:16 (8)	06:05	06:54	07:43	07:37	08:26		
	16:41	17:32	18:23	20:16	21:07	21:50	20	20:29 (8)	21:58	19	20:35 (8)	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	20:10 (8)	05:26	20:15 (8)	06:06	06:56	07:45	07:39	08:28		
	16:43	17:34	18:25	20:18	21:08	21:51	19	20:29 (8)	21:57	20	20:35 (8)	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	20:10 (8)	05:27	20:15 (8)	06:08	06:58	07:47	07:41	08:29		
	16:44	17:36	18:27	20:20	21:10	21:52	19	20:29 (8)	21:57	20	20:35 (8)	21:17	20:12	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	20:10 (8)	05:28	20:15 (8)	06:09	06:59	07:48	07:43	08:30		
	16:45	17:37	18:28	20:21	21:12	21:53	19	20:29 (8)	21:56	21	20:36 (8)	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	20:10 (8)	05:29	20:15 (8)	06:11	07:01	07:50	07:44	08:31		
	16:47	17:39	18:30	20:23	21:13	21:53	18	20:28 (8)	21:55	21	20:36 (8)	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	20:11 (8)	05:30	20:15 (8)	06:13	07:02	07:52	07:46	08:32		
	16:48	17:41	18:32	20:25	21:15	21:54	18	20:29 (8)	21:55	21	20:36 (8)	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	20:12 (8)	05:31	20:15 (8)	06:14	07:04	07:53	07:48	08:33		
	16:49	17:43	18:34	20:26	21:16	21:55	17	20:29 (8)	21:54	22	20:37 (8)	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	20:13 (8)	05:32	20:15 (8)	06:16	07:06	07:55	07:50	08:34		
	16:51	17:45	18:35	20:28	21:18	21:56	16	20:29 (8)	21:53	22	20:37 (8)	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:47	05:49	05:19	20:12 (8)	05:33	20:15 (8)	06:17	07:07	07:57	07:51	08:35		
	16:52	17:47	18:37	20:30	21:20	21:56	16	20:28 (8)	21:52	22	20:37 (8)	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	20:13 (8)	05:34	20:15 (8)	06:19	07:09	07:58	07:53	08:36		
	16:54	17:49	18:39	20:32	21:21	21:57	15	20:28 (8)	21:51	22	20:37 (8)	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	20:13 (8)	05:35	20:15 (8)	06:21	07:11	08:00	07:55	08:37		
	16:55	17:50	18:41	20:33	21:23	21:57	16	20:29 (8)	21:50	22	20:37 (8)	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	20:14 (8)	05:37	20:15 (8)	06:22	07:12	08:02	07:57	08:38		
	16:57	17:52	18:42	20:35	21:24	9 20:21 (8)	15	20:29 (8)	21:49	22	20:37 (8)	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	20:14 (8)	05:38	20:16 (8)	06:24	07:14	08:04	07:58	08:39		
	16:59	17:54	18:44	20:37	21:26	12 20:23 (8)	15	20:29 (8)	21:48	22	20:38 (8)	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	20:14 (8)	05:39	20:16 (8)	06:25	07:15	08:05	08:00	08:40		
	17:00	17:56	18:46	20:38	21:27	14 20:24 (8)	15	20:29 (8)	21:47	22	20:38 (8)	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	20:15 (8)	05:40	20:16 (8)	06:27	07:17	08:07	08:02	08:40		
	17:02	17:58	18:47	20:40	21:29	17 20:26 (8)	14	20:29 (8)	21:46	22	20:38 (8)	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	20:15 (8)	05:42	20:16 (8)	06:29	07:19	08:09	08:03	08:41		
	17:03	18:00	18:49	20:42	21:30	18 20:26 (8)	14	20:29 (8)	21:45	21	20:37 (8)	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	20:16 (8)	05:43	20:17 (8)	06:30	07:20	08:11	08:05	08:42		
	17:05	18:01	18:51	20:43	21:31	19 20:26 (8)	14	20:30 (8)	21:44	20	20:37 (8)	20:50	19:40	18:33	16:40	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	20:16 (8)	05:44	20:18 (8)	06:32	07:22	08:12	08:07	08:42		
	17:07	18:03	18:53	20:45	21:33	20 20:27 (8)	14	20:30 (8)	21:42	19	20:37 (8)	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	20:16 (8)	05:46	20:18 (8)	06:33	07:24	08:14	08:08	08:43		
	17:09	18:05	18:54	20:47	21:34	21 20:28 (8)	14	20:30 (8)	21:41	19	20:37 (8)	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	20:15 (8)	05:47	20:18 (8)	06:35	07:25	08:16	08:10	08:43		
	17:10	18:07	18:56	20:48	21:36	21 20:28 (8)	15	20:30 (8)	21:40	18	20:36 (8)	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	20:16 (8)	05:48	20:20 (8)	06:37	07:27	08:18	08:12	08:43		
	17:12	18:09	18:58	20:50	21:37	21 20:28 (8)	15	20:31 (8)	21:38	16	20:36 (8)	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	20:16 (8)	05:50	20:21 (8)	06:38	07:28	08:19	08:13	08:44		
	17:14	18:10	18:59	20:52	21:38	22 20:29 (8)	15	20:31 (8)	21:37	13	20:34 (8)	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	20:16 (8)	05:51	20:22 (8)	06:40	07:30	08:21	08:15	08:44		
	17:16	18:12	19:01	20:53	21:40	22 20:29 (8)	16	20:32 (8)	21:36	10	20:32 (8)	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	20:16 (8)	05:53	20:25 (8)	06:42	07:32	08:23	08:16	08:44		
	17:17	18:14	19:03	20:55	21:41	22 20:29 (8)	16	20:32 (8)	21:34	6	20:31 (8)	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	20:16 (8)	05:54	20:26 (8)	06:43	07:33	08:24	08:18	08:44		
	17:19		20:04	20:57	21:42	22 20:29 (8)	16	20:32 (8)	21:33	20:33	19:22	17:17	16:33	16:34		
30	08:21		07:19	06:12	05:27	05:22	20:16 (8)	05:56	20:26 (8)	06:45	07:35	08:26	08:19	08:44		
	17:21		20:06	20:58	21:43	22 20:29 (8)	16	20:32 (8)	21:31	20:31	19:19	17:15	16:32	16:35		
31	08:19		07:17		05:26	20:07 (8)		05:57		06:46		07:28		08:45		
	17:23		20:08		21:44	22 20:29 (8)		21:29		20:28		17:13		16:36		
Potential sun hours	260	278	367	416	485	498	500	501	453	381	332	267	244			
Total, worst case					304	500		533								
Sun reduction					0.37	0.30		0.27								
Oper. time red.					1.00	1.00		1.00								
Wind dir. red.					0.57	0.57		0.57								
Total reduction					0.21	0.17		0.15								
Total, real					64	85		81								

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

Day in month	Sun rise (hh:mm)	Sun
--------------	------------------	-----

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Assumptions for shadow calculations
Shadow receptor: AF - H32

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	07:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	07:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	07:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AG - H33**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AH - H34**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AI - H35**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AJ - H36**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	07:04 (6) 21:46	05:25 22:00	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	07:05 (6) 21:47	05:25 21:59	06:00 21:26	06:50 20:24	07:39 19:15	07:32 17:10	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:07 21:04	07:06 (6) 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:40 19:13	07:34 17:08	08:24 16:30
4	08:44 16:41	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	07:08 (6) 21:49	05:23 21:59	06:03 21:23	06:53 20:20	07:42 19:10	07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	07:15 (6) 21:49	05:22 21:58	06:05 21:21	06:55 20:17	07:44 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09		05:22 21:58	06:07 21:19	06:56 20:15	07:45 19:06	07:39 17:03	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10		05:21 21:57	06:08 21:18	06:58 20:13	07:47 19:04	07:41 17:01	08:29 16:28
8	08:43 16:46	08:07 17:38	07:10 18:29	06:59 20:22	05:57 21:12		05:21 21:56	06:10 21:16	07:00 20:10	07:49 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:13		05:20 21:56	06:11 21:14	07:17 (6) 9	07:01 20:08	07:50 18:59	07:45 16:58
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15		05:20 21:55	06:13 21:12	07:15 (6) 13	07:03 20:06	07:52 18:57	07:46 16:56
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17		05:19 21:54	06:14 21:10	07:13 (6) 16	07:04 20:04	07:54 18:55	07:48 16:54
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18		05:19 21:53	06:16 21:08	07:12 (6) 19	07:06 20:01	07:55 18:52	07:50 16:53
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20		05:19 21:52	06:18 21:06	07:11 (6) 20	07:08 19:59	07:57 18:50	07:52 16:51
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:48 21:21		05:19 21:52	06:19 21:04	07:10 (6) 22	07:09 19:57	07:59 18:48	07:53 16:50
15	08:38 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23		05:18 21:51	06:21 21:02	07:09 (6) 23	07:11 19:54	08:00 18:46	07:55 16:48
16	08:38 16:57	07:52 17:53	06:52 18:42	06:41 20:35	05:44 21:24		05:18 21:50	06:22 21:00	07:09 (6) 23	07:12 19:52	08:02 18:44	07:57 16:47
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26		05:18 21:49	06:24 20:58	07:08 (6) 24	07:14 19:50	08:04 18:41	07:59 16:46
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:42 10 07:20 (6)		05:18 21:47	06:26 20:56	07:09 (6) 23	07:16 19:47	08:06 18:39	08:00 16:44
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 14 07:22 (6)		05:18 21:46	06:27 20:54	07:08 (6) 23	07:17 19:45	08:07 18:37	08:02 16:43
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 17 07:23 (6)		05:18 22:00	06:29 20:52	07:09 (6) 22	07:19 19:43	08:09 18:35	08:04 16:42
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 19 07:24 (6)		05:18 22:00	06:30 20:50	07:09 (6) 20	07:20 19:40	08:11 18:33	08:05 16:41
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21 07:25 (6)		05:19 22:00	06:32 20:48	07:10 (6) 19	07:22 19:38	08:13 18:31	08:07 16:40
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 22 07:26 (6)		05:19 22:00	06:34 20:46	07:10 (6) 17	07:24 19:36	08:14 18:29	08:09 16:38
24	08:29 17:11	07:36 18:07	06:33 18:56	06:24 20:49	05:34 23 07:25 (6)		05:19 22:00	06:35 20:44	07:12 (6) 14	07:25 19:33	08:16 18:27	08:10 16:37
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 23 07:25 (6)		05:19 22:00	06:37 20:42	07:13 (6) 10	07:27 19:31	08:18 17:25	08:12 16:36
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 23 07:25 (6)		05:20 22:00	06:39 20:40	07:23 (6) 10	07:29 19:29	08:20 17:23	08:13 16:35
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 22 07:24 (6)		05:20 22:00	06:40 20:37		07:30 19:26	08:21 17:21	08:15 16:35
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 22 07:24 (6)		05:21 22:00	06:42 20:35		07:32 19:24	08:23 17:19	08:17 16:34
29	08:23 17:19		07:22 20:05	06:14 20:57	05:28 21 07:23 (6)		05:21 22:00	06:43 20:33		07:34 19:22	08:25 17:17	08:18 16:33
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 20 07:22 (6)		05:22 22:00	06:45 20:31		07:35 19:19	08:27 17:15	08:20 16:32
31	08:20 17:23		07:17 20:08		05:26 21:45			06:47 20:29			08:29 17:13	
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				257	52			317				
Sun reduction				0.35	0.37			0.30				
Oper. time red.				1.00	1.00			1.00				
Wind dir. red.				0.68	0.68			0.68				
Total reduction				0.24	0.25			0.20				
Total, real				62	13			64				

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) Shadow receptor: AK - H37
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time
N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	[January	[February	[March	[April	[May	[June	[July	[August	[September	[October	[November	[December				
1	08:45	08:18	07:25	07:15	06:10	06:51 (6)	05:25	06:09 (3)	05:59	07:01 (6)	06:48	07:37	07:30	08:21		
2	16:37	17:25	18:16	20:10	21:00	07:19 (6)	21:46	06:17 (3)	22:00	06:28 (3)	21:28	07:26 (6)	20:26	19:17	17:11	16:31
3	08:45	08:17	07:23	07:12	06:08	06:50 (6)	05:25	06:08 (3)	05:23	06:10 (3)	06:00	07:01 (6)	06:50	07:39	07:32	08:22
4	16:38	17:27	18:18	20:11	21:02	07:19 (6)	21:47	06:18 (3)	21:59	06:28 (3)	21:26	07:27 (6)	20:24	19:15	17:10	16:31
5	08:45	08:15	07:21	07:10	06:07	06:49 (6)	05:24	06:08 (3)	05:24	06:10 (3)	06:02	07:00 (6)	06:51	07:40	07:34	08:24
6	16:39	17:28	18:20	20:13	21:04	07:19 (6)	21:48	06:20 (3)	21:59	06:28 (3)	21:25	07:27 (6)	20:22	19:13	17:08	16:30
7	08:44	08:13	07:18	07:08	06:05	06:49 (6)	05:23	06:07 (3)	05:25	06:11 (3)	06:03	07:00 (6)	06:53	07:42	07:36	08:25
8	16:41	17:30	18:21	20:15	21:05	07:18 (6)	21:49	06:20 (3)	21:59	06:28 (3)	21:23	07:28 (6)	20:20	19:10	17:06	16:30
9	08:44	08:12	07:16	07:06	06:03	06:50 (6)	05:22	06:06 (3)	05:25	06:11 (3)	06:05	06:59 (6)	06:55	07:43	07:37	08:26
10	16:42	17:32	18:23	20:17	21:07	07:19 (6)	21:50	06:20 (3)	21:58	06:28 (3)	21:21	07:28 (6)	20:17	19:08	17:04	16:29
11	08:44	08:10	07:14	07:03	06:01	06:49 (6)	05:22	06:06 (3)	05:26	06:12 (3)	06:06	06:59 (6)	06:56	07:45	07:39	08:28
12	16:43	17:34	18:25	20:18	21:09	07:18 (6)	21:51	06:22 (3)	21:58	06:28 (3)	21:19	07:28 (6)	20:15	19:06	17:02	16:29
13	08:43	08:08	07:12	07:01	05:59	06:49 (6)	05:21	06:05 (3)	05:27	06:13 (3)	06:08	06:59 (6)	06:58	07:47	07:41	08:29
14	16:44	17:36	18:27	20:20	21:10	07:18 (6)	21:52	06:22 (3)	21:57	06:28 (3)	21:18	07:28 (6)	20:13	19:03	17:01	16:28
15	08:43	08:07	07:10	06:59	05:57	06:50 (6)	05:21	06:05 (3)	05:28	06:13 (3)	06:10	06:59 (6)	06:59	07:49	07:43	08:30
16	16:45	17:38	18:29	20:22	21:12	07:18 (6)	21:53	06:23 (3)	21:56	06:27 (3)	21:16	07:28 (6)	20:10	19:01	16:59	16:28
17	08:42	08:05	07:07	06:57	05:56	06:50 (6)	05:20	06:06 (3)	05:29	06:14 (3)	06:11	06:59 (6)	07:01	07:50	07:45	08:31
18	16:47	17:40	18:30	20:23	21:13	07:17 (6)	21:54	06:23 (3)	21:56	06:26 (3)	21:14	07:28 (6)	20:08	18:59	16:57	16:28
19	08:42	08:03	07:05	06:54	05:54	06:50 (6)	05:20	06:05 (3)	05:30	06:15 (3)	06:13	06:59 (6)	07:03	07:52	07:46	08:32
20	16:48	17:41	18:32	20:25	21:15	07:16 (6)	21:54	06:23 (3)	21:55	06:26 (3)	21:12	07:28 (6)	20:06	18:57	16:56	16:27
21	08:41	08:01	07:03	06:52	05:52	06:51 (6)	05:19	06:05 (3)	05:31	06:16 (3)	06:14	06:59 (6)	07:04	07:54	07:48	08:34
22	16:50	17:43	18:34	20:27	21:17	07:16 (6)	21:55	06:24 (3)	21:54	06:25 (3)	21:10	07:27 (6)	20:04	18:55	16:54	16:27
23	08:41	07:59	07:01	06:50	05:51	06:51 (6)	05:19	06:05 (3)	05:32	06:18 (3)	06:16	06:59 (6)	07:06	07:55	07:50	08:35
24	16:51	17:45	18:36	20:28	21:18	07:15 (6)	21:56	06:24 (3)	21:53	06:23 (3)	21:08	07:27 (6)	20:01	18:52	16:53	16:27
25	08:40	07:58	06:58	06:48	05:49	06:52 (6)	05:19	06:06 (3)	05:33	06:18	06:59 (6)	07:08	07:57	07:52	08:36	08:36
26	16:53	17:47	18:37	20:30	21:20	07:14 (6)	21:56	06:25 (3)	21:52	06:27 (7)	21:06	07:27 (7)	19:59	18:50	16:51	16:27
27	08:39	07:56	06:56	06:46	05:48	06:53 (6)	05:19	06:05 (3)	05:34	06:19	07:00 (6)	07:09	07:59	07:53	08:37	08:37
28	16:54	17:49	18:39	20:32	21:21	07:13 (6)	21:57	06:25 (3)	21:52	06:26 (3)	21:04	07:30 (7)	19:57	18:48	16:50	16:27
29	08:38	07:54	06:54	06:43	05:46	06:54 (6)	05:18	06:05 (3)	05:36	06:21	07:00 (6)	07:11	08:00	07:55	08:37	08:37
30	16:56	17:51	18:41	20:33	21:23	07:12 (6)	21:58	06:25 (3)	21:51	06:27 (7)	21:02	07:31 (7)	19:54	18:46	16:48	16:27
31	08:38	07:52	06:52	06:41	05:44	06:56 (6)	05:18	06:05 (3)	05:37	06:22	07:02 (6)	07:12	08:02	07:57	08:38	08:38
32	16:57	17:52	18:42	20:35	21:24	07:11 (6)	21:58	06:25 (3)	21:50	06:27 (7)	21:00	07:32 (7)	19:52	18:44	16:47	16:27
33	08:37	07:50	06:49	06:39	05:43	06:57 (6)	05:18	06:05 (3)	05:38	06:24	07:02 (6)	07:14	08:04	07:59	08:39	08:39
34	16:59	17:54	18:44	20:37	21:26	07:08 (6)	21:59	06:26 (3)	21:49	06:28 (7)	21:06	07:32 (7)	19:50	18:41	16:46	16:27
35	08:36	07:48	06:47	06:37	05:42	07:01 (6)	05:18	06:06 (3)	05:39	06:26	07:04 (6)	07:16	08:06	08:00	08:40	08:40
36	17:00	17:56	18:46	20:39	21:27	07:25 (7)	21:27	06:26 (3)	21:47	06:25 (6)	21:04	07:33 (7)	19:47	18:39	16:44	16:28
37	08:35	07:46	06:45	06:35	05:40	07:10 (7)	05:40	06:06 (3)	05:40	06:27	07:06 (6)	07:17	08:07	08:02	08:41	08:41
38	17:02	17:58	18:48	20:40	21:29	07:26 (7)	21:29	06:26 (3)	21:46	06:27 (7)	21:04	07:32 (7)	19:45	18:37	16:43	16:28
39	08:34	07:44	06:42	06:33	05:39	07:09 (7)	05:39	06:07 (3)	05:42	06:29	07:13 (7)	07:19	08:09	08:04	08:41	08:41
40	17:04	18:00	18:49	20:42	21:30	07:26 (7)	21:30	06:27 (3)	21:45	06:29	07:32 (7)	19:43	18:35	16:42	16:28	16:28
41	08:33	07:42	06:40	06:30	05:37	07:08 (7)	05:37	06:07 (3)	05:43	06:30	07:12 (7)	07:20	08:11	08:05	08:42	08:42
42	17:05	18:02	18:51	20:44	21:32	07:27 (7)	21:32	06:27 (3)	21:44	06:30	07:32 (7)	19:40	18:33	16:41	16:29	16:29
43	08:32	07:40	06:38	06:28	05:36	07:08 (7)	05:36	06:07 (3)	05:44	06:32	07:13 (7)	07:22	08:13	08:07	08:42	08:42
44	17:07	18:03	18:53	20:45	21:33	07:27 (7)	21:33	06:27 (3)	21:43	06:34	07:31 (7)	19:38	18:31	16:40	16:29	16:29
45	08:30	07:38	06:35	06:26	05:35	07:07 (7)	05:35	06:07 (3)	05:46	06:34	07:13 (7)	07:24	08:14	08:09	08:43	08:43
46	17:09	18:05	18:54	20:47	21:34	07:27 (7)	21:34	06:27 (3)	21:41	06:35	07:30 (7)	19:36	18:29	16:38	16:30	16:30
47	08:29	07:36	06:33	06:24	05:34	07:00 (6)	05:34	06:08 (3)	05:47	06:35	07:14 (7)	07:25	08:16	08:10	08:43	08:43
48	17:10	18:07	18:56	20:49	21:36	07:26 (7)	21:36	06:28 (3)	21:40	06:37	07:29 (7)	19:33	18:27	16:37	16:30	16:30
49	08:28	07:34	06:31	06:22	05:32	06:57 (6)	05:32	06:07 (3)	05:49	06:37	07:14 (7)	07:27	08:18	08:12	08:44	08:44
50	17:12	18:09	18:58	20:50	21:37	07:27 (7)	21:37	06:28 (3)	21:39	06:37	07:27 (7)	19:31	18:25	16:36	16:31	16:31
51	08:27	07:31	06:29	06:20	05:31	06:55 (6)	05:31	06:07 (3)	05:50	06:38	07:17 (7)	07:29	08:20	08:13	08:44	08:44
52	17:14	18:11	19:00	20:52	21:39	07:25 (7)	21:39	06:27 (3)	21:37	06:38	07:18 (6)	07:26	08:17	08:11	16:32	16:32
53	08:25	07:29	06:26	06:18	05:30	06:54 (6)	05:30	06:08 (3)	05:51	06:39	07:07 (6)	07:19	08:10	08:03	08:44	08:44
54	17:16	18:13	19:01	20:54	21:40	07:24 (7)	21:40	06:28 (3)	21:36	06:40	07:20 (6)	07:37	19:26	17:21	16:35	16:32
55	08:24	07:27	06:24	06:16	05:29	06:52 (6)	05:29	06:08 (3)	05:53	06:42	07:06 (6)	07:18	08:09	08:02	08:44	08:44
56	17:18	18:14	19:03	20:55	21:41	07:23 (7)	21:41	06:28 (3)	21:34	06:43	07:22 (6)	20:35	19:24	17:19	16:34	16:33
57	08:23	07:22	06:14	06:05	05:28	06:51 (6)	05:28	06:09 (3)	05:54	06:43	07:04 (6)	07:16	08:07	08:00	08:45	08:45
58	17:19	07:20	06:17	06:08	05:27	07:21 (7)	21:42	06:28 (3)	21:33	06:44	07:23 (6)	20:33	19:22	17:17	16:33	16:34
59	08:21	07:19	06:12	06:03	05:27	06:50 (6)	05:27	06:09 (3)	05:56	06:45	07:04 (6)	07:16	08:07	08:00	08:45	08:45
60	17:21	07:20	06:17	06:08	05:27	07:21 (7)	21:42	06:28 (3)	21:33	06:44	07:23 (6)	20:33	19:22	17:17	16:33	16:34
61	08:20	07:17	06:10	06:01	05:26	06:49 (6)	05:26	06:09 (3)	05:56	06:45	07:04 (6)	07:16	08:07	08:00	08:45	08:45
62	17:23	07:22	06:18	06:09	05:28	07:23 (7)	21:43	06:28 (3)	21:34	06:45	07:24 (6)	20:34	19:23	17:18	16:34	16:35
63	08:19	07:16	06:09	06:00	05:25	06:48 (6)	05:25	06:08 (3)	05:55	06:44	07:03 (6)					

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** AL - H38**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	06:33 (6) 22:00	05:59 21:28	06:34 (6) 20:26	06:48 19:17	07:37 17:11	07:30 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	05:25 21:47	06:34 (6) 21:59	06:00 21:26	06:36 (6) 20:24	06:50 19:15	07:39 17:10	07:32 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:07 21:04	05:24 21:48	06:34 (6) 21:59	06:02 21:25	06:37 (6) 20:22	06:51 19:13	07:40 17:08	07:34 16:30
4	08:44 16:41	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	05:23 21:49	06:34 (6) 21:59	06:03 21:23	06:40 (6) 20:20	06:53 19:10	07:42 17:06	07:36 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	05:22 21:50	06:34 (6) 21:58	06:05 21:21	06:46 (6) 20:17	06:55 19:08	07:44 17:04	07:37 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	06:34 (6) 21:58	06:07 21:19	06:46 (6) 20:15	06:56 19:06	07:45 17:03	07:39 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	06:34 (6) 21:57	06:08 21:18	06:46 (6) 20:13	06:58 19:04	07:47 17:01	07:41 16:28
8	08:43 16:46	08:07 17:38	07:10 18:29	06:59 20:22	05:58 21:12	05:21 21:53	06:34 (6) 21:56	06:10 21:16	06:46 (6) 20:10	06:58 19:01	07:49 16:59	07:43 16:28
9	08:42 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:13	05:20 21:54	06:34 (6) 21:56	06:11 21:14	06:46 (6) 20:08	06:59 18:59	07:50 16:58	07:45 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	06:34 (6) 21:55	06:13 21:12	06:46 (6) 20:06	07:02 18:57	07:52 16:56	07:46 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	06:34 (6) 21:54	06:14 21:10	06:46 (6) 20:04	07:04 18:55	07:54 16:54	07:48 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18	05:19 21:56	06:34 (6) 21:53	06:16 21:08	06:46 (6) 20:01	07:06 18:52	07:55 16:53	07:50 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	06:34 (6) 21:52	06:18 21:06	06:37 (6) 20:58	07:08 19:59	07:57 16:51	07:52 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:48 21:21	05:19 21:57	06:34 (6) 21:52	06:19 21:04	06:36 (6) 20:57	06:19 19:57	07:59 16:50	07:53 16:27
15	08:38 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	06:34 (6) 21:51	06:21 21:02	06:36 (6) 20:54	06:21 19:54	07:55 16:48	07:55 16:27
16	08:38 16:57	07:52 17:53	06:52 18:42	06:41 20:35	05:44 21:24	05:18 21:58	06:34 (6) 21:50	06:22 21:00	06:35 (6) 20:52	06:22 19:52	07:57 16:44	07:57 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	06:34 (6) 21:49	06:24 20:58	06:34 (6) 20:50	06:24 19:50	07:59 16:46	07:59 16:28
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:42 21:27	05:18 21:59	06:34 (6) 21:47	06:26 20:56	06:34 (6) 20:51	06:26 19:47	08:00 16:44	08:00 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	06:34 (6) 21:46	06:27 20:54	06:33 (6) 20:51	06:27 19:45	08:02 16:43	08:02 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	05:18 22:00	06:34 (6) 21:45	06:29 20:52	06:33 (6) 20:51	06:29 19:43	08:04 16:42	08:04 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	06:34 (6) 21:44	06:30 20:50	06:33 (6) 20:50	06:30 19:40	08:05 16:41	08:05 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	06:34 (6) 21:43	06:32 20:48	06:33 (6) 20:48	06:32 19:38	08:07 16:40	08:07 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	06:34 (6) 21:41	06:34 20:46	06:32 (6) 20:46	06:34 19:36	08:14 16:38	08:09 16:30
24	08:29 17:11	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	05:19 22:00	06:34 (6) 21:40	06:35 20:44	06:32 (6) 20:44	06:35 19:33	08:16 16:37	08:10 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:20 22:00	06:34 (6) 21:39	06:37 20:42	06:32 (6) 20:42	06:37 19:31	08:12 16:36	08:12 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	05:20 22:00	06:34 (6) 21:37	06:39 20:40	06:32 (6) 20:40	06:39 19:29	08:13 16:35	08:13 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	06:34 (6) 21:36	06:40 20:37	06:32 (6) 20:37	06:40 19:26	08:15 16:35	08:15 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	06:34 (6) 21:34	06:42 20:35	06:32 (6) 20:35	06:42 19:24	08:17 16:34	08:17 16:33
29	08:23 17:19	07:22 20:05	06:14 20:57	05:28 21:42	05:28 21:42	05:21 22:00	06:34 (6) 21:33	06:43 20:33	06:33 (6) 20:33	06:43 19:22	08:18 16:33	08:18 16:34
30	08:21 17:21	07:19 20:06	06:12 20:59	05:27 21:43	05:27 21:43	05:22 22:00	06:34 (6) 21:31	06:45 20:31	06:34 (6) 20:31	06:45 19:19	08:20 16:32	08:20 16:35
31	08:20 17:23	07:17 20:08	06:11 20:58	05:26 21:45	05:26 21:45	06:30 (6) 21:37	06:34 (6) 21:30	06:47 20:29	06:34 (6) 20:29	06:47 19:13	08:21 16:32	08:21 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	245
Total, worst case					381	1	342	47				
Sun reduction					0.37	0.30	0.27	0.30				
Oper. time red.					1.00	1.00	1.00	1.00				
Wind dir. red.					0.69	0.69	0.69	0.69				
Total reduction					0.26	0.21	0.19	0.21				
Total, real					98	0	64	10				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: AM - H39

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:57	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AN - H40**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:52	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: AO - H41

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: AP - H42

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: AQ - H43

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:51	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AR - H44**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AS - H45**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AT - H46**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Assumptions for shadow calculations
Shadow receptor: AU - H47

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AV - H48**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April	May	June	July	August	September		October		November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16		07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26		07:37 19:17	9	08:30 (1) 08:39 (1)	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18		07:12 20:11	06:08 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24		07:39 19:15			07:32 17:10	08:23 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20		07:10 20:13	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22		07:40 19:13			07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:19 18:21		07:08 20:15	06:05 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20		07:42 19:10			07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23		07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17		07:44 19:08			07:38 17:04	08:27 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15		07:45 19:06			07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27		07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13		07:47 19:04			07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:29		06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10		07:49 19:01			07:43 16:59	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30		06:57 20:23	05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08		07:50 18:59			07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06		07:52 18:57			07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34		06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04		07:54 18:55			07:48 16:54	08:34 16:27
12	08:41 16:51	08:00 17:45	07:01 18:36	5	07:53 (1) 07:58 (1)	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52			07:50 16:53	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	11	07:49 (1) 08:00 (1)	06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:07	07:08 19:59	07:57 18:50			07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	15	07:47 (1) 08:02 (1)	06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57	07:59 18:48			07:53 16:50	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	17	07:46 (1) 08:03 (1)	06:43 20:34	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54	07:55 18:46			07:55 16:48	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	19	07:44 (1) 08:03 (1)	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52	07:57 18:44			07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	19	07:44 (1) 08:03 (1)	06:39 20:37	05:43 21:26	05:18 21:59	05:38 20:59	06:24 19:50	07:14 19:50	08:04 18:41			07:59 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	19	07:43 (1) 08:03 (1)	06:37 20:39	05:41 21:27	05:18 21:59	05:39 21:48	06:26 20:57	07:16 19:47	08:06 18:39			08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	20	07:43 (1) 08:02 (1)	06:35 20:40	05:40 21:29	05:18 21:59	05:40 20:54	06:27 19:45	07:17 19:45	08:07 18:37			08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	19	07:43 (1) 08:02 (1)	06:33 20:42	05:39 21:30	05:18 22:00	06:29 20:52	07:19 19:43	3 08:39 (1) 08:32 (1)	08:09 18:35			08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	19	07:44 (1) 08:01 (1)	06:30 20:44	05:37 21:32	05:18 22:00	06:30 20:50	07:21 19:40	11 08:43 (1) 08:30 (1)	08:11 18:33			08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	17	07:44 (1) 07:59 (1)	06:28 20:45	05:36 21:33	05:19 22:00	06:32 20:48	07:22 19:38	14 08:44 (1) 08:28 (1)	08:13 18:31			08:07 16:40	08:42 16:29
23	08:31 17:09	07:38 18:05	06:35 18:54	15	07:45 (1) 07:57 (1)	06:26 20:47	05:35 21:35	05:19 22:00	06:34 21:41	07:24 19:36	17 08:45 (1) 08:28 (1)	08:14 18:16			08:09 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	12	07:48 (1) 07:54 (1)	06:24 20:49	05:34 21:36	05:19 22:01	06:35 20:44	07:25 19:33	18 08:46 (1) 08:26 (1)	08:16 18:17			08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	6	06:22 20:50	05:32 21:37	05:19 22:01	05:49 21:39	06:37 20:42	07:27 19:31	20 08:46 (1) 08:26 (1)	07:18 17:25			08:12 16:36	08:44 16:31
26	08:27 17:14	07:32 18:11	06:29 19:00		06:20 20:52	05:31 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29	20 08:46 (1) 08:26 (1)	07:20 17:23			08:14 16:35	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01		06:18 20:54	05:30 21:40	05:20 22:01	05:51 21:36	06:40 20:37	07:30 19:26	19 08:46 (1) 08:26 (1)	07:21 17:21			08:15 16:34	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03		06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24	18 08:45 (1) 08:26 (1)	07:23 17:19			08:17 16:34	08:45 16:33
29	08:23 17:19		07:22 20:05		06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22	16 08:44 (1) 08:27 (1)	07:25 17:17			08:18 16:33	08:45 16:34
30	08:21 17:21		07:19 20:06		06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	13 08:43 (1) 08:28 (1)	07:27 17:15			08:20 16:32	08:45 16:35
31	08:20 17:23		07:17 20:08			05:26 21:45		05:57 21:30	06:47 20:29		13 08:41 (1) 07:29	07:29 17:13			08:45 16:36	08:45 16:36
Potential sun hours	260	278	367		416	485	498	501	453	381		332			267	244
Total, worst case			194							189			9			
Sun reduction			0.24							0.28			0.24			
Oper. time red.			1.00							1.00			1.00			
Wind dir. red.			0.59							0.59			0.59			
Total reduction			0.14							0.17			0.14			
Total, real			28							32			1			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: AW - H49

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:22
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:45	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:18	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:00	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	08:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Assumptions for shadow calculations
Shadow receptor: AX - H50

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:13	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:23
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:41	17:30	18:22	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:46	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:11	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:19	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:01	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:42	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:04	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:11	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	08:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:20	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AY - H51**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:45	08:15	07:21	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:59	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:43	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:54	21:56	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:49	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:18	05:33	06:17	07:07	07:57	07:52	08:36
	16:52	17:47	18:37	20:30	21:20	21:57	21:53	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:04	19:56	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:58	17:54	18:44	20:37	21:26	21:59	21:49	20:58	19:50	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:45	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:29	07:19	08:09	08:04	08:41
	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:32	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:45	06:33	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:29
24	08:29	07:36	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:39	22:01	21:37	20:39	19:29	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:42	07:32	08:23	08:17	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:23		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	259	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** AZ - H52**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:13	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:23
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:41	17:30	18:22	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:44	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:58	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:46	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:11	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:19	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:01	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:42	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:31	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:04	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:36	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:11	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	07:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	07:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	07:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	07:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	07:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:20	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** BA - H53**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:57	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BB - H54**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31		
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30		
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30		
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29		
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29		
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28		
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:01	08:29 16:28		
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28		
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27		
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	07:52 18:57	07:46 16:56	08:32 16:27		
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27		
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	19:29 (5) 19:32 (5)	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27	
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	9 19:21 (5) 19:30 (5)	05:49 21:20	05:18 21:56	06:17 21:06	19:25 (5) 19:36 (5)	07:07 19:59	18:40 (4) 18:47 (4)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	14 19:18 (5) 19:32 (5)	05:47 21:21	05:18 21:57	06:19 21:04	19:23 (5) 19:38 (5)	07:09 19:56	18:37 (4) 18:49 (4)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	18 19:16 (5) 19:34 (5)	05:46 21:23	05:18 21:57	06:20 21:02	19:21 (5) 19:39 (5)	07:11 19:54	18:35 (4) 18:50 (4)	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	20 19:15 (5) 19:35 (5)	05:44 21:24	05:18 21:58	06:22 21:49	19:20 (5) 19:40 (5)	07:12 19:52	18:33 (4) 18:50 (4)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	22 19:14 (5) 19:36 (5)	05:43 21:26	05:18 21:58	06:24 20:58	19:19 (5) 19:41 (5)	07:14 19:49	18:33 (4) 18:51 (4)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	23 19:13 (5) 19:36 (5)	05:41 21:27	05:18 21:59	06:25 20:56	19:18 (5) 19:41 (5)	07:15 19:47	18:32 (4) 18:50 (4)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	3 17:54 (4) 17:57 (4)	06:34 20:40	05:40 21:29	05:18 21:59	06:27 20:54	19:17 (5) 19:41 (5)	07:17 19:45	18:32 (4) 18:50 (4)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	11 17:50 (4) 18:01 (4)	06:32 20:42	05:38 21:30	05:18 21:59	06:29 20:52	19:16 (5) 19:41 (5)	07:19 19:42	18:32 (4) 18:50 (4)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	14 17:47 (4) 18:01 (4)	06:30 20:43	05:37 21:32	05:18 22:00	06:30 20:50	19:16 (5) 19:41 (5)	07:20 19:40	18:32 (4) 18:48 (4)	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	16 17:46 (4) 18:02 (4)	06:28 20:45	05:36 21:33	05:18 22:00	06:32 20:48	19:15 (5) 19:41 (5)	07:22 19:38	18:33 (4) 18:47 (4)	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	17 17:46 (4) 18:03 (4)	06:26 20:47	05:35 21:34	05:19 22:00	06:33 20:46	19:16 (5) 19:41 (5)	07:23 19:35	18:33 (4) 18:45 (4)	08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	17 17:45 (4) 18:04 (4)	06:24 20:48	05:33 21:36	05:19 22:00	06:35 20:44	19:16 (5) 19:41 (5)	07:25 19:33	18:36 (4) 18:42 (4)	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	19 17:44 (4) 18:03 (4)	06:22 20:50	05:32 21:37	05:19 22:00	06:37 20:41	19:16 (5) 19:39 (5)	07:27 19:31	18:42 (4) 18:48 (4)	07:18 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	19 17:44 (4) 18:02 (4)	06:20 20:52	05:31 21:38	05:20 22:00	06:38 20:39	19:17 (5) 19:39 (5)	07:28 19:28	18:48 (4) 18:54 (4)	07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	18 17:45 (4) 18:02 (4)	06:18 20:53	05:30 21:40	05:21 22:00	06:40 20:37	19:17 (5) 19:37 (5)	07:30 19:26	18:51 (4) 18:57 (4)	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	17 17:45 (4) 18:00 (4)	06:16 20:55	05:29 21:41	05:20 22:00	06:41 20:35	19:18 (5) 19:36 (5)	07:32 19:24	18:58 (4) 19:04 (4)	07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:14	06:24 19:04	15 17:46 (4) 18:01 (4)	06:14 20:57	05:28 21:42	05:21 22:00	06:43 20:33	19:19 (5) 19:33 (5)	07:33 19:22	18:59 (4) 19:05 (4)	07:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 18:16	06:23 19:06	13 17:48 (4) 18:03 (4)	06:12 20:58	05:27 21:43	05:22 22:00	06:45 20:31	19:22 (5) 19:30 (5)	07:35 19:19	18:59 (4) 19:05 (4)	07:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:22 19:07	9 17:57 (4) 18:02 (4)	06:11 20:59	05:26 21:44	05:23 22:00	06:46 20:28	19:23 (5) 19:31 (5)	07:36 19:20	19:00 (4) 19:06 (4)	07:28 17:13	08:45 16:36	08:46 16:37
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244		
Total, worst case														
Sun reduction			171	361				367	171					
Oper. time red.			0.24	0.35				0.30	0.28					
Wind dir. red.			1.00	1.00				1.00	1.00					
Total reduction			0.67	0.63				0.63	0.67					
Total, real			0.16	0.22				0.19	0.19					
			28	80				68	32					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BC - H55**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March			April			May	June	July	August			September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16			07:14 20:10	18	19:03 (5) 19:21 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	12	19:03 (5) 19:15 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18			07:12 20:11	20	19:02 (5) 19:22 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	16	19:00 (5) 19:16 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19			07:10 20:13	21	19:02 (5) 19:23 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	18	18:59 (5) 19:17 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21			07:08 20:15	22	19:00 (5) 19:22 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	20	18:57 (5) 19:17 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23			07:05 20:16	22	19:00 (5) 19:22 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	21	18:57 (5) 19:18 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25			07:03 20:18	22	19:00 (5) 19:22 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	22	18:56 (5) 19:18 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27			07:01 20:20	21	19:01 (5) 19:22 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	22	18:55 (5) 19:17 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28			06:59 20:21	20	19:00 (5) 19:20 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	22	18:55 (5) 19:17 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30			06:56 20:23	18	19:01 (5) 19:19 (5)	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	21	18:55 (5) 19:16 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32			06:54 20:25	16	19:02 (5) 19:18 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	21	18:55 (5) 19:16 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34			06:52 20:26	12	19:04 (5) 19:16 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	19	18:55 (5) 19:14 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35			06:50 20:28	5	19:07 (5) 19:12 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	17	18:56 (5) 19:13 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37			06:47 20:30		05:49 21:20	05:18 21:20	05:33 21:56	06:17 21:52	06:17 21:06	07:07 19:59	13	18:58 (5) 19:11 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39			06:45 20:32		05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:51	06:19 21:04	07:09 19:56	7	19:00 (5) 19:07 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40			06:43 20:33		05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:50	06:20 21:02	07:11 19:54		08:00 18:45	07:55 16:48	08:37 16:27	
16	08:37 16:57	07:52 17:52	06:51 18:42			06:41 20:35		05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:49	06:22 21:00	07:12 19:52		08:02 18:43	07:57 16:47	08:38 16:27	
17	08:37 16:58	07:50 17:54	06:49 18:44			06:39 20:37		05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	06:24 20:58	07:14 19:49		08:04 18:41	07:58 16:45	08:39 16:27	
18	08:36 17:00	07:48 17:56	06:47 18:46			06:37 20:38		05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	06:25 20:56	07:15 19:47		08:05 18:39	08:00 16:44	08:40 16:27	
19	08:35 17:02	07:46 17:58	06:44 18:47			06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	06:27 20:54	07:17 19:45		08:07 18:37	08:02 16:43	08:40 16:28	
20	08:34 17:03	07:44 18:00	06:42 18:49			06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	06:29 20:52	07:19 19:42		08:09 18:35	08:03 16:42	08:41 16:28	
21	08:33 17:05	07:42 18:01	06:40 18:51			06:30 20:43		05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	06:30 20:50	07:20 19:40		08:11 18:33	08:05 16:40	08:42 16:28	
22	08:31 17:07	07:40 18:03	06:37 18:52			06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	06:32 20:48	07:22 19:38		08:12 18:31	08:07 16:39	08:42 16:29	
23	08:30 17:08	07:38 18:05	06:35 18:54			06:26 20:47		05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	06:33 20:46	07:23 19:35		08:14 18:29	08:08 16:38	08:43 16:29	
24	08:29 17:10	07:35 18:07	06:33 18:56			06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	06:35 20:44	07:25 19:33		08:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58			06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	06:37 20:41	07:27 19:31		07:18 17:25	08:12 16:36	08:43 16:31	
26	08:26 17:14	07:31 18:10	06:28 18:59			06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	06:38 20:39	07:28 19:28		07:19 17:23	08:13 16:35	08:44 16:31	
27	08:25 17:15	07:29 18:12	06:26 19:01			06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	06:40 20:37	07:30 19:26		07:21 17:21	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03			06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	06:41 20:35	07:32 19:24		07:23 17:19	08:16 16:33	08:44 16:33	
29	08:22 17:19		07:21 20:04		19:11 (5) 19:16 (5)	06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	06:43 20:33	07:33 19:21		07:25 17:17	08:18 16:33	08:44 16:34	
30	08:21 17:21		07:19 20:06	5	19:07 (5) 19:19 (5)	06:12 20:58		05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	06:45 20:31	07:35 19:19		07:27 17:15	08:19 16:32	08:45 16:35	
31	08:19 17:23		07:17 20:08	16	19:04 (5) 19:20 (5)			05:26 21:44		05:57 21:29	06:46 20:28		19:06 (5) 19:11 (5)		07:28 17:13	08:45 16:36		
Potential sun hours	260	278	367			416		485		498	501	453	381		332	267	244	
Total, worst case			33			217						5	251					
Sun reduction			0.24			0.35						0.30	0.28					
Oper. time red.			1.00			1.00						1.00	1.00					
Wind dir. red.			0.65			0.65						0.65	0.65					
Total reduction			0.16			0.23						0.19	0.19					
Total, real			5			50						1	46					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BD - H56**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March			April			May	June	July	August	September			October	November	December
1	08:45	08:18	07:25			07:14		18:59 (5)	06:10	05:25	05:22	05:58	06:48			07:37	07:30	08:21
	16:37	17:24	18:16			20:09	21	19:20 (5)	21:00	21:46	21:59	21:28	20:26			19:17	17:11	16:31
2	08:44	08:16	07:23			07:12		18:59 (5)	06:08	05:24	05:23	06:00	06:50			07:38	07:32	08:22
	16:38	17:26	18:18			20:11	21	19:20 (5)	21:02	21:47	21:59	21:26	20:24			19:15	17:09	16:30
3	08:44	08:15	07:20			07:10		18:59 (5)	06:06	05:23	05:24	06:02	06:51			07:40	07:34	08:24
	16:39	17:28	18:19			20:13	21	19:20 (5)	21:03	21:48	21:59	21:24	20:22			19:12	17:07	16:30
4	08:44	08:13	07:18			07:08		18:59 (5)	06:04	05:23	05:24	06:03	06:53	19:00 (5)		07:42	07:35	08:25
	16:40	17:30	18:21			20:15	19	19:18 (5)	21:05	21:49	21:58	21:23	20:19	8		19:08 (5)	19:10	17:06
5	08:44	08:12	07:16			07:05		18:59 (5)	06:03	05:22	05:25	06:05	06:54			18:58 (5)	07:43	07:37
	16:41	17:32	18:23			20:16	18	19:17 (5)	21:07	21:50	21:58	21:21	20:17	13		19:11 (5)	19:08	17:04
6	08:44	08:10	07:14			07:03		19:00 (5)	06:01	05:21	05:26	06:06	06:56			18:56 (5)	07:45	07:39
	16:43	17:34	18:25			20:18	16	19:16 (5)	21:08	21:51	21:57	21:19	20:15	16		19:12 (5)	19:05	17:02
7	08:43	08:08	07:12			07:01		19:02 (5)	05:59	05:21	05:27	06:08	06:58			18:55 (5)	07:47	07:41
	16:44	17:36	18:26			20:20	13	19:15 (5)	21:10	21:52	21:57	21:17	20:12	18		19:13 (5)	19:03	17:00
8	08:43	08:06	07:09			06:59		19:03 (5)	05:57	05:20	05:28	06:09	06:59			18:54 (5)	07:48	07:43
	16:45	17:37	18:28			20:21	8	19:11 (5)	21:12	21:53	21:56	21:16	20:10	19		19:13 (5)	19:01	16:59
9	08:42	08:05	07:07			06:56			05:55	05:20	05:29	06:11	07:01			18:53 (5)	07:50	07:44
	16:47	17:39	18:30			20:23			21:13	21:53	21:55	21:14	20:08	20		19:13 (5)	18:59	16:57
10	08:42	08:03	07:05			06:54			05:54	05:19	05:30	06:12	07:02			18:52 (5)	07:52	07:46
	16:48	17:41	18:32			20:25			21:15	21:54	21:55	21:12	20:06	21		19:13 (5)	18:56	16:56
11	08:41	08:01	07:03			06:52			05:52	05:19	05:31	06:14	07:04			18:52 (5)	07:53	07:48
	16:49	17:43	18:34			20:26			21:16	21:55	21:54	21:10	20:03	20		19:12 (5)	18:54	16:54
12	08:41	07:59	07:00			06:50			05:50	05:19	05:32	06:16	07:06			18:52 (5)	07:55	07:50
	16:51	17:45	18:35			20:28			21:18	21:56	21:53	21:08	20:01	20		19:12 (5)	18:52	16:52
13	08:40	07:57	06:58			06:47			05:49	05:18	05:33	06:17	07:07			18:51 (5)	07:57	07:51
	16:52	17:47	18:37			20:30			21:20	21:56	21:52	21:06	19:59	19		19:10 (5)	18:50	16:51
14	08:39	07:55	06:56			06:45			05:47	05:18	05:34	06:19	07:09			18:52 (5)	07:58	07:53
	16:54	17:49	18:39			20:32			21:21	21:57	21:51	21:04	19:56	17		19:09 (5)	18:48	16:50
15	08:38	07:54	06:54			06:43			05:46	05:18	05:35	06:20	07:11			18:54 (5)	08:00	07:55
	16:55	17:50	18:40			20:33			21:23	21:57	21:50	21:02	19:54	14		19:08 (5)	18:45	16:48
16	08:37	07:52	06:51			06:41			05:44	05:18	05:36	06:22	07:12			18:55 (5)	08:02	07:57
	16:57	17:52	18:42			20:35			21:24	21:58	21:49	21:00	19:52	10		19:05 (5)	18:43	16:47
17	08:37	07:50	06:49			06:39			05:43	05:18	05:38	06:24	07:14			08:04	07:58	08:39
	16:58	17:54	18:44			20:37			21:26	21:58	21:48	20:58	19:49			18:41	16:45	16:27
18	08:36	07:48	06:47			06:37			05:41	05:18	05:39	06:25	07:15			08:05	08:00	08:40
	17:00	17:56	18:46			20:38			21:27	21:59	21:47	20:56	19:47			18:39	16:44	16:27
19	08:35	07:46	06:44			06:34			05:40	05:18	05:40	06:27	07:17			08:07	08:02	08:40
	17:02	17:58	18:47			20:40			21:29	21:59	21:46	20:54	19:45			18:37	16:43	16:28
20	08:34	07:44	06:42			06:32			05:38	05:18	05:41	06:29	07:19			08:09	08:03	08:41
	17:03	18:00	18:49			20:42			21:30	21:59	21:45	20:52	19:42			18:35	16:42	16:28
21	08:33	07:42	06:40			06:30			05:37	05:18	05:43	06:30	07:20			08:11	08:05	08:42
	17:05	18:01	18:51			20:43			21:32	22:00	21:44	20:50	19:40			18:33	16:40	16:28
22	08:31	07:40	06:37			06:28			05:36	05:18	05:44	06:32	07:22			08:12	08:07	08:42
	17:07	18:03	18:52			20:45			21:33	22:00	21:42	20:48	19:38			18:31	16:39	16:29
23	08:30	07:38	06:35			06:26			05:35	05:18	05:45	06:33	07:23			08:14	08:08	08:43
	17:08	18:05	18:54			20:47			21:34	22:00	21:41	20:46	19:35			18:29	16:38	16:29
24	08:29	07:35	06:33			06:24			05:33	05:19	05:47	06:35	07:25			08:16	08:10	08:43
	17:10	18:07	18:56			20:48			21:36	22:00	21:40	20:44	19:33			18:27	16:37	16:30
25	08:28	07:33	06:31			06:22			05:32	05:19	05:48	06:37	07:27			07:18	08:12	08:43
	17:12	18:09	18:58			20:50			21:37	22:00	21:38	20:41	19:31			17:25	16:36	16:31
26	08:26	07:31	06:28			06:20			05:31	05:20	05:50	06:38	07:28			07:19	08:13	08:44
	17:14	18:10	18:59			20:52			21:38	22:00	21:37	20:39	19:28			17:23	16:35	16:31
27	08:25	07:29	06:26	18:07 (5)		06:18			05:30	05:20	05:51	06:40	07:30			07:21	08:15	08:44
	17:15	18:12	19:01	9	18:16 (5)	20:53			21:40	22:00	21:36	20:37	19:26			17:21	16:34	16:32
28	08:24	07:27	06:24			18:04 (5)			05:29	05:20	05:53	06:41	07:32			07:23	08:16	08:44
	17:17	18:14	19:03	13	18:17 (5)	20:55			21:41	22:00	21:34	20:35	19:24			17:19	16:33	16:33
29	08:22		07:21			19:02 (5)			05:28	05:21	05:54	06:43	07:33			07:25	08:18	08:44
	17:19		20:04	17	19:19 (5)	20:57			21:42	22:00	21:33	20:33	19:21			17:17	16:33	16:34
30	08:21		07:19			19:01 (5)			05:27	05:22	05:55	06:45	07:35			07:26	08:19	08:45
	17:21		20:06	19	19:20 (5)	20:58			21:43	22:00	21:31	20:31	19:19			17:15	16:32	16:35
31	08:19		07:17			19:00 (5)			05:26		05:57	06:46				07:28		08:45
	17:23		20:08	19	19:19 (5)				21:44		21:29	20:28				17:13		16:36
Potential sun hours	260	278	367			416			485	498	501		453			381		244
Total, worst case																		
Sun reduction																		
Oper. time red.																		
Wind dir. red.																		
Total reduction																		
Total, real																		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BE - H57**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	19:00 (5) 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	19:00 (5) 21:02	05:24 21:47	05:23 21:59	05:23 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	19:00 (5) 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	19:00 (5) 21:05	05:04 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	19:01 (5) 21:07	05:03 21:50	05:25 21:58	06:05 21:21	06:54 20:17	19:02 (5) 19:07 (5)	07:43 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	19:02 (5) 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	18:59 (5) 19:10 (5)	07:45 17:05	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	19:05 (5) 21:10	05:08 21:52	05:27 21:57	06:08 21:17	06:58 20:12	18:56 (5) 19:11 (5)	07:47 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:11 (5) 21:12	05:07 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:55 (5) 19:12 (5)	07:48 17:01	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	18:53 (5) 19:12 (5)	07:50 17:04	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	07:02 21:12	07:02 20:06	18:53 (5) 19:12 (5)	07:52 17:06	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:52 (5) 19:11 (5)	07:53 17:04	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:52 (5) 19:11 (5)	07:55 17:05	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:51 (5) 19:10 (5)	07:57 17:05	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:52 (5) 19:09 (5)	07:58 17:04	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54	18:53 (5) 19:09 (5)	08:00 17:05	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:54 (5) 19:06 (5)	08:02 17:04	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:56 (5) 19:04 (5)	08:04 17:04	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:55 (5) 18:39	08:05 17:04	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:54 (5) 18:37	08:04 17:03	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	18:53 (5) 18:35	08:03 17:02	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	18:52 (5) 18:33	08:02 17:01	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	18:51 (5) 18:31	08:01 17:00	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	18:50 (5) 18:29	08:00 17:00	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	18:49 (5) 18:27	08:00 17:00	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	18:48 (5) 17:25	08:00 17:00	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	18:47 (5) 17:23	08:00 17:00	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	18:46 (5) 17:21	08:00 17:00	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	18:45 (5) 17:19	08:00 17:00	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:02	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	18:44 (5) 17:17	08:00 17:00	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:01	06:12 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	18:43 (5) 17:15	08:00 17:00	08:45 16:35
31	08:19 17:23	07:17 20:08	06:11 19:00	06:11 20:58	05:26 21:44	05:21 21:29	05:57 20:28	06:46 20:28	07:35 17:13	18:42 (5) 17:13	08:00 17:00	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case			86	107					196			
Sun reduction			0.24	0.35					0.28			
Oper. time red.			1.00	1.00					1.00			
Wind dir. red.			0.66	0.66					0.66			
Total reduction			0.16	0.23					0.19			
Total, real			14	25					37			

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: 6460 Gortloughra WF only (Real Case) Shadow receptor: BF - H58

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	18:58 (5) 19:17 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	18:58 (5) 19:17 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30	
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	18:59 (5) 19:16 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:59 (5) 19:14 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29	
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	19:01 (5) 19:12 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	19:04 (5) 19:09 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	19:00 (5) 19:05 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	05:59 21:10	05:59 21:52	05:21 21:57	05:27 21:17	06:08 20:12	06:58 20:12	18:56 (5) 19:07 (5)	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:57 21:53	05:28 21:56	06:09 21:16	06:09 20:10	06:59 20:15	18:54 (5) 19:09 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:55 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:01 18:52 (5)	07:50 19:09 (5)	07:44 18:59	08:31 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:54 21:54	05:30 21:55	06:12 21:12	07:02 20:06	07:02 18:52 (5)	07:52 19:10 (5)	07:46 18:56	08:32 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:52 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:04 18:50 (5)	07:53 19:09 (5)	07:48 18:54	08:33 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:50 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:06 18:50 (5)	07:55 19:10 (5)	07:50 18:52	08:34 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:49 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:07 18:49 (5)	07:57 19:09 (5)	07:51 18:50	08:35 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:47 21:57	05:34 21:51	06:19 21:04	07:09 19:56	07:09 18:49 (5)	07:59 19:08 (5)	07:53 18:48	08:36 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:46 21:57	05:35 21:50	06:20 21:02	07:10 19:54	07:10 18:50 (5)	08:00 19:08 (5)	07:55 18:45	08:37 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:44 21:58	05:36 21:49	06:22 21:00	07:12 19:52	07:12 18:52 (5)	08:02 19:06 (5)	07:57 18:43	08:38 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:43 21:58	05:38 21:48	06:24 20:58	07:14 19:49	07:14 18:52 (5)	08:04 19:04 (5)	07:58 18:41	08:39 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:41 21:59	05:39 21:47	06:25 20:56	07:15 19:47	07:15 18:53 (5)	08:05 19:01 (5)	08:00 18:39	08:40 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:40 21:59	05:40 21:46	06:27 20:54	07:17 19:45	07:17 19:01 (5)	08:07 18:37	08:02 18:37	08:40 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:38 21:59	05:41 21:45	06:29 20:52	07:19 19:42	07:19 19:01 (5)	08:09 18:35	08:03 16:42	08:41 16:28	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:37 22:00	05:43 21:44	06:30 20:50	07:20 19:40	07:20 19:01 (5)	08:11 18:33	08:05 16:40	08:42 16:28	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:36 22:00	05:44 21:42	06:32 20:48	07:22 19:38	07:22 19:01 (5)	08:12 18:31	08:07 16:39	08:42 16:29	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:34 22:00	05:45 21:41	06:33 20:46	07:23 19:35	07:23 19:01 (5)	08:14 18:29	08:08 16:38	08:43 16:29	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:33 22:00	05:47 21:40	06:35 20:44	07:25 19:33	07:25 19:01 (5)	08:16 18:27	08:10 16:37	08:43 16:30	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	18:06 (5) 18:13 (5)	06:22 20:50	06:37 22:00	06:37 21:38	06:37 20:41	07:27 19:31	07:27 19:01 (5)	08:18 17:25	08:12 16:36	08:43 16:31	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	18:03 (5) 18:16 (5)	06:20 20:52	06:38 22:00	06:38 21:37	06:38 20:39	07:28 19:28	07:28 19:01 (5)	08:19 17:23	08:13 16:35	08:44 16:31	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	18:02 (5) 18:17 (5)	06:18 20:53	06:40 22:00	06:40 21:36	06:40 20:37	07:30 19:26	07:30 19:01 (5)	08:21 17:21	08:15 16:34	08:44 16:32	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	18:00 (5) 18:17 (5)	06:16 20:55	06:41 22:00	06:41 21:34	06:41 20:35	07:32 19:24	07:32 19:01 (5)	08:23 17:19	08:16 16:33	08:44 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	06:14 19:19	18:59 (5) 19:18 (5)	06:14 20:57	06:43 22:00	06:43 21:33	06:43 20:33	07:33 19:21	07:33 19:01 (5)	08:25 17:17	08:18 16:33	08:44 16:34	08:44 16:34
30	08:21 17:21	07:19 20:06	06:12 19:19	18:59 (5) 19:18 (5)	06:12 20:58	06:45 22:00	06:45 21:31	06:45 20:31	07:35 19:19	07:35 19:01 (5)	08:26 17:15	08:19 16:32	08:45 16:35	08:45 16:35
31	08:19 17:23	07:17 20:08	06:11 19:17	18:58 (5) 19:17 (5)	06:11 20:58	06:46 22:00	06:46 21:29	06:46 20:28	07:36 19:17	07:36 19:01 (5)	08:28 17:13	08:20 16:36	08:45 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244		
Total, worst case			109	86						198				
Sun reduction			0.24	0.35						0.28				
Oper. time red.			1.00	1.00						1.00				
Wind dir. red.			0.66	0.66						0.66				
Total reduction			0.16	0.23						0.19				
Total, real			18	20						37				

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: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BG - H59

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March			April			May	June	July	August	September			October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16			07:14 20:09	15	18:58 (5) 19:13 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26			07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18			07:12 20:11		19:00 (5) 19:12 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24			07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19			07:10 20:13	12	19:02 (5) 19:09 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22			07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21			07:08 20:15	7		06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19			07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23			07:05 20:16			06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17			07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25			07:03 20:18			06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15			07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26			07:01 20:20			05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12			07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28			06:59 20:21			05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10			07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30			06:56 20:23			05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	7	18:55 (5) 19:02 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32			06:54 20:25			05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06		12	18:53 (5) 19:05 (5)	07:52 18:56	07:46 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34			06:52 20:26			05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03		14	18:51 (5) 19:05 (5)	07:53 18:54	07:48 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35			06:50 20:28			05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	16	18:50 (5) 19:06 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37			06:47 20:30			05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18	18:48 (5) 19:06 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39			06:45 20:32			05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18	18:48 (5) 19:06 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40			06:43 20:33			05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54	18	18:48 (5) 19:06 (5)	08:00 18:45	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42			06:41 20:35			05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18	18:47 (5) 19:05 (5)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44			06:39 20:37			05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	17	18:48 (5) 19:05 (5)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46			06:37 20:38			05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	15	18:48 (5) 19:03 (5)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47			06:34 20:40			05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	12	18:49 (5) 19:01 (5)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49			06:32 20:42			05:38 21:30	05:18 21:59	05:41 21:45	06:28 20:52	07:19 19:42	8	18:51 (5) 18:59 (5)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51			06:30 20:43			05:37 21:31	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40			08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52			06:28 20:45			05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38			08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	18:06 (5)	06:26 20:47	06:26 20:47			05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35			08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	18:02 (5)	06:24 20:48	06:24 20:48			05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33			08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	18:00 (5)	06:22 20:50	06:22 20:50			05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31			08:18 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	18:15 (5)	06:20 20:52	06:20 20:52			05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28			07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	17:59 (5)	06:18 20:53	06:18 20:53			05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26			07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	17:57 (5)	06:16 20:55	06:16 20:55			05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24			07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	06:14 19:04	18:16 (5)	06:14 20:57	06:14 20:57			05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21			07:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 20:06	06:12 19:06	18:58 (5)	06:12 20:58	06:12 20:58			05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19			07:26 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	06:11 19:14 (5)	18:17 (5)	06:11 20:58	06:11 20:58			05:26 21:44	05:22 21:29	05:57 20:28	06:46 20:28	07:36 19:19			07:28 17:13	08:19 16:32	08:45 16:36
Potential sun hours	260	278	367		416	485			498	501		453	381			332	267	244
Total, worst case				141									173					
Sun reduction				0.24		0.35							0.28					
Oper. time red.				1.00		1.00							1.00					
Wind dir. red.				0.66		0.66							0.66					
Total reduction				0.16		0.23							0.19					
Total, real				23		8							32					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Assumptions for shadow calculations
Shadow receptor: BH - H60

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: BI - H61

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: BJ - H62

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Assumptions for shadow calculations
Shadow receptor: BK - H63

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)

Shadow receptor: BL - H64

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Assumptions for shadow calculations

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	19:41 (8) 20:02 (8)	05:22 21:59	19:42 (8) 20:13 (8)	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	19:40 (8) 20:03 (8)	05:23 21:59	19:42 (8) 20:13 (8)	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:24 21:48	19:39 (8) 20:03 (8)	05:24 21:59	19:42 (8) 20:12 (8)	06:02 21:25	06:51 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	19:39 (8) 20:04 (8)	05:24 21:58	19:43 (8) 20:12 (8)	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	19:38 (8) 20:05 (8)	05:25 21:58	19:44 (8) 20:12 (8)	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:22 21:51	19:38 (8) 20:06 (8)	05:26 21:57	19:44 (8) 20:12 (8)	06:06 21:19	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	19:38 (8) 20:06 (8)	05:27 21:57	19:44 (8) 20:11 (8)	06:08 21:18	06:58 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	19:38 (8) 20:07 (8)	05:28 21:56	19:45 (8) 20:11 (8)	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	05:20 21:53	19:37 (8) 20:07 (8)	05:29 21:56	19:46 (8) 20:11 (8)	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	19:37 (8) 20:08 (8)	05:30 21:55	19:47 (8) 20:10 (8)	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	19:38 (8) 20:08 (8)	05:31 21:54	19:48 (8) 20:10 (8)	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:51 21:18	05:19 21:56	19:38 (8) 20:09 (8)	05:32 21:53	19:49 (8) 20:09 (8)	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	19:37 (8) 20:09 (8)	05:33 21:52	19:50 (8) 20:08 (8)	06:17 21:06	07:07 19:12	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	19:37 (8) 20:09 (8)	05:34 21:51	19:51 (8) 20:07 (8)	06:19 21:04	07:09 19:01	07:59 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:57	19:37 (8) 20:10 (8)	05:35 21:50	19:53 (8) 20:05 (8)	06:21 21:02	07:11 19:16	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	19:38 (8) 20:10 (8)	05:37 21:49	19:55 (8) 20:02 (8)	06:22 21:00	07:12 19:17	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	19:38 (8) 20:10 (8)	05:38 21:48	19:55 (8) 20:02 (8)	06:24 20:58	07:14 19:18	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	19:38 (8) 20:11 (8)	05:39 21:47	19:55 (8) 20:02 (8)	06:25 20:56	07:15 19:18	08:05 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	19:38 (8) 20:11 (8)	05:40 21:46	19:55 (8) 20:02 (8)	06:27 20:54	07:17 19:19	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:47 18:00	06:42 18:49	06:32 20:42	05:39 21:30	05:18 21:59	19:38 (8) 20:11 (8)	05:42 21:45	19:55 (8) 20:02 (8)	06:29 20:52	07:19 19:19	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	19:39 (8) 20:12 (8)	05:43 21:44	19:55 (8) 20:02 (8)	06:30 20:50	07:20 19:19	08:11 18:33	08:05 16:40	08:42 16:29
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	19:39 (8) 20:12 (8)	05:44 21:42	19:55 (8) 20:02 (8)	06:32 20:48	07:22 19:20	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	19:39 (8) 20:12 (8)	05:46 21:41	19:55 (8) 20:02 (8)	06:33 20:46	07:24 19:19	08:14 18:29	08:08 16:38	08:43 16:30
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	19:39 (8) 20:12 (8)	05:47 21:40	19:55 (8) 20:02 (8)	06:35 20:44	07:25 19:19	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	19:40 (8) 20:12 (8)	05:48 21:38	19:55 (8) 20:02 (8)	06:37 20:42	07:27 19:18	08:18 18:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	19:40 (8) 20:12 (8)	05:50 21:37	19:55 (8) 20:02 (8)	06:38 20:39	07:28 19:17	08:19 18:23	08:13 16:35	08:44 16:31
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	19:40 (8) 20:13 (8)	05:51 21:36	19:55 (8) 20:02 (8)	06:40 20:37	07:30 19:16	08:21 18:26	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	19:40 (8) 20:12 (8)	05:53 21:34	19:55 (8) 20:02 (8)	06:42 20:35	07:32 19:15	08:22 18:24	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:06	06:14 20:57	05:28 21:42	05:21 22:00	19:41 (8) 20:13 (8)	05:54 21:33	19:55 (8) 20:02 (8)	06:43 20:33	07:33 19:13	08:25 18:22	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	05:27 21:43	05:22 22:00	19:42 (8) 20:12 (8)	05:56 21:31	19:55 (8) 20:02 (8)	06:45 20:31	07:35 19:11	08:27 18:25	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:10 19:07	06:10 20:58	05:26 21:44	05:23 22:00	19:41 (8) 20:12 (8)	05:57 21:29	19:55 (8) 20:02 (8)	06:46 20:28	07:36 19:07	08:28 18:23	08:45 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244		
Total, worst case				367	61	911	373	375						
Sun reduction				0.35	0.37	0.30	0.27	0.30						
Oper. time red.				1.00	1.00	1.00	1.00	1.00						
Wind dir. red.				0.64	0.58	0.58	0.58	0.64						
Total reduction				0.23	0.21	0.17	0.15	0.19						
Total, real				84	13	158	57	72						

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** BM - H65**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	16:37	08:18	17:25	18:16	07:25	18:34	18:32	07:15	17:26 (7)	18:47 (8)	06:10	18:19 (8)	21:00	05:25	19:36 (4)	
2	08:45	16:38	08:16	17:26	18:18	07:23	18:34	18:32	07:12	17:26 (7)	18:47 (8)	06:08	18:19 (8)	21:02	05:24	19:36 (4)	
3	08:44	16:39	08:15	17:28	18:19	07:20	18:34	18:32	07:10	17:26 (7)	18:47 (8)	06:06	18:18 (8)	21:03	05:24	19:36 (4)	
4	08:44	16:40	08:13	17:30	18:21	07:18	18:34	18:32	07:08	17:26 (7)	18:47 (8)	06:04	18:17 (8)	21:04	05:23	19:36 (4)	
5	08:44	16:41	08:12	17:32	18:23	07:16	18:34	18:32	07:05	17:26 (7)	18:47 (8)	06:03	18:16 (8)	21:05	05:22	19:36 (4)	
6	08:44	16:43	08:10	17:34	18:25	07:14	18:34	18:32	07:03	17:26 (7)	18:47 (8)	06:01	18:16 (8)	21:06	05:22	19:36 (4)	
7	08:43	16:44	08:08	17:36	18:27	07:12	18:34	18:32	07:01	17:26 (7)	18:47 (8)	05:59	18:17 (8)	21:07	05:21	19:36 (4)	
8	08:43	16:45	08:06	17:37	18:28	07:09	18:34	18:32	06:59	17:26 (7)	18:47 (8)	05:57	18:16 (8)	21:08	05:20	19:36 (4)	
9	08:42	16:47	08:05	17:39	18:30	07:07	18:34	18:32	06:56	17:26 (7)	18:47 (8)	05:56	18:16 (8)	21:09	05:20	19:36 (4)	
10	08:42	16:48	08:03	17:41	18:32	07:05	18:34	18:32	06:54	17:26 (7)	18:47 (8)	05:54	18:17 (8)	21:10	05:19	19:36 (4)	
11	08:41	16:49	08:01	17:43	18:34	07:03	18:34	18:32	06:52	17:26 (7)	18:47 (8)	05:52	18:18 (8)	21:11	05:19	19:37 (4)	
12	08:41	16:51	07:59	17:45	18:35	07:00	18:34	18:32	06:50	17:26 (7)	18:47 (8)	05:50	18:19 (8)	21:12	05:19	19:37 (4)	
13	08:40	16:52	07:57	17:47	18:37	06:58	18:34	18:32	06:48	17:26 (7)	18:47 (8)	05:49	18:19 (8)	21:13	05:19	19:36 (4)	
14	08:39	16:54	07:55	17:49	18:39	06:56	18:34	18:32	06:45	17:26 (7)	18:47 (8)	05:47	18:20 (8)	21:14	05:18	19:37 (4)	
15	08:38	16:55	07:54	17:50	18:41	06:54	18:34	18:32	06:43	17:26 (7)	18:47 (8)	05:46	18:22 (8)	21:15	05:18	19:37 (4)	
16	08:37	16:57	07:52	17:52	18:42	06:51	18:34	18:32	06:41	17:26 (7)	18:47 (8)	05:44	18:23 (8)	21:16	05:18	19:37 (4)	
17	08:37	16:59	07:50	17:54	18:44	06:49	18:34	18:32	06:39	17:26 (7)	18:47 (8)	05:43	18:24 (8)	21:17	05:18	19:37 (4)	
18	08:36	17:00	07:48	17:56	18:46	06:47	18:34	18:32	06:37	17:26 (7)	18:47 (8)	05:41	18:25 (8)	21:18	05:18	19:38 (4)	
19	08:35	17:02	07:46	17:58	18:47	06:44	18:34	18:32	06:34	17:26 (7)	18:47 (8)	05:40	18:26 (8)	21:19	05:18	19:38 (4)	
20	08:34	17:03	07:44	18:00	18:49	06:42	18:34	18:32	06:32	17:26 (7)	18:47 (8)	05:39	18:27 (8)	21:20	05:18	19:38 (4)	
21	08:33	17:05	07:42	18:02	18:51	06:40	18:34	18:32	06:30	17:26 (7)	18:47 (8)	05:37	18:28 (8)	21:21	05:18	19:39 (4)	
22	08:31	17:07	07:40	18:04	18:53	06:38	18:34	18:32	06:28	17:26 (7)	18:47 (8)	05:36	18:29 (8)	21:22	05:18	19:39 (4)	
23	08:30	17:09	07:38	18:06	18:55	06:35	18:34	18:32	06:26	17:26 (7)	18:47 (8)	05:35	18:30 (8)	21:23	05:19	19:39 (4)	
24	08:29	17:10	07:35	18:08	18:57	06:33	18:34	18:32	06:24	17:26 (7)	18:47 (8)	05:33	18:31 (8)	21:24	05:19	19:39 (4)	
25	08:28	17:12	07:33	18:10	18:59	06:31	18:34	18:32	06:22	17:26 (7)	18:47 (8)	05:32	18:32 (8)	21:25	05:19	19:40 (4)	
26	08:26	17:14	07:31	18:12	19:01	06:28	18:34	18:32	06:20	17:26 (7)	18:47 (8)	05:31	18:33 (8)	21:26	05:20	19:40 (4)	
27	08:25	17:16	07:29	18:14	19:03	06:26	18:34	18:32	06:18	17:26 (7)	18:47 (8)	05:30	18:34 (8)	21:27	05:20	19:40 (4)	
28	08:24	17:17	07:27	18:16	19:05	06:24	18:34	18:32	06:16	17:26 (7)	18:47 (8)	05:29	18:35 (8)	21:28	05:21	19:40 (4)	
29	08:22	17:19	07:25	18:18	19:07	06:22	18:34	18:32	06:14	17:26 (7)	18:47 (8)	05:28	18:36 (8)	21:29	05:21	19:41 (4)	
30	08:21	17:21	07:23	18:20	19:09	06:20	18:34	18:32	06:12	17:26 (7)	18:47 (8)	05:27	18:37 (8)	21:30	05:22	19:41 (4)	
31	08:19	17:23	07:21	18:22	19:11	06:18	18:34	18:32	06:10	17:26 (7)	18:47 (8)	05:26	18:38 (8)	21:31	05:22	19:41 (4)	
Potential sun hours	260	278	367	433	436	436	436	436	436	436	436	436	436	436	436	436	436
Total, worst case																	
Sun reduction																	
Oper. time red.																	
Wind dir. red.																	
Total reduction																	
Total, real																	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BM - H65**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22	19:41 (4)	05:59	06:48	18:17 (8)	07:37	17:54 (7)	07:30	08:21		
	21:59	33	20:14 (4)	21:28	20:26	27	18:44 (8)	19:17	14	18:08 (7)	17:11
2	05:23	19:40 (4)	06:00	06:50	18:15 (8)	07:38	17:55 (7)	07:32	08:22		
	21:59	34	20:14 (4)	21:26	20:24	29	18:44 (8)	19:15	10	18:05 (7)	17:09
3	05:24	19:41 (4)	06:02	06:51	18:14 (8)	07:40		07:34	08:24		
	21:59	33	20:14 (4)	21:25	20:22	31	18:45 (8)	19:12		17:08	16:30
4	05:24	19:41 (4)	06:03	06:53	18:14 (8)	07:42		07:35	08:25		
	21:58	34	20:15 (4)	21:23	20:19	31	18:45 (8)	19:10		17:06	16:29
5	05:25	19:42 (4)	06:05	06:54	18:13 (8)	07:43		07:37	08:26		
	21:58	33	20:15 (4)	21:21	20:17	32	18:45 (8)	19:08		17:04	16:29
6	05:26	19:41 (4)	06:06	06:56	18:13 (8)	07:45		07:39	08:28		
	21:57	33	20:14 (4)	21:19	20:15	32	18:45 (8)	19:06		17:02	16:28
7	05:27	19:42 (4)	06:08	06:58	18:12 (8)	07:47		07:41	08:29		
	21:57	32	20:14 (4)	21:18	20:13	32	18:44 (8)	19:03		17:01	16:28
8	05:28	19:42 (4)	06:09	06:59	18:12 (8)	07:48		07:43	08:30		
	21:56	33	20:15 (4)	21:16	20:10	32	18:44 (8)	19:01		16:59	16:28
9	05:29	19:43 (4)	06:11	07:01	18:11 (8)	07:50		07:44	08:31		
	21:56	32	20:15 (4)	21:14	20:08	32	18:43 (8)	18:59		16:57	16:27
10	05:30	19:43 (4)	06:13	07:03	18:12 (8)	07:52		07:46	08:32		
	21:55	32	20:15 (4)	21:12	20:06	30	18:42 (8)	18:57		16:56	16:27
11	05:31	19:44 (4)	06:14	07:04	18:11 (8)	07:53		07:48	08:33		
	21:54	30	20:14 (4)	21:10	20:03	29	18:40 (8)	18:54		16:54	16:27
12	05:32	19:44 (4)	06:16	07:06	18:12 (8)	07:55		07:50	08:34		
	21:53	30	20:14 (4)	21:08	20:01	28	18:40 (8)	18:52		16:53	16:27
13	05:33	19:44 (4)	06:17	07:07	18:13 (8)	07:57		07:51	08:35		
	21:52	30	20:14 (4)	21:06	19:59	25	18:38 (8)	18:50		16:51	16:27
14	05:34	19:45 (4)	06:19	07:09	18:14 (8)	07:59		07:53	08:36		
	21:51	29	20:14 (4)	21:04	19:56	22	18:36 (8)	18:48		16:50	16:27
15	05:35	19:45 (4)	06:21	07:11	18:16 (8)	08:00		07:55	08:37		
	21:50	28	20:13 (4)	21:02	19:54	18	18:34 (8)	18:46		16:48	16:27
16	05:36	19:46 (4)	06:22	07:12	18:18 (8)	08:02		07:57	08:38		
	21:49	27	20:13 (4)	21:00	19:52	12	18:30 (8)	18:43		16:47	16:27
17	05:38	19:47 (4)	06:24	07:14				08:04		07:58	08:39
	21:48	26	20:13 (4)	20:58	19:49			18:41		16:45	16:27
18	05:39	19:48 (4)	06:25	07:15				08:05		08:00	08:40
	21:47	24	20:12 (4)	20:56	19:47			18:39		16:44	16:27
19	05:40	19:49 (4)	06:27	07:17	18:02 (7)	08:07		08:02		08:02	08:40
	21:46	22	20:11 (4)	20:54	19:45	7	18:09 (7)	18:37		16:43	16:28
20	05:42	19:49 (4)	06:29	07:19	17:59 (7)	08:09		08:04		08:04	08:41
	21:45	21	20:10 (4)	20:52	19:42	13	18:12 (7)	18:35		16:42	16:28
21	05:43	19:50 (4)	06:30	07:20	17:57 (7)	08:11		08:05		08:05	08:42
	21:44	19	20:09 (4)	20:50	19:40	16	18:13 (7)	18:33		16:40	16:29
22	05:44	19:53 (4)	06:32	07:22	17:55 (7)	08:12		08:07		08:07	08:42
	21:42	15	20:08 (4)	20:48	19:38	19	18:14 (7)	18:31		16:39	16:29
23	05:46	19:54 (4)	06:33	07:24	17:53 (7)	08:14		08:08		08:08	08:43
	21:41	12	20:06 (4)	20:46	19:35	21	18:14 (7)	18:29		16:38	16:30
24	05:47	19:58 (4)	06:35	07:25	17:53 (7)	08:16		08:10		08:10	08:43
	21:40	4	20:02 (4)	20:44	19:33	21	18:14 (7)	18:27		16:37	16:30
25	05:48		06:37	07:27	17:53 (7)	07:18		08:12		08:12	08:43
	21:38		20:42	19:31	18:14 (7)	17:25		16:36		16:36	16:31
26	05:50		06:38	07:28	17:51 (7)	07:19		08:13		08:13	08:44
	21:37		20:39	19:28	18:13 (7)	17:23		16:35		16:35	16:31
27	05:51		06:40	18:27 (8)	07:30			08:15		08:15	08:44
	21:36		20:37	18:38 (8)	19:26	21	18:13 (7)	17:21		16:34	16:32
28	05:53		06:42	18:24 (8)	07:32			08:16		08:16	08:44
	21:34		20:35	18:41 (8)	19:24	21	18:13 (7)	17:19		16:33	16:33
29	05:54		06:43	18:21 (8)	07:33			08:18		08:18	08:44
	21:33		20:33	18:42 (8)	19:22	19	18:11 (7)	17:17		16:33	16:34
30	05:56		06:45	18:20 (8)	07:35			08:19		08:19	08:45
	21:31		20:31	18:43 (8)	19:19	17	18:10 (7)	17:15		16:32	16:35
31	05:57		06:46	18:17 (8)				07:28			08:45
	21:29		20:28	18:43 (8)				17:13			16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		646			660		24				
Sun reduction		0.27		0.30	0.28		0.24				
Oper. time red.		1.00		1.00	1.00		1.00				
Wind dir. red.		0.58		0.67	0.68		0.69				
Total reduction		0.15		0.20	0.19		0.16				
Total, real		100		20	126		4				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** BN - H66**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	16:37	08:18	17:25	18:16	07:25	17:20 (8)	07:14	17:28 (8)	20:10	20	18:52 (4)	06:10	19:28 (5)	05:25		
2	08:44	16:38	08:16	17:26	18:18	07:23	17:18 (8)	07:12	17:30 (8)	20:11	20	18:52 (4)	06:08	19:28 (5)	05:24		
3	08:44	16:39	08:15	17:28	18:19	07:20	17:16 (8)	07:10	17:32 (8)	20:13	19	18:52 (4)	06:06	19:28 (5)	05:23		
4	08:44	16:40	08:13	17:30	18:21	07:18	17:16 (8)	07:08	17:32 (8)	20:15	18	18:52 (4)	06:04	19:27 (5)	05:23		
5	08:44	16:41	08:12	17:32	18:23	07:16	17:14 (8)	07:05	17:32 (8)	20:16	16	18:52 (4)	06:03	19:26 (5)	05:22		
6	08:44	16:43	08:10	17:34	18:25	07:14	17:14 (8)	07:03	17:32 (8)	20:18	14	18:52 (4)	06:01	19:27 (5)	05:21		
7	08:43	16:44	08:08	17:36	18:27	07:12	17:14 (8)	07:01	17:32 (8)	20:20	10	18:52 (4)	05:59	19:26 (5)	05:21		
8	08:43	16:45	08:06	17:37	18:28	07:09	17:13 (8)	06:59	17:31 (8)	20:21			05:57	19:26 (5)	05:20		
9	08:42	16:47	08:05	17:39	18:30	07:07	17:13 (8)	06:58	17:31 (8)	20:23			05:55	19:27 (5)	05:20		
10	08:42	16:48	08:03	17:41	18:32	07:05	17:15 (8)	06:54	17:30 (8)	20:25			05:54	19:27 (5)	05:19		
11	08:41	16:49	08:01	17:43	18:34	07:03	17:17 (8)	06:52	17:28 (8)	20:26			05:52	19:28 (5)	05:19		
12	08:41	16:51	07:59	17:45	18:35	07:00	17:19 (8)	06:50	17:24 (8)	20:28			05:50	19:28 (5)	05:19		
13	08:40	16:52	07:57	17:47	18:37	06:58		06:47		20:30			05:49	19:29 (5)	05:18		
14	08:39	16:54	07:55	17:49	18:39	06:56		06:45		20:32			05:47	19:29 (5)	05:18		
15	08:38	16:55	07:54	17:50	18:40	06:54		06:43		20:33			05:46	19:30 (5)	05:18		
16	08:37	16:57	07:52	17:52	18:42	06:51		06:41		20:35			05:44	19:30 (5)	05:18		
17	08:37	16:58	07:50	17:54	18:44	06:49		06:39		20:37			05:43	19:32 (5)	05:18		
18	08:36	17:00	07:48	17:56	18:46	06:47		06:37		20:38			05:41	19:34 (5)	05:18		
19	08:35	17:02	07:46	17:58	18:47	06:44		06:34		20:40			05:40	19:35 (5)	05:18		
20	08:34	17:03	07:44	18:00	18:49	06:42		06:32		20:42			05:38	19:39 (5)	05:18		
21	08:33	17:05	07:42	18:01	18:51	06:40		06:30		20:43			05:37	19:41 (5)	05:18		
22	08:31	17:07	07:40	18:03	18:53	06:37		06:28		20:45			05:36		05:18		
23	08:30	17:08	07:38	18:05	18:54	06:35		06:26		20:47			05:35		05:19		
24	08:29	17:10	07:35	18:07	18:56	06:33		06:24		20:48			05:34		05:20		
25	08:28	17:12	07:33	18:09	18:58	06:31		06:22		20:50			05:32		05:19		
26	08:26	17:14	07:31	18:10	18:59	06:28		06:20		20:52			05:31		05:20		
27	08:25	17:15	07:29	18:12	19:01	06:26	17:59 (4)	06:18	18:09 (4)	20:53	6	19:39 (5)	05:30		05:20		
28	08:24	17:17	07:27	18:14	19:03	06:24	17:56 (4)	06:16	18:10 (4)	20:55	13	19:45 (5)	05:29		05:20		
29	08:22	17:19	07:25	18:16	19:05	06:22	18:11 (4)	06:14	18:11 (4)	20:57	17	19:50 (5)	05:28		05:21		
30	08:21	17:21	07:23	18:18	19:07	06:20	18:13 (4)	06:12	18:13 (4)	20:59	20	19:51 (5)	05:27		05:22		
31	08:19	17:23	07:21	18:20	19:09	06:18	18:15 (4)	06:10	18:15 (4)	21:01	22	19:52 (5)	05:26		05:22		
Potential sun hours	260	278	367					416				485			498		
Total, worst case				252				195				441					
Sun reduction				0.24				0.35				0.37					
Oper. time red.				1.00				1.00				1.00					
Wind dir. red.				0.68				0.64				0.60					
Total reduction				0.17				0.23				0.22					
Total, real				42				44				97					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BN - H66**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:38 (5)	06:48		07:37		07:30		08:21
	21:59		21:28	25	20:03 (5)	20:26	19:17		17:11		16:31
2	05:23		06:00		19:38 (5)	06:50	07:38		17:56 (8)	07:32	08:22
	21:59		21:26	26	20:04 (5)	20:24	19:15	9	18:05 (8)	17:09	16:30
3	05:24		06:02		19:37 (5)	06:51	07:40		17:54 (8)	07:34	08:24
	21:59		21:24	27	20:04 (5)	20:22	19:12	13	18:07 (8)	17:07	16:30
4	05:24		06:03		19:36 (5)	06:53	07:42		17:52 (8)	07:35	08:25
	21:58		21:23	27	20:03 (5)	20:19	19:10	16	18:08 (8)	17:06	16:29
5	05:25		06:05		19:37 (5)	06:54	18:52 (4)	07:43	17:51 (8)	07:37	08:26
	21:58		21:21	27	20:04 (5)	20:17	19:02 (4)	17	18:08 (8)	17:04	16:29
6	05:26		06:06		19:36 (5)	06:56	18:50 (4)	07:45	17:50 (8)	07:39	08:28
	21:57		21:19	27	20:03 (5)	20:15	19:04 (4)	18	18:08 (8)	17:02	16:28
7	05:27		06:08		19:36 (5)	06:58	18:48 (4)	07:47	17:50 (8)	07:41	08:29
	21:57		21:17	28	20:04 (5)	20:12	19:04 (4)	19	18:09 (8)	17:01	16:28
8	05:28		06:09		19:36 (5)	06:59	18:47 (4)	07:48	17:50 (8)	07:43	08:30
	21:56		21:16	27	20:03 (5)	20:10	19:05 (4)	18	18:08 (8)	16:59	16:28
9	05:29		06:11		19:37 (5)	07:01	18:46 (4)	07:50	17:49 (8)	07:44	08:31
	21:55		21:14	26	20:03 (5)	20:08	19:05 (4)	18	18:07 (8)	16:57	16:27
10	05:30		06:13		19:36 (5)	07:02	18:45 (4)	07:52	17:50 (8)	07:46	08:32
	21:55		21:12	26	20:02 (5)	20:06	19:05 (4)	16	18:06 (8)	16:56	16:27
11	05:31		06:14		19:37 (5)	07:04	18:44 (4)	07:53	17:51 (8)	07:48	08:33
	21:54		21:10	25	20:02 (5)	20:03	19:04 (4)	14	18:05 (8)	16:54	16:27
12	05:32		06:16		19:37 (5)	07:06	18:45 (4)	07:55	17:53 (8)	07:50	08:34
	21:53		21:08	24	20:01 (5)	20:01	19:04 (4)	11	18:04 (8)	16:53	16:27
13	05:33		06:17		19:38 (5)	07:07	18:45 (4)	07:57	17:55 (8)	07:51	08:35
	21:52		21:06	22	20:00 (5)	19:59	19:04 (4)	5	18:00 (8)	16:51	16:27
14	05:34		06:19		19:39 (5)	07:09	18:45 (4)	07:58		07:53	08:36
	21:51		21:04	19	19:58 (5)	19:56	19:02 (4)	18:48		16:50	16:27
15	05:35		06:20		19:41 (5)	07:11	18:46 (4)	08:00		07:55	08:37
	21:50		21:02	16	19:57 (5)	19:54	19:01 (4)	18:46		16:48	16:27
16	05:36		06:22		19:42 (5)	07:12	18:47 (4)	08:02		07:57	08:38
	21:49		21:00	12	19:54 (5)	19:52	18:58 (4)	18:43		16:47	16:27
17	05:38		06:24		19:47 (5)	07:14	18:50 (4)	08:04		07:58	08:39
	21:48		20:58	2	19:49 (5)	19:49	18:54 (4)	18:41		16:45	16:27
18	05:39		06:25			07:15		08:05		08:00	08:40
	21:47		20:56			19:47		18:39		16:44	16:27
19	05:40		06:27			07:17		08:07		08:02	08:40
	21:46		20:54			19:45		18:37		16:43	16:28
20	05:41		06:29			07:19		08:09		08:03	08:41
	21:45		20:52			19:42		18:35		16:42	16:28
21	05:43		06:30			07:20		08:11		08:05	08:42
	21:44		20:50			19:40		18:33		16:40	16:28
22	05:44		06:32			07:22		08:12		08:07	08:42
	21:42		20:48			19:38		18:31		16:39	16:29
23	05:45		06:33			07:23		08:14		08:08	08:43
	21:41		20:46			19:35		18:29		16:38	16:29
24	05:47	19:47 (5)	06:35			07:25		08:16		08:10	08:43
	21:40	7	19:54 (5)	20:44		19:33		18:27		16:37	16:30
25	05:48		19:44 (5)	06:37		07:27		07:18		08:12	08:43
	21:38	12	19:56 (5)	20:41		19:31		17:25		16:36	16:31
26	05:50		19:43 (5)	06:38		07:28		07:19		08:13	08:44
	21:37	15	19:58 (5)	20:39		19:28		17:23		16:35	16:31
27	05:51		19:42 (5)	06:40		07:30		07:21		08:15	08:44
	21:36	17	19:59 (5)	20:37		19:26		17:21		16:34	16:32
28	05:53		19:41 (5)	06:41		07:32		07:23		08:16	08:44
	21:34	20	20:01 (5)	20:35		19:24		17:19		16:33	16:33
29	05:54		19:40 (5)	06:43		07:33		07:25		08:18	08:44
	21:33	21	20:01 (5)	20:33		19:22		17:17		16:33	16:34
30	05:56		19:39 (5)	06:45		07:35		07:27		08:19	08:45
	21:31	23	20:02 (5)	20:31		19:19		17:15		16:32	16:35
31	05:57		19:39 (5)	06:46				07:28			08:45
	21:29	24	20:03 (5)	20:28				17:13			16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		139		386		202		174			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.60		0.60		0.66		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		22		69		38		29			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** BO - H67**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

		January	February	March		April		May		June
1	08:45	08:18	07:25		07:15		06:10	19:13 (4)	05:25	
	16:37	17:25	18:16		20:10		21:00	26	19:39 (4)	21:46
2	08:45	08:16	07:23		07:12		06:08		19:13 (4)	05:24
	16:38	17:26	18:18		20:11		21:02	27	19:40 (4)	21:47
3	08:44	08:15	07:20		07:10		06:06		19:12 (4)	05:24
	16:39	17:28	18:19		20:13		21:03	28	19:40 (4)	21:48
4	08:44	08:13	07:18		17:15 (7)	07:08	06:04		19:11 (4)	05:23
	16:40	17:30	18:21	5	17:20 (7)	20:15	21:05	29	19:40 (4)	21:49
5	08:44	08:12	07:16		17:11 (7)	07:05	06:03		19:11 (4)	05:22
	16:41	17:32	18:23	12	17:23 (7)	20:16	21:07	29	19:40 (4)	21:50
6	08:44	08:10	07:14		17:09 (7)	07:03	06:01		19:11 (4)	05:22
	16:43	17:34	18:25	15	17:24 (7)	20:18	21:08	30	19:41 (4)	21:51
7	08:43	08:08	07:12		17:08 (7)	07:01	05:59		19:11 (4)	05:21
	16:44	17:36	18:27	17	17:25 (7)	20:20	21:10	30	19:41 (4)	21:52
8	08:43	08:06	07:09		17:08 (7)	06:59	05:57		19:11 (4)	05:20
	16:45	17:37	18:28	18	17:26 (7)	20:21	21:12	29	19:40 (4)	21:53
9	08:42	08:05	07:07		17:06 (7)	06:56	05:56		19:11 (4)	05:20
	16:47	17:39	18:30	20	17:26 (7)	20:23	21:13	30	19:41 (4)	21:53
10	08:42	08:03	07:05		17:06 (7)	06:54	05:54		19:11 (4)	05:19
	16:48	17:41	18:32	20	17:26 (7)	20:25	21:15	29	19:40 (4)	21:54
11	08:41	08:01	07:03		17:06 (7)	06:52	05:52		19:12 (4)	05:19
	16:49	17:43	18:34	20	17:26 (7)	20:26	21:16	28	19:40 (4)	21:55
12	08:41	07:59	07:00		17:06 (7)	06:50	05:50		19:12 (4)	05:19
	16:51	17:45	18:35	18	17:24 (7)	20:28	21:18	27	19:39 (4)	21:56
13	08:40	07:57	06:58		17:07 (7)	06:47	05:49		19:13 (4)	05:18
	16:52	17:47	18:37	17	17:24 (7)	20:30	21:20	26	19:39 (4)	21:56
14	08:39	07:55	06:56		17:08 (7)	06:45	05:47		19:13 (4)	05:18
	16:54	17:49	18:39	15	17:23 (7)	20:32	21:21	25	19:38 (4)	21:57
15	08:38	07:54	06:54		17:09 (7)	06:43	05:46		19:14 (4)	05:18
	16:55	17:50	18:41	22	17:32 (8)	20:33	21:23	24	19:38 (4)	21:57
16	08:37	07:52	06:51		17:12 (7)	06:41	05:44		19:15 (4)	05:18
	16:57	17:52	18:42	21	17:35 (8)	20:35	21:24	21	19:36 (4)	21:58
17	08:37	07:50	06:49		17:17 (8)	06:39	05:43		19:16 (4)	05:18
	16:59	17:54	18:44	20	17:37 (8)	20:37	21:26	20	19:36 (4)	21:58
18	08:36	07:48	06:47		17:15 (8)	06:37	05:41		19:18 (4)	05:18
	17:00	17:56	18:46	22	17:37 (8)	20:38	21:27	17	19:35 (4)	21:59
19	08:35	07:46	06:44		17:14 (8)	06:34	05:40		19:19 (4)	05:18
	17:02	17:58	18:47	24	17:38 (8)	20:40	21:29	15	19:34 (4)	21:59
20	08:34	07:44	06:42		17:13 (8)	06:32	05:38		19:20 (4)	05:18
	17:03	18:00	18:49	26	17:39 (8)	20:42	21:30	11	19:31 (4)	22:00
21	08:33	07:42	06:40		17:12 (8)	06:30	05:37		19:24 (4)	05:18
	17:05	18:01	18:51	27	17:39 (8)	20:43	21:32	5	19:29 (4)	22:00
22	08:31	07:40	06:38		17:11 (8)	06:28	05:36			05:18
	17:07	18:03	18:53	28	17:39 (8)	20:45	21:33			22:00
23	08:30	07:38	06:35		17:11 (8)	06:26	05:35			05:19
	17:09	18:05	18:54	28	17:39 (8)	20:47	21:34			22:00
24	08:29	07:35	06:33		17:11 (8)	06:24	05:33			05:19
	17:10	18:07	18:56	28	17:39 (8)	20:48	21:36			22:00
25	08:28	07:33	06:31		17:11 (8)	06:22	19:25 (4)	05:32		05:19
	17:12	18:09	18:58	27	17:38 (8)	20:50	4	19:29 (4)	21:37	22:00
26	08:26	07:31	06:28		17:11 (8)	06:20	19:21 (4)	05:31		05:20
	17:14	18:10	18:59	26	17:37 (8)	20:52	13	19:34 (4)	21:38	22:00
27	08:25	07:29	06:26		17:12 (8)	06:18	19:18 (4)	05:30		05:20
	17:16	18:12	19:01	25	17:37 (8)	20:53	18	19:36 (4)	21:40	22:00
28	08:24	07:27	06:24		17:12 (8)	06:16	19:16 (4)	05:29		05:21
	17:17	18:14	19:03	23	17:35 (8)	20:55	21	19:37 (4)	21:41	22:00
29	08:22		07:21		18:13 (8)	06:14	19:15 (4)	05:28		05:21
	17:19		20:04	21	18:34 (8)	20:57	23	19:38 (4)	21:42	22:00
30	08:21		07:19		18:15 (8)	06:12	19:14 (4)	05:27		05:22
	17:21		20:06	17	18:32 (8)	20:58	25	19:39 (4)	21:43	22:00
31	08:19		07:17		18:17 (8)		05:26			
	17:23		20:08	11	18:28 (8)		21:45			
Potential sun hours	260	278	367		416		485			498
Total, worst case				573		104		506		
Sun reduction				0.24		0.35		0.37		
Oper. time red.				1.00		1.00		1.00		
Wind dir. red.				0.69		0.61		0.61		
Total reduction				0.17		0.22		0.23		
Total, real				96		22		114		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BO - H67**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:22 (4)	06:48		07:37	17:46 (7)	07:30	08:21	
	21:59		21:28	28	19:50 (4)	20:26	19:17	18	18:04 (7)	17:11	16:31
2	05:23		06:00		19:22 (4)	06:50			17:44 (7)	07:32	08:22
	21:59		21:26	29	19:51 (4)	20:24	19:15	20	18:04 (7)	17:09	16:30
3	05:24		06:02		19:21 (4)	06:51			17:44 (7)	07:34	08:24
	21:59		21:25	29	19:50 (4)	20:22	19:12	20	18:04 (7)	17:08	16:30
4	05:24		06:03		19:21 (4)	06:53			17:44 (7)	07:35	08:25
	21:58		21:23	29	19:50 (4)	20:19	19:10	20	18:04 (7)	17:06	16:29
5	05:25		06:05		19:21 (4)	06:54			17:43 (7)	07:37	08:26
	21:58		21:21	30	19:51 (4)	20:17	19:08	19	18:02 (7)	17:04	16:29
6	05:26		06:06		19:20 (4)	06:56			17:44 (7)	07:39	08:28
	21:57		21:19	30	19:50 (4)	20:15	19:06	18	18:02 (7)	17:02	16:28
7	05:27		06:08		19:21 (4)	06:58			17:45 (7)	07:41	08:29
	21:57		21:18	29	19:50 (4)	20:13	19:03	16	18:01 (7)	17:01	16:28
8	05:28		06:09		19:20 (4)	06:59			17:46 (7)	07:43	08:30
	21:56		21:16	30	19:50 (4)	20:10	19:01	14	18:00 (7)	16:59	16:28
9	05:29		06:11		19:21 (4)	07:01			17:47 (7)	07:44	08:31
	21:56		21:14	29	19:50 (4)	20:08	18:59	9	17:56 (7)	16:57	16:27
10	05:30		06:13		19:21 (4)	07:03			07:52	07:46	08:32
	21:55		21:12	28	19:49 (4)	20:06	18:57			16:56	16:27
11	05:31		06:14		19:21 (4)	07:04			07:53	07:48	08:33
	21:54		21:10	28	19:49 (4)	20:03	18:54			16:54	16:27
12	05:32		06:16		19:21 (4)	07:06	18:09 (8)		07:55	07:50	08:34
	21:53		21:08	26	19:47 (4)	20:01	11	18:20 (8)	18:52	16:53	16:27
13	05:33		06:17		19:22 (4)	07:07			18:07 (8)	07:57	08:35
	21:52		21:06	25	19:47 (4)	19:59	16	18:23 (8)	18:50	16:51	16:27
14	05:34		06:19		19:23 (4)	07:09			18:04 (8)	07:59	08:36
	21:51		21:04	22	19:45 (4)	19:56	20	18:24 (8)	18:48	16:50	16:27
15	05:35		06:21		19:24 (4)	07:11			18:03 (8)	08:00	08:37
	21:50		21:02	20	19:44 (4)	19:54	22	18:25 (8)	18:46	16:48	16:27
16	05:36		06:22		19:25 (4)	07:12			18:01 (8)	08:02	08:38
	21:49		21:00	17	19:42 (4)	19:52	24	18:25 (8)	18:43	16:47	16:27
17	05:38		06:24		19:28 (4)	07:14			18:00 (8)	08:04	08:39
	21:48		20:58	12	19:40 (4)	19:49	26	18:26 (8)	18:41	16:45	16:27
18	05:39		06:25		07:15	17:58 (8)	08:05		08:00	08:40	
	21:47		20:56		19:47	27	18:25 (8)	18:39		16:44	16:27
19	05:40		06:27		07:17	17:58 (8)	08:07		08:02	08:40	
	21:46		20:54		19:45	27	18:25 (8)	18:37		16:43	16:28
20	05:41		06:29		07:19	17:58 (8)	08:09		08:04	08:41	
	21:45		20:52		19:42	28	18:26 (8)	18:35		16:42	16:28
21	05:43		06:30		07:20	17:57 (8)	08:11		08:05	08:42	
	21:44		20:50		19:40	27	18:24 (8)	18:33		16:40	16:29
22	05:44		06:32		07:22	17:57 (8)	08:12		08:07	08:42	
	21:42		20:48		19:38	27	18:24 (8)	18:31		16:39	16:29
23	05:46		06:33		07:24	17:56 (8)	08:14		08:08	08:43	
	21:41	9	19:41 (4)	20:46	19:35	27	18:23 (8)	18:29		16:38	16:30
24	05:47		06:35		07:25	17:57 (8)	08:16		08:10	08:43	
	21:40	13	19:43 (4)	20:44	19:33	25	18:22 (8)	18:27		16:37	16:30
25	05:48		06:37		07:27	17:58 (8)	07:18		08:12	08:43	
	21:38	16	19:45 (4)	20:42	19:31	23	18:21 (8)	17:25		16:36	16:31
26	05:50		06:38		07:28	17:58 (8)	07:19		08:13	08:44	
	21:37	19	19:46 (4)	20:39	19:28	21	18:19 (8)	17:23		16:35	16:31
27	05:51		06:40		07:30	18:00 (8)	07:21		08:15	08:44	
	21:36	21	19:47 (4)	20:37	19:26	17	18:17 (8)	17:21		16:34	16:32
28	05:53		06:42		07:32	17:51 (7)	07:23		08:16	08:44	
	21:34	22	19:48 (4)	20:35	19:24	23	18:15 (8)	17:19		16:33	16:33
29	05:54		06:43		07:33	17:48 (7)	07:25		08:18	08:44	
	21:33	24	19:48 (4)	20:33	19:22	17	18:09 (8)	17:17		16:33	16:34
30	05:56		06:45		07:35	17:47 (7)	07:27		08:19	08:45	
	21:31	26	19:49 (4)	20:31	19:19	16	18:03 (7)	17:15		16:32	16:35
31	05:57		06:46				07:28			08:45	
	21:29	27	19:50 (4)	20:28			17:13			16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case		177		441		424		154			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.61		0.61		0.68		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		29		80		82		25			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BP - H68**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37 08:44 16:38	08:18 17:25 08:16 17:26	07:25 18:16 07:23 18:18	07:14 20:10 07:12 20:11	06:10 21:00 06:08 21:02	05:25 21:46 05:24 21:47	05:22 21:59 05:23 21:59	05:59 21:28 06:00 21:26	06:48 20:26 06:50 20:24	07:37 19:17 07:38 19:15	07:30 17:11 07:32 17:09	08:21 16:31 08:22 16:30
3	08:44 16:39 08:44 16:40	08:15 17:28 08:13 17:30	07:20 18:19 07:18 18:21	07:10 20:13 07:08 20:15	06:06 21:03 06:04 21:05	05:23 21:48 05:23 21:49	05:24 21:59 05:24 21:58	06:02 21:24 06:03 21:23	06:51 20:22 06:53 20:19	07:40 19:12 07:42 19:10	07:34 17:07 07:35 17:06	08:24 16:30 08:25 16:29
5	08:44 16:41 08:44 16:43	08:12 17:32 08:12 17:34	07:16 18:23 07:16 18:25	07:05 20:16 07:03 20:18	06:03 21:07 06:01 21:08	05:22 21:50 05:21 21:51	05:25 21:58 05:26 21:57	06:05 21:21 06:06 21:19	06:54 20:17 06:56 20:15	07:43 19:08 07:45 19:05	07:37 17:04 07:39 17:02	08:26 16:29 08:28 16:28
7	08:43 16:44 08:43 16:45	08:08 17:36 08:06 17:37	07:12 18:27 07:09 18:28	07:01 20:20 06:59 20:21	05:59 21:10 05:57 21:12	05:21 21:52 05:20 21:53	05:27 21:57 05:28 21:56	06:08 21:17 06:09 21:16	06:58 20:12 06:59 20:10	07:47 19:03 07:48 19:01	07:41 17:01 07:43 16:59	08:29 16:28 08:30 16:28
9	08:42 16:47 08:42 16:48	08:05 17:39 08:03 17:41	07:07 18:30 07:05 18:32	06:56 20:23 06:54 20:25	05:55 21:13 05:54 21:15	05:20 21:53 05:19 21:54	05:29 21:55 05:30 21:55	06:11 21:14 06:13 21:12	07:01 20:08 07:02 20:06	07:50 18:59 07:52 18:57	07:44 16:57 07:46 16:56	08:31 16:27 08:32 16:27
11	08:41 16:49 08:41 16:51	08:01 17:43 07:59 17:45	07:03 18:34 07:00 18:35	06:52 20:26 06:50 20:28	05:52 21:16 05:50 21:18	05:19 21:55 05:19 21:56	05:31 21:54 05:32 21:53	06:14 21:10 06:16 21:08	07:04 20:03 07:06 20:01	07:53 18:54 07:55 18:52	07:48 16:54 07:50 16:53	08:33 16:27 08:34 16:27
13	08:40 16:52 08:39 16:54	07:57 17:47 07:55 17:49	06:58 18:37 06:56 18:39	06:47 20:30 06:45 20:32	05:49 21:20 05:47 21:21	05:18 21:56 05:18 21:57	05:33 21:52 05:34 21:51	06:17 21:06 06:19 21:04	07:07 19:59 07:09 19:56	07:57 18:50 07:58 18:48	07:51 16:51 07:53 16:50	08:35 16:27 08:36 16:27
15	08:38 16:55 08:37 16:57	07:54 17:50 07:52 17:52	06:43 18:40 06:41 18:42	06:37 20:33 06:35 20:35	05:46 21:23 05:44 21:24	05:18 21:57 05:18 21:58	05:35 21:50 05:36 21:49	06:20 21:02 06:22 21:00	07:11 19:37 07:12 19:37	08:00 18:46 08:02 18:43	07:55 16:48 07:57 16:47	08:37 16:27 08:38 16:27
17	08:37 16:57 08:37 16:58	07:52 17:52 07:50 17:54	06:41 18:42 06:39 18:44	06:35 20:35 06:39 20:37	05:44 21:24 05:43 21:26	05:18 21:58 05:18 21:58	05:36 21:49 05:38 21:48	06:22 21:00 06:24 20:58	07:12 19:37 07:14 19:39	08:02 18:46 08:04 18:41	07:57 16:48 07:58 16:45	08:38 16:27 08:39 16:27
19	08:36 17:00 08:35 17:02	07:48 17:56 07:46 17:58	06:47 18:46 06:44 18:47	06:37 20:38 06:34 20:40	05:41 21:27 05:40 21:29	05:18 21:59 05:18 21:59	05:39 21:47 05:40 21:46	06:25 20:56 06:27 20:54	07:15 19:17 07:17 19:40	08:05 18:39 08:07 18:37	08:00 16:44 08:02 16:43	08:40 16:27 08:40 16:28
21	08:34 17:03 08:33 17:05	07:44 18:00 07:42 18:01	06:42 18:49 06:40 18:51	06:32 20:42 06:30 20:43	05:38 21:30 05:37 21:32	05:18 21:59 05:18 22:00	05:41 21:45 05:43 21:44	06:29 20:52 06:30 20:50	07:19 19:16 07:20 19:40	08:09 18:35 08:11 18:33	08:03 16:42 08:05 16:40	08:41 16:28 08:42 16:28
23	08:31 17:07 08:30 17:08	07:40 18:03 07:38 18:05	06:37 18:53 06:35 18:54	06:28 20:45 06:26 20:47	05:36 21:33 05:35 21:34	05:18 22:00 05:19 22:00	05:44 21:42 05:45 21:41	06:32 20:48 06:33 20:46	07:22 19:14 07:23 19:15	08:12 18:31 08:14 18:29	08:07 16:39 08:08 16:38	08:42 16:29 08:43 16:29
25	08:28 17:12 08:26 17:14	07:33 18:09 07:31 18:10	06:31 18:58 06:28 18:59	06:22 20:50 06:20 20:52	05:32 21:37 05:31 21:38	05:19 22:00 05:19 22:00	05:48 21:38 05:50 21:37	06:37 20:41 06:38 20:39	07:27 19:39 07:28 19:38	08:18 17:25 08:19 17:23	08:12 16:36 08:13 16:35	08:43 16:31 08:44 16:31
27	08:25 17:15 08:24 17:17	07:29 18:12 07:27 18:14	06:26 19:01 06:24 19:03	06:18 20:53 06:16 20:55	05:30 21:40 05:29 21:41	05:20 22:00 05:20 22:00	05:51 20:37 05:53 20:35	06:40 20:37 06:41 20:35	07:30 19:37 07:32 19:36	08:21 17:21 08:23 17:19	08:15 16:34 08:16 16:33	08:44 16:32 08:44 16:33
29	08:22 17:19 08:21 17:21	07:21 18:04 07:19 18:06	06:14 19:04 06:12 19:06	06:14 20:57 06:12 20:58	05:28 21:42 05:27 21:43	05:21 22:00 05:22 22:00	06:43 20:33 06:45 20:31	06:43 20:33 06:45 20:31	07:33 19:34 07:35 19:32	08:18 17:17 08:19 17:15	08:44 16:33 08:45 16:32	08:44 16:34 08:45 16:35
31	08:19 17:23	07:17 20:08	07:17 20:08	07:17 20:08	05:26 21:44	05:26 21:44	05:57 21:29	06:46 20:28	07:28 19:28	07:28 19:28	07:28 19:28	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				351				359				
Sun reduction				0.35				0.30				
Oper. time red.				1.00				1.00				
Wind dir. red.				0.63				0.63				
Total reduction				0.22				0.19				
Total, real				78				67				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BQ - H69**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August		September		October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16		07:14 20:10	21	18:58 (5) 19:19 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	16	18:57 (5) 19:13 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18		07:12 20:11	23	18:57 (5) 19:20 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	18	18:55 (5) 19:13 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19		07:10 20:13	24	18:56 (5) 19:20 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	21	18:54 (5) 19:15 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21		07:08 20:15	25	18:55 (5) 19:20 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	23	18:52 (5) 19:15 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23		07:05 20:16	25	18:55 (5) 19:20 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	24	18:51 (5) 19:15 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	24	18:55 (5) 19:19 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	25	18:51 (5) 19:16 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27		07:01 20:20	24	18:55 (5) 19:19 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	25	18:50 (5) 19:15 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28		06:59 20:21	22	18:55 (5) 19:17 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	25	18:50 (5) 19:15 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30		06:56 20:23	21	18:56 (5) 19:17 (5)	05:55 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	25	18:49 (5) 19:14 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25	18	18:57 (5) 19:15 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	23	18:50 (5) 19:13 (5)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34		06:52 20:26	16	18:58 (5) 19:14 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	22	18:50 (5) 19:12 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35		06:50 20:28	12	19:00 (5) 19:12 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	20	18:51 (5) 19:11 (5)	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37		06:47 20:30		05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	06:19 21:06	07:07 19:59	17	18:52 (5) 19:09 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39		06:45 20:32		05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	06:19 21:04	07:09 19:56	14	18:53 (5) 19:07 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40		06:43 20:33		05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	06:20 21:02	07:11 19:54	7	18:56 (5) 19:03 (5)	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42		06:41 20:35		05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	06:22 21:00	07:12 19:52		18:57 (5) 18:43	08:02 16:47	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44		06:39 20:37		05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	06:24 20:58	07:14 19:49		18:50 (5) 18:41	08:04 16:45	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46		06:37 20:38		05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	06:25 20:56	07:15 19:47		18:49 (5) 18:39	08:05 16:44	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47		06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	06:27 20:54	07:17 19:45		18:47 (5) 18:37	08:07 16:43	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49		06:32 20:42		05:38 21:30	05:18 22:00	05:41 21:45	06:29 20:52	06:29 20:52	07:19 19:42		18:46 (5) 18:35	08:09 16:42	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51		06:30 20:43		05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	06:30 20:50	07:20 19:40		18:45 (5) 18:33	08:11 16:40	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53		06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	06:32 20:48	07:22 19:38		18:44 (5) 18:31	08:12 16:39	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54		06:26 20:47		05:35 21:34	05:19 22:00	05:45 21:41	06:33 20:46	06:33 20:46	07:23 19:35		18:43 (5) 18:29	08:14 16:38	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56		06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	06:35 20:44	07:25 19:33		18:42 (5) 18:27	08:16 16:37	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58		06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	06:37 20:41	07:27 19:31		18:41 (5) 17:25	08:18 16:36	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59		06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	06:38 20:39	07:28 19:28		18:40 (5) 17:23	08:19 16:35	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01		06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	06:40 20:37	07:30 19:26		18:39 (5) 17:21	08:18 16:34	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	18:07 (5)	06:16 20:55		05:29 22:00	05:20 22:00	05:53 21:34	06:41 20:35	06:41 20:35	07:32 19:24		18:38 (5) 17:19	08:18 16:33	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	06:21 19:16 (5)	19:03 (5)	06:14 20:57		05:28 22:00	05:21 22:00	05:54 21:33	06:43 20:33	06:43 20:33	07:33 19:22		18:37 (5) 17:17	08:25 16:33	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 20:06	06:19 19:18 (5)	19:01 (5)	06:12 20:58		05:27 22:00	05:22 22:00	05:55 21:31	06:45 20:31	06:45 20:31	07:35 19:19	19:05 (5)	18:36 (5) 19:07 (5)	08:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	06:17 19:18 (5)	18:59 (5)	06:10 19:18 (5)		05:26 22:00	05:26 22:00	05:57 21:29	06:46 20:28	06:46 20:28	07:35 19:19	19:07 (5) 19:11 (5)	18:59 (5) 19:11 (5)	08:28 17:13	08:20 16:31	08:45 16:36
Potential sun hours	260	278	367		416		485	498	501	453		381		332	267	244	
Total, worst case			54		255						14	305					
Sun reduction			0.24		0.35						0.30	0.28					
Oper. time red.			1.00		1.00						1.00	1.00					
Wind dir. red.			0.66		0.66						0.66	0.66					
Total reduction			0.16		0.23						0.19	0.19					
Total, real			9		59						3	57					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** BR - H70**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	19:06 (5) 19:29 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:07 (5) 19:27 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	19:08 (5) 19:26 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	19:09 (5) 19:23 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	19:13 (5) 19:19 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	19:15 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	19:17 (5) 19:23 (5)	05:59 21:10	05:21 21:52	06:08 21:57	06:58 20:12	19:03	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:12 (5) 19:26 (5)	05:57 21:12	05:20 21:53	06:09 21:56	06:59 20:10	19:04	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:10 (5) 19:28 (5)	05:55 21:13	05:20 21:53	06:11 21:56	07:01 20:08	19:05	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:09 (5) 19:29 (5)	05:54 21:15	05:19 21:54	06:13 21:55	07:02 20:06	19:06	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:07 (5) 19:30 (5)	05:52 21:16	05:19 21:55	06:14 21:54	07:04 20:03	19:07	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:07 (5) 19:31 (5)	05:50 21:18	05:19 21:56	06:16 21:53	07:06 20:01	19:08	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19:05 (5) 19:30 (5)	05:49 21:20	05:18 21:56	06:17 21:52	07:07 19:59	19:09	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	19:04 (5) 19:30 (5)	05:47 21:21	05:18 21:57	06:19 21:51	07:09 19:56	19:10	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	19:04 (5) 19:30 (5)	05:46 21:23	05:18 21:57	06:20 21:50	07:11 19:54	19:11	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	19:04 (5) 19:30 (5)	05:44 21:24	05:18 21:58	06:22 21:49	07:12 19:52	19:12	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	19:04 (5) 19:30 (5)	05:43 21:26	05:18 21:58	06:24 20:58	07:14 19:49	19:13	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:04 (5) 19:30 (5)	05:41 21:27	05:18 21:59	06:25 20:56	07:15 19:47	19:14 (5)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:05 (5) 19:29 (5)	05:40 21:29	05:18 21:59	06:27 20:54	07:17 19:45	19:15 (5)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:05 (5) 19:28 (5)	05:38 21:30	05:18 22:00	06:29 20:52	07:19 19:42	19:16 (5)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:06 (5) 19:27 (5)	05:37 21:32	05:18 22:00	06:30 20:50	07:20 19:40	19:17 (5)	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	19:07 (5) 19:26 (5)	05:36 21:33	05:18 22:00	06:32 20:48	07:22 19:31	19:18 (5)	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	19:08 (5) 19:24 (5)	05:35 21:34	05:19 22:00	06:33 20:46	07:23 19:35	19:19 (5)	08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	19:10 (5) 19:22 (5)	05:33 21:36	05:19 22:00	06:35 20:44	07:25 19:33	19:20 (5)	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:11 (5) 19:23 (5)	05:32 21:37	05:19 22:00	06:37 20:41	07:27 19:31	19:21 (5)	08:17 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	19:12 (5) 19:24 (5)	05:31 21:38	05:20 22:00	06:38 20:39	07:28 19:28	19:22 (5)	07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	19:13 (5) 19:25 (5)	05:30 21:40	05:20 22:00	06:40 20:37	07:30 19:26	19:23 (5)	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:14 (5) 19:26 (5)	05:29 21:41	05:20 22:00	06:41 20:35	07:32 19:24	19:24 (5)	07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 20:04	06:14 20:57	19:15 (5) 19:27 (5)	05:28 21:42	05:21 22:00	06:43 20:33	07:33 19:22	19:25 (5)	07:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 20:06	06:12 20:58	19:16 (5) 19:28 (5)	05:27 21:43	05:22 22:00	06:45 20:31	07:35 19:19	19:26 (5)	07:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	06:11 20:08	06:11 20:58	19:17 (5) 19:29 (5)	05:26 21:44	05:22 21:29	06:46 20:28	07:36 19:30 (5)	19:27 (5)	07:28 17:13	08:45 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case				375				300	81				
Sun reduction				0.35				0.30	0.28				
Oper. time red.				1.00				1.00	1.00				
Wind dir. red.				0.64				0.64	0.64				
Total reduction				0.23				0.19	0.18				
Total, real				85				57	15				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) **Shadow receptor:** BS - H71**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August	September		October	November	December		
1	08:45	08:18	07:25		07:14		19:11 (5)	06:10	05:25	05:22	05:58	06:48		19:09 (5)	07:37	07:30	08:21
	16:37	17:24	18:16		20:09	13	19:24 (5)	21:00	21:46	21:59	21:28	20:26	9	19:18 (5)	19:17	17:11	16:31
2	08:44	08:16	07:23		07:12		19:09 (5)	06:08	05:24	05:23	06:00	06:50		19:06 (5)	07:38	07:32	08:22
	16:38	17:26	18:18		20:11	16	19:25 (5)	21:02	21:47	21:59	21:26	20:24	13	19:19 (5)	19:15	17:09	16:30
3	08:44	08:15	07:20		07:10		19:09 (5)	06:06	05:23	05:24	06:02	06:51		19:05 (5)	07:40	07:34	08:24
	16:39	17:28	18:19		20:13	17	19:26 (5)	21:03	21:48	21:59	21:24	20:22	16	19:21 (5)	19:12	17:07	16:30
4	08:44	08:13	07:18		07:08		19:07 (5)	06:04	05:23	05:24	06:03	06:53		19:03 (5)	07:42	07:35	08:25
	16:40	17:30	18:21		20:15	18	19:25 (5)	21:05	21:49	21:58	21:23	20:19	18	19:21 (5)	19:10	17:06	16:29
5	08:44	08:12	07:16		07:05		19:07 (5)	06:03	05:22	05:25	06:05	06:54		19:03 (5)	07:43	07:37	08:26
	16:41	17:32	18:23		20:16	19	19:26 (5)	21:07	21:50	21:58	21:21	20:17	18	19:21 (5)	19:08	17:04	16:29
6	08:44	08:10	07:14		07:03		19:07 (5)	06:01	05:21	05:26	06:06	06:56		19:03 (5)	07:45	07:39	08:28
	16:43	17:34	18:25		20:18	18	19:25 (5)	21:08	21:51	21:57	21:19	20:15	19	19:22 (5)	19:05	17:02	16:28
7	08:43	08:08	07:12		07:01		19:07 (5)	05:59	05:21	05:27	06:08	06:58		19:02 (5)	07:47	07:41	08:29
	16:44	17:36	18:26		20:20	18	19:25 (5)	21:10	21:52	21:57	21:17	20:12	19	19:21 (5)	19:03	17:00	16:28
8	08:43	08:06	07:09		06:59		19:06 (5)	05:57	05:20	05:28	06:09	06:59		19:02 (5)	07:48	07:43	08:30
	16:45	17:37	18:28		20:21	18	19:24 (5)	21:12	21:53	21:56	21:16	20:10	18	19:20 (5)	19:01	16:59	16:28
9	08:42	08:05	07:07		06:56		19:07 (5)	05:55	05:20	05:29	06:11	07:01		19:02 (5)	07:50	07:44	08:31
	16:47	17:39	18:30		20:23	16	19:23 (5)	21:13	21:53	21:55	21:14	20:08	17	19:19 (5)	18:59	16:57	16:27
10	08:42	08:03	07:05		06:54		19:08 (5)	05:54	05:19	05:30	06:12	07:02		19:03 (5)	07:52	07:46	08:32
	16:48	17:41	18:32		20:25	13	19:21 (5)	21:15	21:54	21:55	21:12	20:06	15	19:18 (5)	18:56	16:56	16:27
11	08:41	08:01	07:03		06:52		19:10 (5)	05:52	05:19	05:31	06:14	07:04		19:03 (5)	07:53	07:48	08:33
	16:49	17:43	18:34		20:26	9	19:19 (5)	21:16	21:55	21:54	21:10	20:03	13	19:16 (5)	18:54	16:54	16:27
12	08:41	07:59	07:00		06:50			05:50	05:19	05:32	06:16	07:06		19:05 (5)	07:55	07:50	08:34
	16:51	17:45	18:35		20:28			21:18	21:56	21:53	21:08	20:01	9	19:14 (5)	18:52	16:52	16:27
13	08:40	07:57	06:58		06:47			05:49	05:18	05:33	06:17	07:07			07:57	07:51	08:35
	16:52	17:47	18:37		20:30			21:20	21:56	21:52	21:06	19:59			18:50	16:51	16:27
14	08:39	07:55	06:56		06:45			05:47	05:18	05:34	06:19	07:09			07:58	07:53	08:36
	16:54	17:48	18:39		20:32			21:21	21:57	21:51	21:04	19:56			18:48	16:50	16:27
15	08:38	07:54	06:54		06:43			05:46	05:18	05:35	06:20	07:10			08:00	07:55	08:37
	16:55	17:50	18:40		20:33			21:23	21:57	21:50	21:02	19:54			18:45	16:48	16:27
16	08:37	07:52	06:51		06:41			05:44	05:18	05:36	06:22	07:12			08:02	07:57	08:38
	16:57	17:52	18:42		20:35			21:24	21:58	21:49	21:00	19:52			18:43	16:47	16:27
17	08:37	07:50	06:49		06:39			05:43	05:18	05:38	06:24	07:14			08:04	07:58	08:39
	16:58	17:54	18:44		20:37			21:26	21:58	21:48	20:58	19:49			18:41	16:45	16:27
18	08:36	07:48	06:47		06:37			05:41	05:18	05:39	06:25	07:15			08:05	08:00	08:40
	17:00	17:56	18:46		20:38			21:27	21:59	21:47	20:56	19:47			18:39	16:44	16:27
19	08:35	07:46	06:44		06:34			05:40	05:18	05:40	06:27	07:17			08:07	08:02	08:40
	17:02	17:58	18:47		20:40			21:29	21:59	21:46	20:54	19:45			18:37	16:43	16:28
20	08:34	07:44	06:42		06:32			05:38	05:18	05:41	06:29	07:19			08:09	08:03	08:41
	17:03	18:00	18:49		20:42			21:30	21:59	21:45	20:52	19:42			18:35	16:42	16:28
21	08:32	07:42	06:40		06:30			05:37	05:18	05:43	06:30	07:20			08:11	08:05	08:42
	17:05	18:01	18:51		20:43			21:31	22:00	21:44	20:50	19:40			18:33	16:40	16:28
22	08:31	07:40	06:37		06:28			05:36	05:18	05:44	06:32	07:22			08:12	08:07	08:42
	17:07	18:03	18:52		20:45			21:33	22:00	21:42	20:48	19:38			18:31	16:39	16:29
23	08:30	07:37	06:35		06:26			05:34	05:18	05:45	06:33	07:23			08:14	08:08	08:43
	17:08	18:05	18:54		20:47			21:34	22:00	21:41	20:46	19:35			18:29	16:38	16:29
24	08:29	07:35	06:33		06:24			05:33	05:19	05:47	06:35	07:25			08:16	08:10	08:43
	17:10	18:07	18:56		20:48			21:36	22:00	21:40	20:44	19:33			18:27	16:37	16:30
25	08:28	07:33	06:31		06:22			05:32	05:19	05:48	06:37	07:27			07:18	08:12	08:43
	17:12	18:09	18:58		20:50			21:37	22:00	21:38	20:41	19:31			17:25	16:36	16:31
26	08:26	07:31	06:28		06:20			05:31	05:20	05:50	06:38	07:28			07:19	08:13	08:44
	17:14	18:10	18:59		20:52			21:38	22:00	21:37	20:39	19:28			17:23	16:35	16:31
27	08:25	07:29	06:26		06:18			05:30	05:20	05:51	06:40	07:30			07:21	08:15	08:44
	17:15	18:12	19:01		20:53			21:40	22:00	21:36	20:37	19:26			17:21	16:34	16:32
28	08:24	07:27	06:24		06:16			05:29	05:20	05:53	06:41	07:32			07:23	08:16	08:44
	17:17	18:14	19:03		20:55			21:41	22:00	21:34	20:35	19:24			17:19	16:33	16:33
29	08:22		07:21		06:14			05:28	05:21	05:54	06:43	07:33			07:25	08:18	08:44
	17:19		20:04		20:57			21:42	22:00	21:33	20:33	19:21			17:17	16:33	16:34
30	08:21		07:19		06:12			05:27	05:22	05:55	06:45	07:35			07:26	08:19	08:45
	17:21		20:06		20:58			21:43	22:00	21:31	20:31	19:19			17:15	16:32	16:35
31	08:19		07:17					05:26		05:57	06:46				07:28		08:45
	17:23		20:08	8	19:13 (5) 19:21 (5)			21:44		21:29	20:28				17:13		16:36
Potential sun hours	260	278	367		416			485	498	501	453	381			332	267	244
Total, worst case				8		175							184				
Sun reduction				0.24		0.35							0.28				
Oper. time red.				1.00		1.00							1.00				
Wind dir. red.				0.65		0.65							0.65				
Total reduction				0.16		0.23							0.18				
Total, real				1		40							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)

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case)**Shadow receptor:** BT - H72**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Real Case) Shadow receptor: BU - H73

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

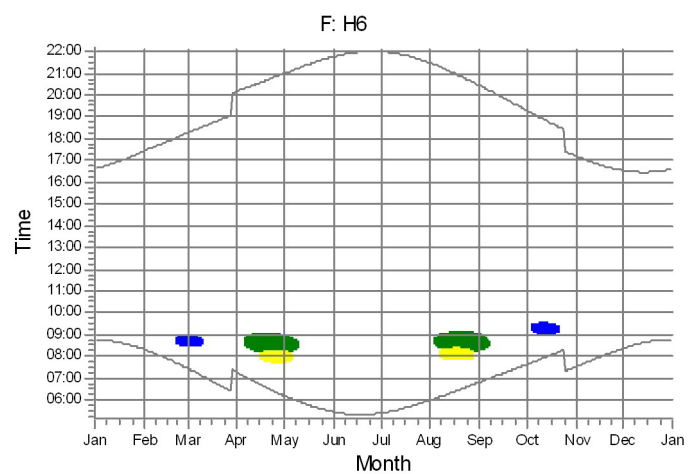
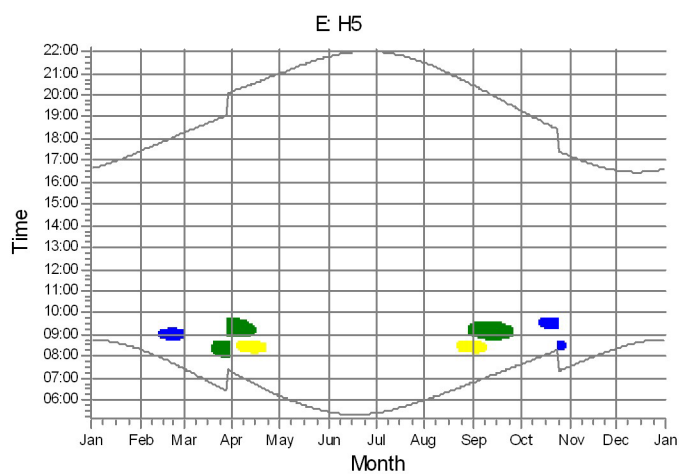
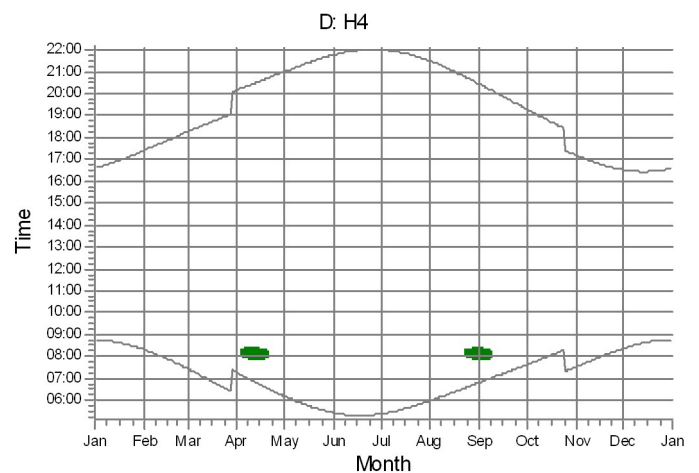
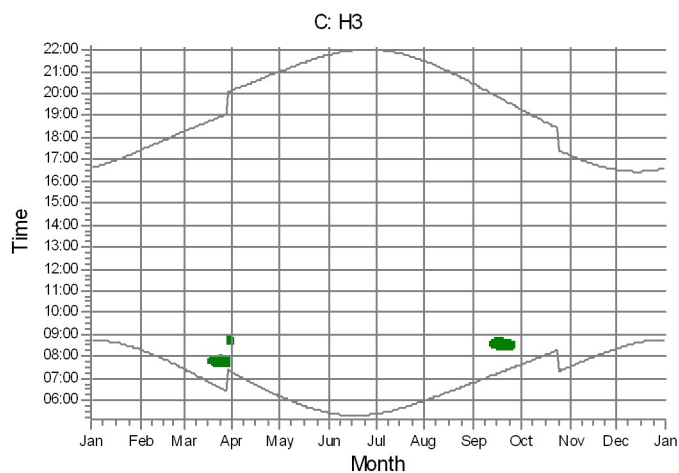
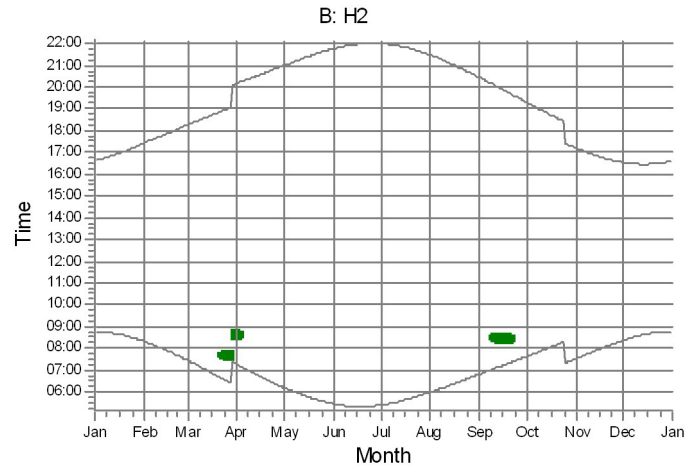
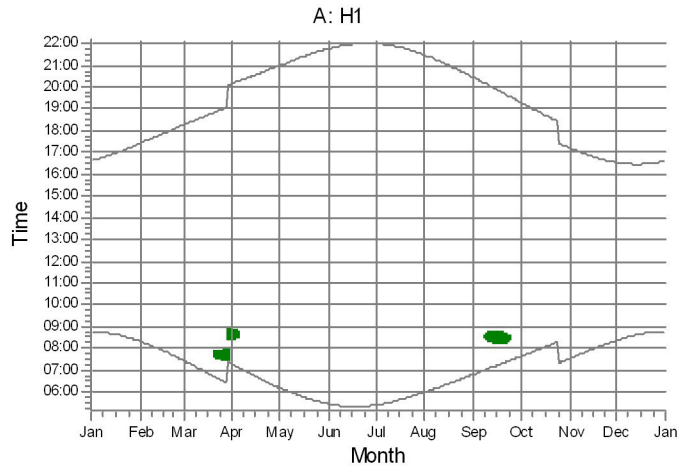
	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	12 18:58 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	8 19:00 (5) 21:02	06:08 21:47	05:24 21:59	05:23 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13		06:06 21:03	05:23 21:48	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15		06:04 21:05	05:23 21:49	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16		06:02 21:07	05:22 21:50	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18		06:01 21:08	05:21 21:51	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20		05:59 21:10	05:21 21:52	05:27 21:57	06:58 20:12	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21		05:57 21:12	05:20 21:53	06:09 21:56	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23		05:55 21:13	05:20 21:53	06:11 21:55	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25		05:54 21:15	05:19 21:54	06:12 21:12	07:02 20:06	18:54 (5) 19:01 (5)	07:52 18:56	08:32 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26		05:52 21:16	05:19 21:55	06:14 21:10	07:04 20:03	18:51 (5) 19:02 (5)	07:53 18:54	08:33 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28		05:50 21:18	05:19 21:56	06:16 21:08	07:06 20:01	18:49 (5) 19:04 (5)	07:55 18:52	08:34 16:52
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30		05:49 21:20	05:18 21:56	06:17 21:06	07:07 19:59	18:47 (5) 19:04 (5)	07:57 18:50	08:35 16:51
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32		05:47 21:21	05:18 21:57	06:19 21:51	07:09 19:56	18:47 (5) 19:04 (5)	07:58 18:48	08:36 16:50
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33		05:46 21:23	05:18 21:57	06:20 21:02	07:10 19:54	18:46 (5) 19:05 (5)	08:00 18:45	08:37 16:48
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35		05:44 21:24	05:18 21:58	06:22 21:49	07:12 19:52	18:45 (5) 19:04 (5)	08:02 18:43	08:38 16:47
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37		05:43 21:26	05:18 21:58	06:24 20:58	07:14 19:49	18:46 (5) 19:04 (5)	08:04 18:41	08:39 16:45
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38		05:41 21:27	05:18 21:59	06:25 21:47	07:15 19:47	18:45 (5) 19:02 (5)	08:05 18:39	08:40 16:44
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40		05:40 21:29	05:18 21:59	06:27 21:46	07:17 19:45	18:46 (5) 19:01 (5)	08:07 18:37	08:40 16:43
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42		05:38 21:30	05:18 21:59	06:28 21:45	07:19 19:42	18:48 (5) 19:00 (5)	08:09 18:35	08:41 16:42
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43		05:37 21:31	05:18 22:00	06:30 21:44	07:20 19:40	18:49 (5) 18:56 (5)	08:11 18:33	08:42 16:40
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45		05:36 21:33	05:18 22:00	06:32 21:42	07:22 19:38	18:56 (5) 18:31	08:12 16:39	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47		05:34 21:34	05:18 22:00	06:33 21:41	07:23 19:35	18:31 (5) 18:29	08:14 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48		05:33 21:36	05:19 22:00	06:35 21:40	07:25 19:33	18:29 (5) 18:27	08:16 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50		05:32 21:37	05:19 22:00	06:37 21:38	07:27 19:31	18:27 (5) 17:25	08:18 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52		05:31 21:38	05:19 22:00	06:38 21:37	07:28 19:28	18:25 (5) 17:23	08:19 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53		05:30 21:40	05:20 22:00	06:40 21:36	07:30 19:26	18:23 (5) 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55		05:29 21:41	05:20 22:00	06:41 21:34	07:32 19:24	18:21 (5) 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	06:14 20:57	06:14 20:57		05:28 21:42	05:21 22:00	06:43 21:33	07:33 19:21	18:19 (5) 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 20:06	06:12 20:58	06:12 20:58		05:27 21:43	05:22 22:00	06:45 21:31	07:35 19:19	18:17 (5) 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	06:15 20:58	06:15 20:58		05:26 21:44	05:22 21:29	06:46 20:28	07:35 19:19	18:16 (5) 17:13	08:19 16:32	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case			150	20						174		
Sun reduction			0.24	0.35						0.28		
Oper. time red.			1.00	1.00						1.00		
Wind dir. red.			0.66	0.66						0.66		
Total reduction			0.16	0.24						0.19		
Total, real			24	5						33		

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

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

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

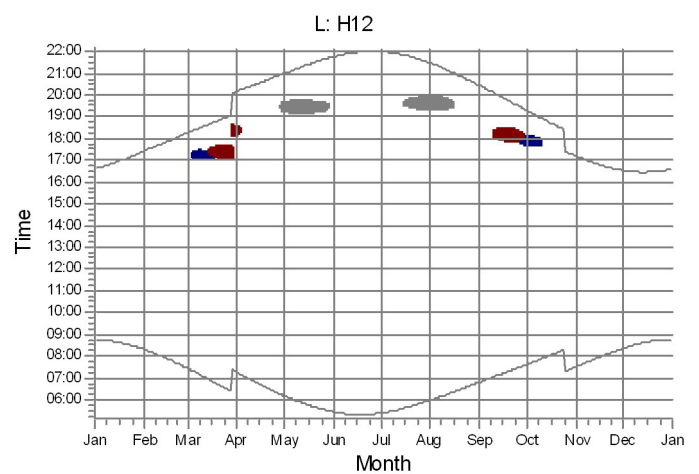
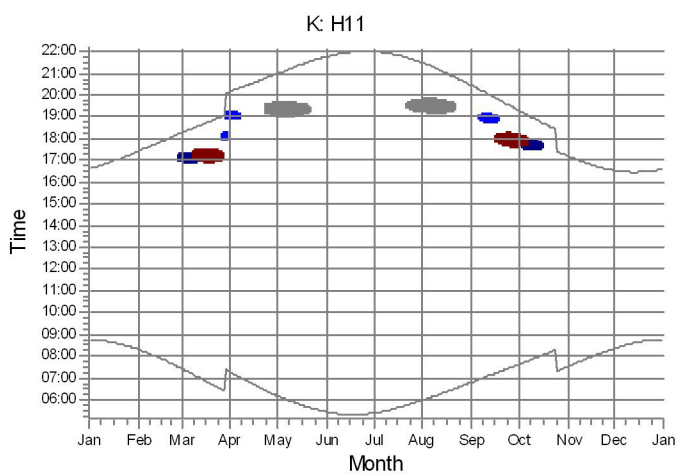
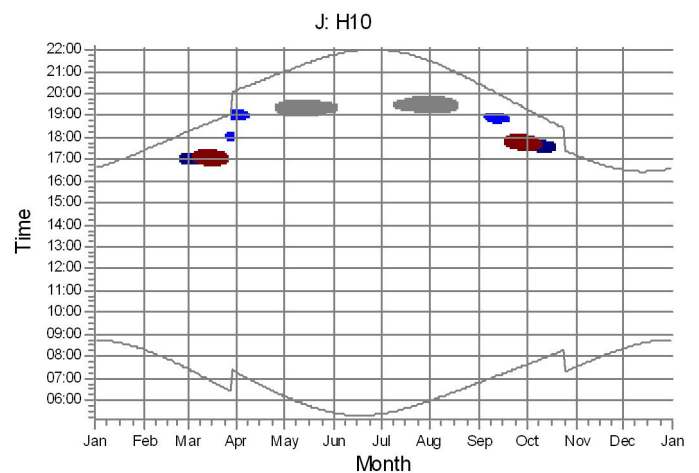
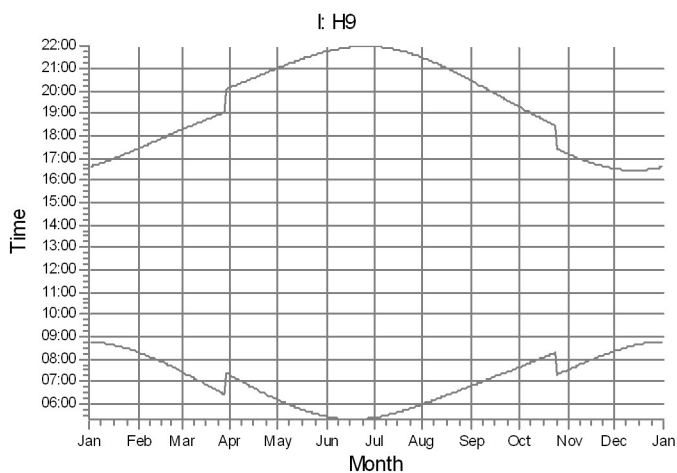
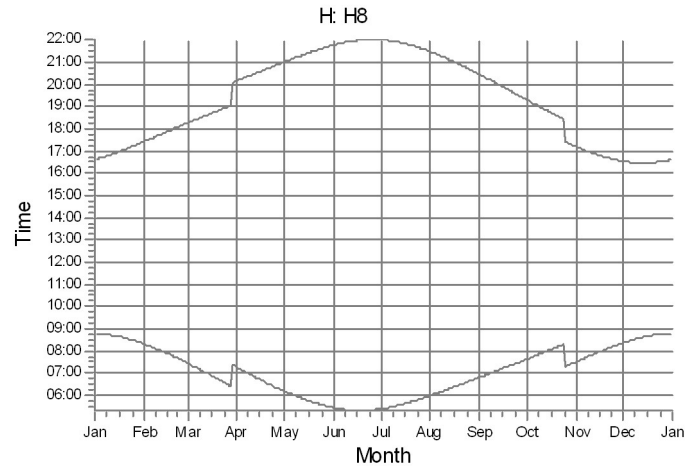
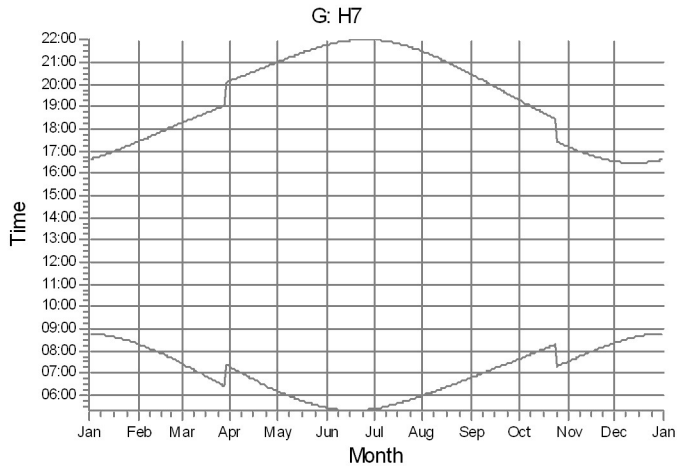


WTGs

1: T01 2: T02 3: T03

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

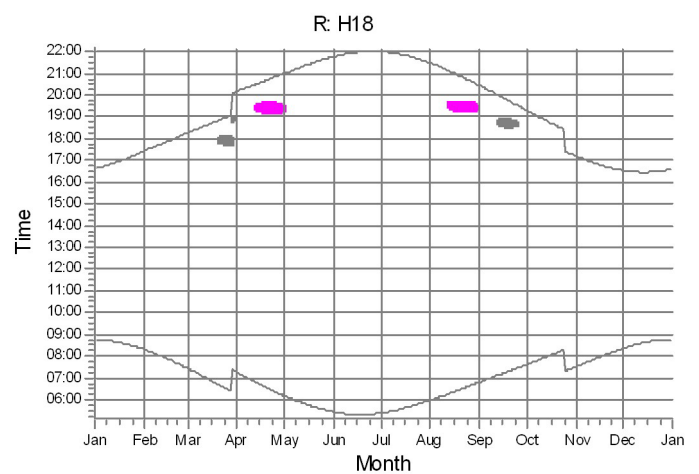
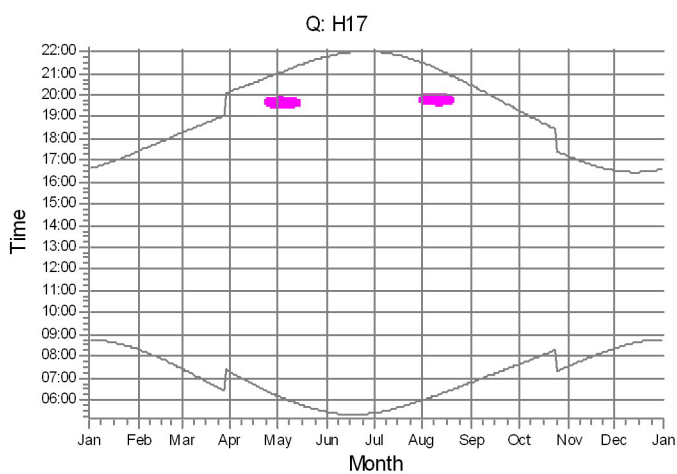
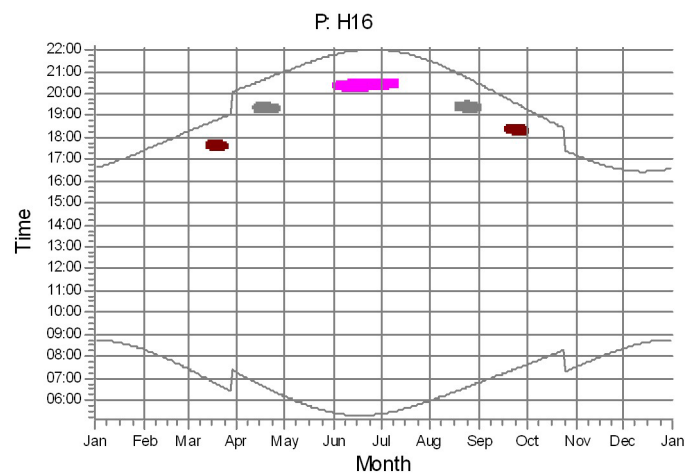
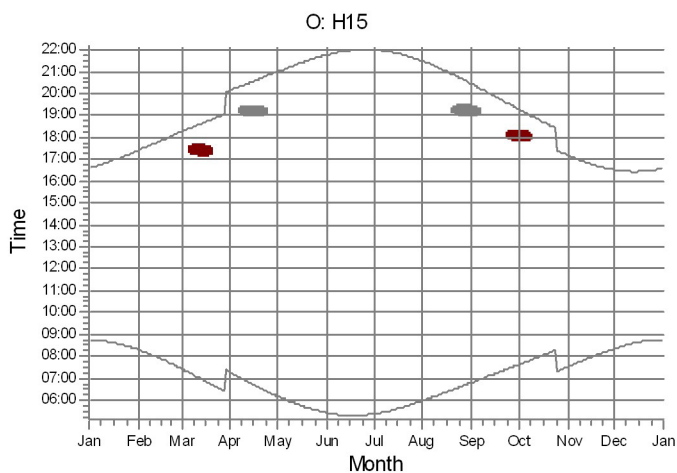
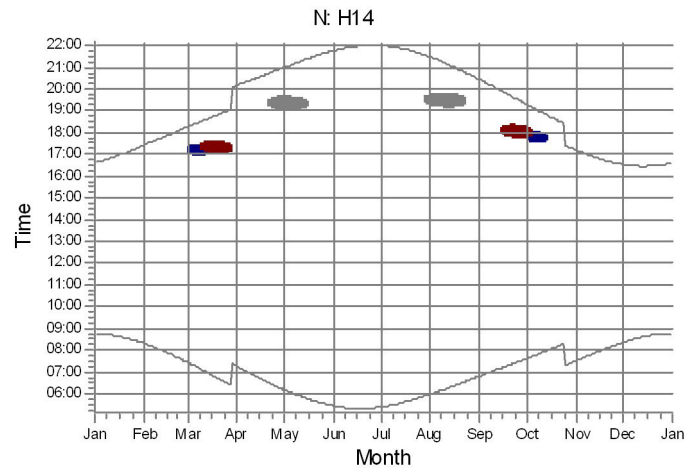
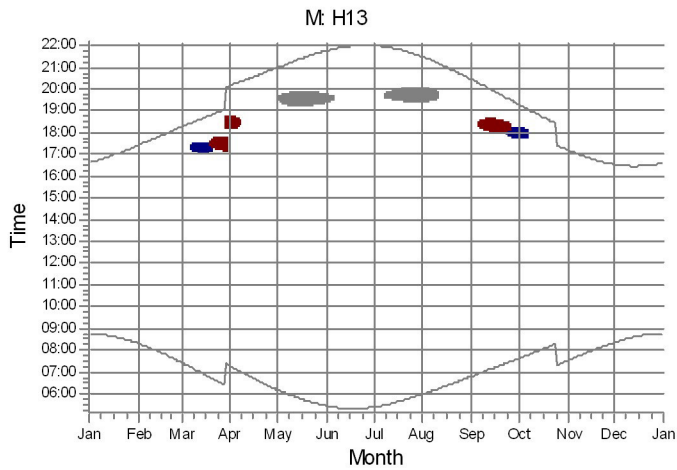


WTGs

3: T03 4: T04 7: T08 8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

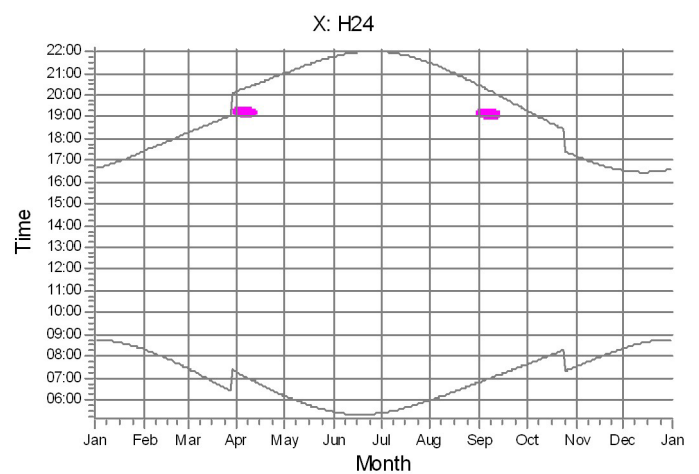
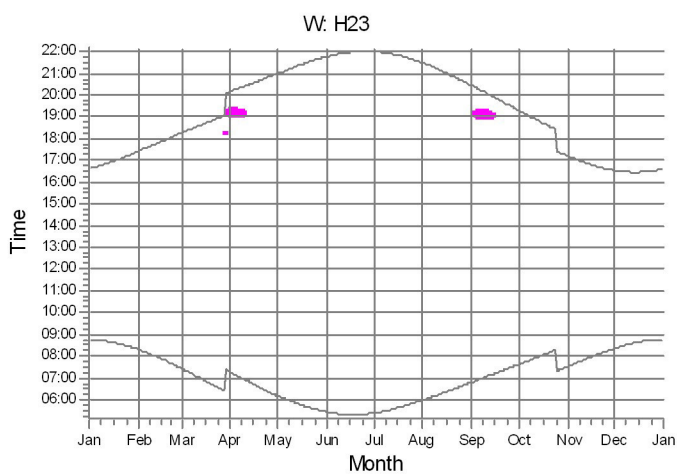
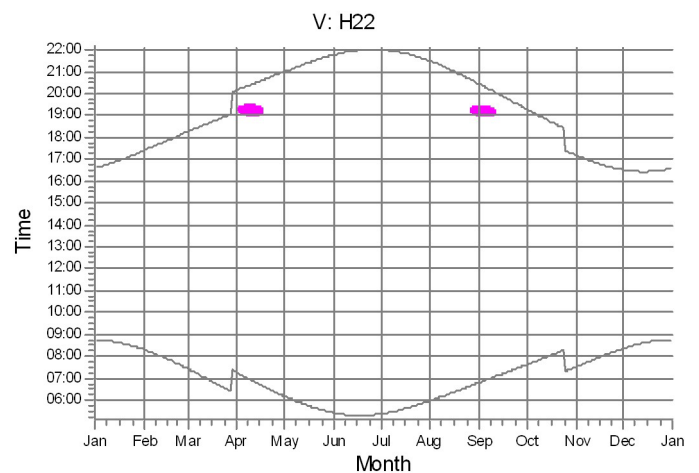
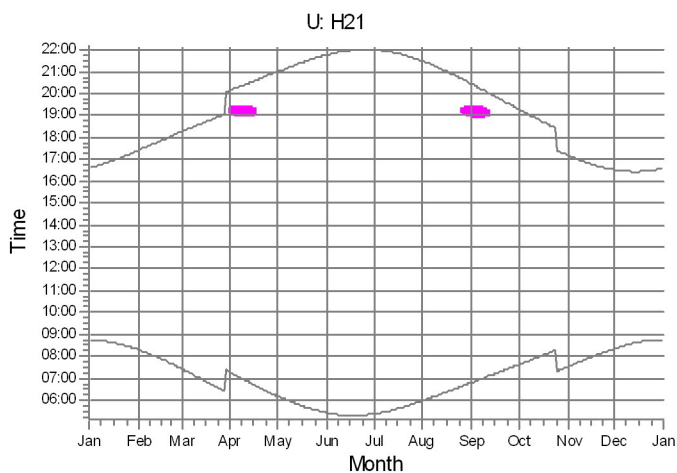
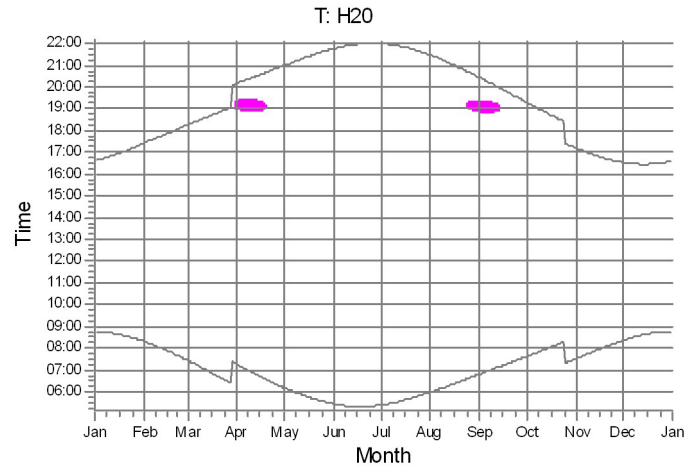
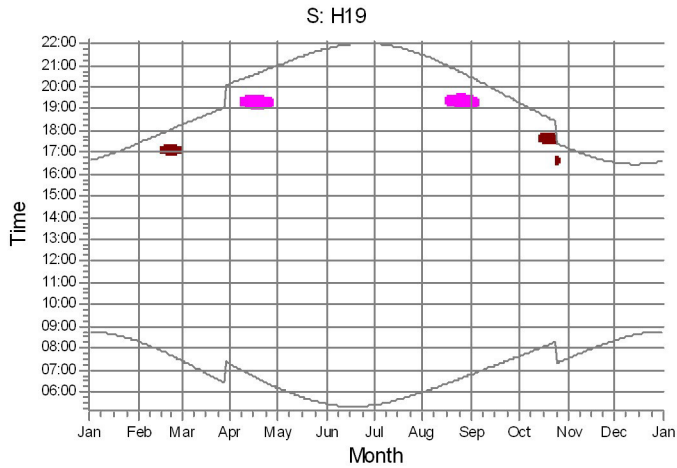


WTGs

4: T04 5: T06 7: T08 8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

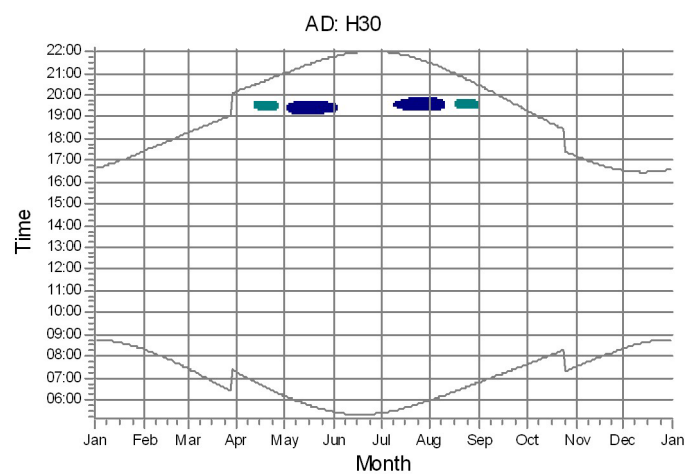
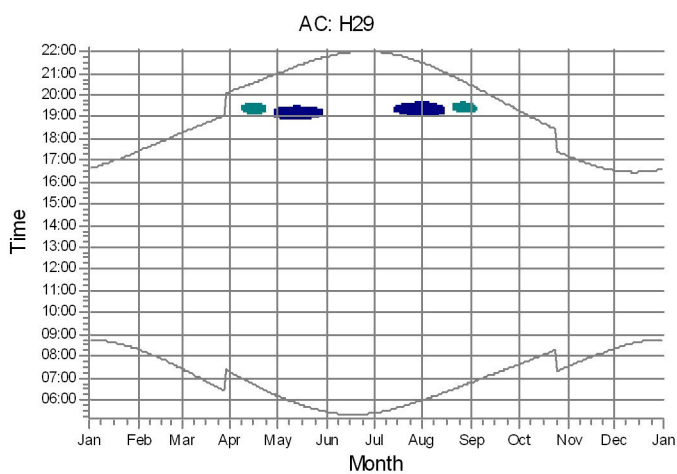
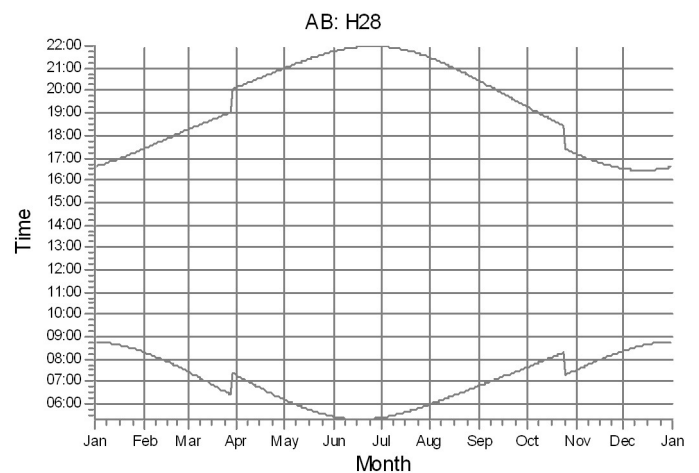
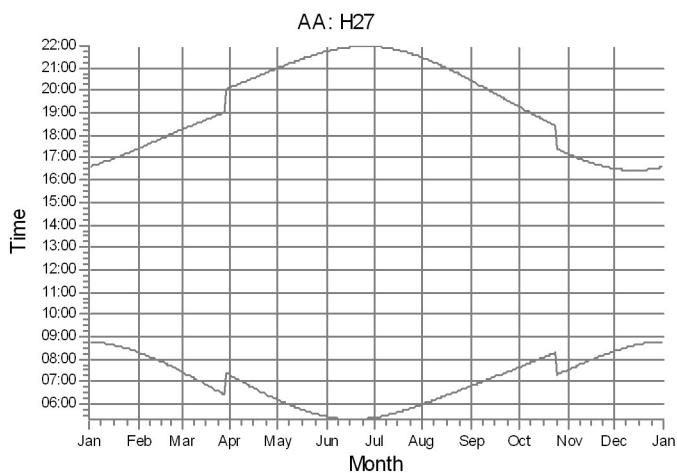
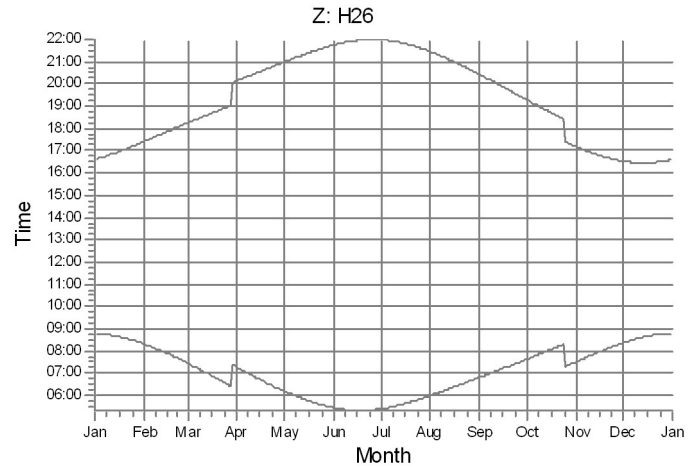
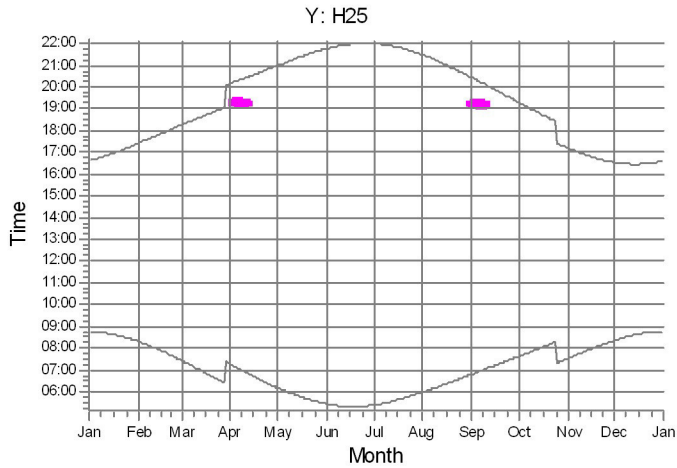


WTGs

5: T06 8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

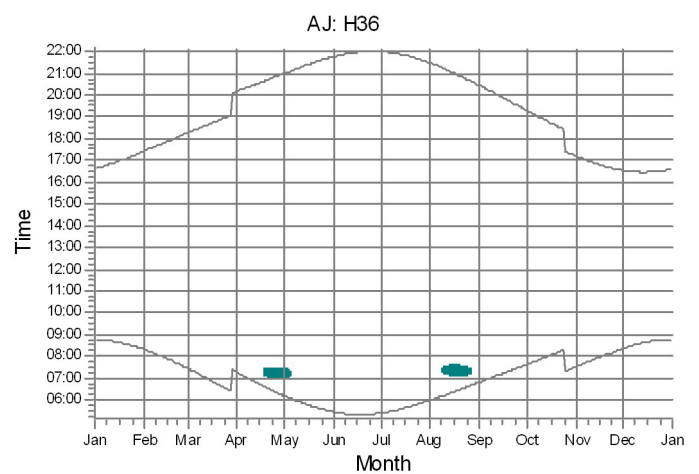
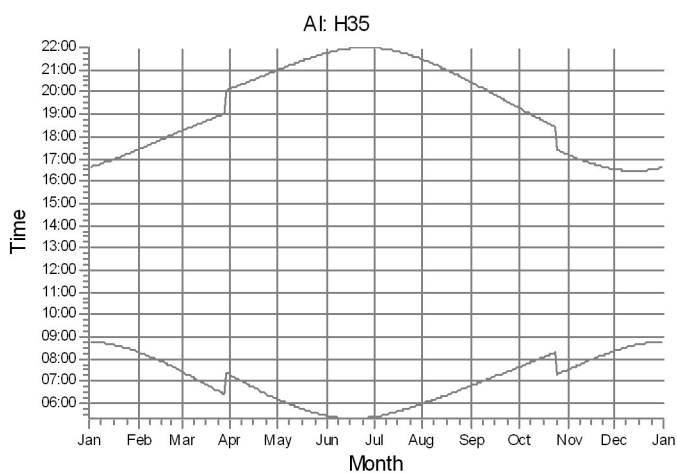
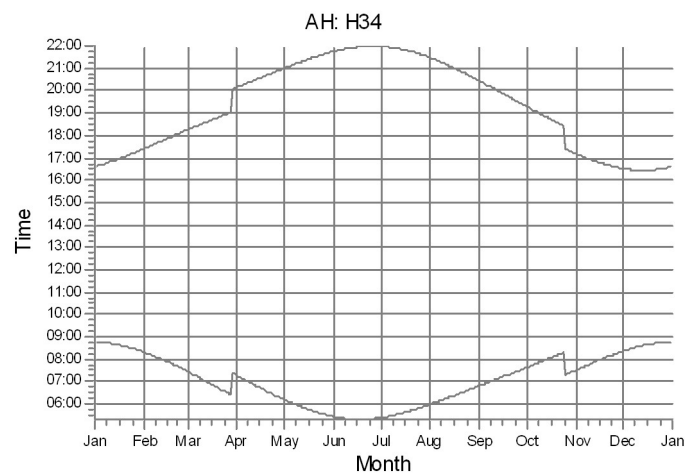
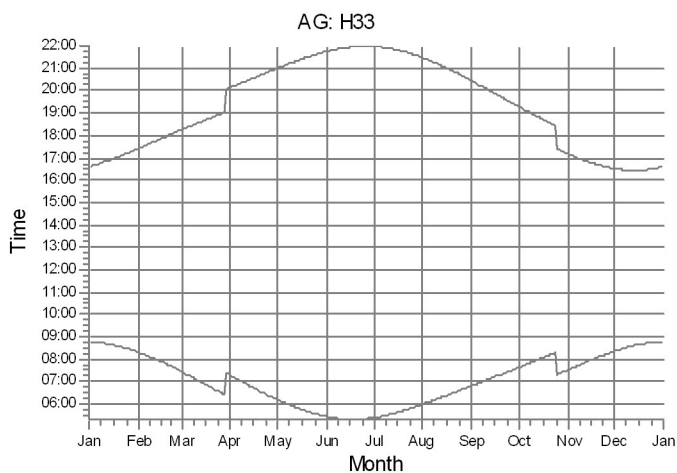
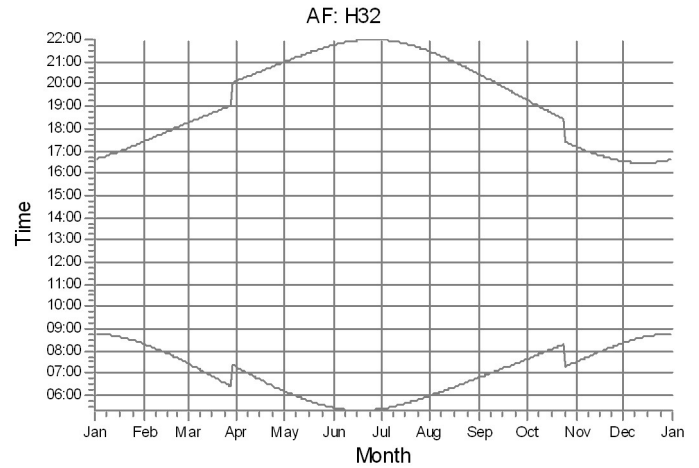
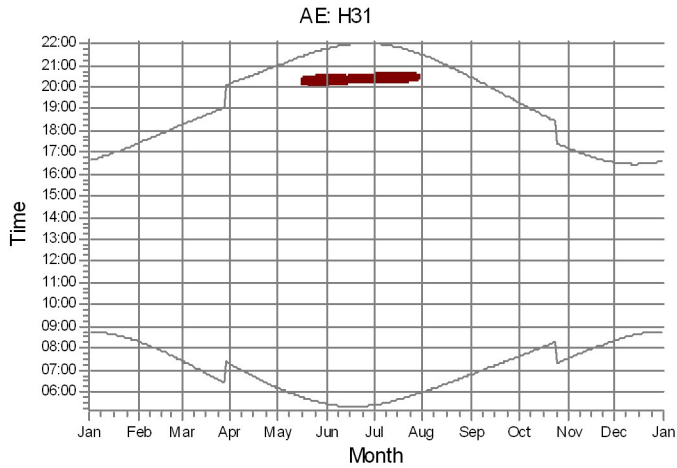


WTGs

5: T06 6: T07 7: T08

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

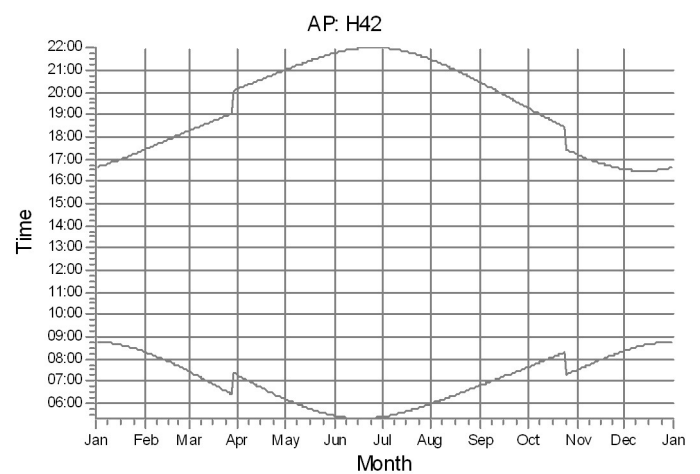
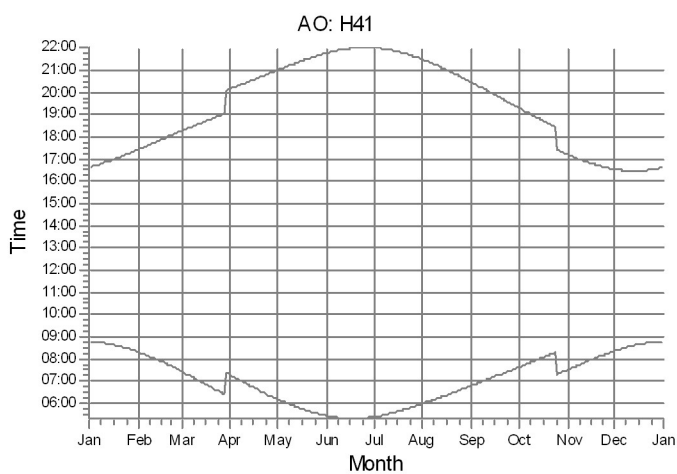
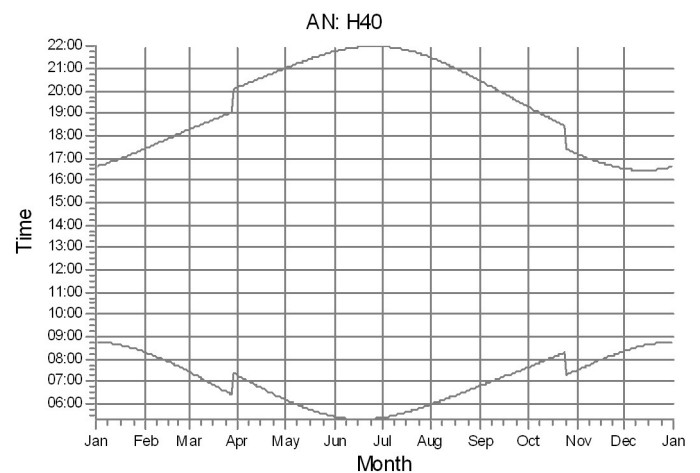
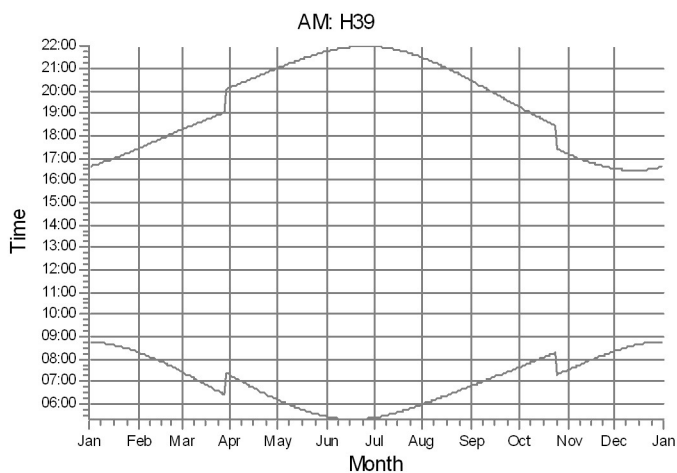
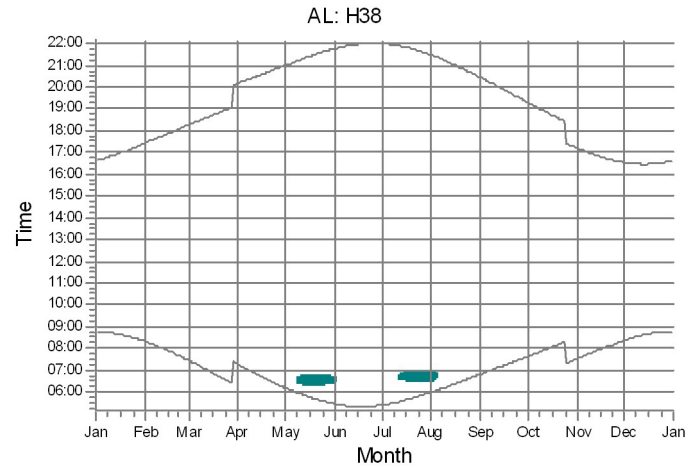
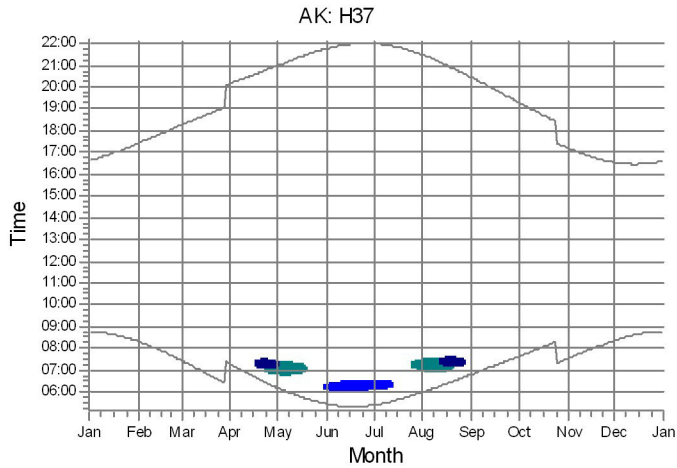


WTGs

6: T07 8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

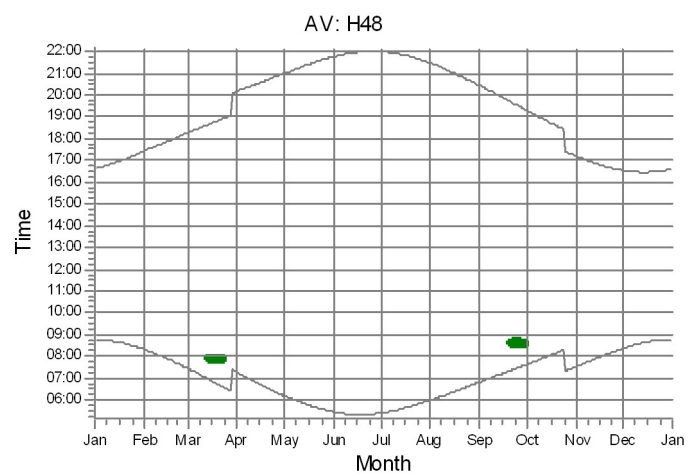
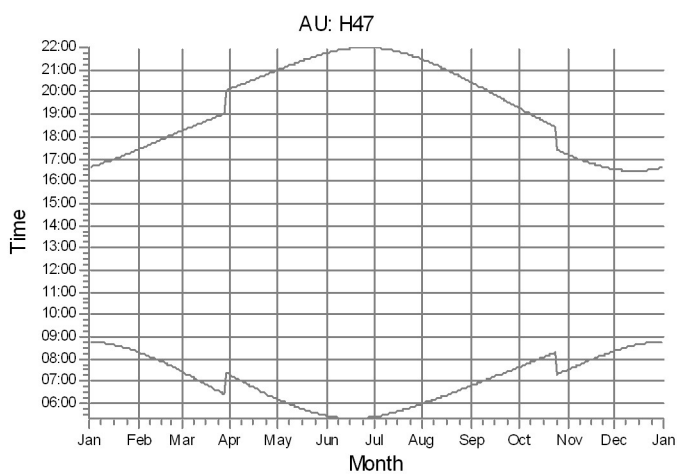
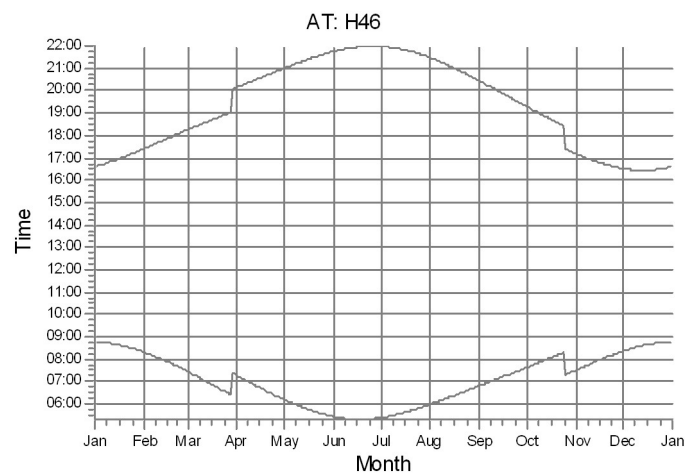
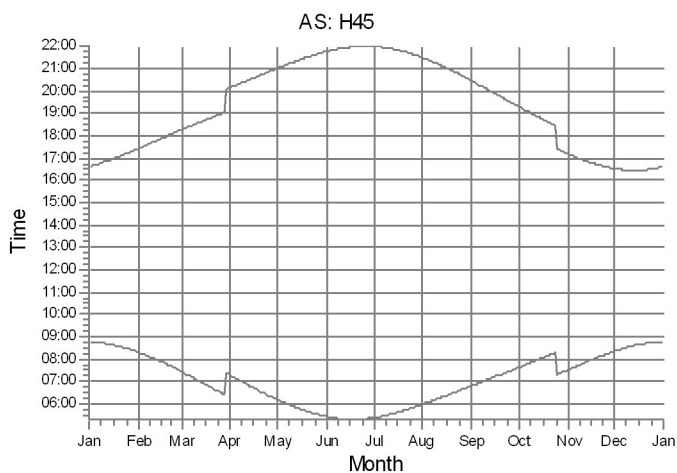
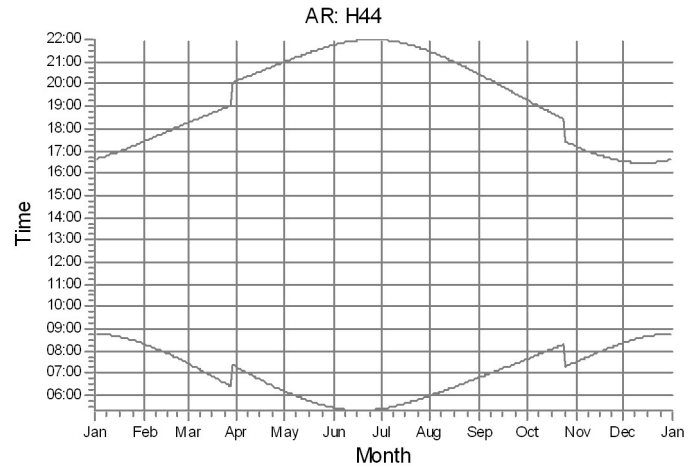
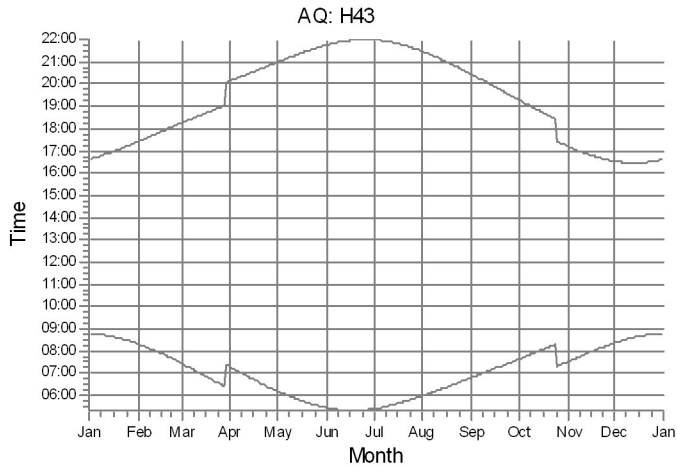


WTGs

3: T03 6: T07 7: T08

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

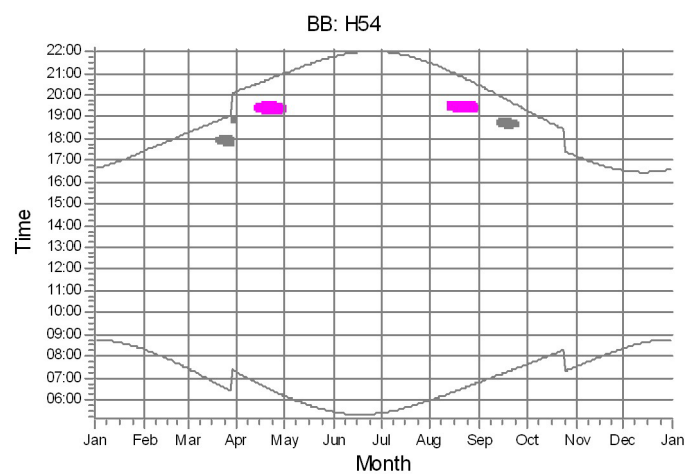
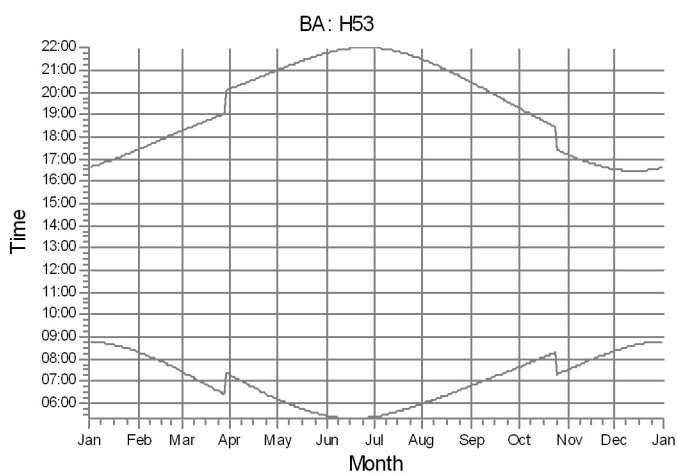
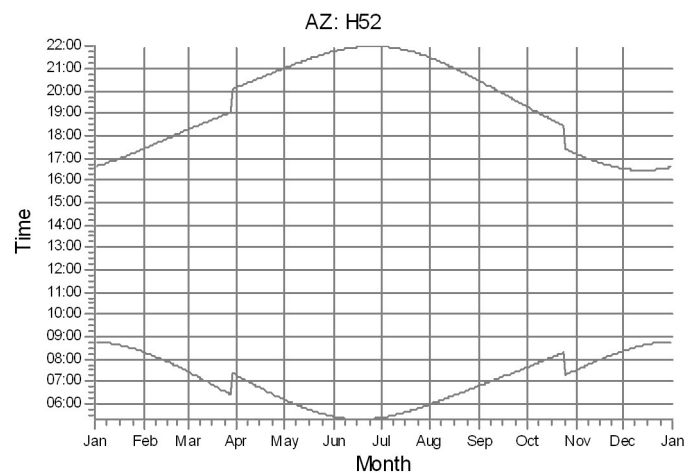
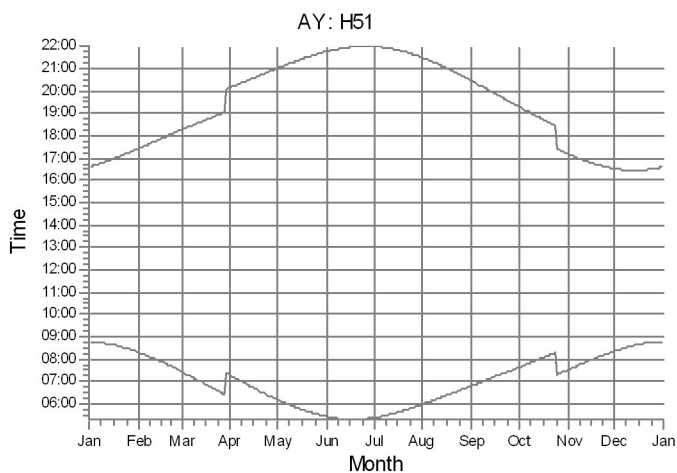
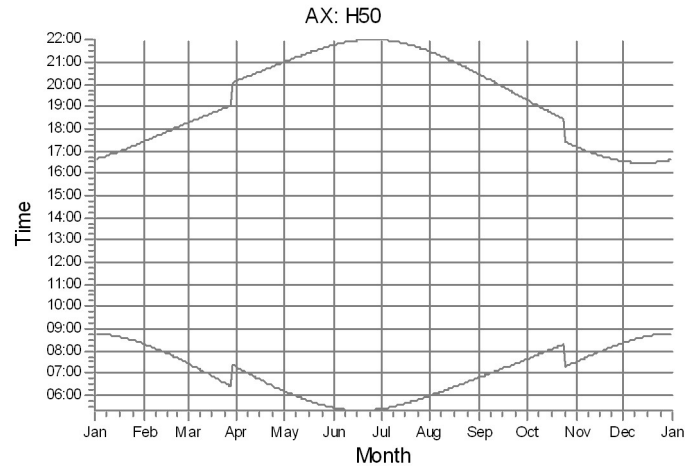
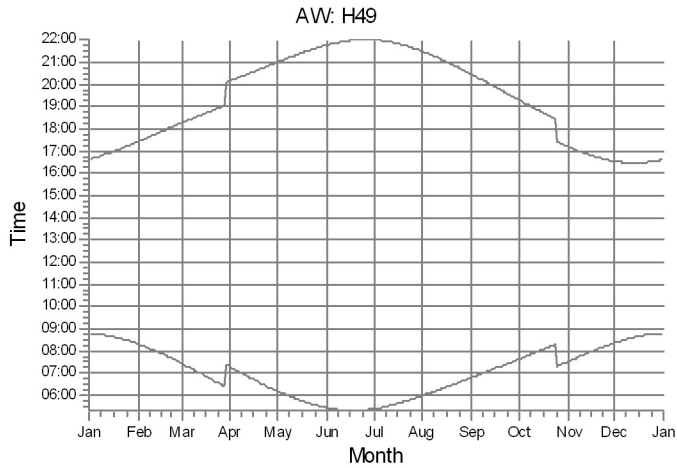


WTGs

1: T01

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

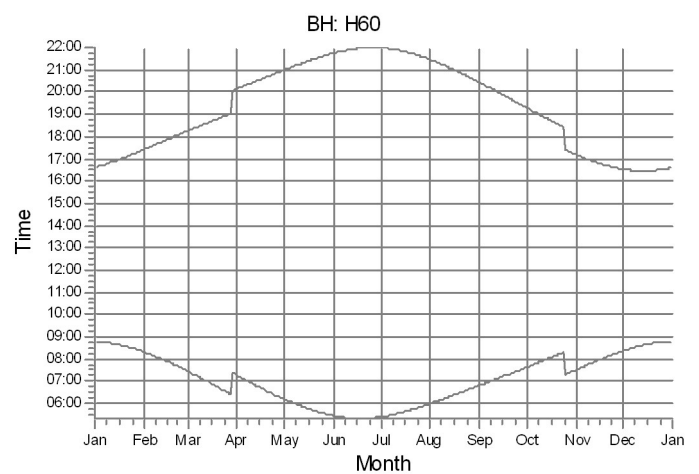
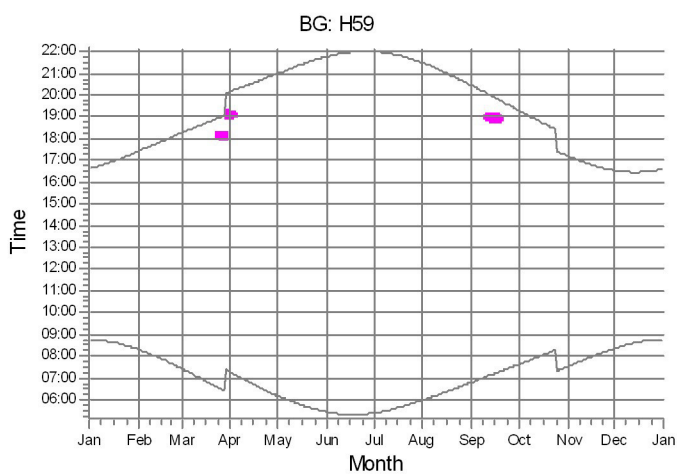
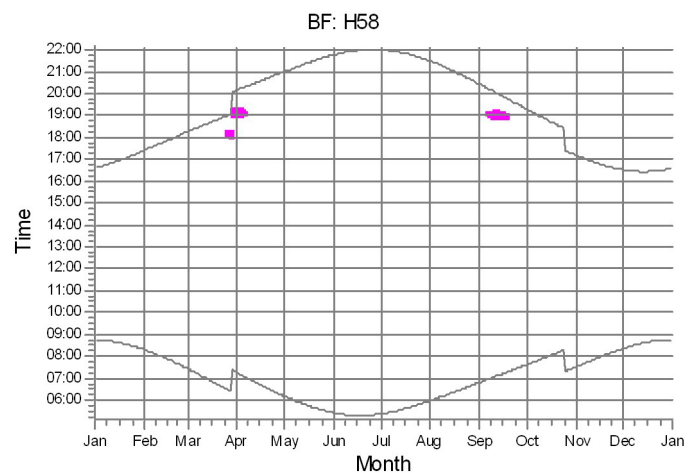
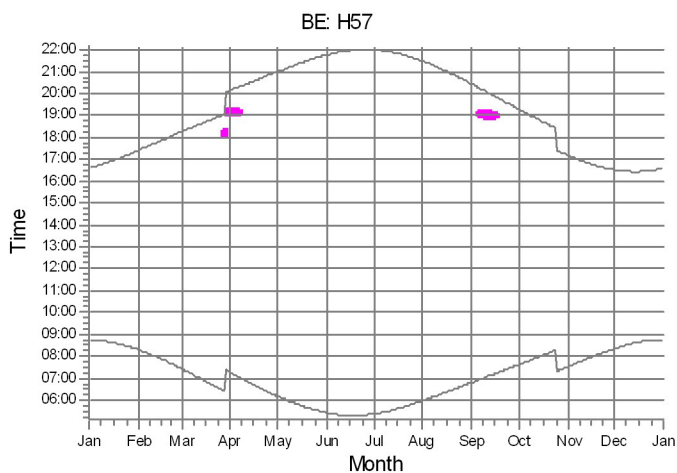
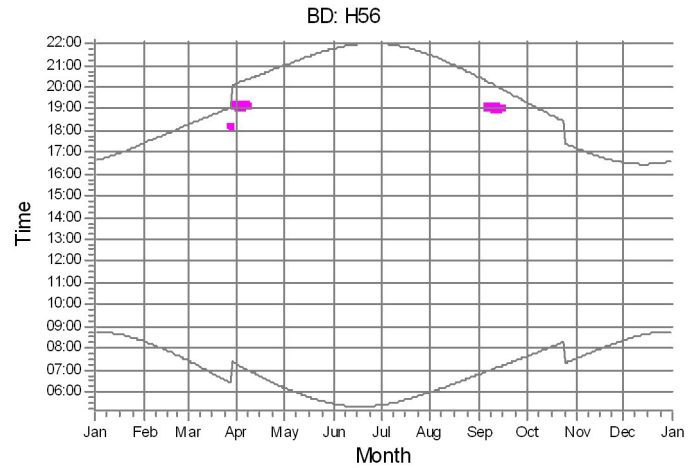
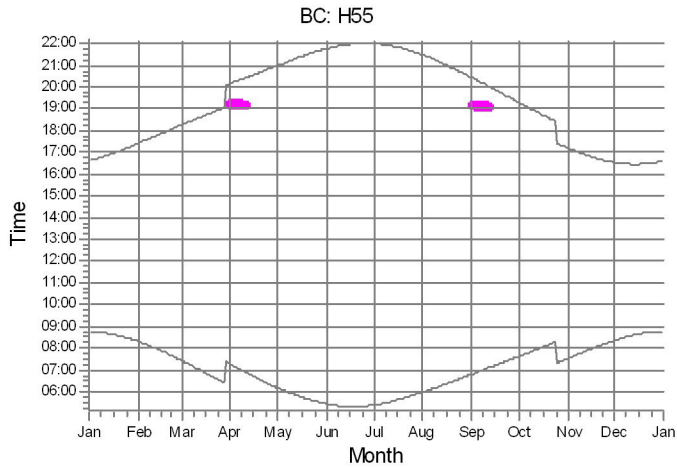


WTGs

4: T04 5: T06

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

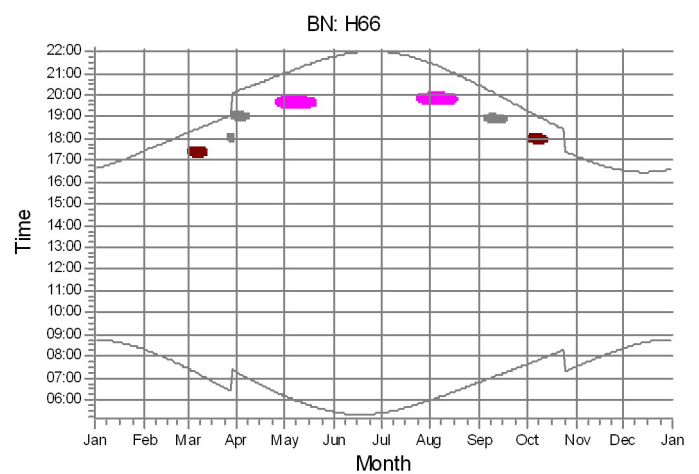
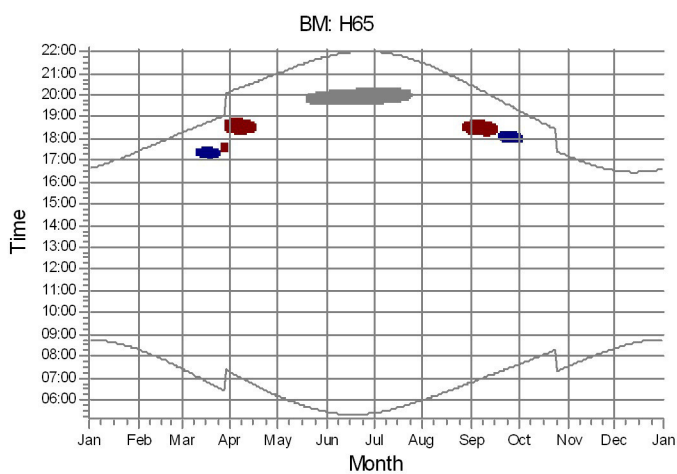
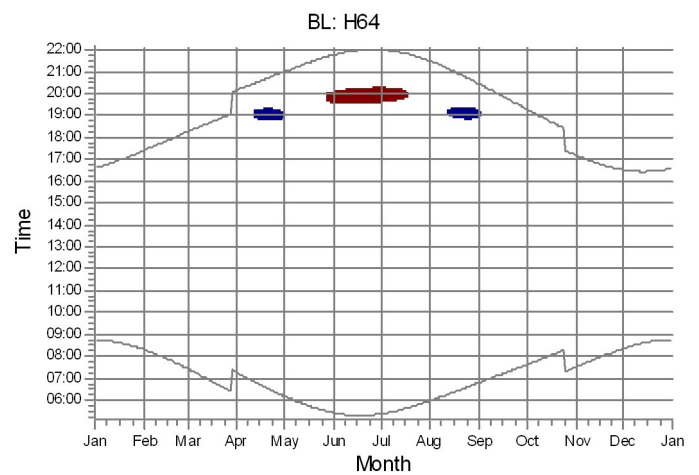
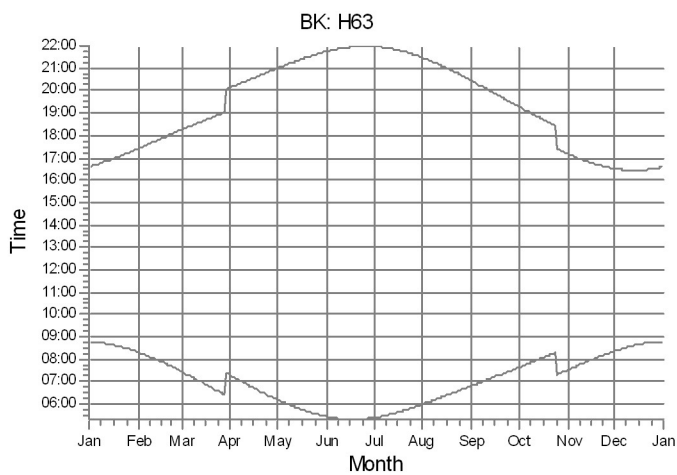
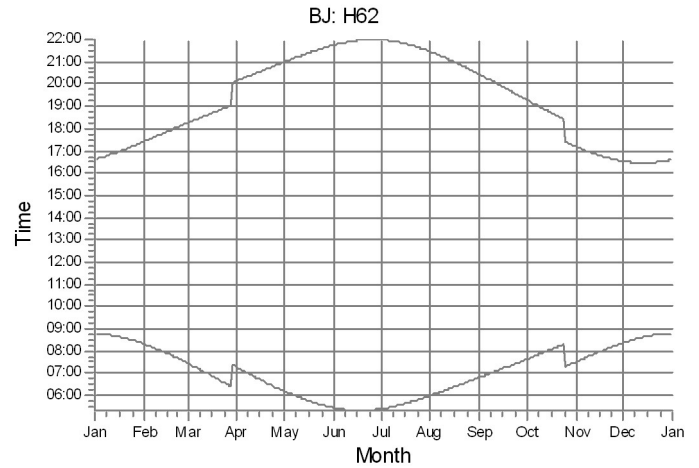
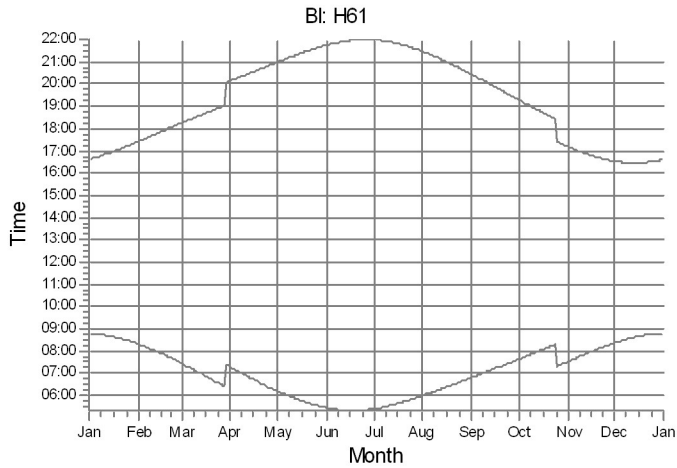


WTGs

5: T06

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

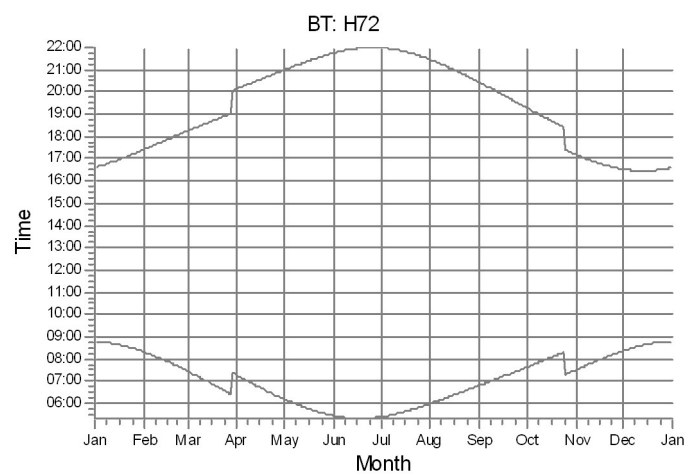
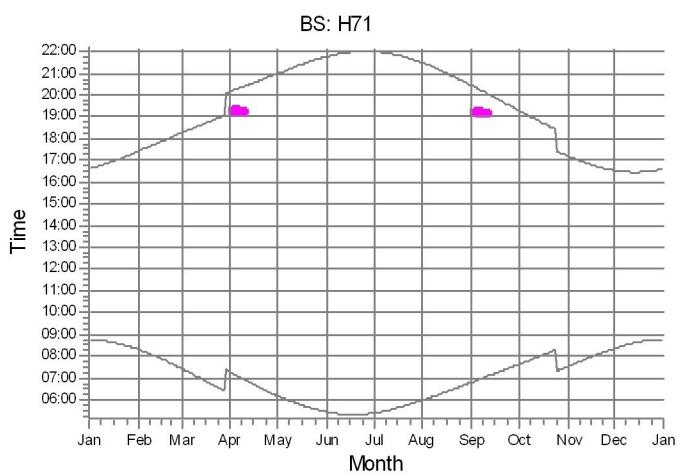
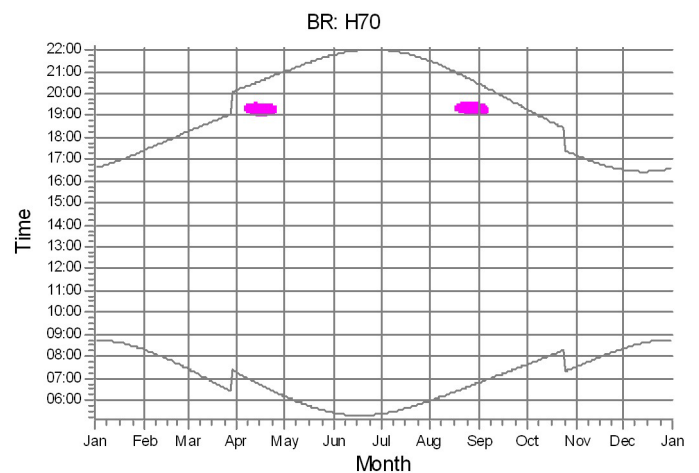
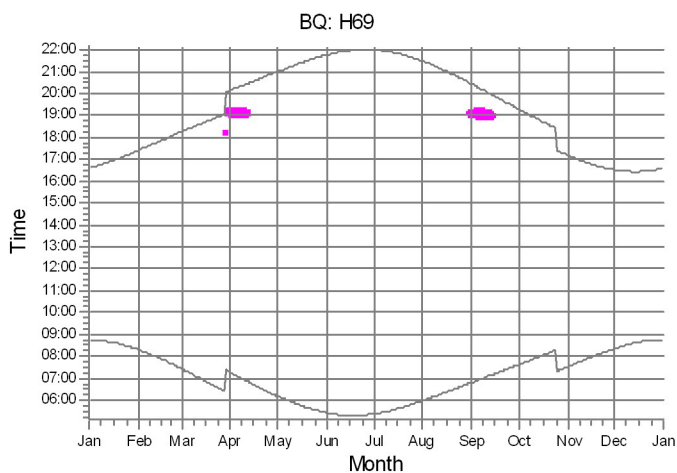
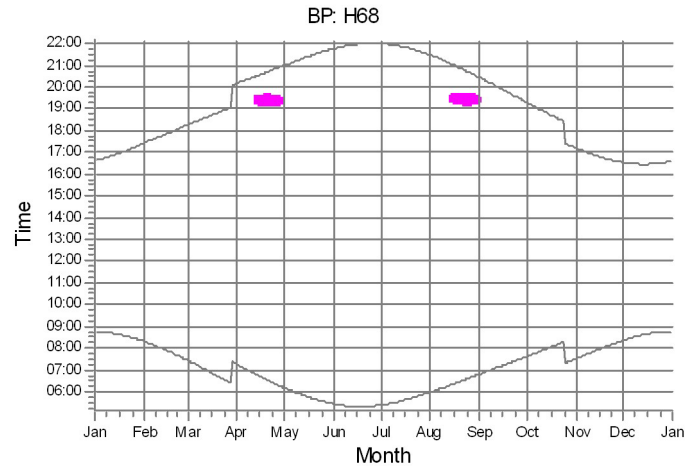
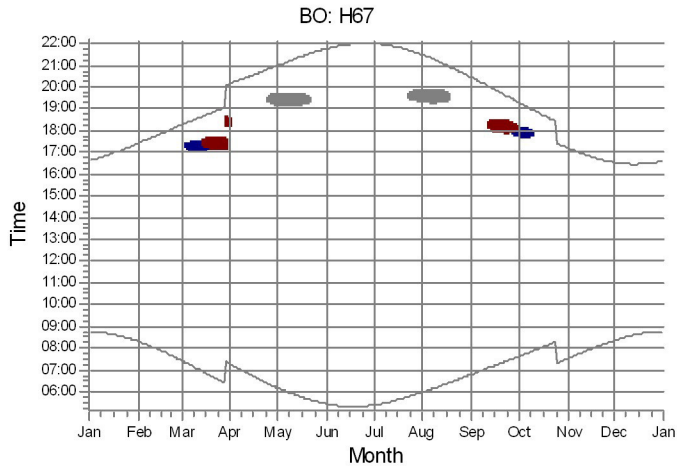


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

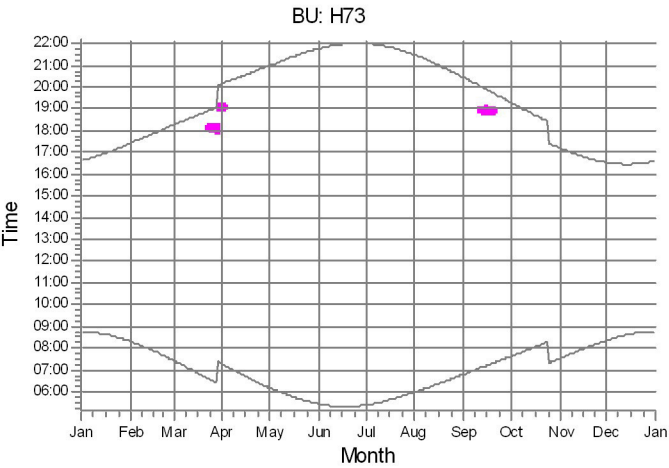


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Real Case)



WTGs

5: T06

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 1 - T01**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	16:37	08:18	17:25	18:16	07:25	18:16		07:15	08:57-09:39/42		06:10	08:15-08:52/37		05:25		
2	08:45	16:38	08:17	17:27	18:18	07:23	18:18		20:10	08:27-08:48/21		21:00			21:46		
3	08:45	16:39	08:15	17:28	18:20	07:21	18:20		07:12	08:57-09:38/41		06:08	08:16-08:51/35		05:24		
4	08:44	16:40	08:13	17:30	18:21	07:18	18:21		20:11	08:28-08:46/18		21:02			21:47		
5	08:44	16:42	08:12	17:32	18:23	07:16	18:23		07:10	08:57-09:38/41		06:06	08:16-08:49/33		05:24		
6	08:44	16:43	08:10	17:34	18:25	07:14	18:25		20:13	08:30-08:44/14		21:04			21:48		
7	08:43	16:44	08:08	17:36	18:27	07:12	18:27		07:08	08:58-09:37/39	08:32-08:40/8	06:05	08:17-08:47/30		05:23		
8	08:43	16:45	08:07	17:38	18:28	07:10	18:28		20:15	08:06-08:17/11		21:05			21:49		
9	08:42	16:47	08:05	17:39	18:30	07:07	18:30		07:06	08:57-09:36/39		06:03	08:19-08:46/27		05:22		
10	08:42	16:48	08:03	17:41	18:32	07:05	18:32		20:16	08:03-08:18/15		21:07			21:50		
11	08:41	16:50	08:01	17:43	18:34	07:03	18:34		07:03	08:38-08:43/5	08:01-08:20/19	06:01	08:20-08:44/24		05:22		
12	08:41	16:51	07:59	17:45	18:35	07:01	07:53-07:58/5		20:18	08:57-09:35/38		21:09			21:51		
13	08:40	16:52	07:58	17:47	18:37	06:58	07:49-08:00/11		07:01	08:32-08:49/17	08:00-08:21/21	05:59	08:21-08:42/21		05:21		
14	08:39	16:54	07:56	17:49	18:39	06:56	07:47-08:02/15		20:20	08:58-09:34/36		21:10			21:52		
15	08:38	16:55	07:54	17:51	18:41	06:54	07:46-08:03/17		06:59	08:29-08:52/23	07:59-08:22/23	05:57	08:24-08:40/16		05:21		
16	08:38	16:57	07:52	17:52	18:42	06:51	07:44-08:03/19		20:22	08:59-09:33/34		21:12			21:53		
17	08:37	16:59	07:50	17:54	18:44	06:49	07:44-08:03/19		06:57	08:26-08:53/27	07:57-08:21/24	05:56	08:28-08:35/7		05:20		
18	08:36	17:00	07:48	17:56	18:46	06:47	07:43-08:03/20		20:23	08:59-09:30/31		21:13			21:54		
19	08:35	17:02	07:46	17:58	18:48	06:45	07:40-08:02/22		06:54	08:24-08:55/31	07:57-08:21/24	05:54			05:20		
20	08:34	17:04	07:44	18:00	18:49	06:42	07:38-08:02/24		20:25	09:00-09:29/29		21:15			21:54		
21	08:33	17:05	07:42	18:02	18:51	06:40	07:37-08:01/24		06:52	08:22-08:56/34	07:57-08:21/24	05:52			05:19		
22	08:32	17:07	07:40	18:03	18:53	06:38	07:34-07:59/25		20:27	09:01-09:27/26		21:17			21:55		
23	08:30	17:09	07:38	18:05	18:54	06:35	07:32-07:58/26		06:50	07:57-08:57/60		05:51			05:19		
24	08:29	17:10	07:36	18:07	18:56	06:33	07:30-07:59/29		20:28	09:03-09:24/21		21:18			21:56		
25	08:28	17:12	07:34	18:09	18:58	06:31	08:02-08:39/37		06:48	07:57-08:58/61		05:49			05:19		
26	08:27	17:14	07:31	18:11	19:00	06:28	08:01-08:39/38		20:30	09:06-09:21/15		21:20			21:56		
27	08:25	17:16	07:29	18:12	19:01	06:26	08:01-08:40/39		06:45	07:56-08:58/62		05:47			05:18		
28	08:24	17:17	07:27	18:14	19:03	06:24	07:59-08:39/40		20:32	09:11-09:14/3		21:21			21:57		
29	08:23	17:19			20:05	08:26-08:54/28			06:43	07:56-08:58/62		05:46			05:18		
30	08:21	17:21			20:06	08:27-08:52/25			20:33			21:23			21:58		
31	08:20	17:23			20:08	08:27-08:50/23			06:41	07:57-08:59/62		05:44			05:18		
Potential sun hours		260	278	367	416	485	498	0									
Sum of minutes with flicker		0	0	879	1753	230	0										

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 1 - T01**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 21:28	06:48 20:26	08:21-08:55/34 07:56-08:20/24	07:37 19:17	08:30-08:39/9 17:11
2	05:23 21:59	06:00 21:26	06:50 20:24	08:23-08:54/31 07:56-08:20/24	07:38 19:15	07:32 17:09
3	05:24 21:59	06:02 21:25	06:51 20:22	08:24-08:51/27 07:55-08:19/24	07:40 19:13	07:34 17:08
4	05:25 21:59	06:03 21:23	06:53 20:20	08:26-08:49/23 07:56-08:19/23	07:42 19:10	07:36 17:06
5	05:25 21:58	06:05 21:21	06:55 20:17	08:28-08:45/17 07:56-08:17/21	07:43 19:08	07:37 17:04
6	05:26 21:58	06:06 21:19	06:56 20:15	08:34-08:40/6 07:57-08:16/19	07:45 19:06	07:39 17:02
7	05:27 21:57	06:08 21:18	06:58 20:13	08:52-09:31/39 07:58-08:14/16	07:47 19:03	07:41 17:01
8	05:28 21:56	06:10 21:16	06:59 20:10	08:52-09:32/40 08:27-08:34/7	07:48 19:01	07:43 16:59
9	05:29 21:56	06:11 21:14	07:01 20:08	08:50-09:31/41 08:24-08:38/14	07:50 18:59	07:45 16:57
10	05:30 21:55	06:13 21:12	07:03 20:06	08:50-09:32/42 08:21-08:40/19	07:52 18:57	07:46 16:56
11	05:31 21:54	06:14 21:10	07:04 20:03	08:50-09:32/42 08:20-08:41/21	07:54 18:54	07:48 16:54
12	05:32 21:53	06:16 21:08	07:06 20:01	08:49-09:31/42 08:19-08:41/22	07:55 18:52	07:50 16:53
13	05:33 21:52	06:17 21:06	07:07 19:59	08:50-09:31/41 08:18-08:43/25	07:57 18:50	07:52 16:51
14	05:34 21:52	06:19 21:04	07:09 19:57	08:49-09:30/41 08:17-08:44/27	07:59 18:48	07:53 16:50
15	05:35 21:51	06:21 21:02	07:11 19:54	08:49-09:30/41 08:17-08:45/28	08:00 18:46	07:55 16:48
16	05:37 21:50	06:22 21:00	07:12 19:52	08:49-09:28/39 08:17-08:46/29	08:02 18:44	07:57 16:47
17	05:38 21:49	06:24 20:58	07:14 19:50	08:50-09:28/38 08:16-08:45/29	08:04 18:41	07:59 16:46
18	05:39 21:47	06:25 20:56	07:16 19:47	08:51-09:27/36 08:17-08:46/29	08:06 18:39	08:00 16:44
19	05:40 21:46	06:27 20:54	07:17 19:45	08:17-08:45/28 08:51-09:25/34	08:07 18:37	08:02 16:43
20	05:42 21:45	06:29 20:52	07:19 19:43	08:18-08:45/27 08:52-09:24/32	08:09 18:35	08:04 16:42
21	05:43 21:44	06:30 20:50	07:20 19:40	08:19-08:44/25 08:52-09:22/30	08:11 18:33	08:05 16:41
22	05:44 21:43	06:32 20:48	07:22 19:38	08:21-08:45/24 08:54-09:20/26	08:13 18:31	08:07 16:39
23	05:46 21:41	06:34 20:46	07:24 19:36	08:23-08:46/23 08:56-09:18/22	08:14 18:29	08:09 16:38
24	05:47 21:40	06:35 20:44	07:25 19:33	08:23-08:46/23 08:58-09:14/16	08:16 18:27	08:10 16:37
25	05:48 21:39	06:37 20:42	07:27 19:31	08:25-08:46/21 08:25-08:41/13	07:18 17:25	08:12 16:36
26	05:50 21:37	06:38 20:39	07:29 19:29	08:26-08:46/20 08:26-08:45/19	07:20 17:23	08:13 16:35
27	05:51 21:36	06:40 20:37	07:30 19:26	08:26-08:45/19 08:26-08:44/18	07:21 17:21	08:15 16:34
28	05:53 21:34	06:42 20:35	07:32 19:24	08:26-08:44/18 08:27-08:43/16	07:23 17:19	08:17 16:34
29	05:54 21:33	06:43 20:33	07:33 19:22	08:27-08:43/16 09:11-09:15/4	07:25 17:17	08:18 16:33
30	05:56 21:31	06:45 20:31	07:35 19:19	08:28-08:41/13 09:06-09:21/15	07:27 17:15	08:20 16:32
31	05:57 21:30	06:47 20:28	07:57-08:57/60 09:03-09:24/21		07:28 17:13	08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	0	1239	1642	9	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) WTG: 2 - T02

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	[January	February	March	April	May	June	July	August	September	October	November	December			
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	07:48-08:09/21	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	08:13-08:38/25	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:45 16:38	08:17 17:26	07:23 18:18	07:12 20:11	06:08 21:02	07:49-08:08/19	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	08:14-08:38/24	07:38 19:15	07:32 17:09	08:22 16:31	
3	08:44 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	07:49-08:06/17	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	08:13-08:37/24	07:40 19:12	07:34 17:08	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	07:51-08:04/13	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:19	08:14-08:36/22	07:42 19:10	07:36 17:06	08:25 16:29	
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:16	06:03 21:07	07:54-08:02/8	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	08:14-08:34/20	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	08:20-08:37/17	05:22 21:51	05:26 21:58	06:06 21:19	06:56 20:15	08:16-08:33/17	07:45 19:06	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	08:18-08:38/20	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	08:17-08:30/13	07:47 19:03	07:41 17:01	08:29 16:28	
8	08:43 16:45	08:07 17:38	07:10 18:28	06:59 20:22	05:57 21:12	08:17-08:39/22	05:20 21:53	05:28 21:56	06:09 21:16	08:02-08:13/11	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	08:15-08:39/24	05:20 21:54	05:29 21:56	06:11 21:14	08:00-08:14/14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:27	
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	08:15-08:39/24	05:20 21:54	05:30 21:55	06:13 21:12	07:58-08:15/17	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27	
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	08:14-08:39/25	05:19 21:55	05:31 21:54	06:14 21:10	07:57-08:17/20	07:04 20:03	07:54 18:54	07:48 16:54	08:34 16:27	
12	08:41 16:51	07:59 17:45	07:01 18:35	06:50 20:28	05:51 21:18	08:14-08:39/25	05:19 21:56	05:32 21:53	06:16 21:08	07:55-08:17/22	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27	
13	08:40 16:52	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	08:14-08:39/25	05:19 21:56	05:33 21:52	06:17 21:06	07:55-08:18/23	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27	
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	08:13-08:38/25	05:18 21:57	05:34 21:52	06:19 21:04	07:55-08:19/24	07:09 19:56	07:59 18:48	07:53 16:50	08:37 16:27	
15	08:38 16:55	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	08:13-08:37/24	05:18 21:58	05:35 21:51	06:21 21:02	07:54-08:19/25	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27	
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	07:58-08:05/7	05:18 21:58	05:37 21:50	06:22 21:00	07:54-08:20/26	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27	
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	07:55-08:08/13	05:18 21:59	05:38 21:49	06:24 20:58	07:53-08:19/26	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27	
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	07:53-08:10/17	05:18 21:59	05:39 21:47	06:25 20:56	07:53-08:20/27	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28	
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	07:51-08:11/20	05:18 21:59	05:40 21:46	06:27 20:54	07:53-08:19/26	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28	
20	08:34 17:04	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	07:50-08:12/22	05:18 22:00	05:42 21:45	06:29 20:52	07:53-08:19/26	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28	
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	08:18-08:30/12	05:18 22:00	05:43 21:44	06:30 20:50	07:53-08:18/25	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29	
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	07:48-08:13/25	05:18 22:00	05:44 21:43	06:32 20:48	07:54-08:17/23	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29	
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	07:47-08:13/26	05:19 22:00	05:46 21:41	06:34 20:46	07:54-08:16/22	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30	
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:33 21:36	07:47-08:13/26	05:19 22:00	05:47 21:40	06:35 20:44	07:55-08:15/20	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	07:46-08:13/27	05:19 22:00	05:48 21:39	06:37 20:42	07:56-08:13/17	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31	
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	07:46-08:13/27	05:20 22:00	05:50 21:37	06:38 20:39	07:58-08:11/13	07:29 19:29	07:20 17:23	08:13 16:35	08:44 16:32	
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	07:46-08:12/26	05:20 22:00	05:51 21:36	06:40 20:37	08:01-08:06/5	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	07:46-08:11/25	05:21 22:00	05:53 21:34	06:42 20:35	08:15-08:39/24	07:32 19:24	07:23 17:19	08:16 16:34	08:44 16:33	
29	08:23 17:19	07:22 18:11	06:22 19:05	06:14 20:57	05:28 21:42	07:46-08:11/25	05:21 22:00	05:54 21:33	06:43 20:33	08:14-08:39/25	07:33 19:22	07:25 17:17	08:18 16:33	08:45 16:34	
30	08:21 17:21	07:19 18:11	06:12 19:06	06:12 20:59	05:27 21:43	07:47-08:10/23	05:22 22:00	05:56 21:31	06:45 20:31	08:14-08:39/25	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35	
31	08:20 17:23	07:17 18:08	06:11 19:08	06:11 20:58	05:26 21:45	07:47-08:10/23	05:26 22:00	05:57 21:30	06:46 20:28	08:14-08:39/25	07:35 19:19	07:28 17:13	08:19 16:32	08:45 16:36	
Potential sun hours	260	278	367	416	485		498	501	453		381	332	267	244	0
Sum of minutes with flicker	0	0	0	677	78		0	0	612		149	0	0	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 3 - T03**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	07:25	08:30-08:54/24	07:15	18:51-19:13/22	06:10	05:25	06:09-06:17/8			
	16:37	17:25	18:16		20:10		21:00	21:46				
2	08:45	08:17	07:23	08:30-08:54/24	07:12	18:51-19:12/21	06:08	05:24	06:08-06:18/10			
	16:38	17:27	18:18		20:11		21:02	21:47				
3	08:44	08:15	07:21	08:30-08:54/24	07:10	18:52-19:12/20	06:06	05:24	06:08-06:20/12			
	16:39	17:28	18:20		20:13		21:04	21:48				
4	08:44	08:13	07:18	08:30-08:53/23	07:08	18:52-19:10/18	06:05	05:23	06:07-06:20/13			
	16:40	17:30	18:21		20:15		21:05	21:49				
5	08:44	08:12	07:16	08:31-08:53/22	07:06	18:53-19:09/16	06:03	05:22	06:06-06:20/14			
	16:42	17:32	18:23		20:16		21:07	21:50				
6	08:44	08:10	07:14	08:31-08:51/20	07:03	18:55-19:06/11	06:01	05:22	06:06-06:22/16			
	16:43	17:34	18:25		20:18		21:09	21:51				
7	08:43	08:08	07:12	08:32-08:49/17	07:01	18:59-19:01/2	05:59	05:21	06:05-06:22/17			
	16:44	17:36	18:27		20:20		21:10	21:52				
8	08:43	08:07	07:10	08:34-08:47/13	06:59		05:57	05:21	06:05-06:23/18			
	16:45	17:38	18:28		20:22		21:12	21:53				
9	08:42	08:05	07:07	08:37-08:43/6	06:57		05:56	05:20	06:06-06:23/17			
	16:47	17:39	18:30		20:23		21:13	21:54				
10	08:42	08:03	07:05		06:54		05:54	05:20	06:05-06:23/18			
	16:48	17:41	18:32		20:25		21:15	21:54				
11	08:41	08:01	07:03		06:52		05:52	05:19	06:05-06:24/19			
	16:50	17:43	18:34		20:27		21:17	21:55				
12	08:41	07:59	07:01		06:50		05:51	05:19	06:05-06:24/19			
	16:51	17:45	18:35		20:28		21:18	21:56				
13	08:40	07:57	06:58		06:48		05:49	05:19	06:06-06:25/19			
	16:52	17:47	18:37		20:30		21:20	21:56				
14	08:39	07:56	08:56-09:06/10	06:56	06:45		05:47	05:18	06:05-06:25/20			
	16:54	17:49	18:39		20:32		21:21	21:57				
15	08:38	07:54	08:53-09:08/15	06:54	06:43		05:46	05:18	06:05-06:25/20			
	16:55	17:51	18:41		20:33		21:23	21:58				
16	08:38	07:52	08:52-09:09/17	06:51	06:41		05:44	05:18	06:05-06:25/20			
	16:57	17:52	18:42		20:35		21:24	21:58				
17	08:37	07:50	08:51-09:10/19	06:49	06:39		05:43	05:18	06:05-06:26/21			
	16:59	17:54	18:44		20:37		21:26	21:59				
18	08:36	07:48	08:50-09:11/21	06:47	06:37		05:41	05:18	06:06-06:26/20			
	17:00	17:56	18:46		20:38		21:27	21:59				
19	08:35	07:46	08:50-09:12/22	06:45	06:35		05:40	05:18	06:06-06:26/20			
	17:02	17:58	18:48		20:40		21:29	21:59				
20	08:34	07:44	08:49-09:12/23	06:42	06:32		05:39	05:18	06:07-06:27/20			
	17:04	18:00	18:49		20:42		21:30	22:00				
21	08:33	07:42	08:49-09:12/23	06:40	06:30		05:37	05:18	06:07-06:27/20			
	17:05	18:02	18:51		20:43		21:32	22:00				
22	08:32	07:40	08:39-08:48/9	06:38	06:28		05:36	05:18	06:07-06:27/20			
	17:07	18:03	08:49-09:12/23	18:53	20:45		21:33	22:00				
23	08:30	07:38	08:37-09:12/35	06:35	06:26		05:35	05:19	06:07-06:27/20			
	17:09	18:05	18:54		20:47		21:34	22:00				
24	08:29	07:36	08:34-09:10/36	06:33	06:24		05:33	05:19	06:08-06:28/20			
	17:10	18:07	18:56		20:49		21:36	22:00				
25	08:28	07:33	08:33-09:09/36	06:31	18:02-18:04/2	06:22	05:32	05:19	06:07-06:28/21			
	17:12	18:09	18:58		20:50		21:37	22:00				
26	08:27	07:31	08:32-09:08/36	06:28	17:58-18:09/11	06:20	05:31	05:20	06:07-06:27/20			
	17:14	18:11	18:59		20:52		21:38	22:00				
27	08:25	07:29	08:31-09:07/36	06:26	17:56-18:11/15	06:18	05:30	05:20	06:08-06:28/20			
	17:16	18:12	19:01		20:54		21:40	22:00				
28	08:24	07:27	08:31-09:04/33	06:24	17:54-18:12/18	06:16	05:29	05:21	06:08-06:28/20			
	17:17	18:14	19:03		20:55		21:41	22:00				
29	08:22		07:22	18:53-19:13/20	06:14		05:28	05:21	06:09-06:28/19			
	17:19		20:05		20:57		21:42	22:00				
30	08:21		07:19	18:52-19:13/21	06:12		05:27	05:22	06:09-06:28/19			
	17:21		20:06		20:59		21:43	22:00				
31	08:20		07:17	18:51-19:13/22			05:26	06:12-06:14/2				
	17:23		20:08				21:45					
Potential sun hours	260	278	367		416		485	498				
Sum of minutes with flicker	0	394	282		110		2	540				

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

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

SHADOW - Calendar per WTG**Calculation:** 6460 Gortloughra WF only (Real Case) **WTG:** 3 - T03**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	06:09-06:28/19	05:59	06:48			07:37		07:30	08:21		
	22:00		21:28	20:26			19:17		17:11	16:31		
2	05:23	06:10-06:28/18	06:00	06:50			07:38		07:32	08:22		
	21:59		21:26	20:24			19:15		17:09	16:31		
3	05:24	06:10-06:28/18	06:02	06:51			07:40		07:34	08:24		
	21:59		21:25	20:22			19:12		17:08	16:30		
4	05:25	06:11-06:28/17	06:03	06:53			07:42		07:36	08:25		
	21:58		21:23	20:19			19:10		17:06	16:29		
5	05:25	06:11-06:28/17	06:05	06:55	18:56-18:57/1		07:43	09:12-09:23/11	07:37	08:26		
	21:58		21:21	20:17			19:08		17:04	16:29		
6	05:26	06:12-06:28/16	06:06	06:56	18:51-19:02/11		07:45	09:09-09:24/15	07:39	08:28		
	21:58		21:19	20:15			19:06		17:02	16:28		
7	05:27	06:13-06:28/15	06:08	06:58	18:48-19:04/16		07:47	09:08-09:26/18	07:41	08:29		
	21:57		21:18	20:13			19:03		17:01	16:28		
8	05:28	06:13-06:27/14	06:10	06:59	18:47-19:05/18		07:48	09:07-09:27/20	07:43	08:30		
	21:56		21:16	20:10			19:01		16:59	16:28		
9	05:29	06:14-06:26/12	06:11	07:01	18:45-19:05/20		07:50	09:05-09:27/22	07:45	08:31		
	21:56		21:14	20:08			18:59		16:57	16:27		
10	05:30	06:15-06:26/11	06:13	07:03	18:44-19:06/22		07:52	09:04-09:28/24	07:46	08:32		
	21:55		21:12	20:06			18:57		16:56	16:27		
11	05:31	06:16-06:25/9	06:14	07:04	18:43-19:05/22		07:54	09:04-09:28/24	07:48	08:34		
	21:54		21:10	20:03			18:54		16:54	16:27		
12	05:32	06:18-06:23/5	06:16	07:06	18:43-19:05/22		07:55	09:04-09:28/24	07:50	08:35		
	21:53		21:08	20:01			18:52		16:53	16:27		
13	05:33		06:17	07:07	18:43-19:05/22		07:57	09:04-09:28/24	07:52	08:36		
	21:52		21:06	19:59			18:50	09:31-09:34/3	16:51	16:27		
14	05:34		06:19	07:09	18:43-19:03/20		07:59	09:03-09:38/35	07:53	08:36		
	21:52		21:04	19:56			18:48		16:50	16:27		
15	05:35		06:21	07:11	18:44-19:02/18		08:00	09:04-09:40/36	07:55	08:37		
	21:51		21:02	19:54			18:46		16:48	16:27		
16	05:37		06:22	07:12	18:44-19:00/16		08:02	09:04-09:41/37	07:57	08:38		
	21:50		21:00	19:52			18:44		16:47	16:27		
17	05:38		06:24	07:14	18:46-18:58/12		08:04	09:05-09:42/37	07:59	08:39		
	21:48		20:58	19:50			18:41		16:46	16:27		
18	05:39		06:25	07:16	18:48-18:53/5		08:06	09:07-09:43/36	08:00	08:40		
	21:47		20:56	19:47			18:39		16:44	16:28		
19	05:40		06:27	07:17			08:07	09:08-09:42/34	08:02	08:41		
	21:46		20:54	19:45			18:37		16:43	16:28		
20	05:42		06:29	07:19			08:09	09:11-09:17/6	08:04	08:41		
	21:45		20:52	19:43			18:35	09:20-09:42/22	16:42	16:28		
21	05:43		06:30	07:20			08:11	09:20-09:42/22	08:05	08:42		
	21:44		20:50	19:40			18:33		16:41	16:29		
22	05:44		06:32	07:22			08:12	09:20-09:42/22	08:07	08:42		
	21:43		20:48	19:38			18:31		16:39	16:29		
23	05:46		06:34	07:24			08:14	09:20-09:42/22	08:09	08:43		
	21:41		20:46	19:36			18:29		16:38	16:30		
24	05:47		06:35	07:25			08:16	09:21-09:41/20	08:10	08:43		
	21:40		20:44	19:33			18:27		16:37	16:30		
25	05:48		06:37	07:27			07:18	08:22-08:40/18	08:12	08:44		
	21:39		20:42	19:31			17:25		16:36	16:31		
26	05:50		06:38	07:29			07:20	08:22-08:38/16	08:13	08:44		
	21:37		20:39	19:29			17:23		16:35	16:32		
27	05:51		06:40	07:30			07:21	08:23-08:37/14	08:15	08:44		
	21:36		20:37	19:26			17:21		16:34	16:32		
28	05:53		06:42	07:32			07:23	08:26-08:34/8	08:16	08:44		
	21:34		20:35	19:24			17:19		16:34	16:33		
29	05:54		06:43	07:33			07:25		08:18	08:45		
	21:33		20:33	19:22			17:17		16:33	16:34		
30	05:56		06:45	07:35			07:27		08:19	08:45		
	21:31		20:31	19:19			17:15		16:32	16:35		
31	05:57		06:46				07:28			08:45		
	21:30		20:28				17:13			16:36		
Potential sun hours	501		453	381			332		267	244		
Sum of minutes with flicker		171		0	225		570		0	0		

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 4 - T04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	07:25		07:15	18:52-19:12/20	06:10	19:04-19:39/35	05:25	19:29-20:07/38		
	16:37	17:25	18:16		20:10		21:00		21:46	19:17-19:28/11		
2	08:45	08:16	07:23		07:12	18:52-19:12/20	06:08	19:04-19:40/36	05:24	19:30-20:07/37		
	16:38	17:26	18:18		20:11		21:02		21:47	19:19-19:26/7		
3	08:44	08:15	07:21		07:10	18:52-19:11/19	06:06	19:03-19:41/38	05:24	19:31-20:07/36		
	16:39	17:28	18:20		20:13		21:04		21:48			
4	08:44	08:13	07:18		07:08	18:52-19:10/18	06:04	19:02-19:42/40	05:23	19:35-20:08/33		
	16:40	17:30	18:21		20:15		21:05		21:49			
5	08:44	08:12	07:16		07:05	18:53-19:09/16	06:03	19:02-19:43/41	05:22	19:36-20:08/32		
	16:42	17:32	18:23		20:16		21:07		21:50			
6	08:44	08:10	07:14		07:03	18:54-19:08/14	06:01	19:02-19:45/43	05:22	19:36-20:09/33		
	16:43	17:34	18:25		20:18		21:08		21:51			
7	08:43	08:08	07:12		07:01	18:56-19:06/10	05:59	19:01-19:46/45	05:21	19:36-20:09/33		
	16:44	17:36	18:27		20:20	19:12-19:19/7	21:10		21:52			
8	08:43	08:07	07:09		06:59	19:07-19:21/14	05:57	19:00-19:46/46	05:20	19:36-20:09/33		
	16:45	17:38	18:28		20:21		21:12		21:53			
9	08:42	08:05	07:07		06:56	19:06-19:23/17	05:56	19:01-19:47/46	05:20	19:36-20:09/33		
	16:47	17:39	18:30		20:23		21:13		21:53			
10	08:42	08:03	07:05		06:54	19:04-19:24/20	05:54	19:00-19:47/47	05:20	19:36-20:10/34		
	16:48	17:41	18:32		20:25		21:15		21:54			
11	08:41	08:01	07:03		06:52	19:03-19:25/22	05:52	19:01-19:48/47	05:19	19:37-20:10/33		
	16:49	17:43	18:34		20:27		21:17		21:55			
12	08:41	07:59	07:00		06:50	19:02-19:29/27	05:51	19:01-19:48/47	05:19	19:37-20:11/34		
	16:51	17:45	18:35		20:28		21:18		21:56			
13	08:40	07:57	06:58		06:48	19:01-19:29/28	05:49	19:01-19:49/48	05:19	19:36-20:10/34		
	16:52	17:47	18:37		20:30		21:20		21:56			
14	08:39	07:56	06:56		06:45	19:01-19:31/30	05:47	19:01-19:48/47	05:18	19:37-20:11/34		
	16:54	17:49	18:39		20:32		21:21		21:57			
15	08:38	07:54	06:54		06:43	19:00-19:31/31	05:46	19:02-19:49/47	05:18	19:37-20:11/34		
	16:55	17:50	18:41		20:33		21:23		21:58			
16	08:38	07:52	06:51		06:41	19:00-19:32/32	05:44	19:01-19:48/47	05:18	19:37-20:11/34		
	16:57	17:52	18:42		20:35		21:24		21:58			
17	08:37	07:50	06:49		06:39	19:01-19:32/31	05:43	19:02-19:49/47	05:18	19:37-20:11/34		
	16:59	17:54	18:44		20:37		21:26		21:59			
18	08:36	07:48	06:47		06:37	19:01-19:32/31	05:41	19:03-19:49/46	05:18	19:38-20:12/34		
	17:00	17:56	18:46		20:38		21:27		21:59			
19	08:35	07:46	06:44	17:54-17:57/3	06:35	19:02-19:32/30	05:40	19:04-19:49/45	05:18	19:38-20:12/34		
	17:02	17:58	18:47		20:40		21:29		21:59			
20	08:34	07:44	06:42	17:50-18:01/11	06:32	19:02-19:31/29	05:39	19:03-19:54/51	05:18	19:38-20:12/34		
	17:03	18:00	18:49		20:42		21:30		22:00			
21	08:33	07:42	06:40	17:47-18:01/14	06:30	19:04-19:31/27	05:37	19:04-19:57/53	05:18	19:39-20:13/34		
	17:05	18:01	18:51		20:43		21:32		22:00			
22	08:31	07:40	06:38	17:46-18:02/16	06:28	19:05-19:30/25	05:36	19:05-19:59/54	05:18	19:39-20:13/34		
	17:07	18:03	18:53		20:45		21:33		22:00			
23	08:30	07:38	06:35	17:46-18:03/17	06:26	19:08-19:32/24	05:35	19:06-20:00/54	05:19	19:39-20:13/34		
	17:09	18:05	18:54		20:47		21:34		22:00			
24	08:29	07:36	06:33	17:45-18:04/19	06:24	19:11-19:33/22	05:33	19:07-20:01/54	05:19	19:39-20:13/34		
	17:10	18:07	18:56		20:49		21:36		22:00			
25	08:28	07:33	06:31	17:44-18:03/19	06:22	19:10-19:34/24	05:32	19:08-20:02/54	05:19	19:40-20:13/33		
	17:12	18:09	18:58		20:50		21:37		22:00			
26	08:27	07:31	06:28	17:44-18:02/18	06:20	19:09-19:35/26	05:31	19:09-20:03/54	05:20	19:39-20:13/34		
	17:14	18:11	18:59		20:52		21:38		22:00			
27	08:25	07:29	06:26	17:45-18:09/24	06:18	19:08-19:36/28	05:30	19:10-20:04/54	05:20	19:40-20:14/34		
	17:16	18:12	19:01		20:54		21:40		22:00			
28	08:24	07:27	06:24	17:45-18:10/25	06:16	19:07-19:37/30	05:29	19:11-20:05/54	05:21	19:40-20:14/34		
	17:17	18:14	19:03		20:55		21:41		22:00			
29	08:22		07:21	18:46-19:11/25	06:14	19:06-19:38/32	05:28	19:12-20:05/53	05:21	19:41-20:14/33		
	17:19		20:05		20:57		21:42		22:00			
30	08:21		07:19	18:48-19:12/24	06:12	19:05-19:39/34	05:27	19:13-20:05/52	05:22	19:40-20:14/34		
	17:21		20:06		20:59		21:43		22:00			
31	08:20		07:17	18:52-19:12/20			05:26	19:14-20:06/52				
	17:23		20:08				21:45					
Potential sun hours	260	278	367		416	738	485		498			
Sum of minutes with flicker	0	0	235		738	1477		1037				

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) WTG: 4 - T04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	19:41-20:14/33	05:59	19:11-19:58/47	06:48	19:02-19:24/22	07:37	07:30	08:21			
	22:00		21:28		20:26		19:17	17:11	16:31			
2	05:23	19:40-20:14/34	06:00	19:11-19:59/48	06:50	19:02-19:22/20	07:38	07:32	08:22			
	21:59		21:26		20:24		19:15	17:09	16:31			
3	05:24	19:41-20:14/33	06:02	19:11-19:58/47	06:51	19:04-19:21/17	07:40	07:34	08:24			
	21:59		21:25		20:22		19:12	17:08	16:30			
4	05:24	19:41-20:15/34	06:03	19:10-19:57/47	06:53	19:05-19:19/14	07:42	07:36	08:25			
	21:58		21:23		20:19		19:10	17:06	16:29			
5	05:25	19:42-20:15/33	06:05	19:11-19:56/45	06:55	18:52-19:02/10	07:43	07:37	08:26			
	21:58		21:21		20:17	19:07-19:15/8	19:08	17:04	16:29			
6	05:26	19:41-20:14/33	06:06	19:11-19:55/44	06:56	18:50-19:04/14	07:45	07:39	08:28			
	21:57		21:19		20:15		19:06	17:02	16:28			
7	05:27	19:42-20:14/32	06:08	19:11-19:54/43	06:58	18:48-19:04/16	07:47	07:41	08:29			
	21:57		21:18		20:13		19:03	17:01	16:28			
8	05:28	19:42-20:15/33	06:09	19:11-19:52/41	06:59	18:47-19:05/18	07:48	07:43	08:30			
	21:56		21:16		20:10		19:01	16:59	16:28			
9	05:29	19:40-20:15/35	06:11	19:12-19:51/39	07:01	18:46-19:05/19	07:50	07:44	08:31			
	21:56		21:14		20:08		18:59	16:57	16:27			
10	05:30	19:38-20:15/37	06:13	19:12-19:49/37	07:03	18:45-19:05/20	07:52	07:46	08:32			
	21:55	19:28-19:31/3	21:12		20:06		18:57	16:56	16:27			
11	05:31	19:37-20:14/37	06:14	19:13-19:49/36	07:04	18:44-19:04/20	07:53	07:48	08:33			
	21:54	19:25-19:35/10	21:10		20:03		18:54	16:54	16:27			
12	05:32	19:23-20:14/51	06:16	19:13-19:47/34	07:06	18:45-19:04/19	07:55	07:50	08:35			
	21:53		21:08		20:01		18:52	16:53	16:27			
13	05:33	19:22-20:14/52	06:17	19:14-19:47/33	07:07	18:40-19:04/24	07:57	07:52	08:36			
	21:52		21:06		19:59		18:50	16:51	16:27			
14	05:34	19:21-20:14/53	06:19	19:14-19:45/31	07:09	18:37-19:02/25	07:59	07:53	08:36			
	21:51		21:04		19:56		18:48	16:50	16:27			
15	05:35	19:20-20:13/53	06:21	19:15-19:44/29	07:11	18:35-19:01/26	08:00	07:55	08:37			
	21:51		21:02		19:54		18:46	16:48	16:27			
16	05:37	19:19-20:13/54	06:22	19:15-19:42/27	07:12	18:33-18:58/25	08:02	07:57	08:38			
	21:50		21:00		19:52		18:43	16:47	16:27			
17	05:38	19:19-20:13/54	06:24	19:16-19:42/26	07:14	18:33-18:54/21	08:04	07:58	08:39			
	21:48		20:58		19:49		18:41	16:45	16:27			
18	05:39	19:18-20:12/54	06:25	19:16-19:40/24	07:15	18:32-18:50/18	08:05	08:00	08:40			
	21:47		20:56		19:47		18:39	16:44	16:28			
19	05:40	19:17-20:11/54	06:27	19:17-19:39/22	07:17	18:32-18:50/18	08:07	08:02	08:40			
	21:46		20:54		19:45		18:37	16:43	16:28			
20	05:42	19:16-20:10/54	06:29	19:12-19:37/25	07:19	18:32-18:50/18	08:09	08:04	08:41			
	21:45		20:52		19:43		18:35	16:42	16:28			
21	05:43	19:15-20:09/54	06:30	19:10-19:35/25	07:20	18:32-18:48/16	08:11	08:05	08:42			
	21:44		20:50		19:40		18:33	16:41	16:29			
22	05:44	19:15-20:08/53	06:32	19:07-19:35/28	07:22	18:33-18:47/14	08:12	08:07	08:42			
	21:43		20:48		19:38		18:31	16:39	16:29			
23	05:46	19:14-20:06/52	06:33	19:06-19:35/29	07:24	18:33-18:45/12	08:14	08:09	08:43			
	21:41		20:46		19:36		18:29	16:38	16:30			
24	05:47	19:14-20:02/48	06:35	19:05-19:36/31	07:25	18:36-18:42/6	08:16	08:10	08:43			
	21:40		20:44		19:33		18:27	16:37	16:30			
25	05:48	19:14-19:59/45	06:37	19:04-19:35/31	07:27		07:18	08:12	08:44			
	21:39		20:42		19:31		17:25	16:36	16:31			
26	05:50	19:13-19:59/46	06:38	19:03-19:35/32	07:28		07:19	08:13	08:44			
	21:37		20:39		19:29		17:23	16:35	16:31			
27	05:51	19:12-19:59/47	06:40	19:02-19:34/32	07:30		07:21	08:15	08:44			
	21:36		20:37		19:26		17:21	16:34	16:32			
28	05:53	19:13-20:00/47	06:42	19:02-19:33/31	07:32		07:23	08:16	08:44			
	21:34		20:35		19:24		17:19	16:33	16:33			
29	05:54	19:12-19:59/47	06:43	19:01-19:31/30	07:33		07:25	08:18	08:45			
	21:33		20:33		19:22		17:17	16:33	16:34			
30	05:56	19:11-19:59/48	06:45	19:02-19:30/28	07:35		07:27	08:19	08:45			
	21:31		20:31		19:19		17:15	16:32	16:35			
31	05:57	19:12-19:59/47	06:46	19:01-19:27/26			07:28		08:45			
	21:30		20:28				17:13		16:36			
Potential sun hours	501		453		381		332	0	267	0	244	
Sum of minutes with flicker	1400		1048		440		0	0	0			

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 5 - T06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	18:58-19:24/26 21:00	05:25 21:46
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	18:57-19:25/28 21:02	05:24 21:47
3	08:44 16:39	08:15 17:28	07:21 18:19	07:10 20:13	18:56-19:26/30 21:04	05:24 21:48
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:55-19:26/31 21:05	05:23 21:49
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	18:55-19:26/31 21:07	05:22 21:50
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	18:55-19:27/32 21:08	05:22 21:51
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	18:55-19:27/32 21:10	05:21 21:52
8	08:43 16:45	08:07 17:37	07:09 18:28	06:59 20:21	18:54-19:26/32 21:12	05:20 21:53
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	18:54-19:29/35 21:13	05:20 21:53
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	18:54-19:30/36 21:15	05:19 21:54
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	18:55-19:32/37 21:17	05:19 21:55
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	18:55-19:33/38 21:18	05:19 21:56
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	18:55-19:32/37 21:20	05:19 21:56
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	18:56-19:33/37 21:21	05:18 21:57
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	18:57-19:34/37 21:23	05:18 21:58
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	18:58-19:35/37 21:24	05:18 21:58
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	19:00-19:36/36 21:26	05:18 21:59
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:04-19:36/32 21:27	05:18 21:59
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:04-19:37/33 21:29	05:18 21:59
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:04-19:37/33 21:30	05:18 22:00
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:05-19:37/32 21:32	05:18 22:00
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	19:05-19:37/32 21:33	05:18 22:00
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	19:06-19:36/30 21:34	05:19 22:00
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:48	19:07-19:45/38 21:36	05:19 22:00
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:08-19:47/39 21:37	05:19 22:00
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	19:10-19:48/38 21:38	05:20 22:00
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	19:13-19:49/36 21:40	05:20 22:00
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:14-19:50/36 21:41	05:21 22:00
29	08:22 17:19		07:21 20:05	06:14 20:57	19:16-19:51/35 21:42	05:21 22:00
30	08:21 17:21		07:19 20:06	06:12 20:59	19:18-19:52/34 21:43	05:22 22:00
31	08:20 17:23		07:17 20:08		18:57-19:21/24 21:45	
Potential sun hours	260	278	367	416	485	498
Sum of minutes with flicker	0	0	179	1020	446	627

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 5 - T06**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	20:16-20:38/22	05:59	19:38-20:03/25	06:48	18:54-19:31/37	07:37	07:30	08:21			
	22:00		21:28		20:26		19:17	17:11	16:31			
2	05:23	20:16-20:37/21	06:00	19:38-20:04/26	06:50	18:52-19:28/36	07:38	07:32	08:22			
	21:59		21:26		20:24		19:15	17:09	16:30			
3	05:24	20:17-20:37/20	06:02	19:37-20:04/27	06:51	18:52-19:27/35	07:40	07:34	08:24			
	21:59		21:25		20:22		19:12	17:08	16:30			
4	05:24	20:17-20:37/20	06:03	19:36-20:03/27	06:53	18:51-19:25/34	07:42	07:36	08:25			
	21:58		21:23		20:19		19:10	17:06	16:29			
5	05:25	20:18-20:37/19	06:05	19:37-20:04/27	06:54	18:51-19:23/32	07:43	07:37	08:26			
	21:58		21:21		20:17		19:08	17:04	16:29			
6	05:26	20:18-20:36/18	06:06	19:36-20:03/27	06:56	18:51-19:23/32	07:45	07:39	08:28			
	21:57		21:19		20:15		19:06	17:02	16:28			
7	05:27	20:19-20:36/17	06:08	19:36-20:04/28	06:58	18:50-19:22/32	07:47	07:41	08:29			
	21:57		21:18		20:13		19:03	17:01	16:28			
8	05:28	20:20-20:35/15	06:09	19:36-20:03/27	06:59	18:50-19:21/31	07:48	07:43	08:30			
	21:56		21:16		20:10		19:01	16:59	16:28			
9	05:29	20:21-20:35/14	06:11	19:36-20:03/27	07:01	18:49-19:19/30	07:50	07:44	08:31			
	21:56		21:14		20:08		18:59	16:57	16:27			
10	05:30	20:23-20:34/11	06:13	19:35-20:02/27	07:03	18:50-19:18/28	07:52	07:46	08:32			
	21:55		21:12		20:06		18:57	16:56	16:27			
11	05:31	20:25-20:32/7	06:14	19:35-20:02/27	07:04	18:50-19:16/26	07:53	07:48	08:33			
	21:54		21:10		20:03		18:54	16:54	16:27			
12	05:32		06:16	19:35-20:01/26	07:06	18:49-19:14/25	07:55	07:50	08:35			
	21:53		21:08	19:29-19:32/3	20:01		18:52	16:53	16:27			
13	05:33		06:17	19:25-20:00/35	07:07	18:47-19:11/24	07:57	07:52	08:36			
	21:52		21:06		19:59		18:50	16:51	16:27			
14	05:34		06:19	19:23-19:58/35	07:09	18:47-19:09/22	07:59	07:53	08:36			
	21:51		21:04		19:56		18:48	16:50	16:27			
15	05:35		06:21	19:21-19:57/36	07:11	18:46-19:09/23	08:00	07:55	08:37			
	21:51		21:02		19:54		18:46	16:48	16:27			
16	05:36		06:22	19:18-19:56/38	07:12	18:45-19:06/21	08:02	07:57	08:38			
	21:50		21:00		19:52		18:43	16:47	16:27			
17	05:38		06:24	19:16-19:55/39	07:14	18:46-19:05/19	08:04	07:58	08:39			
	21:48		20:58		19:49		18:41	16:45	16:27			
18	05:39		06:25	19:13-19:52/39	07:15	18:45-19:03/18	08:05	08:00	08:40			
	21:47		20:56		19:47		18:39	16:44	16:27			
19	05:40		06:27	19:12-19:41/29	07:17	18:46-19:01/15	08:07	08:02	08:40			
	21:46		20:54	19:42-19:50/8	19:45		18:37	16:43	16:28			
20	05:42		06:29	19:10-19:41/31	07:19	18:48-19:00/12	08:09	08:04	08:41			
	21:45		20:52		19:42		18:35	16:42	16:28			
21	05:43		06:30	19:10-19:41/31	07:20	18:49-18:56/7	08:11	08:05	08:42			
	21:44		20:50		19:40		18:33	16:40	16:29			
22	05:44		06:32	19:08-19:41/33	07:22		08:12	08:07	08:42			
	21:43		20:48		19:38		18:31	16:39	16:29			
23	05:46		06:33	19:08-19:41/33	07:24		08:14	08:09	08:43			
	21:41		20:46		19:35		18:29	16:38	16:30			
24	05:47	19:47-19:54/7	06:35	19:08-19:41/33	07:25		08:16	08:10	08:43			
	21:40		20:44		19:33		18:27	16:37	16:30			
25	05:48	19:44-19:56/12	06:37	19:07-19:39/32	07:27		07:18	08:12	08:44			
	21:39		20:42		19:31		17:25	16:36	16:31			
26	05:50	19:43-19:58/15	06:38	19:03-19:39/36	07:28		07:19	08:13	08:44			
	21:37		20:39		19:29		17:23	16:35	16:31			
27	05:51	19:42-19:59/17	06:40	19:00-19:37/37	07:30		07:21	08:15	08:44			
	21:36		20:37		19:26		17:21	16:34	16:32			
28	05:53	19:41-20:01/20	06:42	18:58-19:36/38	07:32		07:23	08:16	08:44			
	21:34		20:35		19:24		17:19	16:33	16:33			
29	05:54	19:40-20:01/21	06:43	18:56-19:34/38	07:33		07:25	08:18	08:45			
	21:33		20:33		19:22		17:17	16:33	16:34			
30	05:56	19:39-20:02/23	06:45	18:56-19:33/37	07:35		07:27	08:19	08:45			
	21:31		20:31		19:19		17:15	16:32	16:35			
31	05:57	19:39-20:03/24	06:46	18:54-19:31/37			07:28		08:45			
	21:30		20:28				17:13		16:36			
Potential sun hours		501	453		381		332	267	244			
Sum of minutes with flicker		323	999		539		0	0	0			

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 6 - T07

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	06:51-07:22/31 21:46
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	06:50-07:20/30 21:47
3	08:44 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	06:49-07:19/30 21:48
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	06:49-07:18/29 21:49
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:16	06:03 21:07	06:50-07:19/29 21:50
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	06:49-07:18/29 21:51
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	06:49-07:18/29 21:52
8	08:43 16:45	08:07 17:38	07:10 18:28	06:59 20:22	05:57 21:12	06:50-07:18/28 21:53
9	08:42 16:47	08:05 17:39	07:07 18:30	06:57 20:23	05:56 21:13	06:28-06:36/8 06:50-07:17/27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	06:26-06:38/12 06:50-07:16/26
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	06:25-06:40/15 06:51-07:16/25
12	08:41 16:51	07:59 17:45	07:01 18:35	06:50 20:28	05:51 21:18	06:24-06:40/16 06:51-07:15/24
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	05:49 21:20	06:23-06:41/18 06:52-07:14/22
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	06:22-06:41/19 06:53-07:13/20
15	08:38 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	06:22-06:42/20 06:54-07:12/18
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	06:22-06:43/21 06:56-07:11/15
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	06:22-06:42/20 06:57-07:08/11
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	06:22-06:43/21 07:01-07:05/4
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	06:22-06:43/21 19:14-19:41/27
20	08:34 17:04	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	06:22-06:43/21 19:15-19:41/26
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	06:22-06:42/20 19:16-19:40/24
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	06:22-06:42/20 19:18-19:40/22
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	06:23-06:42/19 19:24-19:38/14
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	06:23-06:42/19 19:25-19:37/12
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	06:24-06:41/17 19:27-19:35/8
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	06:25-06:41/16 19:27-19:35/8
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	06:25-06:40/15 19:25-19:37/12
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	06:26-06:40/14 19:25-19:37/12
29	08:22 17:19		07:22 20:05	06:14 20:57	05:28 21:42	06:27-06:39/12 19:25-19:37/12
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:43	06:28-06:38/10 19:25-19:37/12
31	08:20 17:23		07:17 20:08		05:26 21:45	06:30-06:37/7 19:25-19:37/12
Potential sun hours	260	278	367	416	485	498
Sum of minutes with flicker	0	0	0	650	808	1

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 6 - T07**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22	05:59 06:34-06:50/16	06:48 19:16-19:31/15	07:37	07:30	08:21
	22:00	21:28 07:01-07:26/25	20:26	19:17	17:11	16:31
2	05:23	06:00 06:36-06:50/14	06:50 19:17-19:28/11	07:38	07:32	08:22
	21:59	21:26 07:01-07:27/26	20:24	19:15	17:09	16:31
3	05:24	06:02 06:37-06:48/11	06:51 19:21-19:25/4	07:40	07:34	08:24
	21:59	21:25 07:00-07:27/27	20:22	19:12	17:08	16:30
4	05:25	06:03 06:40-06:46/6	06:53	07:42	07:36	08:25
	21:58	21:23 07:00-07:28/28	20:19	19:10	17:06	16:29
5	05:25	06:05 06:59-07:28/29	06:55	07:43	07:37	08:26
	21:58	21:21	20:17	19:08	17:04	16:29
6	05:26	06:06 06:59-07:28/29	06:56	07:45	07:39	08:28
	21:57	21:19	20:15	19:06	17:02	16:29
7	05:27	06:08 06:59-07:28/29	06:58	07:47	07:41	08:29
	21:57	21:18	20:13	19:03	17:01	16:28
8	05:28	06:10 06:59-07:28/29	06:59	07:48	07:43	08:30
	21:56	21:16	20:10	19:01	16:59	16:28
9	05:29	06:11 06:59-07:28/29	07:01	07:50	07:45	08:31
	21:56	21:14	20:08	18:59	16:57	16:28
10	05:30	06:13 06:59-07:28/29	07:03	07:52	07:46	08:32
	21:55	21:12	20:06	18:57	16:56	16:27
11	05:31	06:14 06:59-07:29/30	07:04	07:54	07:48	08:34
	21:54	21:10	20:03	18:54	16:54	16:27
12	05:32 06:38-06:44/6	06:16 06:59-07:31/32	07:06	07:55	07:50	08:35
	21:53	21:08	20:01	18:52	16:53	16:27
13	05:33 06:37-06:46/9	06:17 06:59-07:31/32	07:07	07:57	07:52	08:36
	21:52	21:06	19:59	18:50	16:51	16:27
14	05:34 06:36-06:47/11	06:19 07:00-07:32/32	07:09	07:59	07:53	08:36
	21:52	21:04	19:57	18:48	16:50	16:27
15	05:35 06:36-06:49/13	06:21 07:00-07:32/32	07:11	08:00	07:55	08:37
	21:51	21:02	19:54	18:46	16:48	16:27
16	05:37 06:35-06:50/15	06:22 07:02-07:32/30	07:12	08:02	07:57	08:38
	21:50	21:00	19:52	18:44	16:47	16:27
17	05:38 06:34-06:50/16	06:24 07:02-07:32/30	07:14	08:04	07:59	08:39
	21:48	20:58	19:50	18:41	16:46	16:27
18	05:39 06:34-06:51/17	06:26 07:04-07:32/28	07:16	08:06	08:00	08:40
	21:47	20:56 19:32-19:41/9	19:47	18:39	16:44	16:28
19	05:40 06:33-06:51/18	06:27 07:06-07:31/25	07:17	08:07	08:02	08:40
	21:46	20:54 19:30-19:43/13	19:45	18:37	16:43	16:28
20	05:42 06:33-06:51/18	06:29 07:09-07:31/22	07:19	08:09	08:04	08:41
	21:45	20:52 19:28-19:43/15	19:43	18:35	16:42	16:28
21	05:43 06:33-06:53/20	06:30 07:09-07:29/20	07:20	08:11	08:05	08:42
	21:44	20:50 19:23-19:44/21	19:40	18:33	16:41	16:29
22	05:44 06:33-06:53/20	06:32 07:10-07:29/19	07:22	08:12	08:07	08:42
	21:43	20:48 19:21-19:45/24	19:38	18:31	16:39	16:29
23	05:46 06:32-06:53/21	06:34 07:10-07:27/17	07:24	08:14	08:09	08:43
	21:41	20:46 19:19-19:45/26	19:36	18:29	16:38	16:30
24	05:47 06:32-06:53/21	06:35 07:12-07:26/14	07:25	08:16	08:10	08:43
	21:40	20:44 19:18-19:45/27	19:33	18:27	16:37	16:30
25	05:48 06:32-06:53/21	06:37 07:13-07:23/10	07:27	07:18	08:12	08:44
	21:39	20:42 19:16-19:44/28	19:31	17:25	16:36	16:31
26	05:50 06:32-06:53/21	06:38 19:16-19:44/28	07:29	07:20	08:13	08:44
	21:37 07:10-07:18/8	20:39	19:29	17:23	16:35	16:32
27	05:51 06:32-06:53/21	06:40 19:15-19:43/28	07:30	07:21	08:15	08:44
	21:36 07:07-07:20/13	20:37	19:26	17:21	16:34	16:32
28	05:53 06:33-06:53/20	06:42 19:15-19:42/27	07:32	07:23	08:16	08:44
	21:34 07:06-07:22/16	20:35	19:24	17:19	16:34	16:33
29	05:54 06:33-06:52/19	06:43 19:15-19:40/25	07:33	07:25	08:18	08:45
	21:33 07:04-07:23/19	20:33	19:22	17:17	16:33	16:34
30	05:56 06:34-06:52/18	06:45 19:15-19:38/23	07:35	07:27	08:19	08:45
	21:31 07:04-07:25/21	20:31	19:19	17:15	16:32	16:35
31	05:57 06:34-06:51/17	06:47 19:15-19:32/17		07:28		08:45
	21:30 07:02-07:25/23	20:28		17:13		16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	442	1011	30	0	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:31/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 7 - T08**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	08:45	08:18	07:25	16:49-17:17/28	07:15	16:49-17:17/28	06:10	19:01-19:19/18	05:25	19:23-19:32/9
	16:37	17:25	16:37	17:25	18:16		20:10		21:00		21:46	
2	08:45	08:16	08:45	08:16	07:23	16:49-17:20/31	07:12	16:49-17:20/31	06:08	19:01-19:21/20	05:24	19:24-19:30/6
	16:38	17:27	16:38	17:27	18:18		20:11		21:02		21:47	
3	08:44	08:15	08:44	08:15	07:21	16:49-17:21/32	07:10	16:49-17:21/32	06:06	19:24-19:26/2	05:24	
	16:39	17:28	16:39	17:28	18:20		20:13		21:04	18:59-19:22/23	21:48	
4	08:44	08:13	08:44	08:13	07:18	16:49-17:22/33	07:08	16:49-17:22/33	06:05	18:58-19:31/33	05:23	
	16:40	17:30	16:40	17:30	18:21		20:15		21:05		21:49	
5	08:44	08:12	08:44	08:12	07:16	16:49-17:23/34	07:06	16:49-17:23/34	06:03	18:57-19:32/35	05:22	
	16:42	17:32	16:42	17:32	18:23		20:16		21:07		21:50	
6	08:44	08:10	08:44	08:10	07:14	16:50-17:24/34	07:03	16:50-17:24/34	06:01	18:57-19:35/38	05:22	
	16:43	17:34	16:43	17:34	18:25		20:18		21:08		21:51	
7	08:43	08:08	08:43	08:08	07:12	16:51-17:25/34	07:01	16:51-17:25/34	05:59	18:56-19:35/39	05:21	
	16:44	17:36	16:44	17:36	18:27		20:20		21:10		21:52	
8	08:43	08:07	08:43	08:07	07:10	16:52-17:26/34	06:59	16:52-17:26/34	05:57	18:55-19:36/41	05:21	
	16:45	17:38	16:45	17:38	18:28		20:21		21:12		21:53	
9	08:42	08:05	08:42	08:05	07:07	16:53-17:27/34	06:56	16:53-17:27/34	05:56	18:55-19:37/42	05:20	
	16:47	17:39	16:47	17:39	18:30		20:23		21:13		21:53	
10	08:42	08:03	08:42	08:03	07:05	16:58-17:28/30	06:54	16:58-17:28/30	05:54	18:55-19:37/42	05:20	
	16:48	17:41	16:48	17:41	18:32		20:25		21:15		21:54	
11	08:41	08:01	08:41	08:01	07:03	17:02-17:29/27	06:52	17:02-17:29/27	05:52	18:55-19:38/43	05:19	
	16:50	17:43	16:50	17:43	18:34		20:27		21:17		21:55	
12	08:41	07:59	08:41	07:59	07:01	17:04-17:29/25	06:50	17:04-17:29/25	05:51	18:55-19:38/43	05:19	
	16:51	17:45	16:51	17:45	18:35		20:28		21:18		21:56	
13	08:40	07:57	08:40	07:57	06:58	17:04-17:30/26	06:48	17:04-17:30/26	05:49	18:55-19:39/44	05:19	
	16:52	17:47	16:52	17:47	18:37		20:30		21:20		21:56	
14	08:39	07:56	08:39	07:56	06:56	17:05-17:31/26	06:45	17:05-17:31/26	05:47	18:55-19:38/43	05:18	
	16:54	17:49	16:54	17:49	18:39		20:32		21:21		21:57	
15	08:38	07:54	08:38	07:54	06:54	17:06-17:31/25	06:43	17:06-17:31/25	05:46	18:56-19:39/43	05:18	
	16:55	17:51	16:55	17:51	18:41		20:33		21:23		21:58	
16	08:38	07:52	08:38	07:52	06:51	17:08-17:31/23	06:41	17:08-17:31/23	05:44	18:56-19:38/42	05:18	
	16:57	17:52	16:57	17:52	18:42		20:35		21:24		21:58	
17	08:37	07:50	08:37	07:50	06:49	17:10-17:32/22	06:39	17:10-17:32/22	05:43	18:56-19:39/43	05:18	
	16:59	17:54	16:59	17:54	18:44		20:37	07:13-07:23/10	21:26		21:58	
18	08:36	07:48	08:36	07:48	06:47	17:09-17:31/22	06:37	17:09-17:31/22	05:41	18:57-19:39/42	05:18	
	17:00	17:56	17:00	17:56	18:46		20:38	07:11-07:25/14	21:27		21:59	
19	08:35	07:46	08:35	07:46	06:45	17:09-17:31/22	06:35	17:09-17:31/22	05:40	18:58-19:39/41	05:18	
	17:02	17:58	17:02	17:58	18:48		20:40	07:10-07:26/16	21:29		21:59	
20	08:34	07:44	08:34	07:44	06:42	17:10-17:30/20	06:32	17:10-17:30/20	05:39	18:58-19:38/40	05:18	
	17:04	18:00	17:04	18:00	18:49		20:42	07:09-07:26/17	21:30		22:00	
21	08:33	07:42	08:33	07:42	06:40	17:10-17:30/20	06:30	17:10-17:30/20	05:37	18:59-19:38/39	05:18	
	17:05	18:02	17:05	18:02	18:51		20:43	07:08-07:27/19	21:32		22:00	
22	08:31	07:40	08:31	07:40	06:38	17:11-17:27/16	06:28	17:11-17:27/16	05:36	19:00-19:38/38	05:18	
	17:07	18:03	17:07	18:03	18:53		20:45	07:08-07:27/19	21:33		22:00	
23	08:30	07:38	08:30	07:38	06:35	17:12-17:26/14	06:26	17:12-17:26/14	05:35	19:01-19:38/37	05:19	
	17:09	18:05	17:09	18:05	18:54		20:47	07:07-07:27/20	21:34		22:00	
24	08:29	07:36	08:29	07:36	06:33	17:15-17:23/8	06:24	17:15-17:23/8	05:33	19:02-19:37/35	05:19	
	17:10	18:07	17:10	18:07	18:56		20:49	07:07-07:26/19	21:36		22:00	
25	08:28	07:33	08:28	07:33	06:31	16:54-17:08/14	06:22	16:54-17:08/14	05:32	19:03-19:37/34	05:19	
	17:12	18:09	17:12	18:09	18:58		20:50	07:07-07:26/19	21:37		22:00	
26	08:27	07:31	08:27	07:31	06:28	16:53-17:10/17	06:20	16:53-17:10/17	05:31	19:04-19:37/33	05:20	
	17:14	18:11	17:14	18:11	18:59		20:52	07:08-07:25/17	21:38		22:00	
27	08:25	07:29	08:25	07:29	06:26	16:52-17:14/22	06:18	16:52-17:14/22	05:30	19:06-19:36/30	05:20	
	17:16	18:12	17:16	18:12	19:01		20:54	07:08-07:24/16	21:40		22:00	
28	08:24	07:27	08:24	07:27	06:24	16:51-17:16/25	06:16	16:51-17:16/25	05:29	19:17-19:35/18	05:21	
	17:17	18:14	17:17	18:14	19:03		20:55	07:09-07:23/14	21:41	19:08-19:16/8	22:00	
29	08:22		08:22		07:22		06:14	18:55-19:06/11	05:28	19:18-19:34/16	05:21	
	17:19		17:19		20:05		20:57	07:10-07:21/11	21:42		22:00	
30	08:21		08:21		07:19		06:12	07:13-07:18/5	05:27	19:19-19:33/14	05:22	
	17:21		17:21		20:06		20:59	19:04-19:17/13	21:43		22:00	
31	08:20		08:20		07:17				05:26	19:20-19:32/12		
	17:23		17:23		20:08				21:45			
Potential sun hours	260	278	260	278	367		416		485		498	
Sum of minutes with flicker	0	86	0	86	620		601		1071		15	

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) **WTG:** 7 - T08

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 19:05-19:48/43 21:28	06:48 20:26	07:37 17:44-18:09/25 19:17	07:30 17:11	08:21 16:31
2	05:23 21:59	06:00 19:06-19:49/43 21:26	06:50 20:24	07:38 17:41-18:07/26 19:15	07:32 17:09	08:22 16:31
3	05:24 21:59	06:02 19:05-19:47/42 21:25	06:51 20:22	07:40 17:38-18:07/29 19:12	07:34 17:08	08:24 16:30
4	05:25 21:58	06:03 19:06-19:47/41 21:23	06:53 20:19	07:42 17:33-18:06/33 19:10	07:36 17:06	08:25 16:29
5	05:25 21:58	06:05 19:06-19:46/40 21:21	06:55 20:17	07:43 17:29-18:03/34 19:08	07:37 17:04	08:26 16:29
6	05:26 21:57	06:06 19:05-19:44/39 21:19	06:56 20:15	07:45 17:27-18:02/35 19:06	07:39 17:02	08:28 16:28
7	05:27 21:57	06:08 19:06-19:44/38 21:18	06:58 20:13	07:47 17:26-18:01/35 19:03	07:41 17:01	08:29 16:28
8	05:28 21:56	06:10 19:06-19:41/35 21:16	06:59 20:10	07:48 17:25-18:00/35 19:01	07:43 16:59	08:30 16:28
9	05:29 21:56	06:11 19:08-19:39/31 21:14	07:01 20:08	07:50 17:24-17:56/32 18:59	07:44 16:57	08:31 16:27
10	05:30 19:34-19:35/1 21:55	06:13 19:08-19:30/22 21:12	07:03 20:06	07:52 17:23-17:56/33 18:57	07:46 16:56	08:32 16:27
11	05:31 19:31-19:38/7 21:54	06:14 19:10-19:29/19 21:10	07:04 20:03	07:53 17:23-17:55/32 18:54	07:48 16:54	08:33 16:27
12	05:32 19:29-19:40/11 21:53	06:16 19:10-19:27/17 21:08	07:06 20:01	07:55 17:23-17:53/30 18:52	07:50 16:53	08:35 16:27
13	05:33 19:28-19:41/13 21:52	06:17 19:06-19:12/6 19:13-19:25/12 21:06 07:20-07:27/7	07:07 19:59	07:57 17:23-17:49/26 18:50	07:52 16:51	08:36 16:27
14	05:34 19:27-19:43/16 21:51	06:19 19:02-19:14/12 21:04 07:18-07:30/12	07:09 19:56	07:59 17:23-17:47/24 18:48	07:53 16:50	08:36 16:27
15	05:35 19:26-19:43/17 21:51 19:18-19:23/5	06:21 19:01-19:16/15 21:02 07:16-07:31/15	07:11 19:54	08:00 17:24-17:45/21 18:46	07:55 16:48	08:37 16:27
16	05:37 19:15-19:44/29 21:50	06:22 18:58-19:17/19 21:00 07:16-07:32/16	07:12 19:52	08:02 17:25-17:41/16 18:43	07:57 16:47	08:38 16:27
17	05:38 19:15-19:46/31 21:48	06:24 18:57-19:18/21 20:58 07:14-07:32/18	07:14 19:50	08:04 17:27-17:40/13 18:41	07:58 16:46	08:39 16:27
18	05:39 19:13-19:46/33 21:47	06:25 18:56-19:18/22 20:56 07:14-07:33/19	07:16 19:47	08:05 17:29-17:35/6 18:39	08:00 16:44	08:40 16:28
19	05:40 19:12-19:47/35 21:46	06:27 18:55-19:19/24 20:54 07:13-07:32/19	07:17 18:02-18:09/7 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	05:42 19:11-19:47/36 21:45	06:29 18:54-19:19/25 20:52 07:13-07:32/19	07:19 17:59-18:12/13 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	05:43 19:10-19:47/37 21:44	06:30 18:54-19:19/25 20:50 07:12-07:32/20	07:20 17:57-18:13/16 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	05:44 19:10-19:49/39 21:43	06:32 18:54-19:20/26 20:48 07:13-07:31/18	07:22 17:55-18:14/19 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	05:46 19:09-19:49/40 21:41	06:34 18:53-19:19/26 20:46 07:13-07:30/17	07:24 17:53-18:14/21 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	05:47 19:08-19:49/41 21:40	06:35 18:54-19:19/25 20:44 07:14-07:29/15	07:25 17:53-18:14/21 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	05:48 19:08-19:50/42 21:39	06:37 18:53-19:18/25 20:42 07:14-07:27/13	07:27 17:53-18:14/21 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	05:50 19:07-19:49/42 21:37	06:38 18:54-19:17/23 20:39 07:17-07:26/9	07:29 17:51-18:13/22 19:29	07:20 17:23	08:13 16:35	08:44 16:32
27	05:51 19:06-19:49/43 21:36	06:40 18:54-19:16/22 20:37	07:30 17:51-18:13/22 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	05:53 19:07-19:50/43 21:34	06:42 18:55-19:15/20 20:35	07:32 17:48-18:13/25 19:24	07:23 17:19	08:16 16:34	08:44 16:33
29	05:54 19:06-19:49/43 21:33	06:43 18:55-19:13/18 20:33	07:33 17:46-18:11/25 19:22	07:25 17:17	08:18 16:33	08:45 16:34
30	05:56 19:05-19:49/44 21:31	06:45 18:57-19:11/14 20:31	07:35 17:44-18:10/26 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	05:57 19:06-19:49/43 21:30	06:46 19:00-19:07/7 20:28		07:28 17:13		08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	691	1014	238	485	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) WTG: 8 - T09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:25	07:25 17:20-17:28/8 18:16	07:15 18:14-18:48/34 20:10	06:10 21:00	05:25 19:41-20:02/21 21:46 20:08-20:29/21
2	08:45 16:38	08:16 17:26	07:23 17:18-17:30/12 18:18	07:12 18:16-18:49/33 20:11	06:08 21:02	05:24 19:40-20:03/23 21:47 20:08-20:29/21
3	08:44 16:39	08:15 17:28	07:21 17:16-17:32/16 18:20	07:10 18:17-18:49/32 20:13	06:06 21:04	05:24 19:39-20:03/24 21:48 20:08-20:29/21
4	08:44 16:40	08:13 17:30	07:18 17:16-17:33/17 18:21	07:08 18:17-18:49/32 20:15	06:04 21:05	05:23 19:39-20:04/25 21:49 20:09-20:29/20
5	08:44 16:42	08:12 17:32	07:16 17:14-17:32/18 18:23	07:05 18:16-18:49/33 20:16	06:03 21:07	05:22 19:38-20:05/27 21:50 20:09-20:29/20
6	08:44 16:43	08:10 17:34	07:14 16:57-17:32/35 18:25	07:03 18:16-18:49/33 20:18	06:01 21:08	05:22 19:38-20:06/28 21:51 20:10-20:29/19
7	08:43 16:44	08:08 17:36	07:12 16:55-17:34/39 18:27	07:01 18:17-18:49/32 20:20	05:59 21:10	05:21 19:38-20:06/28 21:52 20:10-20:29/19
8	08:43 16:45	08:07 17:38	07:09 16:54-17:34/40 18:28	06:59 18:16-18:47/31 20:21	05:57 21:12	05:20 19:38-20:07/29 21:53 20:10-20:29/19
9	08:42 16:47	08:05 17:39	07:07 16:52-17:36/44 18:30	06:56 18:16-18:47/31 20:23	05:56 21:13	05:20 19:37-20:07/30 21:53 20:10-20:28/18
10	08:42 16:48	08:03 17:41	07:05 16:51-17:36/45 18:32	06:54 18:17-18:46/29 20:25	05:54 21:15	05:20 19:37-20:08/31 21:54 20:11-20:29/18
11	08:41 16:49	08:01 17:43	07:03 16:50-17:37/47 18:34	06:52 18:18-18:46/28 20:27	05:52 21:17	05:19 19:38-20:08/30 21:55 20:12-20:29/17
12	08:41 16:51	07:59 17:45	07:00 16:48-17:36/48 18:35	06:50 18:19-18:45/26 20:28	05:51 21:18	05:19 19:38-20:09/31 21:56 20:13-20:29/16
13	08:40 16:52	07:57 17:47	06:58 16:48-17:43/55 18:37	06:48 18:19-18:42/23 20:30	05:49 21:20	05:19 19:37-20:09/32 21:56 20:12-20:28/16
14	08:39 16:54	07:56 17:49	06:56 16:48-17:46/58 18:39	06:45 18:20-18:41/21 20:32	05:47 21:21	05:18 19:37-20:09/32 21:57 20:13-20:28/15
15	08:38 16:55	07:54 17:50	06:54 16:47-17:46/59 18:41	06:43 18:22-18:39/17 20:33	05:46 21:23	05:18 19:37-20:10/33 21:58 20:13-20:29/16
16	08:38 16:57	07:52 17:02-17:12/10 17:52	06:51 16:47-17:47/60 18:42	06:41 18:25-18:35/10 20:35	05:44 20:12-20:21/9 21:24	05:18 19:38-20:10/32 21:58 20:14-20:29/15
17	08:37 16:59	07:50 17:01-17:14/13 17:54	06:49 16:47-17:48/61 18:44	06:39 20:37	05:43 20:11-20:23/12 21:26	05:18 19:38-20:10/32 21:58 20:14-20:29/15
18	08:36 17:00	07:48 16:59-17:15/16 17:56	06:47 16:47-17:47/60 18:46	06:37 20:38	05:41 20:10-20:24/14 21:27	05:18 19:38-20:11/33 21:59 20:14-20:29/15
19	08:35 17:02	07:46 16:59-17:16/17 17:58	06:44 16:47-17:47/60 18:47	06:35 20:40	05:40 20:09-20:26/17 21:29	05:18 19:38-20:11/33 21:59 20:15-20:29/14
20	08:34 17:04	07:44 16:58-17:16/18 18:00	06:42 16:48-17:47/59 18:49	06:32 20:42	05:39 20:08-20:26/18 21:30	05:18 19:38-20:11/33 22:00 20:15-20:29/14
21	08:33 17:05	07:42 16:58-17:16/18 18:02	06:40 16:49-17:46/57 18:51	06:30 20:43	05:37 20:07-20:26/19 21:32	05:18 19:39-20:12/33 22:00 20:16-20:30/14
22	08:31 17:07	07:40 16:58-17:17/19 18:03	06:38 16:49-17:45/56 18:53	06:28 20:45	05:36 20:07-20:27/20 21:33	05:18 19:39-20:12/33 22:00 20:16-20:30/14
23	08:30 17:09	07:38 16:57-17:15/18 18:05	06:35 16:51-17:44/53 18:54	06:26 20:47	05:35 20:07-20:28/21 21:34	05:19 19:39-20:12/33 22:00 20:16-20:30/14
24	08:29 17:10	07:36 16:58-17:15/17 18:07	06:33 16:53-17:43/50 18:56	06:24 20:48	05:33 20:07-20:28/21 21:36	05:19 19:39-20:12/33 22:00 20:15-20:30/15
25	08:28 17:12	07:33 16:59-17:14/15 18:09	06:31 16:55-17:43/48 18:58	06:22 20:50	05:32 20:07-20:28/21 21:37	05:19 19:40-20:12/32 22:00 20:16-20:31/15
26	08:27 17:14	07:31 17:00-17:13/13 18:11	06:28 17:06-17:44/38 18:59	06:20 20:52	05:31 20:07-20:29/22 21:38	05:20 19:40-20:12/32 22:00 20:16-20:31/15
27	08:25 17:16	07:29 17:02-17:11/9 18:12	06:26 17:09-17:44/35 19:01	06:18 20:54	05:30 20:07-20:29/22 21:40	05:20 19:40-20:13/33 22:00 20:16-20:32/16
28	08:24 17:17	07:27 18:14	06:24 17:08-17:43/35 19:03	06:16 20:55	05:29 19:45-19:55/10 21:41	05:21 19:40-20:12/32 22:00 20:16-20:32/16
29	08:22 17:19		07:21 18:09-18:45/36 20:05	06:14 20:57	05:28 19:43-19:58/15 21:42	05:21 19:41-20:13/32 22:00 20:16-20:32/16
30	08:21 17:21		07:19 18:11-18:47/36 20:06	06:12 20:59	05:27 19:42-19:59/17 21:43	05:22 19:41-20:12/31 22:00 20:16-20:32/16
31	08:20 17:23		07:17 18:11-18:47/36 20:08		05:26 19:41-20:00/19 21:45	
Potential sun hours	260	278	367	416	485	498
Sum of minutes with flicker	0	183	1332	445	365	1411

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Real Case) WTG: 8 - T09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

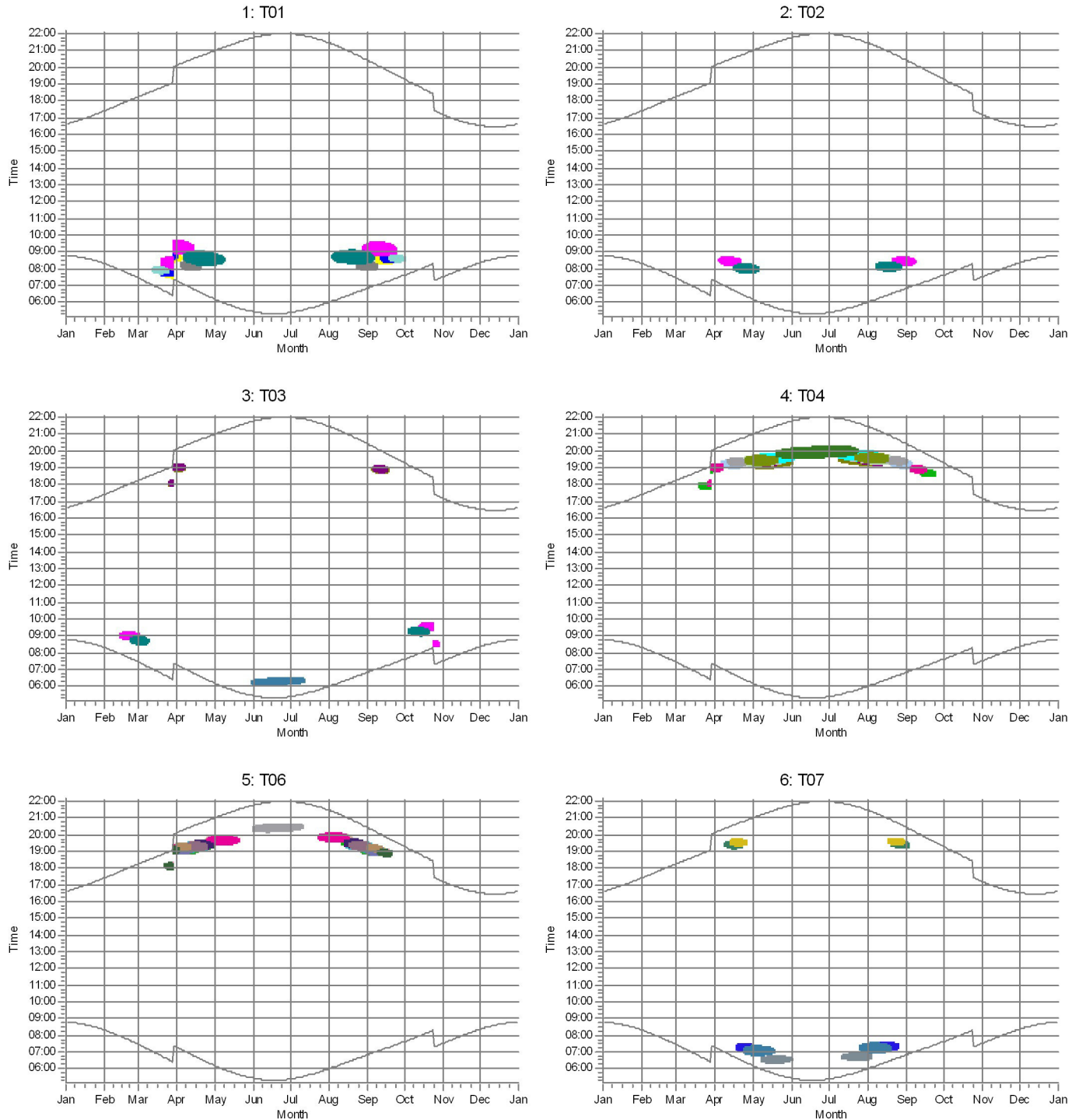
	July		August		September		October		November		December	
1	05:22	19:42-20:13/31	05:59		06:48	18:17-18:44/27	07:37	18:17-18:20/3	07:30		08:21	
	22:00	20:16-20:33/17	21:28		20:26		19:17	17:28-18:16/48	17:11		16:31	
2	05:23	19:42-20:13/31	06:00		06:50	18:15-18:44/29	07:38	17:28-18:15/47	07:32		08:22	
	21:59	20:15-20:33/18	21:26		20:24		19:15		17:09		16:31	
3	05:24	19:42-20:12/30	06:02		06:51	18:14-18:45/31	07:40	17:28-18:15/47	07:34		08:24	
	21:59	20:16-20:34/18	21:25		20:22		19:12		17:08		16:30	
4	05:25	19:43-20:12/29	06:03		06:53	18:14-18:45/31	07:42	17:29-18:14/45	07:36		08:25	
	21:58	20:16-20:34/18	21:23		20:19		19:10		17:06		16:29	
5	05:25	19:44-20:12/28	06:05		06:55	18:13-18:45/32	07:43	17:29-18:12/43	07:37		08:26	
	21:58	20:16-20:35/19	21:21		20:17		19:08		17:04		16:29	
6	05:26	19:44-20:12/28	06:06		06:56	18:13-18:45/32	07:45	17:30-18:11/41	07:39		08:28	
	21:57	20:15-20:35/20	21:19		20:15		19:06		17:02		16:28	
7	05:27	19:44-20:11/27	06:08		06:58	18:12-18:44/32	07:47	17:32-18:09/37	07:41		08:29	
	21:57	20:15-20:35/20	21:18		20:13		19:03		17:01		16:28	
8	05:28	19:45-20:11/26	06:09		06:59	18:12-18:44/32	07:48	17:35-18:08/33	07:43		08:30	
	21:56	20:15-20:36/21	21:16		20:10		19:01		16:59		16:28	
9	05:29	19:46-20:11/25	06:11		07:01	18:11-18:43/32	07:50	17:49-18:07/18	07:44		08:31	
	21:56	20:15-20:36/21	21:14		20:08		18:59	17:38-17:44/6	16:57		16:27	
10	05:30	19:47-20:10/23	06:13		07:03	18:09-18:42/33	07:52	17:50-18:06/16	07:46		08:32	
	21:55	20:15-20:36/21	21:12		20:06		18:57		16:56		16:27	
11	05:31	19:48-20:10/22	06:14		07:04	18:06-18:40/34	07:53	17:51-18:05/14	07:48		08:33	
	21:54	20:15-20:37/22	21:10		20:03		18:54		16:54		16:27	
12	05:32	19:49-20:09/20	06:16		07:06	18:04-18:40/36	07:55	17:53-18:04/11	07:50		08:34	
	21:53	20:15-20:37/22	21:08		20:01		18:52		16:53		16:27	
13	05:33	19:50-20:08/18	06:17		07:07	18:02-18:38/36	07:57	17:55-18:00/5	07:52		08:35	
	21:52	20:15-20:37/22	21:06		19:59		18:50		16:51		16:27	
14	05:34	19:51-20:07/16	06:19		07:09	18:00-18:36/36	07:59	17:37-17:41/4	07:53		08:36	
	21:51	20:15-20:37/22	21:04		19:56		18:48		16:50		16:27	
15	05:35	19:53-20:05/12	06:21		07:11	17:59-18:34/35	08:00	17:33-17:44/11	07:55		08:37	
	21:51	20:15-20:37/22	21:02		19:54		18:46		16:48		16:27	
16	05:37	19:55-20:02/7	06:22		07:12	17:57-18:32/35	08:02	17:32-17:46/14	07:57		08:38	
	21:49	20:15-20:37/22	21:00		19:52		18:43		16:47		16:27	
17	05:38	20:16-20:38/22	06:24		07:14	17:55-18:32/37	08:04	17:29-17:46/17	07:58		08:39	
	21:48		20:58		19:49		18:41		16:46		16:27	
18	05:39	20:16-20:38/22	06:25		07:15	17:44-18:31/47	08:05	17:29-17:46/17	08:00		08:40	
	21:47		20:56		19:47		18:39		16:44		16:28	
19	05:40	20:16-20:38/22	06:27		07:17	17:40-18:30/50	08:07	17:28-17:47/19	08:02		08:40	
	21:46		20:54		19:45		18:37		16:43		16:28	
20	05:42	20:16-20:37/21	06:29		07:19	17:38-18:30/52	08:09	17:28-17:47/19	08:04		08:41	
	21:45		20:52		19:42		18:35		16:42		16:28	
21	05:43	20:17-20:37/20	06:30		07:20	17:35-18:31/56	08:11	17:28-17:47/19	08:05		08:42	
	21:44		20:50		19:40		18:33		16:41		16:29	
22	05:44	20:18-20:37/19	06:32		07:22	17:34-18:31/57	08:12	17:29-17:46/17	08:07		08:42	
	21:43		20:48		19:38		18:31		16:39		16:29	
23	05:46	20:18-20:37/19	06:34		07:24	17:32-18:31/59	08:14	17:29-17:46/17	08:09		08:43	
	21:41		20:46		19:36		18:29		16:38		16:30	
24	05:47	20:18-20:36/18	06:35		07:25	17:31-18:31/60	08:16	17:29-17:44/15	08:10		08:43	
	21:40		20:44		19:33		18:27		16:37		16:30	
25	05:48	20:20-20:36/16	06:37		07:27	17:31-18:31/60	07:18	16:30-16:43/13	08:12		08:44	
	21:39		20:42		19:31		17:25		16:36		16:31	
26	05:50	20:21-20:34/13	06:38		07:28	17:29-18:30/61	07:19	16:33-16:40/7	08:13		08:44	
	21:37		20:39		19:29		17:23		16:35		16:32	
27	05:51	20:22-20:32/10	06:40	18:27-18:38/11	07:30	17:29-18:29/60	07:21		08:15		08:44	
	21:36		20:37		19:26		17:21		16:34		16:32	
28	05:53	20:25-20:31/6	06:42	18:24-18:41/17	07:32	17:29-18:28/59	07:23		08:16		08:44	
	21:34		20:35		19:24		17:19		16:33		16:33	
29	05:54		06:43	18:21-18:42/21	07:33	17:28-18:26/58	07:25		08:18		08:44	
	21:33		20:33		19:22		17:17		16:33		16:34	
30	05:56		06:45	18:20-18:43/23	07:35	17:28-18:24/56	07:27		08:19		08:45	
	21:31		20:31		19:19		17:15		16:32		16:35	
31	05:57		06:46	18:17-18:43/26			07:28				08:45	
	21:30		20:28				17:13				16:36	
Potential sun hours	501		453		381		332		267		244	
Sum of minutes with flicker	906		98		1295		603		0		0	

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

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

SHADOW - Calendar per WTG, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

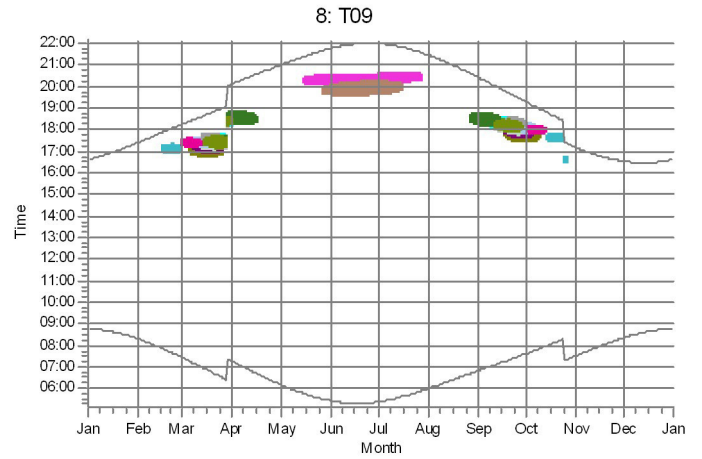
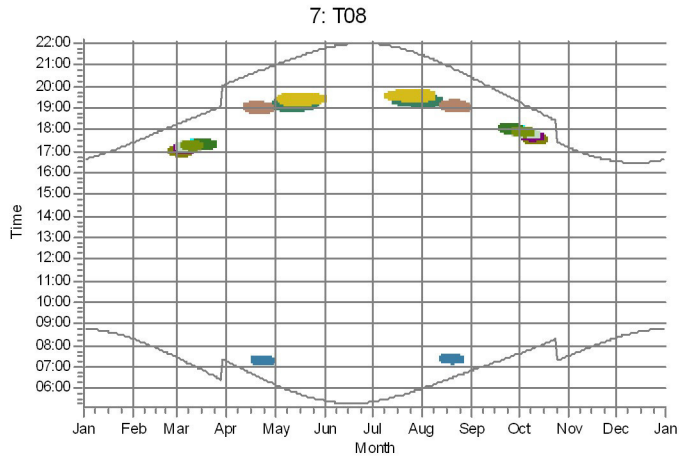


Shadow receptors

A: H1	J: H10	P: H16	V: H22	AJ: H36	BD: H56	BO: H67
B: H2	K: H11	Q: H17	W: H23	AK: H37	BE: H57	BP: H68
C: H3	L: H12	R: H18	X: H24	AL: H38	BF: H58	BQ: H69
D: H4	M: H13	S: H19	Y: H25	AV: H48	BG: H59	BR: H70
E: H5	N: H14	T: H20	AC: H29	BB: H54	BM: H65	BS: H71
F: H6	O: H15	U: H21	AD: H30	BC: H55	BN: H66	BU: H73

SHADOW - Calendar per WTG, graphical

Calculation: 6460 Gortloughra WF only (Real Case)

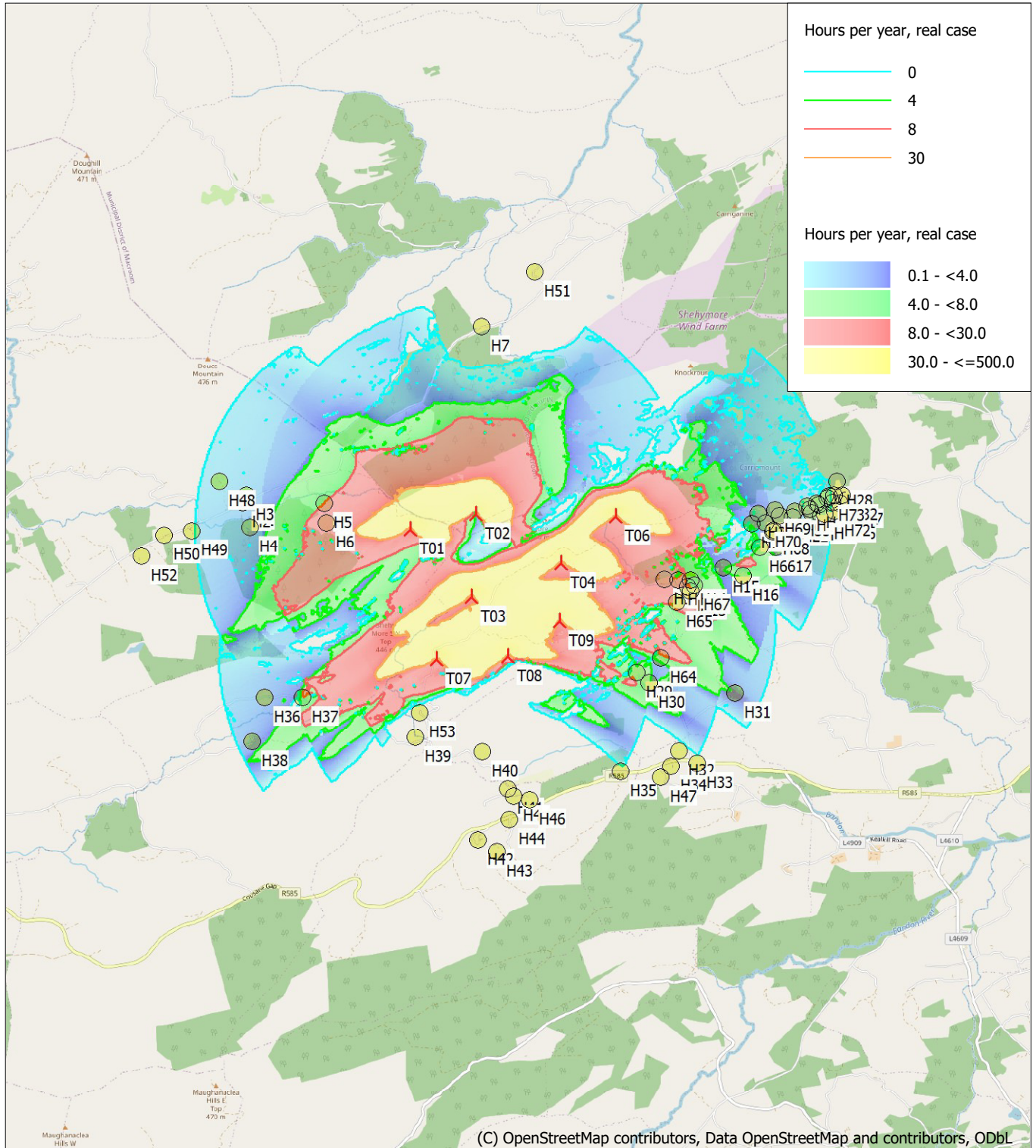


Shadow receptors

J: H10	L: H12	N: H14	P: H16	AC: H29	AE: H31	BL: H64	BN: H66
K: H11	M: H13	O: H15	S: H19	AD: H30	AK: H37	BM: H65	BO: H67

SHADOW - Map

Calculation: 6460 Gortloughra WF only (Real Case)



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap, Print scale 1:50,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 514,950 North: 559,570
 New WTG Shadow receptor
 Flicker map level: Height Contours: CONTOURLINE_6460 Gortloughra WF_1.wpo (1)
 Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m

SHADOW - Main Result

Calculation: 6460 Gortloughra WF only (Worst Case)

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
136	297	373	423	216	252	408	617	382	612	1,601	1,598

W	WNW	NW	NNW	Sum
456	331	428	630	8,760

Monthly aggregation of real case reduction

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:
DHM: Height Contours: CONTOURLINE_6460 Gortloughra WF_1.wpo (1)
Receptor grid resolution: 1.0 m

All coordinates are in
Irish ITM-IRENET95 (IE), geocentric, GRS80

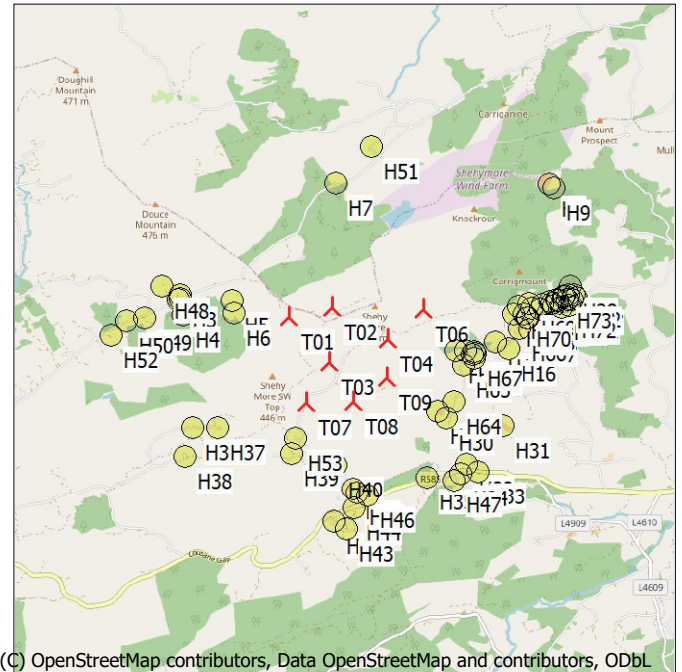
WTGs

	Easting	Northing	Z	Row data/Description	WTG type		Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.				Calculation distance [m]	RPM [RPM]
1	514,007	559,976	363.6	T01	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902 -
2	514,579	560,100	445.0	T02	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902 -
3	514,530	559,377	388.0	T03	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902 -
4	515,323	559,654	363.4	T04	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902 -
5	515,804	560,057	339.5	T06	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902 -
6	514,219	558,839	339.8	T07	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902 -
7	514,846	558,858	391.8	T08	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902 -
8	515,300	559,151	345.2	T09	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	100.0	1,902 -

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
A	H1	512,574	560,249	173.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
B	H2	512,548	560,240	173.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
C	H3	512,576	560,296	179.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
D	H4	512,607	560,021	179.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
E	H5	513,258	560,218	201.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
F	H6	513,280	560,045	213.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
G	H7	514,664	561,741	242.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
H	H8	517,491	561,675	226.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
I	H9	517,560	561,620	238.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
J	H10	516,223	559,500	202.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
K	H11	516,345	559,495	191.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
L	H12	516,426	559,436	166.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
M	H13	516,455	559,391	159.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
N	H14	516,453	559,491	179.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
O	H15	516,742	559,597	178.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
P	H16	516,913	559,519	155.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Q	H17	517,205	559,763	150.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
R	H18	517,186	559,907	166.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...



SHADOW - Main Result

Calculation: 6460 Gortloughra WF only (Worst Case)

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
S	H19	516,995	559,974	207.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
T	H20	517,058	560,064	205.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
U	H21	517,237	560,043	189.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
V	H22	517,355	560,026	175.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
W	H23	517,505	560,096	175.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
X	H24	517,525	560,068	166.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Y	H25	517,602	560,034	162.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Z	H26	517,766	560,044	154.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AA	H27	517,833	560,174	162.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AB	H28	517,746	560,332	180.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AC	H29	515,967	558,698	134.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AD	H30	516,071	558,608	133.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AE	H31	516,831	558,505	145.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AF	H32	516,331	558,002	116.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AG	H33	516,489	557,893	121.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AH	H34	516,258	557,871	124.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AI	H35	515,815	557,831	123.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AJ	H36	512,706	558,535	242.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AK	H37	513,035	558,529	262.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AL	H38	512,590	558,155	239.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AM	H39	514,019	558,165	211.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AN	H40	514,606	558,023	147.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AO	H41	514,826	557,698	125.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AP	H42	514,556	557,258	157.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AQ	H43	514,715	557,154	169.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AR	H44	514,833	557,430	137.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AS	H45	514,870	557,636	126.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AT	H46	515,012	557,597	127.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AU	H47	516,168	557,781	135.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AV	H48	512,339	560,424	168.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AW	H49	512,089	560,001	161.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AX	H50	511,856	559,964	174.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AY	H51	515,138	562,209	216.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AZ	H52	511,651	559,779	202.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BA	H53	514,062	558,379	240.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BB	H54	517,177	559,907	167.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BC	H55	517,375	560,081	186.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BD	H56	517,485	560,120	183.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BE	H57	517,582	560,131	176.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BF	H58	517,565	560,150	179.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BG	H59	517,665	560,186	178.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BH	H60	517,712	560,152	174.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BI	H61	517,770	560,146	168.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BJ	H62	517,793	560,211	170.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BK	H63	517,724	560,209	177.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BL	H64	516,185	558,817	149.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BM	H65	516,326	559,301	160.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BN	H66	517,061	559,769	165.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BO	H67	516,482	559,447	165.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BP	H68	517,190	559,916	168.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BQ	H69	517,202	560,097	199.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BR	H70	517,121	559,978	187.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BS	H71	517,638	560,049	163.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BT	H72	517,727	560,072	162.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BU	H73	517,677	560,204	178.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5

SHADOW - Main Result

Calculation: 6460 Gortloughra WF only (Worst Case)

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case		Max shadow hours per day [h/day]	Shadow, expected values	
		Shadow hours per year [h/year]	Shadow days per year [days/year]		Shadow hours per year [h/year]	
A	H1	9:09	31	0:24	1:30	
B	H2	8:52	30	0:23	1:29	
C	H3	9:04	30	0:24	1:25	
D	H4	10:37	32	0:24	2:12	
E	H5	49:48	99	0:56	8:22	
F	H6	63:10	100	1:11	12:20	
G	H7	0:00	0	0:00	0:00	
H	H8	0:00	0	0:00	0:00	
I	H9	0:00	0	0:00	0:00	
J	H10	70:03	164	0:39	13:11	
K	H11	54:01	138	0:34	10:14	
L	H12	45:29	121	0:32	8:32	
M	H13	46:22	129	0:31	8:43	
N	H14	39:25	105	0:31	7:28	
O	H15	19:30	63	0:25	3:45	
P	H16	29:29	100	0:24	5:18	
Q	H17	13:12	41	0:25	2:36	
R	H18	17:28	59	0:25	3:24	
S	H19	21:42	65	0:29	4:09	
T	H20	13:19	38	0:28	2:46	
U	H21	10:09	33	0:25	2:06	
V	H22	8:41	30	0:22	1:48	
W	H23	7:07	28	0:21	1:25	
X	H24	6:59	28	0:20	1:26	
Y	H25	6:30	26	0:20	1:20	
Z	H26	0:00	0	0:00	0:00	
AA	H27	0:00	0	0:00	0:00	
AB	H28	0:00	0	0:00	0:00	
AC	H29	30:42	88	0:31	6:12	
AD	H30	28:21	88	0:28	5:33	
AE	H31	22:17	74	0:22	3:50	
AF	H32	0:00	0	0:00	0:00	
AG	H33	0:00	0	0:00	0:00	
AH	H34	0:00	0	0:00	0:00	
AI	H35	0:00	0	0:00	0:00	
AJ	H36	10:26	34	0:24	2:18	
AK	H37	36:46	107	0:31	7:58	
AL	H38	12:51	48	0:21	2:51	
AM	H39	0:00	0	0:00	0:00	
AN	H40	0:00	0	0:00	0:00	
AO	H41	0:00	0	0:00	0:00	
AP	H42	0:00	0	0:00	0:00	
AQ	H43	0:00	0	0:00	0:00	
AR	H44	0:00	0	0:00	0:00	
AS	H45	0:00	0	0:00	0:00	
AT	H46	0:00	0	0:00	0:00	
AU	H47	0:00	0	0:00	0:00	
AV	H48	6:32	26	0:20	1:01	
AW	H49	0:00	0	0:00	0:00	
AX	H50	0:00	0	0:00	0:00	
AY	H51	0:00	0	0:00	0:00	
AZ	H52	0:00	0	0:00	0:00	
BA	H53	0:00	0	0:00	0:00	
BB	H54	17:50	61	0:26	3:29	
BC	H55	8:26	30	0:22	1:43	
BD	H56	7:09	26	0:21	1:24	
BE	H57	6:29	26	0:19	1:15	
BF	H58	6:33	26	0:20	1:14	
BG	H59	5:48	24	0:19	1:03	
BH	H60	0:00	0	0:00	0:00	
BI	H61	0:00	0	0:00	0:00	
BJ	H62	0:00	0	0:00	0:00	

To be continued on next page...

SHADOW - Main Result

Calculation: 6460 Gortloughra WF only (Worst Case)

...continued from previous page

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]
BK	H63	0:00	0	0:00	0:00
BL	H64	34:47	87	0:33	6:23
BM	H65	57:57	136	0:34	10:43
BN	H66	29:49	99	0:28	5:40
BO	H67	39:39	109	0:30	7:28
BP	H68	11:50	36	0:25	2:25
BQ	H69	10:28	33	0:25	2:07
BR	H70	12:36	37	0:26	2:36
BS	H71	6:07	24	0:19	1:15
BT	H72	0:00	0	0:00	0:00
BU	H73	5:44	24	0:19	1:01

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

No.	Name	Worst case	Expected
		[h/year]	[h/year]
1	T01	95:52	17:57
2	T02	25:16	5:18
3	T03	38:14	6:09
4	T04	106:15	20:06
5	T06	68:53	13:18
6	T07	49:02	10:43
7	T08	80:21	15:26
8	T09	110:38	19:40

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

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

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Worst Case)

Worst case, Shadow hours per year [h/year]

Receptor	WTG	1	2	3	4	5	6	7	8	Total
A		9:09	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:09
B		8:52	0:00	0:00	0:00	0:00	0:00	0:00	0:00	8:52
C		9:04	0:00	0:00	0:00	0:00	0:00	0:00	0:00	9:04
D		10:37	0:00	0:00	0:00	0:00	0:00	0:00	0:00	10:37
E		29:02	11:33	9:13	0:00	0:00	0:00	0:00	0:00	49:48
F		39:24	13:43	10:04	0:00	0:00	0:00	0:00	0:00	63:10
G		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
H		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
I		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
J		0:00	0:00	6:54	37:12	0:00	0:00	8:45	19:22	70:03
K		0:00	0:00	6:04	25:43	0:00	0:00	7:32	15:41	54:01
L		0:00	0:00	0:00	24:25	0:00	0:00	6:58	14:06	45:29
M		0:00	0:00	0:00	25:49	0:00	0:00	6:48	13:45	46:22
N		0:00	0:00	0:00	19:52	0:00	0:00	6:42	13:11	39:25
O		0:00	0:00	0:00	10:49	0:00	0:00	0:00	8:41	19:30
P		0:00	0:00	0:00	8:51	13:31	0:00	0:00	7:07	29:29
Q		0:00	0:00	0:00	0:00	13:12	0:00	0:00	0:00	13:12
R		0:00	0:00	0:00	5:35	11:53	0:00	0:00	0:00	17:28
S		0:00	0:00	0:00	0:00	15:30	0:00	0:00	6:12	21:42
T		0:00	0:00	0:00	0:00	13:19	0:00	0:00	0:00	13:19
U		0:00	0:00	0:00	0:00	10:09	0:00	0:00	0:00	10:09
V		0:00	0:00	0:00	0:00	8:41	0:00	0:00	0:00	8:41
W		0:00	0:00	0:00	0:00	7:07	0:00	0:00	0:00	7:07
X		0:00	0:00	0:00	0:00	6:59	0:00	0:00	0:00	6:59
Y		0:00	0:00	0:00	0:00	6:30	0:00	0:00	0:00	6:30
Z		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AA		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AB		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AC		0:00	0:00	0:00	0:00	0:00	7:14	23:28	0:00	30:42
AD		0:00	0:00	0:00	0:00	0:00	6:32	21:49	0:00	28:21
AE		0:00	0:00	0:00	0:00	0:00	0:00	0:00	22:17	22:17
AF		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AG		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AH		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AI		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AJ		0:00	0:00	0:00	0:00	0:00	10:26	0:00	0:00	10:26
AK		0:00	0:00	11:53	0:00	0:00	19:14	7:13	0:00	36:46
AL		0:00	0:00	0:00	0:00	0:00	12:51	0:00	0:00	12:51
AM		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AN		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AO		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AP		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AQ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AR		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AS		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AT		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AU		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AV		6:32	0:00	0:00	0:00	0:00	0:00	0:00	0:00	6:32
AW		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AX		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AY		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AZ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BA		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BB		0:00	0:00	0:00	5:42	12:08	0:00	0:00	0:00	17:50
BC		0:00	0:00	0:00	0:00	8:26	0:00	0:00	0:00	8:26
BD		0:00	0:00	0:00	0:00	7:09	0:00	0:00	0:00	7:09
BE		0:00	0:00	0:00	0:00	6:29	0:00	0:00	0:00	6:29
BF		0:00	0:00	0:00	0:00	6:33	0:00	0:00	0:00	6:33
BG		0:00	0:00	0:00	0:00	5:48	0:00	0:00	0:00	5:48
BH		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BI		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BJ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BK		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BL		0:00	0:00	0:00	0:00	0:00	0:00	12:22	22:25	34:47

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Worst Case)

...continued from previous page

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
BM	0:00	0:00	0:00	31:56	0:00	0:00	8:04	17:57	57:57
BN	0:00	0:00	0:00	6:37	17:24	0:00	0:00	5:48	29:49
BO	0:00	0:00	0:00	20:28	0:00	0:00	6:27	12:44	39:39
BP	0:00	0:00	0:00	0:00	11:50	0:00	0:00	0:00	11:50
BQ	0:00	0:00	0:00	0:00	10:28	0:00	0:00	0:00	10:28
BR	0:00	0:00	0:00	0:00	12:36	0:00	0:00	0:00	12:36
BS	0:00	0:00	0:00	0:00	6:07	0:00	0:00	0:00	6:07
BT	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BU	0:00	0:00	0:00	0:00	5:44	0:00	0:00	0:00	5:44
Total	95:52	25:16	38:14	106:15	68:53	49:02	80:21	110:38	

Worst case, Shadow days per year [days/year]

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
A	31	0	0	0	0	0	0	0	31
B	30	0	0	0	0	0	0	0	30
C	30	0	0	0	0	0	0	0	30
D	32	0	0	0	0	0	0	0	32
E	54	36	31	0	0	0	0	0	99
F	68	40	32	0	0	0	0	0	100
G	0	0	0	0	0	0	0	0	0
H	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0
J	0	0	28	77	0	0	30	43	164
K	0	0	24	59	0	0	27	39	138
L	0	0	0	61	0	0	26	38	121
M	0	0	0	67	0	0	26	38	129
N	0	0	0	50	0	0	26	36	105
O	0	0	0	34	0	0	0	29	63
P	0	0	0	32	41	0	0	27	100
Q	0	0	0	0	41	0	0	0	41
R	0	0	0	23	36	0	0	0	59
S	0	0	0	0	40	0	0	25	65
T	0	0	0	0	38	0	0	0	38
U	0	0	0	0	33	0	0	0	33
V	0	0	0	0	30	0	0	0	30
W	0	0	0	0	28	0	0	0	28
X	0	0	0	0	28	0	0	0	28
Y	0	0	0	0	26	0	0	0	26
Z	0	0	0	0	0	0	0	0	0
AA	0	0	0	0	0	0	0	0	0
AB	0	0	0	0	0	0	0	0	0
AC	0	0	0	0	0	28	60	0	88
AD	0	0	0	0	0	26	62	0	88
AE	0	0	0	0	0	0	0	74	74
AF	0	0	0	0	0	0	0	0	0
AG	0	0	0	0	0	0	0	0	0
AH	0	0	0	0	0	0	0	0	0
AI	0	0	0	0	0	0	0	0	0
AJ	0	0	0	0	0	34	0	0	34
AK	0	0	43	0	0	50	28	0	107
AL	0	0	0	0	0	48	0	0	48
AM	0	0	0	0	0	0	0	0	0
AN	0	0	0	0	0	0	0	0	0
AO	0	0	0	0	0	0	0	0	0
AP	0	0	0	0	0	0	0	0	0
AQ	0	0	0	0	0	0	0	0	0
AR	0	0	0	0	0	0	0	0	0
AS	0	0	0	0	0	0	0	0	0
AT	0	0	0	0	0	0	0	0	0
AU	0	0	0	0	0	0	0	0	0
AV	26	0	0	0	0	0	0	0	26
AW	0	0	0	0	0	0	0	0	0
AX	0	0	0	0	0	0	0	0	0
AY	0	0	0	0	0	0	0	0	0

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Worst Case)

...continued from previous page

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
AZ	0	0	0	0	0	0	0	0	0
BA	0	0	0	0	0	0	0	0	0
BB	0	0	0	24	37	0	0	0	61
BC	0	0	0	0	30	0	0	0	30
BD	0	0	0	0	26	0	0	0	26
BE	0	0	0	0	26	0	0	0	26
BF	0	0	0	0	26	0	0	0	26
BG	0	0	0	0	24	0	0	0	24
BH	0	0	0	0	0	0	0	0	0
BI	0	0	0	0	0	0	0	0	0
BJ	0	0	0	0	0	0	0	0	0
BK	0	0	0	0	0	0	0	0	0
BL	0	0	0	0	0	0	37	50	87
BM	0	0	0	66	0	0	28	42	136
BN	0	0	0	25	50	0	0	24	99
BO	0	0	0	53	0	0	25	35	109
BP	0	0	0	0	36	0	0	0	36
BQ	0	0	0	0	33	0	0	0	33
BR	0	0	0	0	37	0	0	0	37
BS	0	0	0	0	24	0	0	0	24
BT	0	0	0	0	0	0	0	0	0
BU	0	0	0	0	24	0	0	0	24
Total	271	76	158	571	714	186	375	500	

Worst case, Max shadow hours per day [h/day]

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
A	0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
B	0:23	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:23
C	0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
D	0:24	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:24
E	0:42	0:25	0:23	0:00	0:00	0:00	0:00	0:00	0:56
F	0:46	0:27	0:24	0:00	0:00	0:00	0:00	0:00	1:11
G	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
H	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
I	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
J	0:00	0:00	0:21	0:39	0:00	0:00	0:23	0:34	0:39
K	0:00	0:00	0:19	0:34	0:00	0:00	0:21	0:31	0:34
L	0:00	0:00	0:00	0:32	0:00	0:00	0:20	0:29	0:32
M	0:00	0:00	0:00	0:31	0:00	0:00	0:21	0:29	0:31
N	0:00	0:00	0:00	0:31	0:00	0:00	0:20	0:28	0:31
O	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:23	0:25
P	0:00	0:00	0:00	0:22	0:24	0:00	0:00	0:21	0:24
Q	0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:25
R	0:00	0:00	0:00	0:19	0:25	0:00	0:00	0:00	0:25
S	0:00	0:00	0:00	0:00	0:29	0:00	0:00	0:19	0:29
T	0:00	0:00	0:00	0:00	0:28	0:00	0:00	0:00	0:28
U	0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:25
V	0:00	0:00	0:00	0:00	0:22	0:00	0:00	0:00	0:22
W	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:21
X	0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:20
Y	0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:20
Z	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AA	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AB	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AC	0:00	0:00	0:00	0:00	0:00	0:20	0:31	0:00	0:31
AD	0:00	0:00	0:00	0:00	0:00	0:19	0:28	0:00	0:28
AE	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:22	0:22
AF	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AG	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AH	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AI	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AJ	0:00	0:00	0:00	0:00	0:00	0:24	0:00	0:00	0:24
AK	0:00	0:00	0:21	0:00	0:00	0:30	0:20	0:00	0:31
AL	0:00	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:21

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Worst Case)

...continued from previous page

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
AM	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AN	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AO	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AP	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AQ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AR	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AS	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AT	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AU	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AV	0:20	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:20
AW	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AX	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AY	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AZ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BA	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BB	0:00	0:00	0:00	0:19	0:26	0:00	0:00	0:00	0:26
BC	0:00	0:00	0:00	0:00	0:22	0:00	0:00	0:00	0:22
BD	0:00	0:00	0:00	0:00	0:21	0:00	0:00	0:00	0:21
BE	0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:19
BF	0:00	0:00	0:00	0:00	0:20	0:00	0:00	0:00	0:20
BG	0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:19
BH	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BI	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BJ	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BK	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BL	0:00	0:00	0:00	0:00	0:00	0:00	0:26	0:33	0:33
BM	0:00	0:00	0:00	0:34	0:00	0:00	0:22	0:33	0:34
BN	0:00	0:00	0:00	0:20	0:28	0:00	0:00	0:19	0:28
BO	0:00	0:00	0:00	0:30	0:00	0:00	0:20	0:28	0:30
BP	0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:25
BQ	0:00	0:00	0:00	0:00	0:25	0:00	0:00	0:00	0:25
BR	0:00	0:00	0:00	0:00	0:26	0:00	0:00	0:00	0:26
BS	0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:19
BT	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BU	0:00	0:00	0:00	0:00	0:19	0:00	0:00	0:00	0:19
Total	3:23	0:52	1:48	5:36	8:28	1:54	4:12	5:49	

Real case, Shadow hours per year [h/year]

Receptor	WTG								Total
	1	2	3	4	5	6	7	8	
A	1:31	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:30
B	1:29	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:29
C	1:26	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:25
D	2:12	0:00	0:00	0:00	0:00	0:00	0:00	0:00	2:12
E	4:57	2:21	1:04	0:00	0:00	0:00	0:00	0:00	8:22
F	8:07	2:57	1:17	0:00	0:00	0:00	0:00	0:00	12:20
G	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
H	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
I	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
J	0:00	0:00	1:20	7:22	0:00	0:00	1:26	3:26	13:11
K	0:00	0:00	1:10	5:11	0:00	0:00	1:15	2:48	10:14
L	0:00	0:00	0:00	4:48	0:00	0:00	1:11	2:34	8:32
M	0:00	0:00	0:00	4:57	0:00	0:00	1:11	2:35	8:43
N	0:00	0:00	0:00	4:03	0:00	0:00	1:07	2:22	7:28
O	0:00	0:00	0:00	2:15	0:00	0:00	0:00	1:30	3:45
P	0:00	0:00	0:00	1:49	2:12	0:00	0:00	1:16	5:18
Q	0:00	0:00	0:00	0:00	2:37	0:00	0:00	0:00	2:36
R	0:00	0:00	0:00	0:59	2:26	0:00	0:00	0:00	3:24
S	0:00	0:00	0:00	0:00	3:12	0:00	0:00	0:57	4:09
T	0:00	0:00	0:00	0:00	2:47	0:00	0:00	0:00	2:46
U	0:00	0:00	0:00	0:00	2:07	0:00	0:00	0:00	2:06
V	0:00	0:00	0:00	0:00	1:48	0:00	0:00	0:00	1:48
W	0:00	0:00	0:00	0:00	1:26	0:00	0:00	0:00	1:25
X	0:00	0:00	0:00	0:00	1:26	0:00	0:00	0:00	1:26
Y	0:00	0:00	0:00	0:00	1:21	0:00	0:00	0:00	1:20

To be continued on next page...

SHADOW - Detailed Results

Calculation: 6460 Gortloughra WF only (Worst Case)

...continued from previous page

Receptor	WTG	1	2	3	4	5	6	7	8	Total
Z		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AA		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AB		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AC		0:00	0:00	0:00	0:00	0:00	1:29	4:43	0:00	6:12
AD		0:00	0:00	0:00	0:00	0:00	1:20	4:13	0:00	5:33
AE		0:00	0:00	0:00	0:00	0:00	0:00	0:00	3:50	3:50
AF		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AG		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AH		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AI		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AJ		0:00	0:00	0:00	0:00	0:00	2:18	0:00	0:00	2:18
AK		0:00	0:00	2:25	0:00	0:00	4:20	1:35	0:00	7:58
AL		0:00	0:00	0:00	0:00	0:00	2:52	0:00	0:00	2:51
AM		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AN		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AO		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AP		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AQ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AR		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AS		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AT		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AU		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AV		1:01	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:01
AW		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AX		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AY		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
AZ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BA		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BB		0:00	0:00	0:00	1:00	2:29	0:00	0:00	0:00	3:29
BC		0:00	0:00	0:00	0:00	1:43	0:00	0:00	0:00	1:43
BD		0:00	0:00	0:00	0:00	1:24	0:00	0:00	0:00	1:24
BE		0:00	0:00	0:00	0:00	1:15	0:00	0:00	0:00	1:15
BF		0:00	0:00	0:00	0:00	1:15	0:00	0:00	0:00	1:14
BG		0:00	0:00	0:00	0:00	1:03	0:00	0:00	0:00	1:03
BH		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BI		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BJ		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BK		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BL		0:00	0:00	0:00	0:00	0:00	0:00	2:36	3:48	6:23
BM		0:00	0:00	0:00	5:32	0:00	0:00	1:27	3:44	10:43
BN		0:00	0:00	0:00	1:18	3:25	0:00	0:00	0:58	5:40
BO		0:00	0:00	0:00	4:05	0:00	0:00	1:06	2:18	7:28
BP		0:00	0:00	0:00	0:00	2:25	0:00	0:00	0:00	2:25
BQ		0:00	0:00	0:00	0:00	2:07	0:00	0:00	0:00	2:07
BR		0:00	0:00	0:00	0:00	2:37	0:00	0:00	0:00	2:36
BS		0:00	0:00	0:00	0:00	1:16	0:00	0:00	0:00	1:15
BT		0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00
BU		0:00	0:00	0:00	0:00	1:02	0:00	0:00	0:00	1:01
Total		17:57	5:19	6:09	20:07	13:18	10:44	15:26	19:41	

Total time can be different from the sum in case of concurrent Shadow flicker events

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** A - H1**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

		January	February	March		April		May	June	July	August	September		October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16		07:15 20:10	19	08:29 (1) 21:00	06:10 21:46	05:25 22:00	05:22 21:28	05:59 20:26			07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18		07:12 20:11	15	08:31 (1) 21:02	06:08 21:47	05:25 21:59	05:23 21:26	06:00 20:24			07:39 19:15	07:32 17:10	08:22 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20		07:10 20:13	12	08:32 (1) 21:04	06:06 21:48	05:24 21:59	05:24 21:25	06:02 20:22			07:40 19:13	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:19 18:21		07:08 20:15	3	08:37 (1) 21:05	06:05 21:49	05:23 21:59	05:25 21:23	06:03 20:20			07:42 19:10	07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23		07:06 20:17		08:40 (1) 21:07	06:03 21:50	05:22 21:58	05:25 21:21	06:05 20:17			07:44 19:08	07:38 17:04	08:27 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18			06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20			07:45 19:06	07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27		07:01 20:20			05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18			07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:29		06:59 20:22			05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16			07:49 19:01	07:43 16:59	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30		06:57 20:23			05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14		1	08:33 (1) 08:27 (1)	19:01 07:50	16:59 07:45
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25			05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12		11	08:38 (1) 08:24 (1)	18:59 07:52	16:57 07:46
11	08:41 16:50	08:01 17:43	07:03 18:34		06:52 20:27			05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10		16	07:03 08:40 (1)	07:03 18:57	08:33 16:56
12	08:41 16:51	07:59 17:45	07:01 18:36		06:50 20:28			05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08		20	07:04 08:21 (1)	07:06 18:52	08:35 16:53
13	08:40 16:53	07:58 17:47	06:58 18:37		06:48 20:30			05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:06		22	07:08 08:42 (1)	07:08 18:50	08:36 16:51
14	08:39 16:54	07:56 17:49	06:56 18:39		06:46 20:32			05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05		23	07:09 08:19 (1)	07:09 18:48	08:37 16:50
15	08:39 16:56	07:54 17:51	06:54 18:41		06:43 20:33			05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03		23	07:11 08:42 (1)	07:11 18:46	08:38 16:48
16	08:38 16:57	07:52 17:52	06:52 18:42		06:41 20:35			05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01		23	07:12 08:42 (1)	07:12 18:44	08:38 16:47
17	08:37 16:59	07:50 17:54	06:49 18:44		06:39 20:37			05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59		23	07:14 08:41 (1)	07:14 18:41	08:39 16:46
18	08:36 17:00	07:48 17:56	06:47 18:46		06:37 20:39			05:41 21:27	05:18 21:59	05:39 21:48	06:26 20:56		23	07:16 08:18 (1)	07:16 18:39	08:40 16:44
19	08:35 17:02	07:46 17:58	06:45 18:48		06:35 20:40			05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54		23	07:17 08:19 (1)	07:17 18:37	08:41 16:43
20	08:34 17:04	07:44 18:00	06:42 18:49		06:33 20:42			05:39 21:30	05:18 22:00	05:42 21:45	06:29 20:52		21	07:19 08:39 (1)	07:19 18:35	08:41 16:42
21	08:33 17:05	07:42 18:02	06:40 18:51	10	07:38 (1) 07:48 (1)		06:30 20:44	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50		19	07:20 08:36 (1)	07:20 18:33	08:42 16:41
22	08:32 17:07	07:40 18:03	06:38 18:53	10	06:28 07:50 (1)		06:28 20:45	05:36 21:33	05:19 22:00	05:44 21:43	06:32 20:48		17	07:22 08:21 (1)	07:22 18:33	08:42 16:40
23	08:30 17:09	07:38 18:05	06:35 18:54	16	06:26 07:51 (1)		06:26 20:47	05:35 21:35	05:19 22:00	05:46 21:41	06:34 20:46		13	07:24 08:34 (1)	07:24 18:31	08:43 16:40
24	08:29 17:10	07:36 18:07	06:33 18:56	18	06:24 07:52 (1)		06:24 20:49	05:34 21:36	05:19 22:01	05:47 21:40	06:35 20:44		5	07:25 08:30 (1)	07:25 18:27	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	20	06:22 07:52 (1)		06:22 20:50	05:32 21:37	05:19 22:01	05:48 21:39	06:37 20:42			07:27 17:25	07:27 16:36	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	22	06:20 07:52 (1)		06:20 20:52	05:31 21:39	05:20 22:01	05:50 21:37	06:38 20:40			07:29 17:23	07:29 16:35	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	22	06:18 07:53 (1)		06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37			07:30 17:21	07:30 16:34	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	24	06:16 07:53 (1)		06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35			07:32 17:19	07:32 16:34	08:45 16:33
29	08:23 17:19	07:22 18:05	06:14 19:01	24	06:14 08:28 (1)		06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33			07:34 17:17	07:34 16:33	08:45 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	23	06:12 08:29 (1)		06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31			07:35 19:19	07:35 16:32	08:45 16:35
31	08:20 17:23	07:17 18:08	06:11 19:08	22	06:11 08:29 (1)		06:11 20:59	05:26 21:45	05:22 22:00	05:57 21:30	06:47 20:29			07:36 17:13	07:36 16:36	08:45 16:36
Potential sun hours	260	278	367		416			485	498	501	453	381	278	332	267	244
Total, worst case				222									278			
Sun reduction				0.24			49	0.35					0.28			
Oper. time red.				1.00				1.00					1.00			
Wind dir. red.				0.60				0.60					0.60			
Total reduction				0.15				0.21					0.17			
Total, real				33				11					48			

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: 6460 Gortloughra WF only (Worst Case) Shadow receptor: B - H2

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	08:27 (1) 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	08:28 (1) 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:39 19:15	07:32 17:10	08:22 16:31	
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	08:30 (1) 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:40 19:13	07:34 17:08	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:19 18:21	07:08 20:15	08:32 (1) 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20	07:42 19:10	07:36 17:06	08:25 16:30	
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	08:40 (1) 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	07:44 19:08	07:38 17:04	08:27 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:29	
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:47 19:04	07:41 17:01	08:29 16:28	
8	08:43 16:45	08:07 17:38	07:10 18:29	06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10	08:27 (1) 08:34 (1)	07:49 19:01	07:43 16:59	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08	08:24 (1) 08:37 (1)	07:50 18:59	07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06	08:21 (1) 08:38 (1)	07:52 18:57	07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04	08:20 (1) 08:39 (1)	07:54 18:55	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	08:19 (1) 08:39 (1)	07:55 18:52	07:50 16:53	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:06	07:08 19:59	08:18 (1) 08:40 (1)	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05	07:09 19:57	08:17 (1) 08:40 (1)	07:59 18:48	07:53 16:50	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03	07:11 19:54	08:17 (1) 08:40 (1)	08:00 18:46	07:55 16:48	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01	07:12 19:52	08:17 (1) 08:40 (1)	08:02 18:44	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59	07:14 19:50	08:16 (1) 08:39 (1)	08:04 18:41	07:59 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:41 21:27	05:18 21:59	05:39 21:48	06:26 20:56	07:16 19:47	08:17 (1) 08:38 (1)	08:06 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:17 (1) 08:36 (1)	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	05:18 22:00	05:42 21:45	06:29 20:52	07:19 19:43	08:18 (1) 08:35 (1)	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:19 (1) 08:32 (1)	08:11 18:33	08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:22 (1) 08:30 (1)	08:13 18:31	08:07 16:40	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	08:30 (1) 08:14	08:14 18:31	08:09 16:40	08:43 16:29
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	05:19 22:01	05:47 21:40	06:35 20:44	07:25 19:33		08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:01	05:48 21:39	06:37 20:42	07:27 19:31		08:18 17:25	08:12 16:36	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29		08:20 17:23	08:14 16:35	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26		08:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24		08:22 17:19	08:17 16:34	08:45 16:33
29	08:23 17:19		07:22 20:05	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22		08:23 17:17	08:18 16:33	08:45 16:34
30	08:21 17:21		07:19 20:06	06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19		08:24 17:15	08:20 16:32	08:45 16:35
31	08:20 17:23		07:17 20:08	06:11 20:58	05:26 21:45		05:57 21:30	06:47 20:29			08:25 17:13	08:45 16:36	
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			207	57						268			
Sun reduction			0.24	0.35						0.28			
Oper. time red.			1.00	1.00						1.00			
Wind dir. red.			0.61	0.61						0.61			
Total reduction			0.15	0.22						0.17			
Total, real			31	12						46			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** C - H3**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April	May	June	July	August	September		October	November	December
1	08:45	08:18	07:25		07:15	06:10	05:25	05:22	05:59	06:48		07:37	07:30	08:21
	16:37	17:25	18:16		20:10	21:00	21:46	22:00	21:28	20:26		19:17	17:11	16:31
2	08:45	08:17	07:23		07:12	06:08	05:25	05:23	06:00	06:50		07:39	07:32	08:22
	16:38	17:27	18:18		20:11	21:02	21:47	21:59	21:26	20:24		19:15	17:10	16:31
3	08:45	08:15	07:21		07:10	06:06	05:24	05:24	06:02	06:51		07:40	07:34	08:24
	16:39	17:28	18:20		20:13	21:04	21:48	21:59	21:25	20:22		19:13	17:08	16:30
4	08:44	08:13	07:19		07:08	06:05	05:23	05:25	06:03	06:53		07:42	07:36	08:25
	16:40	17:30	18:21		20:15	21:05	21:49	21:59	21:23	20:20		19:10	17:06	16:30
5	08:44	08:12	07:16		07:06	06:03	05:22	05:25	06:05	06:55		07:44	07:38	08:27
	16:42	17:32	18:23		20:17	21:07	21:50	21:58	21:21	20:17		19:08	17:04	16:29
6	08:44	08:10	07:14		07:03	06:01	05:22	05:26	06:06	06:56		07:45	07:39	08:28
	16:43	17:34	18:25		20:18	21:09	21:51	21:58	21:20	20:15		19:06	17:02	16:29
7	08:43	08:08	07:12		07:01	05:59	05:21	05:27	06:08	06:58		07:47	07:41	08:29
	16:44	17:36	18:27		20:20	21:10	21:52	21:57	21:18	20:13		19:03	17:01	16:28
8	08:43	08:07	07:10		06:59	05:57	05:21	05:28	06:10	07:00		07:49	07:43	08:30
	16:45	17:38	18:29		20:22	21:12	21:53	21:56	21:16	20:10		19:01	16:59	16:28
9	08:43	08:05	07:07		06:57	05:56	05:20	05:29	06:11	07:01		07:50	07:45	08:31
	16:47	17:40	18:30		20:23	21:14	21:54	21:56	21:14	20:08		18:59	16:57	16:28
10	08:42	08:03	07:05		06:54	05:54	05:20	05:30	06:13	07:03		07:52	07:46	08:33
	16:48	17:41	18:32		20:25	21:15	21:54	21:55	21:12	20:06		18:57	16:56	16:27
11	08:41	08:01	07:03		06:52	05:52	05:19	05:31	06:14	07:04		07:54	07:48	08:34
	16:50	17:43	18:34		20:27	21:17	21:55	21:54	21:10	20:04		18:55	16:54	16:27
12	08:41	07:59	07:01		06:50	05:51	05:19	05:32	06:16	07:06		07:55	07:50	08:35
	16:51	17:45	18:36		20:28	21:18	21:56	21:53	21:08	20:01	8	08:32 (1)	18:52	16:53
13	08:40	07:58	06:58		06:48	05:49	05:19	05:33	06:18	07:08		08:29 (1)	18:50	16:51
	16:53	17:47	18:37		20:30	21:20	21:57	21:53	21:06	19:59	14	08:43 (1)	18:50	16:51
14	08:39	07:56	06:56		06:46	05:47	05:18	05:34	06:19	07:09		08:26 (1)	18:48	16:50
	16:54	17:49	18:39		20:32	21:21	21:57	21:52	21:05	19:57	18	08:44 (1)	18:48	16:50
15	08:39	07:54	06:54		06:43	05:46	05:18	05:35	06:21	07:11		08:25 (1)	18:46	16:49
	16:56	17:51	18:41		20:33	21:23	21:58	21:51	21:03	19:54	20	08:45 (1)	18:46	16:48
16	08:38	07:52	06:52		06:41	05:44	05:18	05:37	06:22	07:12		08:25 (1)	18:44	16:47
	16:57	17:52	18:42		20:35	21:24	21:58	21:50	21:01	19:52	21	08:46 (1)	18:44	16:47
17	08:37	07:50	06:49		07:47 (1)	06:39	05:43	05:18	06:24	07:14		08:23 (1)	18:42	16:46
	16:59	17:54	18:44	4	07:51 (1)	20:37	21:26	21:59	21:49	20:59	22	08:45 (1)	18:41	16:46
18	08:36	07:48	06:47		07:43 (1)	06:37	05:41	05:18	06:26	07:16		08:23 (1)	18:40	16:45
	17:00	17:56	18:46	12	07:55 (1)	20:39	21:27	21:59	21:48	20:56	23	08:46 (1)	18:39	16:44
19	08:35	07:46	06:45		07:40 (1)	06:35	05:40	05:18	06:27	07:17		08:22 (1)	18:37	16:43
	17:02	17:58	18:48	16	07:56 (1)	20:40	21:29	21:59	21:46	20:54	23	08:45 (1)	18:37	16:43
20	08:34	07:44	06:42		07:38 (1)	06:33	05:39	05:18	06:29	07:19		08:22 (1)	18:35	16:42
	17:04	18:00	18:49	19	07:57 (1)	20:42	21:30	22:00	21:45	20:52	23	08:45 (1)	18:35	16:42
21	08:33	07:42	06:40		07:37 (1)	06:30	05:37	05:18	06:30	07:20		08:21 (1)	18:33	16:41
	17:05	18:02	18:51	21	07:58 (1)	20:44	21:32	22:00	21:44	20:50	23	08:44 (1)	18:33	16:41
22	08:32	07:40	06:38		07:36 (1)	06:28	05:36	05:19	06:32	07:22		08:22 (1)	18:31	16:40
	17:07	18:03	18:53	22	07:58 (1)	20:45	21:33	22:00	21:43	20:48	21	08:43 (1)	18:31	16:40
23	08:30	07:38	06:35		07:35 (1)	06:26	05:35	05:19	06:34	07:24		08:23 (1)	18:29	16:38
	17:09	18:05	18:54	23	07:58 (1)	20:47	21:35	22:00	21:41	20:46	19	08:42 (1)	18:29	16:38
24	08:29	07:36	06:33		07:35 (1)	06:24	05:34	05:19	06:35	07:25		08:23 (1)	18:27	16:37
	17:10	18:07	18:56	24	07:59 (1)	20:49	21:36	22:01	21:40	20:44	17	08:40 (1)	18:27	16:37
25	08:28	07:34	06:31		07:34 (1)	06:22	05:32	05:19	06:37	07:27		08:25 (1)	18:25	16:36
	17:12	18:09	18:58	23	07:57 (1)	20:50	21:37	22:01	21:39	20:42	14	08:39 (1)	18:25	16:36
26	08:27	07:31	06:29		07:35 (1)	06:20	05:31	05:20	06:38	07:29		08:28 (1)	18:23	16:35
	17:14	18:11	19:00	22	07:57 (1)	20:52	21:39	22:01	21:37	20:40	8	08:36 (1)	18:23	16:35
27	08:25	07:29	06:26		07:35 (1)	06:18	05:30	05:20	06:40	07:30		07:21	18:21	16:34
	17:16	18:13	19:01	22	07:57 (1)	20:54	21:40	22:01	21:36	20:37		17:21	18:20	16:34
28	08:24	07:27	06:24		07:36 (1)	06:16	05:29	05:21	06:42	07:32		07:23	18:17	16:33
	17:18	18:14	19:03	20	07:56 (1)	20:55	21:41	22:00	21:34	20:35		17:19	18:16	16:33
29	08:23		07:22		08:36 (1)	06:14	05:28	05:21	06:43	07:34		07:25	18:18	16:33
	17:19		20:05	18	08:54 (1)	20:57	21:42	22:00	21:33	20:33		17:17	18:16	16:33
30	08:21		07:19		08:37 (1)	06:12	05:27	05:22	06:45	07:35		07:27	18:15	16:32
	17:21		20:06	15	08:52 (1)	20:59	21:44	22:00	21:31	20:31		17:15	18:14	16:32
31	08:20		07:17		08:40 (1)		05:26		06:47			07:29	18:13	16:31
	17:23		20:08	9	08:49 (1)		21:45		21:30	20:29		17:13	18:12	16:30
Potential sun hours	260	278	367		416	485	498	501	453	381		332	267	244
Total, worst case			270							274				
Sun reduction			0.24							0.28				
Oper. time red.			1.00							1.00				
Wind dir. red.			0.60							0.60				
Total reduction			0.15							0.17				
Total, real			39							46				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** D - H4**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	07:56 (1) 08:20 (1)	07:37 19:17	07:30 17:11
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:56 (1) 08:20 (1)	07:39 19:15	07:32 17:10
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	07:55 (1) 08:19 (1)	07:40 19:13	07:34 17:08
4	08:44 16:40	08:13 17:30	07:19 18:21	07:08 20:15	06:05 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20	07:56 (1) 08:19 (1)	07:42 19:10	07:36 17:06
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	07:56 (1) 08:17 (1)	07:44 19:08	07:38 17:04
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15	07:57 (1) 08:16 (1)	07:45 19:06	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	06:00 21:10	05:59 21:52	05:27 21:57	06:08 21:18	06:58 20:13	07:58 (1) 08:14 (1)	07:47 19:03	07:41 17:01
8	08:43 16:45	08:07 17:38	07:10 18:29	06:59 20:22	06:59 21:12	05:57 21:53	05:21 21:56	06:10 21:16	07:00 20:10	08:00 (1) 08:11 (1)	07:49 19:01	07:43 16:59
9	08:43 16:47	08:05 17:40	07:07 18:30	06:57 20:23	06:57 21:13	05:56 21:54	05:20 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	06:54 21:15	05:54 21:54	05:20 21:55	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	06:52 21:17	05:52 21:55	05:19 21:54	06:14 21:10	07:04 20:04	07:54 18:55	07:48 16:54	08:34 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	06:51 21:18	05:51 21:56	05:19 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	06:48 21:20	05:49 21:57	05:19 21:53	06:18 21:06	07:08 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	06:46 21:21	05:47 21:57	05:18 21:52	06:19 21:05	07:09 19:57	07:59 18:48	07:53 16:50	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	06:43 20:33	06:43 21:23	05:46 21:58	05:18 21:51	06:21 21:03	07:11 19:54	08:00 18:46	07:55 16:48	08:38 16:27
16	08:38 16:57	07:52 17:52	06:52 18:42	06:41 20:35	06:41 21:24	05:44 21:58	05:18 21:50	06:22 21:01	07:12 19:52	08:02 18:44	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	06:39 21:26	05:43 21:59	05:18 21:49	06:24 20:59	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	06:37 21:27	05:41 21:59	05:18 21:48	06:26 20:56	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	06:35 21:29	05:40 21:59	05:18 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	06:33 21:30	05:18 22:00	05:42 21:45	06:29 20:52	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	06:30 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	06:28 21:33	05:19 22:00	05:44 21:43	06:32 20:48	07:22 19:38	08:13 18:31	08:07 16:40	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	06:26 21:35	05:19 22:00	05:46 21:41	06:34 20:46	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	06:24 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:16	08:10 16:37	08:43 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	06:22 21:37	05:19 22:01	05:49 21:39	06:37 20:42	07:27 19:31	08:02 (1) 08:17 (1)	07:27 19:31	08:44 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	06:20 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29	08:01 (1) 08:19 (1)	07:29 19:30	08:44 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	06:18 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:59 (1) 08:19 (1)	07:30 19:26	08:44 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	06:16 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24	07:58 (1) 08:20 (1)	07:32 19:24	08:45 16:33
29	08:23 17:19	07:22 18:05	06:14 20:57	06:14 20:57	06:14 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22	07:57 (1) 08:20 (1)	07:34 19:22	08:45 16:34
30	08:21 17:21	07:19 20:06	06:12 20:59	06:12 20:59	06:12 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19	07:57 (1) 08:21 (1)	07:35 19:19	08:45 16:35
31	08:20 17:23	07:17 20:08	06:11 20:58	06:11 20:58	06:11 21:45	05:26 22:00	05:57 21:30	06:47 20:29	07:57 (1) 08:21 (1)	07:57 (1) 08:21 (1)	07:35 19:19	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				318				157		162		
Sun reduction				0.35				0.30		0.28		
Oper. time red.				1.00				1.00		1.00		
Wind dir. red.				0.64				0.64		0.64		
Total reduction				0.23				0.19		0.18		
Total, real				73				30		30		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** E - H5**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45	08:18	07:25	07:15	08:57 (1)	06:10
	16:37	17:25	18:16	20:10	42	09:39 (1)
2	08:45	08:17	07:23	07:12	08:57 (1)	06:08
	16:38	17:27	18:18	20:11	41	09:38 (1)
3	08:45	08:15	07:21	07:10	08:57 (1)	06:06
	16:39	17:28	18:20	20:13	41	09:38 (1)
4	08:44	08:13	07:18	07:08	08:28 (2)	06:05
	16:40	17:30	18:21	20:15	42	09:37 (1)
5	08:44	08:12	07:16	07:06	08:22 (2)	06:03
	16:42	17:32	18:23	20:17	52	09:36 (1)
6	08:44	08:10	07:14	07:03	08:20 (2)	06:01
	16:43	17:34	18:25	20:18	55	09:35 (1)
7	08:43	08:08	07:12	07:01	08:18 (2)	05:59
	16:44	17:36	18:27	20:20	56	09:34 (1)
8	08:43	08:07	07:10	06:59	08:17 (2)	05:57
	16:45	17:38	18:29	20:22	56	09:33 (1)
9	08:43	08:05	07:07	06:57	08:15 (2)	05:56
	16:47	17:39	18:30	20:23	55	09:30 (1)
10	08:42	08:03	07:05	06:54	08:15 (2)	05:54
	16:48	17:41	18:32	20:25	53	09:29 (1)
11	08:41	08:01	07:03	06:52	08:14 (2)	05:52
	16:50	17:43	18:34	20:27	51	09:27 (1)
12	08:41	07:59	07:01	06:50	08:14 (2)	05:51
	16:51	17:45	18:36	20:28	46	09:24 (1)
13	08:40	07:58	06:58	06:48	08:14 (2)	05:49
	16:52	17:47	18:37	20:30	40	09:21 (1)
14	08:39	07:56	06:56	06:45	08:13 (2)	05:47
	16:54	17:49	10 09:06 (3)	20:32	28	09:14 (1)
15	08:39	07:54	06:54	06:43	08:13 (2)	05:46
	16:56	17:51	15 09:08 (3)	20:33	24	08:37 (2)
16	08:38	07:52	06:51	06:41	08:13 (2)	05:44
	16:57	17:52	17 09:09 (3)	20:35	23	08:36 (2)
17	08:37	07:50	06:49	06:39	08:14 (2)	05:43
	16:59	17:54	19 09:10 (3)	20:37	21	08:35 (2)
18	08:36	07:48	06:47	06:37	08:15 (2)	05:41
	17:00	17:56	21 09:11 (3)	20:39	19	08:34 (2)
19	08:35	07:46	06:45	06:35	08:16 (2)	05:40
	17:02	17:58	22 09:12 (3)	20:40	16	08:32 (2)
20	08:34	07:44	06:42	06:33	08:18 (2)	05:39
	17:04	18:00	23 09:12 (3)	20:42	12	08:30 (2)
21	08:33	07:42	06:40	06:30	08:21 (2)	05:37
	17:05	18:02	23 09:12 (3)	20:44	6	08:27 (2)
22	08:32	07:40	06:38	06:28		05:36
	17:07	18:03	23 09:12 (3)	20:45		21:33
23	08:30	07:38	06:35	06:26		05:35
	17:09	18:05	22 09:12 (3)	20:47		21:35
24	08:29	07:36	06:33	06:24		05:34
	17:10	18:07	21 09:10 (3)	20:49		21:36
25	08:28	07:34	06:31	06:22		05:32
	17:12	18:09	19 09:09 (3)	20:50		21:37
26	08:27	07:31	06:28	06:20		05:31
	17:14	18:11	17 09:08 (3)	20:52		21:39
27	08:25	07:29	06:26	06:18		05:30
	17:16	18:12	15 09:07 (3)	20:54		21:40
28	08:24	07:27	06:24	06:16		05:29
	17:17	18:14	9 09:04 (3)	20:55		21:41
29	08:23		07:22	06:14		05:28
	17:19		20:05	41		21:42
30	08:21		07:19	06:12		05:27
	17:21		20:06	42		21:44
31	08:20		07:17	06:11		05:26
	17:23		20:08	42		21:45
Potential sun hours	260	278	367	416	485	498
Total, worst case		276	432	779		
Sun reduction		0.21	0.24	0.35		
Oper. time red.		1.00	1.00	1.00		
Wind dir. red.		0.52	0.58	0.61		
Total reduction		0.11	0.14	0.21		
Total, real		29	62	167		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** E - H5**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22	05:59	06:48	08:13 (2)	07:37	07:30
	22:00	21:28	20:26	19:17	17:11	16:31
2	05:23	06:00	06:50	08:14 (2)	07:39	07:32
	21:59	21:26	20:24	19:15	17:09	16:31
3	05:24	06:02	06:51	08:13 (2)	07:40	07:34
	21:59	21:25	20:22	19:13	17:08	16:30
4	05:25	06:03	06:53	08:14 (2)	07:42	07:36
	21:59	21:23	20:20	19:10	17:06	16:29
5	05:25	06:05	06:55	08:14 (2)	07:43	07:37
	21:58	21:21	20:17	19:08	17:04	16:29
6	05:26	06:06	06:56	08:16 (2)	07:45	07:39
	21:58	21:20	20:15	19:06	17:02	16:29
7	05:27	06:08	06:58	08:17 (2)	07:47	07:41
	21:57	21:18	20:13	19:03	17:01	16:28
8	05:28	06:10	06:59	08:22 (2)	07:49	07:43
	21:56	21:16	20:10	19:01	16:59	16:28
9	05:29	06:11	07:01	08:50 (1)	07:50	07:45
	21:56	21:14	20:08	18:59	16:57	16:28
10	05:30	06:13	07:03	08:50 (1)	07:52	07:46
	21:55	21:12	20:06	18:57	16:56	16:27
11	05:31	06:14	07:04	08:50 (1)	07:54	07:48
	21:54	21:10	20:04	18:55	16:54	16:27
12	05:32	06:16	07:06	08:49 (1)	07:55	07:50
	21:53	21:08	20:01	18:52	16:53	16:27
13	05:33	06:18	07:08	08:50 (1)	07:57	07:52
	21:53	21:06	19:59	18:50	16:51	16:27
14	05:34	06:19	07:09	08:49 (1)	07:59	07:53
	21:52	21:04	19:57	18:48	16:50	16:27
15	05:35	06:21	07:11	08:49 (1)	08:00	07:55
	21:51	21:03	19:54	18:46	16:48	16:27
16	05:37	06:22	07:12	08:49 (1)	08:02	07:57
	21:50	21:01	19:52	18:44	16:47	16:27
17	05:38	06:24	07:14	08:50 (1)	08:04	07:59
	21:49	20:58	19:50	18:41	16:46	16:27
18	05:39	06:26	07:16	08:51 (1)	08:06	07:53
	21:48	20:56	19:47	18:39	16:44	16:28
19	05:40	06:27	07:17	08:51 (1)	08:07	07:54
	21:46	20:54	19:45	18:37	16:43	16:28
20	05:42	06:29	07:19	08:52 (1)	08:09	07:56
	21:45	20:52	19:43	18:35	16:42	16:28
21	05:43	06:30	07:20	08:52 (1)	08:11	07:57
	21:44	20:50	19:40	18:33	16:41	16:29
22	05:44	06:32	07:22	08:54 (1)	08:13	07:58
	21:43	20:48	19:38	18:31	16:39	16:29
23	05:46	06:34	07:24	08:56 (1)	08:14	07:59
	21:41	20:46	19:36	18:29	16:38	16:30
24	05:47	06:35	07:25	08:58 (1)	08:16	07:59
	21:40	20:44	19:33	18:27	16:37	16:30
25	05:48	06:37	07:27	07:18	16:36	16:31
	21:39	20:42	19:31	17:25	16:36	16:31
26	05:50	06:38	07:29	07:20	16:33	16:32
	21:37	20:40	19:29	17:23	16:35	16:32
27	05:51	06:40	07:30	07:21	16:34	16:33
	21:36	20:37	19:26	17:21	16:34	16:32
28	05:53	06:42	07:32	07:23	16:35	16:34
	21:34	20:35	19:24	17:19	16:34	16:33
29	05:54	06:43	07:34	07:25	16:35	16:34
	21:33	20:33	19:22	17:17	16:33	16:34
30	05:56	06:45	07:35	07:27	16:34	16:35
	21:31	20:31	19:19	17:15	16:32	16:35
31	05:57	06:47	07:36	07:29	16:33	16:36
	21:30	20:29	19:18	17:13	16:32	16:36
Potential sun hours	501	453	381	332	267	244
Total, worst case		240	984	277		
Sun reduction		0.30	0.28	0.24		
Oper. time red.		1.00	1.00	1.00		
Wind dir. red.		0.62	0.59	0.52		
Total reduction		0.19	0.17	0.12		
Total, real		45	165	34		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** F - H6**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45 16:37	08:18 17:25		07:25 18:16	24	08:30 (3) 20:10		06:10 21:00		07:48 (2) 21:46	
2	08:45 16:38	08:17 17:27		07:23 18:18	24	08:30 (3) 20:11		06:08 21:02	58	07:49 (2) 21:47	
3	08:45 16:39	08:15 17:28		07:21 18:20	24	08:30 (3) 20:13		06:06 21:04	54	07:49 (2) 21:48	
4	08:44 16:40	08:13 17:30		07:18 18:21	23	08:30 (3) 20:15		06:05 21:05	50	07:51 (2) 21:49	
5	08:44 16:42	08:12 17:32		07:16 18:23	22	08:31 (3) 20:17		06:03 21:07	43	07:54 (2) 21:50	
6	08:44 16:43	08:10 17:34		07:14 18:25	20	08:31 (3) 20:18	08:38 (1)	06:01 21:09	35	08:20 (1) 21:51	
7	08:43 16:44	08:08 17:36		07:12 18:27	17	08:32 (3) 20:20	08:43 (1)	05:59 21:10	24	08:44 (1) 21:52	
8	08:43 16:45	08:07 17:38		07:10 18:29	13	08:34 (3) 20:22	08:32 (1)	05:57 21:12	21	08:21 (1) 21:53	
9	08:43 16:47	08:05 17:39		07:07 18:30	6	08:37 (3) 20:23	08:49 (1)	05:56 21:13	16	08:40 (1) 21:54	
10	08:42 16:48	08:03 17:41		07:05 18:32		06:54 20:25	08:53 (1)	05:54 21:15	7	08:35 (1) 21:55	
11	08:41 16:50	08:01 17:43		07:03 18:34		06:52 20:27	08:24 (1)	05:52 21:17			
12	08:41 16:51	07:59 17:45		07:01 18:36		06:50 20:28	08:55 (1)	05:51 21:18			
13	08:40 16:52	07:58 17:47		06:58 18:37		06:48 20:30	08:55 (1)	05:49 21:20			
14	08:39 16:54	07:56 17:49		06:56 18:39		06:45 20:32	08:58 (1)	05:47 21:21			
15	08:39 16:56	07:54 17:51		06:54 18:41		06:43 20:33	08:58 (1)	05:46 21:23			
16	08:38 16:57	07:52 17:52		06:51 18:42		06:41 20:35	08:58 (1)	05:44 21:24			
17	08:37 16:59	07:50 17:54		06:49 18:44		06:39 20:37	08:59 (1)	05:43 21:26			
18	08:36 17:00	07:48 17:56		06:47 18:46		06:37 20:39	08:59 (1)	05:41 21:27			
19	08:35 17:02	07:46 17:58		06:45 18:48		06:35 20:40	08:59 (1)	05:40 21:29			
20	08:34 17:04	07:44 18:00		06:42 18:49		06:33 20:42	08:59 (1)	05:39 21:30			
21	08:33 17:05	07:42 18:02		06:40 18:51		06:30 20:44	08:59 (1)	05:37 21:32			
22	08:32 17:07	07:40 18:03	08:39 (3)	06:38 18:53		06:28 20:45	08:59 (1)	05:36 21:33			
23	08:30 17:09	07:38 18:05	9 08:48 (3)	06:35 18:54		06:26 20:47	08:59 (1)	05:35 21:35			
24	08:29 17:10	07:36 18:07	14 08:51 (3)	06:33 18:56		06:24 20:49	08:58 (1)	05:34 21:36			
25	08:28 17:12	07:34 18:09	17 08:51 (3)	06:31 18:58		06:22 20:50	08:58 (1)	05:32 21:37			
26	08:27 17:14	07:31 18:11	20 08:53 (3)	06:28 19:00		06:20 20:52	08:57 (1)	05:31 21:39			
27	08:25 17:16	07:29 18:12	22 08:54 (3)	06:26 19:01		06:18 20:54	08:56 (1)	05:30 21:40			
28	08:24 17:17	07:27 18:14	23 08:54 (3)	06:24 19:03		06:16 20:55	08:55 (1)	05:29 21:41			
29	08:23 17:19		24 08:55 (3)	07:22 20:05		06:14 20:57	08:55 (1)	05:28 21:42			
30	08:21 17:21			07:19 20:06		06:12 20:59	08:53 (1)	05:27 21:44			
31	08:20 17:23			07:17 20:08			08:52 (1)	05:26 21:45			
Potential sun hours	260	278		367		416		485		498	
Total, worst case											
Sun reduction		129		173		1279		308			
Oper. time red.		0.21		0.24		0.35		0.37			
Wind dir. red.		1.00		1.00		1.00		1.00			
Total reduction		0.55		0.55		0.64		0.64			
Total, real		0.11		0.13		0.23		0.24			
		14		23		289		73			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** F - H6**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 21:28	06:48 20:26	08:21 (1) 07:37	07:30 17:11	08:21 16:31
2	05:23 21:59	06:00 21:26	06:50 20:24	08:23 (1) 07:38	07:32 17:09	08:22 16:31
3	05:24 21:59	06:02 21:25	06:51 20:22	08:24 (1) 07:40	07:34 17:08	08:24 16:30
4	05:25 21:59	06:03 21:23	06:53 20:20	08:26 (1) 07:42	07:36 17:06	08:25 16:29
5	05:25 21:58	06:05 21:21	06:55 20:17	08:33 (1) 07:43	09:12 (3) 07:37	08:26 16:29
6	05:26 21:58	06:06 21:20	06:56 20:15	08:34 (1) 07:45	09:09 (3) 07:39	08:28 16:29
7	05:27 21:57	06:08 21:18	06:58 20:13	08:40 (1) 07:47	09:24 (3) 07:02	08:29 16:28
8	05:28 21:56	06:10 21:16	06:59 20:10	07:49 19:01	09:07 (3) 07:43	08:30 16:28
9	05:29 21:56	06:11 21:14	07:01 20:08	07:50 18:59	09:27 (3) 16:59	08:31 16:28
10	05:30 21:55	06:13 21:12	07:03 20:06	07:52 18:57	09:27 (3) 16:59	08:33 16:27
11	05:31 21:54	06:14 21:10	07:04 20:04	07:54 18:55	09:28 (3) 16:56	08:34 16:27
12	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	09:28 (3) 16:53	08:35 16:27
13	05:33 21:53	06:18 21:06	07:08 19:59	07:57 18:50	09:28 (3) 16:53	08:36 16:27
14	05:34 21:52	06:19 21:04	07:09 19:57	07:59 18:48	09:28 (3) 16:53	08:37 16:27
15	05:35 21:51	06:21 21:03	07:11 19:54	08:00 18:46	09:28 (3) 16:53	08:37 16:27
16	05:37 21:50	06:22 21:01	07:12 19:52	08:02 18:44	09:28 (3) 16:53	08:38 16:27
17	05:38 21:49	06:24 20:58	07:14 19:50	08:04 18:41	09:28 (3) 16:53	08:39 16:27
18	05:39 21:47	06:26 20:56	07:16 19:47	08:06 18:39	09:28 (3) 16:53	08:40 16:28
19	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	09:28 (3) 16:53	08:41 16:28
20	05:42 21:45	06:29 20:52	07:19 19:43	08:09 18:35	09:28 (3) 16:53	08:41 16:28
21	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	09:28 (3) 16:53	08:42 16:29
22	05:44 21:43	06:32 20:48	07:22 19:38	08:13 18:31	09:28 (3) 16:53	08:42 16:29
23	05:46 21:41	06:34 20:46	07:24 19:36	08:14 18:29	09:28 (3) 16:53	08:43 16:30
24	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	09:28 (3) 16:53	08:43 16:30
25	05:48 21:39	06:37 20:42	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	05:50 21:37	06:38 20:40	07:29 19:29	07:20 17:23	08:13 16:35	08:44 16:32
27	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	05:53 21:34	06:42 20:35	07:32 19:24	07:23 17:19	08:17 16:34	08:45 16:33
29	05:54 21:33	06:43 20:33	07:34 19:22	07:25 17:17	08:18 16:33	08:45 16:34
30	05:56 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:20 16:32	08:45 16:35
31	05:57 21:30	06:47 20:29	07:36 19:17	07:29 17:13	08:21 16:31	08:45 16:36
Potential sun hours	501	453	381	332	267	244
Total, worst case		1461	138	302		
Sun reduction		0.30	0.28	0.24		
Oper. time red.		1.00	1.00	1.00		
Wind dir. red.		0.64	0.63	0.55		
Total reduction		0.19	0.18	0.13		
Total, real		277	25	39		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** G - H7

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:45	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:59	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:43	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:54	21:56	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:49	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:18	05:33	06:17	07:07	07:57	07:52	08:36
	16:52	17:47	18:37	20:30	21:20	21:57	21:53	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:04	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:58	19:50	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:29
22	08:32	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:39	22:01	21:37	20:39	19:29	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:17	08:45
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** H - H8

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:23	06:01	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:35	18:26	20:20	21:10	21:52	21:57	21:18	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:27
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:49	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:58	21:50	21:02	19:54	18:45	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:04	08:41
	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:42	18:35	16:41	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:09	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:41	19:31	18:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:52	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:21	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** I - H9**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:23	06:01	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:35	18:26	20:20	21:10	21:52	21:57	21:18	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:27
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:49	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:58	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:04	08:41
	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:42	18:35	16:41	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:52	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:21	05:55	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** J - H10**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	08:18		07:25		16:49 (7)	07:15	18:51 (3)	06:10	19:05 (4)	05:25
	16:37	17:25		18:16	22	17:11 (7)	20:10	19:11 (3)	21:00	19:35 (4)	21:46
2	08:45	08:16		07:23		16:49 (7)	07:12	18:51 (3)	06:08	19:04 (4)	05:24
	16:38	17:26		18:18	23	17:12 (7)	20:11	19:11 (3)	21:02	19:37 (4)	21:47
3	08:44	08:15		07:20		16:49 (7)	07:10	18:52 (3)	06:06	19:03 (4)	05:24
	16:39	17:28		18:19	23	17:12 (7)	20:13	19:10 (3)	21:03	19:37 (4)	21:48
4	08:44	08:13		07:18		16:49 (7)	07:08	18:52 (3)	06:04	19:02 (4)	05:23
	16:40	17:30		18:21	23	17:12 (7)	20:15	19:09 (3)	21:05	19:37 (4)	21:49
5	08:44	08:12		07:16		16:49 (7)	07:05	18:53 (3)	06:03	19:02 (4)	05:22
	16:41	17:32		18:23	23	17:12 (8)	20:16	19:07 (3)	21:07	19:37 (4)	21:50
6	08:44	08:10		07:14		16:50 (7)	07:03	18:55 (3)	06:01	19:02 (4)	05:22
	16:43	17:34		18:25	25	17:15 (8)	20:18	19:05 (3)	21:08	19:38 (4)	21:51
7	08:43	08:08		07:12		16:51 (7)	07:01	18:59 (3)	05:59	19:01 (4)	05:21
	16:44	17:36		18:27	26	17:17 (8)	20:20	19:01 (3)	21:10	19:38 (4)	21:52
8	08:43	08:06		07:09		16:52 (7)	06:59		05:57	19:00 (4)	05:20
	16:45	17:37		18:28	27	17:19 (8)	20:21		21:12	19:38 (4)	21:53
9	08:42	08:05		07:07		16:52 (8)	06:56		05:56	19:01 (4)	05:20
	16:47	17:39		18:30	28	17:20 (8)	20:23		21:13	19:39 (4)	21:53
10	08:42	08:03		07:05		16:51 (8)	06:54		05:54	19:00 (4)	05:19
	16:48	17:41		18:32	30	17:21 (8)	20:25		21:15	19:39 (4)	21:54
11	08:41	08:01		07:03		16:50 (8)	06:52		05:52	19:01 (4)	05:19
	16:49	17:43		18:34	31	17:21 (8)	20:27		21:16	19:39 (4)	21:55
12	08:41	07:59		07:00		16:48 (8)	06:50		05:50	19:01 (4)	05:19
	16:51	17:45		18:35	33	17:21 (8)	20:28		21:18	19:39 (4)	21:56
13	08:40	07:57		06:58		16:48 (8)	06:48		05:49	19:01 (4)	05:19
	16:52	17:47		18:37	34	17:22 (8)	20:30		21:20	19:39 (4)	21:56
14	08:39	07:56		06:56		16:48 (8)	06:45		05:47	19:01 (4)	05:18
	16:54	17:49		18:39	34	17:22 (8)	20:32		21:21	19:38 (4)	21:57
15	08:38	07:54		06:54		16:47 (8)	06:43		05:46	19:02 (4)	05:18
	16:55	17:50		18:41	34	17:21 (8)	20:33		21:23	19:38 (4)	21:57
16	08:37	07:52		06:51		16:47 (8)	06:41		05:44	19:01 (4)	05:18
	16:57	17:52		18:42	34	17:21 (8)	20:35		21:24	19:38 (4)	21:58
17	08:37	07:50		06:49		16:47 (8)	06:39		05:43	19:02 (4)	05:18
	16:59	17:54		18:44	34	17:21 (8)	20:37		21:26	19:38 (4)	21:58
18	08:36	07:48		06:47		16:47 (8)	06:37		05:41	19:03 (4)	05:18
	17:00	17:56		18:46	33	17:20 (8)	20:38		21:27	19:38 (4)	21:59
19	08:35	07:46		06:44		16:47 (8)	06:34		05:40	19:04 (4)	05:18
	17:02	17:58		18:47	32	17:19 (8)	20:40		21:29	19:38 (4)	21:59
20	08:34	07:44		06:42		16:48 (8)	06:32		05:39	19:03 (4)	05:18
	17:03	18:00		18:49	31	17:19 (8)	20:42		21:30	19:36 (4)	22:00
21	08:33	07:42		06:40		16:49 (8)	06:30		05:37	19:04 (4)	05:18
	17:05	18:01		18:51	29	17:18 (8)	20:43		21:32	19:36 (4)	22:00
22	08:31	07:40		06:38		16:49 (8)	06:28		05:36	19:05 (4)	05:18
	17:07	18:03		18:53	27	17:16 (8)	20:45		21:33	19:36 (4)	22:00
23	08:30	07:38		06:35		16:51 (8)	06:26		05:35	19:06 (4)	05:19
	17:09	18:05		18:54	23	17:14 (8)	20:47		21:34	19:35 (4)	22:00
24	08:29	07:35		06:33		16:53 (8)	06:24		05:33	19:07 (4)	05:19
	17:10	18:07	8	17:05 (7)	18:56	17:12 (8)	20:48		21:36	19:35 (4)	22:00
25	08:28	07:33		06:31		16:55 (8)	06:22		05:32	19:08 (4)	05:19
	17:12	18:09	14	17:08 (7)	18:58	18:04 (3)	20:50		21:37	19:34 (4)	22:00
26	08:27	07:31		06:28		17:58 (3)	06:20		05:31	19:09 (4)	05:20
	17:14	18:11	17	17:10 (7)	18:59	18:09 (3)	20:52	13	19:28 (4)	19:34 (4)	22:00
27	08:25	07:29		06:26		17:56 (3)	06:18		05:30	19:10 (4)	05:20
	17:16	18:12	19	17:11 (7)	19:01	18:11 (3)	20:53	18	19:30 (4)	19:33 (4)	22:00
28	08:24	07:27		06:24		17:54 (3)	06:16		05:29	19:11 (4)	05:21
	17:17	18:14	21	17:12 (7)	19:03	18:11 (3)	20:55	23	19:32 (4)	19:32 (4)	22:00
29	08:22			07:21		18:53 (3)	06:14		05:28	19:12 (4)	05:21
	17:19			20:04	19	19:12 (3)	20:57	26	19:33 (4)	19:31 (4)	22:00
30	08:21			07:19		18:52 (3)	06:12		05:27	19:13 (4)	05:22
	17:21			20:06	20	19:12 (3)	20:59	28	19:34 (4)	19:30 (4)	22:00
31	08:19			07:17		18:51 (3)			05:26	19:14 (4)	
	17:23			20:08	20	19:11 (3)			21:45	19:29 (4)	
Potential sun hours	260	278		367		416			485	498	
Total, worst case				796		209			983		18
Sun reduction		0.21		0.24		0.35			0.37		0.30
Oper. time red.		1.00		1.00		1.00			1.00		1.00
Wind dir. red.		0.70		0.69		0.64			0.61		0.61
Total reduction		0.14		0.17		0.23			0.23		0.18
Total, real		11		134		47			222		3

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** J - H10**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:11 (4)	06:48		07:37	17:28 (8)	07:30	08:21	
	22:00		21:28	38	19:49 (4)	20:26	19:17	33	18:01 (8)	17:11	16:31
2	05:23		06:00		19:11 (4)	06:50			17:28 (8)	07:32	08:22
	21:59		21:26	39	19:50 (4)	20:24	19:15	32	18:00 (8)	17:09	16:30
3	05:24		06:02		19:11 (4)	06:51			17:28 (8)	07:34	08:24
	21:59		21:25	38	19:49 (4)	20:22	19:12	31	17:59 (8)	17:08	16:30
4	05:24		06:03		19:10 (4)	06:53			17:29 (8)	07:35	08:25
	21:58		21:23	38	19:48 (4)	20:19	19:10	29	17:58 (8)	17:06	16:29
5	05:25		06:05		19:11 (4)	06:54			17:29 (8)	07:37	08:26
	21:58		21:21	38	19:49 (4)	20:17	1	18:56 (3)	17:56 (8)	17:04	16:29
6	05:26		06:06		19:11 (4)	06:56			17:27 (7)	07:39	08:28
	21:57		21:19	37	19:48 (4)	20:15	10	18:51 (3)	17:54 (8)	17:02	16:28
7	05:27		06:08		19:11 (4)	06:58			17:26 (7)	07:41	08:29
	21:57		21:18	37	19:48 (4)	20:13	14	19:02 (3)	17:52 (8)	17:01	16:28
8	05:28		06:09		19:11 (4)	06:59			17:25 (7)	07:43	08:30
	21:56		21:16	36	19:47 (4)	20:10	17	19:04 (3)	17:50 (8)	16:59	16:28
9	05:29		06:11		19:12 (4)	07:01			17:24 (7)	07:44	08:31
	21:56		21:14	35	19:47 (4)	20:08	19	19:04 (3)	17:46 (7)	16:57	16:27
10	05:30		19:28 (4)	06:13	19:12 (4)	07:03			17:23 (7)	07:46	08:32
	21:55	3	19:31 (4)	21:12	33	19:45 (4)	20:06	20	19:04 (3)	18:57	16:56
11	05:31		19:25 (4)	06:14		19:13 (4)	07:04		18:43 (3)	07:53	16:53
	21:54	10	19:35 (4)	21:10	32	19:45 (4)	20:03	20	19:03 (3)	18:54	16:54
12	05:32		19:23 (4)	06:16		19:13 (4)	07:06		18:43 (3)	07:55	16:53
	21:53	13	19:36 (4)	21:08	30	19:43 (4)	20:01	21	19:04 (3)	18:52	16:53
13	05:33		19:22 (4)	06:17		19:15 (4)	07:07		18:43 (3)	07:57	16:53
	21:52	16	19:38 (4)	21:06	28	19:43 (4)	19:59	20	19:03 (3)	18:50	16:51
14	05:34		19:21 (4)	06:19		19:15 (4)	07:09		18:43 (3)	07:59	16:53
	21:51	18	19:39 (4)	21:04	25	19:40 (4)	19:56	19	19:02 (3)	18:48	16:50
15	05:35		19:20 (4)	06:21		19:17 (4)	07:11		18:44 (3)	08:00	16:53
	21:50	20	19:40 (4)	21:02	22	19:39 (4)	19:54	17	19:01 (3)	18:46	16:48
16	05:36		19:19 (4)	06:22		19:19 (4)	07:12		18:44 (3)	08:02	16:53
	21:49	22	19:41 (4)	21:00	17	19:36 (4)	19:52	15	18:59 (3)	18:43	16:47
17	05:38		19:19 (4)	06:24		19:22 (4)	07:14		18:46 (3)	08:04	16:53
	21:48	24	19:43 (4)	20:58	11	19:33 (4)	19:49	11	18:57 (3)	18:41	16:45
18	05:39		19:18 (4)	06:25		19:15 (4)	07:15		17:44 (8)	08:05	16:48
	21:47	26	19:44 (4)	20:56		19:47	16	18:53 (3)	18:39	6	17:35 (7)
19	05:40		19:17 (4)	06:27		19:17			17:40 (8)	08:07	16:48
	21:46	27	19:44 (4)	20:54		19:45	18	17:58 (8)	18:37		16:43
20	05:42		19:16 (4)	06:29		19:19			17:38 (8)	08:09	16:48
	21:45	29	19:45 (4)	20:52		19:42	22	18:00 (8)	18:35		16:42
21	05:43		19:15 (4)	06:30		19:20			17:35 (8)	08:11	16:48
	21:44	30	19:45 (4)	20:50		19:40	26	18:01 (8)	18:33		16:40
22	05:44		19:15 (4)	06:32		19:22			17:34 (8)	08:12	16:40
	21:43	32	19:47 (4)	20:48		19:38	28	18:02 (8)	18:31		16:39
23	05:46		19:14 (4)	06:33		19:24			17:32 (8)	08:14	16:38
	21:41	33	19:47 (4)	20:46		19:35	30	18:02 (8)	18:29		16:38
24	05:47		19:14 (4)	06:35		19:25			17:31 (8)	08:16	16:37
	21:40	33	19:47 (4)	20:44		19:33	32	18:03 (8)	18:27		16:37
25	05:48		19:14 (4)	06:37		19:27			17:31 (8)	07:18	16:32
	21:38	34	19:48 (4)	20:42		19:31	32	18:03 (8)	17:25		16:36
26	05:50		19:13 (4)	06:38		19:28			17:29 (8)	07:19	16:33
	21:37	35	19:48 (4)	20:39		19:29	34	18:03 (8)	17:23		16:35
27	05:51		19:12 (4)	06:40		19:30			17:29 (8)	07:21	16:31
	21:36	36	19:48 (4)	20:37		19:26	34	18:03 (8)	17:21		16:34
28	05:53		19:13 (4)	06:42		19:32			17:29 (8)	07:23	16:33
	21:34	36	19:49 (4)	20:35		19:24	34	18:03 (8)	17:19		16:33
29	05:54		19:12 (4)	06:43		19:33			17:28 (8)	07:25	16:33
	21:33	37	19:49 (4)	20:33		19:22	34	18:02 (8)	17:17		16:34
30	05:56		19:11 (4)	06:45		19:35			17:28 (8)	07:27	16:34
	21:31	38	19:49 (4)	20:31		19:19	34	18:02 (8)	17:15		16:35
31	05:57		19:12 (4)	06:46					17:28		16:35
	21:29	37	19:49 (4)	20:28					17:13		16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		589		534		578		417			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.61		0.61		0.68		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		96		97		112		69			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** K - H11**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January		February		March		April		May		June	
1	08:45	08:18		07:25		16:59 (7)	07:15	18:54 (3)	06:10	19:04 (4)	05:25
	16:37	17:25		18:16	17	17:16 (7)	20:10	19:13 (3)	21:00	19:37 (4)	21:46
2	08:45	08:16		07:23		16:58 (7)	07:12	18:54 (3)	06:08	19:05 (4)	05:24
	16:38	17:26		18:18	19	17:17 (7)	20:11	19:12 (3)	21:02	19:38 (4)	21:47
3	08:44	08:15		07:20		16:58 (7)	07:10	18:54 (3)	06:06	19:04 (4)	05:24
	16:39	17:28		18:19	20	17:18 (7)	20:13	19:12 (3)	21:03	19:38 (4)	21:48
4	08:44	08:13		07:18		16:57 (7)	07:08	18:54 (3)	06:04	19:04 (4)	05:23
	16:40	17:30		18:21	21	17:18 (7)	20:15	19:10 (3)	21:05	19:37 (4)	21:49
5	08:44	08:12		07:16		16:56 (7)	07:05	18:56 (3)	06:03	19:03 (4)	05:22
	16:41	17:32		18:23	21	17:17 (7)	20:16	19:09 (3)	21:07	19:37 (4)	21:50
6	08:44	08:10		07:14		16:56 (7)	07:03	18:58 (3)	06:01	19:04 (4)	05:22
	16:43	17:34		18:25	21	17:17 (7)	20:18	19:06 (3)	21:08	19:38 (4)	21:51
7	08:43	08:08		07:12		16:57 (7)	07:01		05:59	19:04 (4)	05:21
	16:44	17:36		18:27	20	17:17 (7)	20:20		21:10	19:37 (4)	21:52
8	08:43	08:06		07:09		16:58 (7)	06:59		05:57	19:04 (4)	05:20
	16:45	17:37		18:28	24	17:22 (8)	20:21		21:12	19:37 (4)	21:53
9	08:42	08:05		07:07		16:58 (7)	06:56		05:56	19:04 (4)	05:20
	16:47	17:39		18:30	26	17:24 (8)	20:23		21:13	19:37 (4)	21:53
10	08:42	08:03		07:05		16:59 (7)	06:54		05:54	19:04 (4)	05:19
	16:48	17:41		18:32	27	17:26 (8)	20:25		21:15	19:36 (4)	21:54
11	08:41	08:01		07:03		17:02 (7)	06:52		05:52	19:05 (4)	05:19
	16:49	17:43		18:34	25	17:27 (8)	20:27		21:16	19:36 (4)	21:55
12	08:41	07:59		07:00		17:01 (8)	06:50		05:50	19:05 (4)	05:19
	16:51	17:45		18:35	27	17:28 (8)	20:28		21:18	19:35 (4)	21:56
13	08:40	07:57		06:58		17:01 (8)	06:48		05:49	19:07 (4)	05:18
	16:52	17:47		18:37	28	17:29 (8)	20:30		21:20	19:35 (4)	21:56
14	08:39	07:55		06:56		17:00 (8)	06:45		05:47	19:07 (4)	05:18
	16:54	17:49		18:39	29	17:29 (8)	20:32		21:21	19:34 (4)	21:57
15	08:38	07:54		06:54		16:59 (8)	06:43		05:46	19:08 (4)	05:18
	16:55	17:50		18:41	30	17:29 (8)	20:33		21:23	19:34 (4)	21:57
16	08:37	07:52		06:51		16:58 (8)	06:41		05:44	19:08 (4)	05:18
	16:57	17:52		18:42	31	17:29 (8)	20:35		21:24	19:32 (4)	21:58
17	08:37	07:50		06:49		16:58 (8)	06:39		05:43	19:10 (4)	05:18
	16:59	17:54		18:44	31	17:29 (8)	20:37		21:26	19:32 (4)	21:58
18	08:36	07:48		06:47		16:58 (8)	06:37		05:41	19:11 (4)	05:18
	17:00	17:56		18:46	30	17:28 (8)	20:38		21:27	19:31 (4)	21:59
19	08:35	07:46		06:44		16:58 (8)	06:34		05:40	19:13 (4)	05:18
	17:02	17:58		18:47	30	17:28 (8)	20:40		21:29	19:30 (4)	21:59
20	08:34	07:44		06:42		16:58 (8)	06:32		05:38	19:14 (4)	05:18
	17:03	18:00		18:49	30	17:28 (8)	20:42		21:30	19:27 (4)	22:00
21	08:33	07:42		06:40		16:59 (8)	06:30		05:37	19:17 (4)	05:18
	17:05	18:01		18:51	28	17:27 (8)	20:43		21:32	19:25 (4)	22:00
22	08:31	07:40		06:38		16:59 (8)	06:28		05:36		05:18
	17:07	18:03		18:53	26	17:25 (8)	20:45		21:33		22:00
23	08:30	07:38		06:35		17:00 (8)	06:26	19:17 (4)	05:35		05:19
	17:09	18:05		18:54	24	17:24 (8)	20:47	19:28 (4)	21:34		22:00
24	08:29	07:35		06:33		17:02 (8)	06:24	19:14 (4)	05:33		05:19
	17:10	18:07		18:56	21	17:23 (8)	20:48	19:31 (4)	21:36		22:00
25	08:28	07:33		06:31		17:03 (8)	06:22	19:11 (4)	05:32		05:19
	17:12	18:09		18:58	17	17:20 (8)	20:50	19:33 (4)	21:37		22:00
26	08:26	07:31		06:28		17:06 (8)	06:20	19:10 (4)	05:31		05:20
	17:14	18:11		18:59	19	18:09 (3)	20:52	19:34 (4)	21:38		22:00
27	08:25	07:29		06:26		17:59 (3)	06:18	19:08 (4)	05:30		05:20
	17:16	18:12	11	17:14 (7)	12	18:11 (3)	20:53	19:35 (4)	21:40		22:00
28	08:24	07:27		06:24		17:57 (3)	06:16	19:07 (4)	05:29		05:21
	17:17	18:14	15	17:16 (7)	19:03	18:12 (3)	20:55	19:36 (4)	21:41		22:00
29	08:22			07:21		18:56 (3)	06:14	19:06 (4)	05:28		05:21
	17:19			20:04	17	19:13 (3)	20:57	19:36 (4)	21:42		22:00
30	08:21			07:19		18:55 (3)	06:12	19:05 (4)	05:27		05:22
	17:21			20:06	18	19:13 (3)	20:58	19:36 (4)	21:43		22:00
31	08:19			07:17		18:54 (3)			05:26		
	17:23			20:08	19	19:13 (3)			21:45		
Potential sun hours	260	278		367		416		485		498	
Total, worst case				723		283		578			
Sun reduction		0.21		0.24		0.35		0.37			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.70		0.69		0.63		0.61			
Total reduction		0.14		0.17		0.22		0.23			
Total, real		4		121		63		132			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** K - H11**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December		
1	05:22		05:59		19:16 (4)	06:48		07:37	17:41 (8)	07:30	08:21		
	22:00		21:28	30	19:46 (4)	20:26		19:17	27	18:08 (8)	17:11	16:31	
2	05:23		06:00		19:16 (4)	06:50		07:38		17:41 (8)	07:32	08:22	
	21:59		21:26	31	19:47 (4)	20:24		19:15	25	18:06 (8)	17:09	16:30	
3	05:24		06:02		19:15 (4)	06:51		07:40		17:38 (7)	07:34	08:24	
	21:59		21:25	32	19:47 (4)	20:22		19:12	27	18:05 (8)	17:08	16:30	
4	05:24		06:03		19:14 (4)	06:53		07:42		17:36 (7)	07:35	08:25	
	21:58		21:23	32	19:46 (4)	20:19		19:10	27	18:03 (8)	17:06	16:29	
5	05:25		06:05		19:14 (4)	06:54		07:43		17:34 (7)	07:37	08:26	
	21:58		21:21	33	19:47 (4)	20:17		19:08	25	17:59 (8)	17:04	16:29	
6	05:26		06:06		19:13 (4)	06:56	18:54 (3)	07:45		17:33 (7)	07:39	08:28	
	21:57		21:19	34	19:47 (4)	20:15	8	19:02 (3)	19:06	22	17:55 (8)	17:02	16:28
7	05:27		06:08		19:13 (4)	06:58		18:51 (3)	07:47		17:33 (7)	07:41	08:29
	21:57		21:18	34	19:47 (4)	20:13	13	19:04 (3)	19:03	20	17:53 (7)	17:01	16:28
8	05:28		06:09		19:13 (4)	06:59		18:50 (3)	07:48		17:32 (7)	07:43	08:30
	21:56		21:16	34	19:47 (4)	20:10	15	19:05 (3)	19:01	21	17:53 (7)	16:59	16:28
9	05:29		06:11		19:13 (4)	07:01		18:48 (3)	07:50		17:31 (7)	07:44	08:31
	21:56		21:14	34	19:47 (4)	20:08	17	19:05 (3)	18:59	21	17:52 (7)	16:57	16:27
10	05:30		06:13		19:13 (4)	07:03		18:47 (3)	07:52		17:31 (7)	07:46	08:32
	21:55		21:12	33	19:46 (4)	20:06	19	19:06 (3)	18:57	21	17:52 (7)	16:56	16:27
11	05:31		06:14		19:13 (4)	07:04		18:46 (3)	07:53		17:32 (7)	07:48	08:33
	21:54		21:10	33	19:46 (4)	20:03	19	19:05 (3)	18:54	20	17:52 (7)	16:54	16:27
12	05:32		06:16		19:13 (4)	07:06		18:46 (3)	07:55		17:33 (7)	07:50	08:34
	21:53		21:08	32	19:45 (4)	20:01	19	19:05 (3)	18:52	18	17:51 (7)	16:53	16:27
13	05:33		06:17		19:14 (4)	07:07		18:46 (3)	07:57		17:33 (7)	07:51	08:35
	21:52		21:06	31	19:45 (4)	19:59	19	19:05 (3)	18:50	16	17:49 (7)	16:51	16:27
14	05:34		06:19		19:14 (4)	07:09		18:46 (3)	07:59		17:34 (7)	07:53	08:36
	21:51		21:04	29	19:43 (4)	19:56	17	19:03 (3)	18:48	13	17:47 (7)	16:50	16:27
15	05:35		06:21		19:15 (4)	07:11		18:47 (3)	08:00		17:37 (7)	07:55	08:37
	21:50		21:02	28	19:43 (4)	19:54	15	19:02 (3)	18:46	8	17:45 (7)	16:48	16:27
16	05:36		06:22		19:15 (4)	07:12		18:47 (3)	08:02			07:57	08:38
	21:49		21:00	26	19:41 (4)	19:52	13	19:00 (3)	18:43			16:47	16:27
17	05:38		06:24		19:17 (4)	07:14		17:55 (8)	08:04			07:58	08:39
	21:48		20:58	23	19:40 (4)	19:49	19	18:58 (3)	18:41			16:45	16:27
18	05:39		06:25		19:17 (4)	07:15		17:51 (8)	08:05			08:00	08:40
	21:47		20:56	21	19:38 (4)	19:47	16	18:07 (8)	18:39			16:44	16:27
19	05:40		06:27		19:20 (4)	07:17		17:49 (8)	08:07			08:02	08:40
	21:46		20:54	16	19:36 (4)	19:45	20	18:09 (8)	18:37			16:43	16:28
20	05:42		06:29		19:22 (4)	07:19		17:47 (8)	08:09			08:04	08:41
	21:45		20:52	10	19:32 (4)	19:42	23	18:10 (8)	18:35			16:42	16:28
21	05:43		06:30			07:20		17:45 (8)	08:11			08:05	08:42
	21:44		20:50			19:40	26	18:11 (8)	18:33			16:40	16:29
22	05:44		06:32			07:22		17:44 (8)	08:12			08:07	08:42
	21:42	3	19:33 (4)	20:48		19:38	27	18:11 (8)	18:31			16:39	16:29
23	05:46		06:33			07:24		17:42 (8)	08:14			08:08	08:43
	21:41	11	19:37 (4)	20:46		19:35	29	18:11 (8)	18:29			16:38	16:30
24	05:47		06:35			07:25		17:42 (8)	08:16			08:10	08:43
	21:40	15	19:39 (4)	20:44		19:33	30	18:12 (8)	18:27			16:37	16:30
25	05:48		06:37			07:27		17:41 (8)	07:18			08:12	08:44
	21:38	18	19:41 (4)	20:42		19:31	31	18:12 (8)	17:25			16:36	16:31
26	05:50		06:38			07:28		17:40 (8)	07:19			08:13	08:44
	21:37	21	19:42 (4)	20:39		19:28	31	18:11 (8)	17:23			16:35	16:31
27	05:51		06:40			07:30		17:40 (8)	07:21			08:15	08:44
	21:36	22	19:42 (4)	20:37		19:26	31	18:11 (8)	17:21			16:34	16:32
28	05:53		06:42			07:32		17:40 (8)	07:23			08:16	08:44
	21:34	25	19:44 (4)	20:35		19:24	31	18:11 (8)	17:19			16:33	16:33
29	05:54		06:43			07:33		17:40 (8)	07:25			08:18	08:44
	21:33	26	19:44 (4)	20:33		19:22	29	18:09 (8)	17:17			16:33	16:34
30	05:56		06:45			07:35		17:40 (8)	07:27			08:19	08:45
	21:31	28	19:45 (4)	20:31		19:19	29	18:09 (8)	17:15			16:32	16:35
31	05:57		06:46					07:28					08:45
	21:29	29	19:46 (4)	20:28				17:13					16:36
Potential sun hours	501		453		381		332		267		244		
Total, worst case		198		576		546		311					
Sun reduction		0.27		0.30		0.28		0.24					
Oper. time red.		1.00		1.00		1.00		1.00					
Wind dir. red.		0.61		0.61		0.68		0.69					
Total reduction		0.16		0.18		0.19		0.16					
Total, real		33		105		105		51					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** L - H12**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	07:25				07:15	18:14 (8)	06:10	19:17 (4)	05:25	
	16:37	17:25	18:16				20:10	14 18:28 (8)	21:00	21 19:38 (4)	21:46	
2	08:45	08:16	07:23				07:12	18:18 (8)	06:08	19:16 (4)	05:24	
	16:38	17:26	18:18				20:11	6 18:24 (8)	21:02	24 19:40 (4)	21:47	
3	08:44	08:15	07:20				07:10		06:06	19:15 (4)	05:24	
	16:39	17:28	18:19				20:13		21:03	25 19:40 (4)	21:48	
4	08:44	08:13	07:18			17:13 (7)	07:08		06:04	19:14 (4)	05:23 (4)	
	16:40	17:30	18:21	6		17:19 (7)	20:15		21:05	27 19:41 (4)	21:49	
5	08:44	08:12	07:16			17:09 (7)	07:05		06:03	19:13 (4)	05:22	
	16:41	17:32	18:23	12		17:21 (7)	20:16		21:07	28 19:41 (4)	21:50	
6	08:44	08:10	07:14			17:07 (7)	07:03		06:01	19:13 (4)	05:22	
	16:43	17:34	18:25	16		17:23 (7)	20:18		21:08	29 19:42 (4)	21:51	
7	08:43	08:08	07:12			17:06 (7)	07:01		05:59	19:12 (4)	05:21	
	16:44	17:36	18:27	18		17:24 (7)	20:20		21:10	30 19:42 (4)	21:52	
8	08:43	08:06	07:09			17:06 (7)	06:59		05:57	19:12 (4)	05:20	
	16:45	17:37	18:28	19		17:25 (7)	20:21		21:12	30 19:42 (4)	21:53	
9	08:42	08:05	07:07			17:04 (7)	06:56		05:56	19:12 (4)	05:20	
	16:47	17:39	18:30	20		17:24 (7)	20:23		21:13	31 19:43 (4)	21:53	
10	08:42	08:03	07:05			17:04 (7)	06:54		05:54	19:11 (4)	05:19	
	16:48	17:41	18:32	20		17:24 (7)	20:25		21:15	32 19:43 (4)	21:54	
11	08:41	08:01	07:03			17:04 (7)	06:52		05:52	19:12 (4)	05:19	
	16:49	17:43	18:34	20		17:24 (7)	20:26		21:16	31 19:43 (4)	21:55	
12	08:41	07:59	07:00			17:04 (7)	06:50		05:50	19:12 (4)	05:19	
	16:51	17:45	18:35	19		17:23 (7)	20:28		21:18	31 19:43 (4)	21:56	
13	08:40	07:57	06:58			17:04 (7)	06:47		05:49	19:12 (4)	05:18	
	16:52	17:47	18:37	19		17:23 (7)	20:30		21:20	31 19:43 (4)	21:56	
14	08:39	07:55	06:56			17:05 (7)	06:45		05:47	19:12 (4)	05:18	
	16:54	17:49	18:39	17		17:22 (7)	20:32		21:21	30 19:42 (4)	21:57	
15	08:38	07:54	06:54			17:06 (7)	06:43		05:46	19:13 (4)	05:18	
	16:55	17:50	18:41	18		17:27 (8)	20:33		21:23	29 19:42 (4)	21:57	
16	08:37	07:52	06:51			17:08 (7)	06:41		05:44	19:12 (4)	05:18	
	16:57	17:52	18:42	23		17:32 (8)	20:35		21:24	30 19:42 (4)	21:58	
17	08:37	07:50	06:49			17:16 (8)	06:39		05:43	19:13 (4)	05:18	
	16:59	17:54	18:44	18		17:34 (8)	20:37		21:26	29 19:42 (4)	21:58	
18	08:36	07:48	06:47			17:13 (8)	06:37		05:41	19:14 (4)	05:18	
	17:00	17:56	18:46	22		17:35 (8)	20:38		21:27	27 19:41 (4)	21:59	
19	08:35	07:46	06:44			17:12 (8)	06:34		05:40	19:15 (4)	05:18	
	17:02	17:58	18:47	24		17:36 (8)	20:40		21:29	26 19:41 (4)	21:59	
20	08:34	07:44	06:42			17:11 (8)	06:32		05:38	19:15 (4)	05:18	
	17:03	18:00	18:49	26		17:37 (8)	20:42		21:30	25 19:40 (4)	22:00	
21	08:33	07:42	06:40			17:09 (8)	06:30		05:37	19:16 (4)	05:18	
	17:05	18:01	18:51	28		17:37 (8)	20:43		21:32	24 19:40 (4)	22:00	
22	08:31	07:40	06:38			17:09 (8)	06:28		05:36	19:17 (4)	05:18	
	17:07	18:03	18:53	28		17:37 (8)	20:45		21:33	22 19:39 (4)	22:00	
23	08:30	07:38	06:35			17:09 (8)	06:26		05:35	19:18 (4)	05:19	
	17:09	18:05	18:54	29		17:38 (8)	20:47		21:34	20 19:38 (4)	22:00	
24	08:29	07:35	06:33			17:09 (8)	06:24		05:33	19:19 (4)	05:19	
	17:10	18:07	18:56	29		17:38 (8)	20:48		21:36	19 19:38 (4)	22:00	
25	08:28	07:33	06:31			17:08 (8)	06:22		05:32	19:20 (4)	05:19	
	17:12	18:09	18:58	29		17:37 (8)	20:50		21:37	17 19:37 (4)	22:00	
26	08:26	07:31	06:28			17:08 (8)	06:20		05:31	19:22 (4)	05:20	
	17:14	18:11	18:59	29		17:37 (8)	20:52		21:38	13 19:35 (4)	22:00	
27	08:25	07:29	06:26			17:09 (8)	06:18		05:30	19:24 (4)	05:20	
	17:16	18:12	19:01	27		17:36 (8)	20:53		21:40	10 19:34 (4)	22:00	
28	08:24	07:27	06:24			17:08 (8)	06:16		19:26 (4)	05:29	19:27 (4)	
	17:17	18:14	19:03	27		17:35 (8)	20:55	4	19:30 (4)	21:41	4 19:31 (4)	
29	08:22		07:21			18:09 (8)	06:14		19:21 (4)	05:28	05:21	
	17:19		20:04	25		18:34 (8)	20:57	14	19:35 (4)	21:42	22:00	
30	08:21		07:19			18:11 (8)	06:12		19:19 (4)	05:27	05:22	
	17:21		20:06	21		18:32 (8)	20:58	17	19:36 (4)	21:43	22:00	
31	08:19		07:17			18:11 (8)			05:26			
	17:23		20:08	19		18:30 (8)			21:45			
Potential sun hours	260	278	367				416			485		498
Total, worst case				608				55		695		
Sun reduction				0.24				0.35		0.37		
Oper. time red.				1.00				1.00		1.00		
Wind dir. red.				0.69				0.63		0.60		
Total reduction				0.17				0.22		0.22		
Total, real				102				12		155		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** L - H12**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:22 (4)	06:48		07:37	17:44 (7)	07:30	08:21	
	21:59		21:28	31 19:53 (4)	20:26		19:17	19 18:03 (7)	17:11	16:31	
2	05:23		06:00	19:22 (4)	06:50		07:38	17:42 (7)	07:32	08:22	
	21:59		21:26	32 19:54 (4)	20:24		19:15	20 18:02 (7)	17:09	16:30	
3	05:24		06:02	19:22 (4)	06:51		07:40	17:42 (7)	07:34	08:24	
	21:59		21:25	31 19:53 (4)	20:22		19:12	20 18:02 (7)	17:08	16:30	
4	05:24		06:03	19:21 (4)	06:53		07:42	17:42 (7)	07:35	08:25	
	21:58		21:23	31 19:52 (4)	20:19		19:10	20 18:02 (7)	17:06	16:29	
5	05:25		06:05	19:22 (4)	06:54		07:43	17:41 (7)	07:37	08:26	
	21:58		21:21	31 19:53 (4)	20:17		19:08	20 18:01 (7)	17:04	16:29	
6	05:26		06:06	19:22 (4)	06:56		07:45	17:42 (7)	07:39	08:28	
	21:57		21:19	30 19:52 (4)	20:15		19:06	18 18:00 (7)	17:02	16:28	
7	05:27		06:08	19:23 (4)	06:58		07:47	17:43 (7)	07:41	08:29	
	21:57		21:18	29 19:52 (4)	20:13		19:03	16 17:59 (7)	17:01	16:28	
8	05:28		06:09	19:23 (4)	06:59		07:48	17:44 (7)	07:43	08:30	
	21:56		21:16	27 19:50 (4)	20:10		19:01	14 17:58 (7)	16:59	16:28	
9	05:29		06:11	19:24 (4)	07:01		07:50	17:45 (7)	07:44	08:31	
	21:56		21:14	26 19:50 (4)	20:08		18:59	10 17:55 (7)	16:57	16:27	
10	05:30		06:13	19:24 (4)	07:03		07:52		07:46	08:32	
	21:55		21:12	25 19:49 (4)	20:06	4	18:12 (8)		16:56	16:27	
11	05:31		06:14	19:25 (4)	07:04		18:06 (8)		07:48	08:33	
	21:54		21:10	23 19:48 (4)	20:03	14	18:20 (8)		16:54	16:27	
12	05:32		06:16	19:26 (4)	07:06		18:04 (8)		07:50	08:34	
	21:53		21:08	20 19:46 (4)	20:01	18	18:22 (8)		16:53	16:27	
13	05:33		06:17	19:28 (4)	07:07		18:02 (8)		07:51	08:35	
	21:52		21:06	17 19:45 (4)	19:59	22	18:24 (8)		16:51	16:27	
14	05:34		06:19	19:30 (4)	07:09		18:00 (8)		07:53	08:36	
	21:51		21:04	11 19:41 (4)	19:56	24	18:24 (8)		16:50	16:27	
15	05:35		06:21		07:11		17:59 (8)		08:00	08:37	
	21:50		21:02		19:54	26	18:25 (8)		16:48	16:27	
16	05:36	19:33 (4)	06:22		07:12		17:57 (8)		08:02	08:38	
	21:49	8 19:41 (4)	21:00		19:52	27	18:24 (8)		16:47	16:27	
17	05:38	19:32 (4)	06:24		07:14		17:57 (8)		08:04	08:39	
	21:48	12 19:44 (4)	20:58		19:49	28	18:25 (8)		16:45	16:27	
18	05:39	19:31 (4)	06:25		07:15		17:55 (8)		08:05	08:40	
	21:47	15 19:46 (4)	20:56		19:47	29	18:24 (8)		16:44	16:27	
19	05:40	19:29 (4)	06:27		07:17		17:55 (8)		08:07	08:40	
	21:46	18 19:47 (4)	20:54		19:45	29	18:24 (8)		16:43	16:28	
20	05:42	19:28 (4)	06:29		07:19		17:55 (8)		08:09	08:41	
	21:45	20 19:48 (4)	20:52		19:42	29	18:24 (8)		16:42	16:28	
21	05:43	19:27 (4)	06:30		07:20		17:55 (8)		08:11	08:42	
	21:44	21 19:48 (4)	20:50		19:40	28	18:23 (8)		16:40	16:29	
22	05:44	19:27 (4)	06:32		07:22		17:55 (8)		08:12	08:42	
	21:42	23 19:50 (4)	20:48		19:38	28	18:23 (8)		16:39	16:29	
23	05:46	19:26 (4)	06:33		07:24		17:54 (8)		08:14	08:43	
	21:41	24 19:50 (4)	20:46		19:35	27	18:21 (8)		16:38	16:30	
24	05:47	19:25 (4)	06:35		07:25		17:55 (8)		08:16	08:43	
	21:40	26 19:51 (4)	20:44		19:33	25	18:20 (8)		16:37	16:30	
25	05:48	19:25 (4)	06:37		07:27		17:56 (8)		07:18	08:43	
	21:38	27 19:52 (4)	20:42		19:31	23	18:19 (8)		17:25	16:31	
26	05:50	19:24 (4)	06:38		07:28		17:57 (8)		07:19	08:44	
	21:37	28 19:52 (4)	20:39		19:28	20	18:17 (8)		17:23	16:31	
27	05:51	19:23 (4)	06:40		07:30		17:51 (7)		07:21	08:44	
	21:36	29 19:52 (4)	20:37		19:26	23	18:15 (8)		17:21	16:32	
28	05:53	19:24 (4)	06:42		07:32		17:48 (7)		07:23	08:44	
	21:34	29 19:53 (4)	20:35		19:24	22	18:11 (8)		17:19	16:33	
29	05:54	19:23 (4)	06:43		07:33		17:46 (7)		07:25	08:44	
	21:33	30 19:53 (4)	20:33		19:22	15	18:01 (7)		17:17	16:34	
30	05:56	19:22 (4)	06:45		07:35		17:44 (7)		07:27	08:45	
	21:31	31 19:53 (4)	20:31		19:19	18	18:02 (7)		17:15	16:35	
31	05:57	19:23 (4)	06:46				07:28			08:45	
	21:29	30 19:53 (4)	20:28				17:13			16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case		371		364	479		157				
Sun reduction		0.27		0.30	0.28		0.24				
Oper. time red.		1.00		1.00	1.00		1.00				
Wind dir. red.		0.60		0.60	0.68		0.69				
Total reduction		0.16		0.18	0.19		0.16				
Total, real		60		65	93		26				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** M - H13**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	16:37	08:18	17:25	18:16	07:25	18:21	19:16	07:15	18:15 (8)	19:10	06:10	18:15 (8)	19:05	05:25	19:29 (4)	
2	08:45	16:38	08:16	17:26	18:18	07:23	18:21	19:18	07:12	18:16 (8)	19:12	06:08	18:16 (8)	19:07	05:24	19:30 (4)	
3	08:44	16:39	08:15	17:28	18:19	07:20	18:21	19:20	07:10	18:17 (8)	19:14	06:06	18:17 (8)	19:09	05:24	19:31 (4)	
4	08:44	16:40	08:13	17:30	18:21	07:18	18:21	19:22	07:08	18:18 (8)	19:16	06:04	18:18 (8)	19:11	05:23	19:35 (4)	
5	08:44	16:41	08:12	17:32	18:23	07:16	18:23	19:24	07:05	18:20 (8)	19:18	06:03	18:20 (8)	19:13	05:22	19:38 (4)	
6	08:44	16:43	08:10	17:34	18:25	07:14	18:25	19:26	07:03	18:24 (8)	19:20	06:01	18:24 (8)	19:15	05:22		
7	08:43	16:44	08:08	17:36	18:27	07:12	18:27	19:28	07:01	17:23 (7)	18:22	05:59	17:23 (7)	18:21	05:21		
8	08:43	16:45	08:06	17:37	18:28	07:09	18:28	19:30	06:59	17:14 (7)	18:23	05:57	17:14 (7)	18:24	05:20		
9	08:42	16:47	08:05	17:39	18:30	07:07	18:30	19:32	06:56	17:12 (7)	18:25	05:56	17:12 (7)	18:26	05:20		
10	08:42	16:48	08:03	17:41	18:32	07:05	18:32	19:34	06:54	17:11 (7)	18:27	05:54	17:11 (7)	18:28	05:19		
11	08:41	16:49	08:01	17:43	18:34	07:03	18:34	19:36	06:52	17:10 (7)	18:29	05:52	17:10 (7)	18:30	05:19		
12	08:41	16:51	07:59	17:45	18:35	07:00	18:35	19:38	06:50	17:09 (7)	18:31	05:50	17:09 (7)	18:32	05:19		
13	08:40	16:52	07:57	17:47	18:37	06:58	18:37	19:40	06:47	17:09 (7)	18:33	05:49	17:09 (7)	18:34	05:18		
14	08:39	16:54	07:55	17:49	18:39	06:56	18:39	19:42	06:45	17:09 (7)	18:35	05:47	17:09 (7)	18:36	05:18		
15	08:38	16:55	07:54	17:50	18:41	06:54	18:41	19:44	06:43	17:08 (7)	18:37	05:46	17:08 (7)	18:38	05:18		
16	08:37	16:57	07:52	17:52	18:42	06:51	18:42	19:46	06:41	17:07 (7)	18:39	05:44	17:07 (7)	18:40	05:18		
17	08:37	16:59	07:50	17:54	18:44	06:49	18:44	19:48	06:39	17:10 (7)	18:41	05:43	17:10 (7)	18:42	05:18		
18	08:36	17:00	07:48	17:56	18:46	06:47	18:46	19:50	06:37	17:11 (7)	18:43	05:41	17:11 (7)	18:44	05:18		
19	08:35	17:02	07:46	17:58	18:47	06:44	18:47	19:52	06:34	17:13 (7)	18:45	05:40	17:13 (7)	18:46	05:18		
20	08:34	17:03	07:44	18:00	18:49	06:42	18:49	19:54	06:32	17:33 (8)	18:47	05:38	17:33 (8)	18:48	05:18		
21	08:33	17:05	07:42	18:01	18:51	06:40	18:51	19:56	06:30	17:25 (8)	18:49	05:37	17:25 (8)	18:50	05:18		
22	08:31	17:07	07:40	18:03	18:53	06:38	18:53	19:58	06:28	17:38 (8)	18:51	05:36	17:38 (8)	18:52	05:18		
23	08:30	17:09	07:38	18:05	18:55	06:35	18:55	20:00	06:26	17:41 (8)	18:53	05:35	17:41 (8)	18:54	05:19		
24	08:29	17:10	07:35	18:07	18:56	06:33	18:56	20:02	06:24	17:19 (8)	18:55	05:33	17:19 (8)	18:56	05:19		
25	08:28	17:12	07:33	18:09	18:58	06:31	18:58	20:04	06:22	17:43 (8)	18:57	05:32	17:43 (8)	18:58	05:19		
26	08:26	17:14	07:31	18:11	18:59	06:28	18:59	20:06	06:20	17:16 (8)	18:59	05:31	17:16 (8)	18:59	05:20		
27	08:25	17:16	07:29	18:12	19:01	06:26	19:01	20:08	06:18	17:44 (8)	19:01	05:30	17:44 (8)	19:02	05:20		
28	08:24	17:17	07:27	18:14	19:03	06:24	19:03	20:10	06:16	17:15 (8)	19:03	05:29	17:15 (8)	19:04	05:21		
29	08:22	17:19	07:25	18:16	19:05	06:22	19:05	20:12	06:14	17:14 (8)	19:05	05:28	17:14 (8)	19:06	05:21		
30	08:21	17:21	07:23	18:18	19:07	06:20	19:07	20:14	06:12	18:14 (8)	19:07	05:27	18:14 (8)	19:08	05:22		
31	08:19	17:23	07:21	18:20	19:09	06:18	19:09	20:16	06:10	18:14 (8)	19:09	05:26	18:14 (8)	19:10	05:22		
Potential sun hours	260	278	367						416			485			498		
Total, worst case						503			108			738			37		
Sun reduction						0.24			0.35			0.37			0.30		
Oper. time red.						1.00			1.00			1.00			1.00		
Wind dir. red.						0.68			0.68			0.60			0.60		
Total reduction						0.17			0.24			0.22			0.18		
Total, real						84			26			163			7		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** M - H13**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:29 (4)	06:48		07:37	17:48 (7)	07:30	08:21	
	21:59		21:28	29	19:58 (4)	20:26	19:17	21	18:09 (7)	17:11	16:31
2	05:23		06:00		19:30 (4)	06:50			17:48 (7)	07:32	08:22
	21:59		21:26	29	19:59 (4)	20:24	19:15	19	18:07 (7)	17:09	16:30
3	05:24		06:02		19:30 (4)	06:51			17:48 (7)	07:34	08:24
	21:59		21:25	28	19:58 (4)	20:22	19:12	19	18:07 (7)	17:08	16:30
4	05:24		06:03		19:30 (4)	06:53			17:49 (7)	07:35	08:25
	21:58		21:23	27	19:57 (4)	20:19	19:10	17	18:06 (7)	17:06	16:29
5	05:25		06:05		19:31 (4)	06:54			17:50 (7)	07:37	08:26
	21:58		21:21	25	19:56 (4)	20:17	19:08	13	18:03 (7)	17:04	16:29
6	05:26		06:06		19:31 (4)	06:56	18:21 (8)		17:52 (7)	07:39	08:28
	21:57		21:19	24	19:55 (4)	20:15	18:25 (8)	9	18:01 (7)	17:02	16:28
7	05:27		06:08		19:32 (4)	06:58	18:15 (8)			07:41	08:29
	21:57		21:18	22	19:54 (4)	20:13	18:29 (8)			17:01	16:28
8	05:28		06:09		19:33 (4)	06:59	18:13 (8)			07:43	08:30
	21:56		21:16	19	19:52 (4)	20:10	18:31 (8)			16:59	16:28
9	05:29		19:40 (4)		19:35 (4)	07:01	18:11 (8)			07:50	08:31
	21:56	6	19:46 (4)	16	19:51 (4)	20:08	18:31 (8)			16:57	16:27
10	05:30		19:38 (4)		19:37 (4)	07:03	18:09 (8)			07:52	08:32
	21:55	10	19:48 (4)	11	19:48 (4)	20:06	18:33 (8)			16:56	16:27
11	05:31		19:37 (4)			07:04	18:07 (8)			07:53	08:33
	21:54	13	19:50 (4)			20:03	18:33 (8)			16:54	16:27
12	05:32		19:36 (4)			07:06	18:07 (8)			07:55	08:34
	21:53	15	19:51 (4)			20:01	18:33 (8)			16:53	16:27
13	05:33		19:35 (4)			07:07	18:06 (8)			07:57	08:35
	21:52	17	19:52 (4)			20:06	18:34 (8)			16:51	16:27
14	05:34		19:34 (4)			07:09	18:05 (8)			07:59	08:36
	21:51	19	19:53 (4)			20:04	18:33 (8)			16:50	16:27
15	05:35		19:33 (4)			07:11	18:05 (8)			08:00	08:37
	21:50	21	19:54 (4)			20:02	18:33 (8)			16:48	16:27
16	05:36		19:33 (4)			07:12	18:04 (8)			08:02	08:38
	21:49	21	19:54 (4)			20:00	18:32 (8)			16:47	16:27
17	05:38		19:33 (4)			07:14	18:04 (8)			08:04	08:39
	21:48	23	19:56 (4)			20:08	18:32 (8)			16:45	16:27
18	05:39		19:32 (4)			07:15	18:03 (8)			08:05	08:40
	21:47	24	19:56 (4)			20:06	18:31 (8)			16:44	16:27
19	05:40		19:31 (4)			07:17	18:04 (8)			08:07	08:40
	21:46	26	19:57 (4)			20:04	18:30 (8)			16:43	16:28
20	05:42		19:31 (4)			07:19	18:05 (8)			08:09	08:41
	21:45	26	19:57 (4)			20:02	18:29 (8)			16:42	16:28
21	05:43		19:30 (4)			07:20	18:05 (8)			08:11	08:42
	21:44	27	19:57 (4)			20:00	18:27 (8)			16:40	16:29
22	05:44		19:30 (4)			07:22	18:06 (8)			08:12	08:42
	21:42	28	19:58 (4)			20:08	18:26 (8)			16:39	16:29
23	05:46		19:30 (4)			07:24	18:07 (8)			08:14	08:43
	21:41	28	19:58 (4)			20:06	18:23 (8)			16:38	16:30
24	05:47		19:29 (4)			07:25	17:58 (7)			08:16	08:43
	21:40	29	19:58 (4)			20:04	18:19 (8)			16:37	16:30
25	05:48		19:30 (4)			07:27	17:55 (7)			07:18	08:43
	21:38	29	19:59 (4)			20:02	18:07 (7)			17:25	16:31
26	05:50		19:29 (4)			07:28	17:52 (7)			07:19	08:44
	21:37	30	19:59 (4)			20:03	18:07 (7)			17:23	16:31
27	05:51		19:29 (4)			07:30	17:51 (7)			07:21	08:44
	21:36	30	19:59 (4)			20:07	18:08 (7)			17:21	16:32
28	05:53		19:29 (4)			07:32	17:50 (7)			07:23	08:44
	21:34	31	20:00 (4)			20:05	18:09 (7)			17:19	16:33
29	05:54		19:29 (4)			07:33	17:49 (7)			07:25	08:44
	21:33	30	19:59 (4)			20:03	18:08 (7)			17:17	16:34
30	05:56		19:28 (4)			07:35	17:48 (7)			07:27	08:45
	21:31	31	19:59 (4)			20:01	18:09 (7)			17:15	16:35
31	05:57		19:29 (4)			07:36	17:47 (7)			07:28	08:45
	21:29	30	19:59 (4)			20:08	17:13			16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case		544		230		524		98			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.60		0.60		0.68		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		87		41		101		16			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** N - H14**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45		08:18			07:25			17:09 (7)	07:15		06:10			19:05 (4)	05:25	
	16:37		17:25			18:16		8	17:17 (7)	20:10		21:00	31	19:36 (4)	21:46		
2	08:45		08:16			07:23			17:06 (7)	07:12		06:08			19:06 (4)	05:24	
	16:38		17:26			18:18		14	17:20 (7)	20:11		21:02	31	19:37 (4)	21:47		
3	08:44		08:15			07:20			17:05 (7)	07:10		06:06			19:06 (4)	05:24	
	16:39		17:28			18:19		16	17:21 (7)	20:13		21:03	30	19:36 (4)	21:48		
4	08:44		08:13			07:18			17:04 (7)	07:08		06:04			19:06 (4)	05:23	
	16:40		17:30			18:21		18	17:22 (7)	20:15		21:05	30	19:36 (4)	21:49		
5	08:44		08:12			07:16			17:03 (7)	07:05		06:03			19:06 (4)	05:22	
	16:41		17:32			18:23		19	17:22 (7)	20:16		21:07	29	19:35 (4)	21:50		
6	08:44		08:10			07:14			17:02 (7)	07:03		06:01			19:07 (4)	05:22	
	16:43		17:34			18:25		20	17:22 (7)	20:18		21:08	28	19:35 (4)	21:51		
7	08:43		08:08			07:12			17:02 (7)	07:01		05:59			19:07 (4)	05:21	
	16:44		17:36			18:27		20	17:22 (7)	20:20		21:10	28	19:35 (4)	21:52		
8	08:43		08:06			07:09			17:03 (7)	06:59		05:57			19:07 (4)	05:20	
	16:45		17:37			18:28		19	17:22 (7)	20:21		21:12	27	19:34 (4)	21:53		
9	08:42		08:05			07:07			17:02 (7)	06:56		05:56			19:08 (4)	05:20	
	16:47		17:39			18:30		19	17:21 (7)	20:23		21:13	25	19:33 (4)	21:53		
10	08:42		08:03			07:05			17:03 (7)	06:54		05:54			19:09 (4)	05:19	
	16:48		17:41			18:32		23	17:26 (8)	20:25		21:15	23	19:32 (4)	21:54		
11	08:41		08:01			07:03			17:04 (7)	06:52		05:52			19:10 (4)	05:19	
	16:49		17:43			18:34		25	17:29 (8)	20:26		21:16	22	19:32 (4)	21:55		
12	08:41		07:59			07:00			17:05 (7)	06:50		05:50			19:11 (4)	05:19	
	16:51		17:45			18:35		26	17:31 (8)	20:28		21:18	19	19:30 (4)	21:56		
13	08:40		07:57			06:58			17:09 (7)	06:47		05:49			19:13 (4)	05:18	
	16:52		17:47			18:37		23	17:32 (8)	20:30		21:20	16	19:29 (4)	21:56		
14	08:39		07:55			06:56			17:09 (8)	06:45		05:47			19:14 (4)	05:18	
	16:54		17:49			18:39		25	17:34 (8)	20:32		21:21	13	19:27 (4)	21:57		
15	08:38		07:54			06:54			17:08 (8)	06:43		05:46			19:17 (4)	05:18	
	16:55		17:50			18:41		25	17:33 (8)	20:33		21:23	8	19:25 (4)	21:57		
16	08:37		07:52			06:51			17:07 (8)	06:41		05:44				05:18	
	16:57		17:52			18:42		27	17:34 (8)	20:35		21:24				21:58	
17	08:37		07:50			06:49			17:07 (8)	06:39		05:43				05:18	
	16:59		17:54			18:44		28	17:35 (8)	20:37		21:26				21:58	
18	08:36		07:48			06:47			17:06 (8)	06:37		05:41				05:18	
	17:00		17:56			18:46		28	17:34 (8)	20:38		21:27				21:59	
19	08:35		07:46			06:44			17:06 (8)	06:34		05:40				05:18	
	17:02		17:58			18:47		28	17:34 (8)	20:40		21:29				21:59	
20	08:34		07:44			06:42			17:06 (8)	06:32		05:38				05:18	
	17:03		18:00			18:49		28	17:34 (8)	20:42		21:30				22:00	
21	08:33		07:42			06:40			17:05 (8)	06:30		19:18 (4)	05:37			05:18	
	17:05		18:01			18:51		27	17:32 (8)	20:43	10	19:28 (4)	21:32			22:00	
22	08:31		07:40			06:38			17:06 (8)	06:28		19:15 (4)	05:36			05:18	
	17:07		18:03			18:53		26	17:32 (8)	20:45	15	19:30 (4)	21:33			22:00	
23	08:30		07:38			06:35			17:07 (8)	06:26		19:13 (4)	05:35			05:19	
	17:09		18:05			18:54		24	17:31 (8)	20:47	19	19:32 (4)	21:34			22:00	
24	08:29		07:35			06:33			17:08 (8)	06:24		19:11 (4)	05:33			05:19	
	17:10		18:07			18:56		22	17:30 (8)	20:48	22	19:33 (4)	21:36			22:00	
25	08:28		07:33			06:31			17:08 (8)	06:22		19:10 (4)	05:32			05:19	
	17:12		18:09			18:58		20	17:28 (8)	20:50	24	19:34 (4)	21:37			22:00	
26	08:26		07:31			06:28			17:10 (8)	06:20		19:09 (4)	05:31			05:20	
	17:14		18:11			18:59		16	17:26 (8)	20:52	26	19:35 (4)	21:38			22:00	
27	08:25		07:29			06:26			17:14 (8)	06:18		19:08 (4)	05:30			05:20	
	17:16		18:12			19:01		9	17:23 (8)	20:53	28	19:36 (4)	21:40			22:00	
28	08:24		07:27			06:24				06:16		19:07 (4)	05:29			05:21	
	17:17		18:14			19:03				20:55	29	19:36 (4)	21:41			22:00	
29	08:22					07:21				06:14		19:06 (4)	05:28			05:21	
	17:19					20:04				20:57	30	19:36 (4)	21:42			22:00	
30	08:21					07:19				06:12		19:06 (4)	05:27			05:22	
	17:21					20:06				20:58	30	19:36 (4)	21:43			22:00	
31	08:19					07:17						05:26					
	17:23					20:08						21:45					
Potential sun hours	260		278			367			416			485			498		
Total, worst case						583			233			360					
Sun reduction						0.24			0.35			0.37					
Oper. time red.						1.00			1.00			1.00					
Wind dir. red.						0.69			0.62			0.62					
Total reduction						0.17			0.22			0.23					
Total, real						98			51			82					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** N - H14**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:21 (4)	06:48		07:37	17:46 (7)	07:30	08:21	
	21:59		21:28	20	19:41 (4)	20:26	19:17	25	18:11 (8)	17:11	16:31
2	05:23		06:00		19:20 (4)	06:50	07:38		17:43 (7)	07:32	08:22
	21:59		21:26	23	19:43 (4)	20:24	19:15	25	18:08 (8)	17:09	16:30
3	05:24		06:02		19:19 (4)	06:51	07:40		17:41 (7)	07:34	08:24
	21:59		21:25	24	19:43 (4)	20:22	19:12	25	18:06 (8)	17:08	16:30
4	05:24		06:03		19:17 (4)	06:53	07:42		17:40 (7)	07:35	08:25
	21:58		21:23	26	19:43 (4)	20:19	19:10	18	17:58 (7)	17:06	16:29
5	05:25		06:05		19:17 (4)	06:54	07:43		17:39 (7)	07:37	08:26
	21:58		21:21	27	19:44 (4)	20:17	19:08	19	17:58 (7)	17:04	16:29
6	05:26		06:06		19:16 (4)	06:56	07:45		17:38 (7)	07:39	08:28
	21:57		21:19	28	19:44 (4)	20:15	19:06	20	17:58 (7)	17:02	16:28
7	05:27		06:08		19:16 (4)	06:58	07:47		17:38 (7)	07:41	08:29
	21:57		21:18	29	19:45 (4)	20:13	19:03	20	17:58 (7)	17:01	16:28
8	05:28		06:09		19:15 (4)	06:59	07:48		17:38 (7)	07:43	08:30
	21:56		21:16	30	19:45 (4)	20:10	19:01	20	17:58 (7)	16:59	16:28
9	05:29		06:11		19:15 (4)	07:01	07:50		17:38 (7)	07:44	08:31
	21:56		21:14	30	19:45 (4)	20:08	18:59	18	17:56 (7)	16:57	16:27
10	05:30		06:13		19:14 (4)	07:03	07:52		17:39 (7)	07:46	08:32
	21:55		21:12	31	19:45 (4)	20:06	18:57	17	17:56 (7)	16:56	16:27
11	05:31		06:14		19:15 (4)	07:04	07:53		17:40 (7)	07:48	08:33
	21:54		21:10	30	19:45 (4)	20:03	18:54	15	17:55 (7)	16:54	16:27
12	05:32		06:16		19:14 (4)	07:06	07:55		17:41 (7)	07:50	08:34
	21:53		21:08	30	19:44 (4)	20:01	18:52	12	17:53 (7)	16:53	16:27
13	05:33		06:17		19:14 (4)	07:07	07:57		17:43 (7)	07:51	08:35
	21:52		21:06	30	19:44 (4)	19:59	18:50	6	17:49 (7)	16:51	16:27
14	05:34		06:19		19:14 (4)	07:09	07:59		07:53	08:36	
	21:51		21:04	29	19:43 (4)	19:56	18:48		16:50	16:27	
15	05:35		06:21		19:15 (4)	07:11	08:00		07:55	08:37	
	21:50		21:02	28	19:43 (4)	19:54	18:46		16:48	16:27	
16	05:36		06:22		19:15 (4)	07:12	18:03 (8)	08:02	07:57	08:38	
	21:49		21:00	27	19:42 (4)	19:52	8	18:11 (8)	18:43	16:47	16:27
17	05:38		06:24		19:16 (4)	07:14	17:59 (8)	08:04	07:58	08:39	
	21:48		20:58	26	19:42 (4)	19:49	15	18:14 (8)	18:41	16:45	16:27
18	05:39		06:25		19:16 (4)	07:15	17:56 (8)	08:05	08:00	08:40	
	21:47		20:56	24	19:40 (4)	19:47	19	18:15 (8)	18:39	16:44	16:27
19	05:40		06:27		19:17 (4)	07:17	17:55 (8)	08:07	08:02	08:40	
	21:46		20:54	22	19:39 (4)	19:45	21	18:16 (8)	18:37	16:43	16:28
20	05:41		06:29		19:18 (4)	07:19	17:54 (8)	08:09	08:04	08:41	
	21:45		20:52	19	19:37 (4)	19:42	23	18:17 (8)	18:35	16:42	16:28
21	05:43		06:30		19:20 (4)	07:20	17:52 (8)	08:11	08:05	08:42	
	21:44		20:50	15	19:35 (4)	19:40	25	18:17 (8)	18:33	16:40	16:29
22	05:44		06:32		19:24 (4)	07:22	17:51 (8)	08:12	08:07	08:42	
	21:42		20:48	8	19:32 (4)	19:38	27	18:18 (8)	18:31	16:39	16:29
23	05:46		06:33			07:24	17:50 (8)	08:14	08:08	08:43	
	21:41		20:46			19:35	27	18:17 (8)	18:29	16:38	16:30
24	05:47		06:35			07:25	17:49 (8)	08:16	08:10	08:43	
	21:40		20:44			19:33	28	18:17 (8)	18:27	16:37	16:30
25	05:48		06:37			07:27	17:49 (8)	07:18	08:12	08:43	
	21:38		20:42			19:31	28	18:17 (8)	17:25	16:36	16:31
26	05:50		06:38			07:28	17:48 (8)	07:19	08:13	08:44	
	21:37		20:39			19:28	28	18:16 (8)	17:23	16:35	16:31
27	05:51		06:40			07:30	17:49 (8)	07:21	08:15	08:44	
	21:36		20:37			19:26	27	18:16 (8)	17:21	16:34	16:32
28	05:53		06:42			07:32	17:49 (8)	07:23	08:16	08:44	
	21:34		20:35			19:24	26	18:15 (8)	17:19	16:33	16:33
29	05:54		06:43			07:33	17:49 (8)	07:25	08:18	08:44	
	21:33	11	19:37 (4)	20:33		19:22	25	18:14 (8)	17:17	16:33	16:34
30	05:56		19:24 (4)	06:45		07:35	17:50 (8)	07:27	08:19	08:45	
	21:31	14	19:38 (4)	20:31		19:19	23	18:13 (8)	17:15	16:32	16:35
31	05:57		19:22 (4)	06:46				07:28		08:45	
	21:29	18	19:40 (4)	20:28				17:13		16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case		43		556		350		240			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.62		0.62		0.69		0.69			
Total reduction		0.17		0.18		0.19		0.16			
Total, real		7		102		68		39			

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)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

6460 Gortloughra WF 8 no. turbine wind farm Gortloughra Co.Cork

8 no. turbine wind farm Gortloughra Co.Cork

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:
31/03/2026 14:17/4.2.285

Calculation: 6460 Gortloughra WF only (Worst Case)
Assumptions for shadow calculations

Shadow receptor: 0 - H15

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

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

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker (WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker (WTG causing flicker last time)
	Minutes with flicker	
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** P - H16**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45	08:18	07:25	07:15	06:10	05:25
	16:37	17:25	18:16	20:10	21:00	20:19 (5)
2	08:44	08:16	07:23	07:12	06:08	05:24
	16:38	17:26	18:18	20:11	21:02	20:16 (5)
3	08:44	08:15	07:20	07:10	06:06	05:24
	16:39	17:28	18:19	20:13	21:03	20:15 (5)
4	08:44	08:13	07:18	07:08	06:04	05:23
	16:40	17:30	18:21	20:15	21:05	20:14 (5)
5	08:44	08:12	07:16	07:05	06:03	05:22
	16:41	17:32	18:23	20:16	21:07	20:13 (5)
6	08:44	08:10	07:14	07:03	06:01	05:21
	16:43	17:34	18:25	20:18	21:08	20:29 (5)
7	08:43	08:08	07:12	07:01	05:59	05:21
	16:44	17:36	18:27	20:20	21:10	20:12 (5)
8	08:43	08:06	07:09	06:59	05:57	05:20
	16:45	17:37	18:28	20:21	21:12	20:31 (5)
9	08:42	08:05	07:07	06:56	05:55	05:20
	16:47	17:39	18:30	20:23	21:13	20:12 (5)
10	08:42	08:03	07:05	06:54	05:54	05:19
	16:48	17:41	18:32	20:25	21:15	20:32 (5)
11	08:41	08:01	07:03	06:52	19:21 (4)	05:19
	16:49	17:43	18:34	20:26	19:25 (4)	20:12 (5)
12	08:41	07:59	07:00	06:50	19:17 (4)	21:55
	16:51	17:45	18:35	20:28	19:19 (4)	22:34 (5)
13	08:40	07:57	06:58	17:34 (8)	19:14 (4)	20:11 (5)
	16:52	17:47	18:37	17:43 (8)	19:14 (4)	20:33 (5)
14	08:39	07:55	06:56	17:32 (8)	19:13 (4)	20:34 (5)
	16:54	17:49	18:39	17:46 (8)	19:13 (4)	20:11 (5)
15	08:38	07:54	06:54	17:30 (8)	19:12 (4)	20:35 (5)
	16:55	17:50	18:41	17:46 (8)	19:12 (4)	20:12 (5)
16	08:37	07:52	06:51	17:29 (8)	19:11 (4)	20:35 (5)
	16:57	17:52	18:42	17:47 (8)	19:11 (4)	20:12 (5)
17	08:37	07:50	06:49	17:28 (8)	19:10 (4)	20:36 (5)
	16:58	17:54	18:44	17:48 (8)	19:10 (4)	20:12 (5)
18	08:36	07:48	06:47	17:27 (8)	19:10 (4)	20:36 (5)
	17:00	17:56	18:46	17:47 (8)	19:10 (4)	20:12 (5)
19	08:35	07:46	06:44	17:27 (8)	19:10 (4)	20:36 (5)
	17:02	17:58	18:47	17:47 (8)	19:10 (4)	20:12 (5)
20	08:34	07:44	06:42	17:27 (8)	19:10 (4)	20:36 (5)
	17:03	18:00	18:49	17:47 (8)	19:10 (4)	20:12 (5)
21	08:33	07:42	06:40	17:26 (8)	19:10 (4)	20:36 (5)
	17:05	18:01	18:51	17:46 (8)	19:10 (4)	20:12 (5)
22	08:31	07:40	06:38	17:27 (8)	19:11 (4)	20:36 (5)
	17:07	18:03	18:53	17:45 (8)	19:11 (4)	20:13 (5)
23	08:30	07:38	06:35	17:28 (8)	19:12 (4)	20:37 (5)
	17:08	18:05	18:54	17:44 (8)	19:12 (4)	20:13 (5)
24	08:29	07:35	06:33	17:30 (8)	19:13 (4)	20:37 (5)
	17:10	18:07	18:56	17:43 (8)	19:13 (4)	20:13 (5)
25	08:28	07:33	06:31	17:32 (8)	19:14 (4)	20:37 (5)
	17:12	18:09	18:58	17:39 (8)	19:14 (4)	20:14 (5)
26	08:26	07:31	06:28	20:50	19:17 (4)	20:38 (5)
	17:14	18:10	18:59	20:52	19:22 (4)	20:14 (5)
27	08:25	07:29	06:26	06:18	05:30	20:38 (5)
	17:16	18:12	19:01	20:53	21:40	20:15 (5)
28	08:24	07:27	06:24	06:16	05:29	20:38 (5)
	17:17	18:14	19:03	20:55	21:41	20:14 (5)
29	08:22		07:21	06:14	05:28	20:38 (5)
	17:19		20:04	20:57	21:42	20:15 (5)
30	08:21		07:19	06:12	05:27	20:38 (5)
	17:21		20:06	20:58	05:22	20:15 (5)
31	08:19		07:17		21:43	20:38 (5)
	17:23		20:08		05:26	
Potential sun hours	260	278	367	416	485	498
Total, worst case			211	264		627
Sun reduction			0.24	0.35		0.30
Oper. time red.			1.00	1.00		1.00
Wind dir. red.			0.68	0.63		0.56
Total reduction			0.17	0.22		0.17
Total, real			35	59		105

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** P - H16**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22	20:16 (5)	05:59	06:48	19:20 (4)	07:37	18:17 (8)	07:30	08:21		
	21:59	22	20:38 (5)	21:28	4	19:24 (4)	19:17	3	18:20 (8)	17:11	16:31
2	05:23	20:16 (5)	06:00	06:50		07:38			07:32	08:22	
	21:59	21	20:37 (5)	21:26		19:15			17:09	16:30	
3	05:24	20:17 (5)	06:02	06:51		07:40			07:34	08:24	
	21:59	20	20:37 (5)	21:24		19:12			17:07	16:30	
4	05:24	20:17 (5)	06:03	06:53		07:42			07:35	08:25	
	21:58	20	20:37 (5)	21:23		19:10			17:06	16:29	
5	05:25	20:18 (5)	06:05	06:54		07:43			07:37	08:26	
	21:58	19	20:37 (5)	21:21		19:08			17:04	16:29	
6	05:26	20:18 (5)	06:06	06:56		07:45			07:39	08:28	
	21:57	18	20:36 (5)	21:19		19:06			17:02	16:28	
7	05:27	20:19 (5)	06:08	06:58		07:47			07:41	08:29	
	21:57	17	20:36 (5)	21:17		19:03			17:01	16:28	
8	05:28	20:20 (5)	06:09	06:59		07:48			07:43	08:30	
	21:56	15	20:35 (5)	21:16		19:01			16:59	16:28	
9	05:29	20:21 (5)	06:11	07:01		07:50			07:44	08:31	
	21:55	14	20:35 (5)	21:14		18:59			16:57	16:27	
10	05:30	20:23 (5)	06:13	07:02		07:52			07:46	08:32	
	21:55	11	20:34 (5)	21:12		18:57			16:56	16:27	
11	05:31	20:25 (5)	06:14	07:04		07:53			07:48	08:33	
	21:54	7	20:32 (5)	21:10		18:54			16:54	16:27	
12	05:32		06:16	07:06		07:55			07:50	08:34	
	21:53		21:08	20:01		18:52			16:53	16:27	
13	05:33		06:17	07:07		07:57			07:51	08:35	
	21:52		21:06	19:59		18:50			16:51	16:27	
14	05:34		06:19	07:09		07:58			07:53	08:36	
	21:51		21:04	19:56		18:48			16:50	16:27	
15	05:35		06:21	07:11		08:00			07:55	08:37	
	21:50		21:02	19:54		18:46			16:48	16:27	
16	05:36		06:22	07:12		08:02			07:57	08:38	
	21:49		21:00	19:52		18:43			16:47	16:27	
17	05:38		06:24	19:23 (4)	07:14	08:04			07:58	08:39	
	21:48	7	19:30 (4)	19:49		18:41			16:45	16:27	
18	05:39		06:25	19:20 (4)	07:15	18:20 (8)	08:05		08:00	08:40	
	21:47		20:56	12	19:32 (4)	19:47	5	18:25 (8)	18:39	16:44	16:27
19	05:40		06:27	19:18 (4)	07:17	18:17 (8)	08:07		08:02	08:40	
	21:46		20:54	16	19:34 (4)	19:45	12	18:29 (8)	18:37	16:43	16:28
20	05:41		06:29	19:16 (4)	07:19	18:15 (8)	08:09		08:03	08:41	
	21:45		20:52	18	19:34 (4)	19:42	15	18:30 (8)	18:35	16:42	16:28
21	05:43		06:30	19:16 (4)	07:20	18:13 (8)	08:11		08:05	08:42	
	21:44		20:50	19	19:35 (4)	19:40	18	18:31 (8)	18:33	16:40	16:29
22	05:44		06:32	19:14 (4)	07:22	18:12 (8)	08:12		08:07	08:42	
	21:42		20:48	21	19:35 (4)	19:38	19	18:31 (8)	18:31	16:39	16:29
23	05:45		06:33	19:14 (4)	07:23	18:11 (8)	08:14		08:08	08:43	
	21:41		20:46	21	19:35 (4)	19:35	20	18:31 (8)	18:29	16:38	16:29
24	05:47		06:35	19:14 (4)	07:25	18:10 (8)	08:16		08:10	08:43	
	21:40		20:44	22	19:36 (4)	19:33	21	18:31 (8)	18:27	16:37	16:30
25	05:48		06:37	19:13 (4)	07:27	18:10 (8)	07:18		08:12	08:43	
	21:38		20:41	22	19:35 (4)	19:31	21	18:31 (8)	17:25	16:36	16:31
26	05:50		06:38	19:13 (4)	07:28	18:10 (8)	07:19		08:13	08:44	
	21:37		20:39	22	19:35 (4)	19:28	20	18:30 (8)	17:23	16:35	16:31
27	05:51		06:40	19:13 (4)	07:30	18:10 (8)	07:21		08:15	08:44	
	21:36		20:37	21	19:34 (4)	19:26	19	18:29 (8)	17:21	16:34	16:32
28	05:53		06:41	19:14 (4)	07:32	18:11 (8)	07:23		08:16	08:44	
	21:34		20:35	19	19:33 (4)	19:24	17	18:28 (8)	17:19	16:33	16:33
29	05:54		06:43	19:14 (4)	07:33	18:11 (8)	07:25		08:18	08:44	
	21:33		20:33	17	19:31 (4)	19:22	15	18:26 (8)	17:17	16:33	16:34
30	05:56		06:45	19:15 (4)	07:35	18:13 (8)	07:27		08:19	08:45	
	21:31		20:31	15	19:30 (4)	19:19	11	18:24 (8)	17:15	16:32	16:35
31	05:57		06:46	19:16 (4)		07:28				08:45	
	21:29		20:28	11	19:27 (4)	17:13				16:36	
Potential sun hours	501		453		381		332		267	244	
Total, worst case		184		263		217		3			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.56		0.63		0.68		0.68			
Total reduction		0.15		0.19		0.19		0.16			
Total, real		27		49		42		0			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** Q - H17**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December				
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	25 19:26 (5) 19:51 (5)	05:25 21:46	05:22 21:59	05:59 21:28	14 19:42 (5) 19:56 (5)	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31		
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	25 19:27 (5) 19:52 (5)	05:24 21:47	05:23 21:59	06:00 21:26	17 19:41 (5) 19:58 (5)	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30		
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	24 19:27 (5) 19:51 (5)	05:23 21:48	05:24 21:59	06:02 21:24	19 19:39 (5) 19:58 (5)	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30		
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	25 19:26 (5) 19:51 (5)	05:23 21:49	05:24 21:58	06:03 21:23	20 19:38 (5) 19:58 (5)	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29		
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	24 19:26 (5) 19:50 (5)	05:22 21:50	05:25 21:58	06:05 21:21	21 19:38 (5) 19:59 (5)	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29		
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	24 19:27 (5) 19:51 (5)	05:21 21:51	05:26 21:57	06:06 21:19	23 19:36 (5) 19:59 (5)	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28		
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	23 19:27 (5) 19:50 (5)	05:21 21:52	05:27 21:57	06:08 21:17	24 19:36 (5) 20:00 (5)	06:58 20:12	07:47 19:03	07:41 17:01	08:29 16:28		
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	22 19:27 (5) 19:49 (5)	05:20 21:53	05:28 21:56	06:09 21:16	24 19:36 (5) 20:00 (5)	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28		
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	20 19:29 (5) 19:49 (5)	05:20 21:53	05:29 21:55	06:11 21:14	24 19:36 (5) 20:00 (5)	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27		
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	18 19:29 (5) 19:47 (5)	05:19 21:54	05:30 21:55	06:13 21:12	25 19:35 (5) 20:00 (5)	07:02 20:06	07:52 18:57	07:46 16:56	08:32 16:27		
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	16 19:31 (5) 19:47 (5)	05:19 21:55	05:31 21:54	06:14 21:10	25 19:35 (5) 20:00 (5)	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27		
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	13 19:32 (5) 19:45 (5)	05:19 21:56	05:32 21:53	06:16 21:08	24 19:35 (5) 19:59 (5)	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27		
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	9 19:34 (5) 19:43 (5)	05:18 21:56	05:33 21:52	06:17 21:06	23 19:36 (5) 19:59 (5)	07:07 20:01	07:57 18:50	07:51 16:51	08:35 16:27		
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21		05:18 21:57	05:34 21:51	06:19 21:04	22 19:36 (5) 19:58 (5)	07:09 20:06	07:58 18:48	07:53 16:50	08:36 16:27		
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23		05:18 21:57	05:35 21:50	06:20 21:02	20 19:37 (5) 19:57 (5)	07:11 20:04	08:00 18:46	07:55 16:48	08:37 16:27		
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24		05:18 21:58	05:36 21:49	06:22 21:00	19 19:37 (5) 19:56 (5)	07:12 20:06	08:02 18:43	07:57 16:47	08:38 16:27		
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26		05:18 21:58	05:38 21:48	06:24 20:58	17 19:38 (5) 19:55 (5)	07:14 20:03	08:04 18:41	07:58 16:45	08:39 16:27		
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27		05:18 21:59	05:39 21:47	06:25 20:56	13 19:39 (5) 19:52 (5)	07:15 20:06	08:05 18:39	08:00 16:44	08:40 16:27		
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29		05:18 21:59	05:40 21:46	06:27 20:54	8 19:42 (5) 19:50 (5)	07:17 20:04	08:07 18:37	08:02 16:43	08:40 16:28		
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30		05:18 21:59	05:41 21:45	06:29 20:52		07:19 20:06	08:09 18:35	08:03 16:42	08:41 16:28		
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32		05:18 22:00	05:43 21:44	06:30 20:50		07:20 20:06	08:11 18:33	08:05 16:40	08:42 16:28		
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	05:36 21:33		05:18 22:00	05:44 21:42	06:32 20:48		07:22 20:06	08:12 18:31	08:07 16:39	08:42 16:29		
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34		05:19 22:00	05:45 21:41	06:33 20:46		07:23 20:06	08:14 18:29	08:08 16:38	08:43 16:29		
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	9 19:36 (5) 19:45 (5)	05:33 22:00	05:47 21:40	06:35 20:44		07:25 20:06	08:16 18:27	08:10 16:37	08:43 16:30		
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	14 19:45 (5) 19:47 (5)	05:32 22:00	05:48 21:38	06:37 20:41		07:27 20:06	07:18 18:25	08:12 16:36	08:43 16:31		
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	17 19:31 (5) 19:48 (5)	05:31 22:00	05:50 21:37	06:38 20:39		07:28 20:06	07:19 18:23	08:13 16:35	08:44 16:31		
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:39	19 19:30 (5) 19:49 (5)	05:20 22:00	05:51 21:36	06:40 20:37		07:30 20:06	07:21 18:23	08:15 16:34	08:44 16:32		
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	21 19:29 (5) 19:50 (5)	05:20 22:00	05:53 21:34	06:41 20:35		07:32 20:06	07:23 18:23	08:16 16:33	08:44 16:33		
29	08:22 17:19	07:21 20:04	06:14 19:03	06:14 20:57	05:28 21:42	22 19:28 (5) 19:50 (5)	05:21 22:00	05:54 21:33	06:43 20:33		07:33 20:06	07:25 18:23	08:18 16:33	08:44 16:34		
30	08:21 17:21	07:19 20:06	06:12 20:58	06:12 21:43	05:27 21:43	24 19:27 (5) 19:51 (5)	05:22 22:00	05:56 21:31	06:45 20:31	5 19:46 (5) 19:51 (5)	07:35 20:06	07:27 18:23	08:19 16:32	08:45 16:35		
31	08:19 17:23	07:17 20:08			05:26 21:44		05:26 21:29	05:57 21:29	06:46 20:28	11 19:44 (5) 19:55 (5)	07:28 20:06	07:28 17:13	08:45 16:36			
Potential sun hours	260	278	367	416	485		498	501	453		381	332	267	244		
Total, worst case				126	268			16	382							
Sun reduction				0.35	0.37			0.27	0.30							
Oper. time red.				1.00	1.00			1.00	1.00							
Wind dir. red.				0.60	0.60			0.60	0.60							
Total reduction				0.21	0.22			0.16	0.18							
Total, real				27	59			3	68							

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** R - H18**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	[January	[February	[March		[April	[May	[June	[July	[August		[September	[October	[November	[December		
1	08:45 16:37	08:18 17:25	07:25 18:16		07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28		06:48 20:26		07:37 19:17	07:30 17:11	08:21 16:31	
2	08:44 16:38	08:16 17:26	07:23 18:18		07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26		06:50 20:24		07:38 19:15	07:32 17:09	08:22 16:30	
3	08:44 16:39	08:15 17:28	07:20 18:19		07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24		06:51 20:22		07:40 19:12	07:34 17:07	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21		07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23		06:53 20:19		07:42 19:10	07:35 17:06	08:25 16:29	
5	08:44 16:41	08:12 17:32	07:16 18:23		07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21		06:54 20:17		07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19		06:56 20:15		07:45 19:05	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:27		07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17		06:58 20:12		07:47 19:03	07:41 17:01	08:29 16:28	
8	08:43 16:45	08:06 17:37	07:09 18:28		06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16		06:59 20:10		07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:47	08:05 17:39	07:07 18:30		06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14		07:01 20:08		07:50 18:59	07:44 16:57	08:31 16:27	
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12		07:02 20:06		07:52 18:57	07:46 16:56	08:32 16:27	
11	08:41 16:49	08:01 17:43	07:03 18:34		06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10		07:04 20:03		07:53 18:54	07:48 16:54	08:33 16:27	
12	08:41 16:51	07:59 17:45	07:00 18:35		06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08		07:06 20:01		07:55 18:52	07:50 16:53	08:34 16:27	
13	08:40 16:52	07:57 17:47	06:58 18:37		06:47 20:30	9 19:21 (5) 19:30 (5)	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	19:26 (5) 19:36 (5)	07:07 19:59	8 18:40 (4) 18:48 (4)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39		06:45 20:32	14 19:18 (5) 19:32 (5)	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	19:23 (5) 19:37 (5)	07:09 19:56	12 18:49 (4) 18:49 (4)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40		06:43 20:33	18 19:16 (5) 19:34 (5)	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	19:22 (5) 19:39 (5)	07:11 19:54	14 18:36 (4) 18:50 (4)	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42		06:41 20:35	20 19:15 (5) 19:35 (5)	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	19:20 (5) 19:39 (5)	07:12 19:52	16 18:34 (4) 18:50 (4)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44		06:39 20:37	22 19:14 (5) 19:36 (5)	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	19:19 (5) 19:41 (5)	07:14 19:49	18 18:33 (4) 18:51 (4)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46		06:37 20:38	23 19:13 (5) 19:36 (5)	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	19:18 (5) 19:41 (5)	07:15 19:47	18 18:32 (4) 18:50 (4)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47		06:34 20:40	25 19:12 (5) 19:37 (5)	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	19:17 (5) 19:41 (5)	07:17 19:45	18 18:32 (4) 18:50 (4)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	11 17:50 (4)	06:32 20:42	19:12 (5) 19:37 (5)	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	19:16 (5) 19:41 (5)	07:19 19:42	18 18:32 (4) 18:50 (4)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	13 17:48 (4)	06:30 20:43	19:12 (5) 19:37 (5)	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	19:16 (5) 19:41 (5)	07:20 19:40	16 18:32 (4) 18:48 (4)	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	16 17:46 (4)	06:28 20:45	19:12 (5) 19:36 (5)	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	19:15 (5) 19:40 (5)	07:22 19:38	14 18:33 (4) 18:47 (4)	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	17 17:46 (4)	06:26 20:47	19:12 (5) 19:36 (5)	05:35 21:34	05:19 22:00	05:45 21:41	06:33 20:46	19:16 (5) 19:40 (5)	07:23 19:35	12 18:33 (4) 18:45 (4)	08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	19 17:45 (4)	06:24 20:48	19:12 (5) 19:36 (5)	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	19:16 (5) 19:40 (5)	07:25 19:33	6 18:36 (4) 18:42 (4)	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	19 17:44 (4)	06:22 20:50	19:12 (5) 19:35 (5)	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	19:16 (5) 19:39 (5)	07:27 19:31	23 18:42 (4) 18:48 (4)	07:18 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	17 17:45 (4)	06:20 20:52	19:13 (5) 19:34 (5)	05:31 21:38	05:20 22:00	06:38 21:37	06:38 20:39	19:17 (5) 19:39 (5)	07:28 19:28		07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	17 17:45 (4)	06:18 20:53	19:13 (5) 19:33 (5)	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	19:17 (5) 19:37 (5)	07:30 19:26		07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	15 17:45 (4)	06:16 20:55	19:14 (5) 19:31 (5)	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	19:18 (5) 19:36 (5)	07:32 19:24		07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19		07:21 20:04	13 18:46 (4)	06:14 20:57	19:16 (5) 19:29 (5)	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	19:19 (5) 19:33 (5)	07:33 19:22		07:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21		07:19 20:06	8 18:59 (4)	06:12 20:58	19:18 (5) 19:27 (5)	05:27 21:43	05:22 22:00	05:56 21:31	06:45 20:31	19:22 (5) 19:30 (5)	07:35 19:19		07:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23		07:17 20:08				05:26 21:44	05:27 21:29	06:46 20:28					07:28 17:13		08:45 16:36
Potential sun hours	260	278	367		416	485	498	501	453		381		332	267	244	
Total, worst case			165		356				357		170					
Sun reduction			0.24		0.35				0.30		0.28					
Oper. time red.			1.00		1.00				1.00		1.00					
Wind dir. red.			0.67		0.63				0.63		0.67					
Total reduction			0.16		0.22				0.19		0.19					
Total, real			27		79				67		32					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Assumptions for shadow calculations****Shadow receptor:** S - H19

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	19:07 (5) 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:08 (5) 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	19:09 (5) 19:12	07:40 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	19:12 (5) 19:10	07:42 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	19:25 (5) 19:08	07:43 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:57	05:26 21:19	06:06 21:19	06:56 20:15	19:31 (5) 19:06	07:45 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	19:32 (5) 19:03	07:47 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:14 (5) 21:12	05:57 21:53	05:28 21:56	06:09 21:16	06:59 20:10	19:33 (5) 19:01	07:48 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:11 (5) 21:13	05:55 21:53	05:29 21:56	06:11 21:14	07:01 20:08	19:34 (5) 18:59	07:50 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:10 (5) 21:15	05:54 21:54	05:19 21:55	06:13 21:12	07:02 20:06	19:35 (5) 18:57	07:52 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:08 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10	07:04 20:03	19:36 (5) 18:54	07:53 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:07 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08	07:06 20:01	19:37 (5) 18:52	07:55 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	19:05 (5) 21:20	05:49 21:56	05:18 21:52	06:17 21:06	07:07 20:00	19:38 (5) 18:50	07:57 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	19:05 (5) 21:21	05:47 21:57	05:18 21:51	06:19 21:04	07:09 20:00	19:39 (5) 18:48	07:58 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	19:04 (5) 21:23	05:46 21:57	05:18 21:50	06:20 21:02	07:11 20:00	19:40 (5) 18:46	07:59 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 17:12 (8)	06:41 18:42	19:04 (5) 21:24	05:44 21:58	05:18 21:49	06:22 21:00	07:12 20:00	19:41 (5) 18:43	08:00 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:51 17:14 (8)	06:39 18:44	19:04 (5) 21:26	05:43 21:58	05:18 21:48	06:24 20:58	07:14 20:00	19:42 (5) 18:41	08:04 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:50 17:15 (8)	06:37 18:46	19:04 (5) 21:27	05:41 21:59	05:18 21:47	06:25 20:56	07:15 20:00	19:43 (5) 18:39	08:05 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:50 17:16 (8)	06:34 18:47	19:04 (5) 21:29	05:40 21:59	05:18 21:46	06:27 20:54	07:17 20:00	19:44 (5) 18:37	08:07 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:50 17:16 (8)	06:32 18:49	19:04 (5) 21:30	05:38 22:00	05:18 21:45	06:29 20:52	07:19 20:00	19:45 (5) 18:35	08:09 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:50 17:16 (8)	06:30 18:51	19:05 (5) 21:32	05:37 22:00	05:18 21:44	06:30 20:50	07:20 20:00	19:46 (5) 18:33	08:11 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:50 17:17 (8)	06:28 18:53	19:05 (5) 21:33	05:36 22:00	05:18 21:42	06:32 20:48	07:22 20:00	19:47 (5) 18:31	08:12 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:50 17:18 (8)	06:26 18:54	19:06 (5) 21:34	05:35 22:00	05:19 21:41	06:33 20:46	07:23 20:00	19:48 (5) 18:29	08:14 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:50 17:15 (8)	06:24 18:56	19:07 (5) 21:36	05:33 22:00	05:19 21:40	06:35 20:44	07:25 20:00	19:49 (5) 18:27	08:16 16:37	08:44 16:30
25	08:28 17:12	07:33 18:09	06:50 17:16 (8)	06:22 18:58	19:08 (5) 21:37	05:32 22:00	05:19 21:38	06:37 20:41	07:27 20:00	19:50 (5) 18:28	08:17 16:33	08:43 16:31
26	08:26 17:14	07:31 18:10	06:50 17:13 (8)	06:20 18:59	19:10 (5) 21:38	05:31 22:00	05:20 21:37	06:38 20:39	07:28 20:00	19:51 (5) 19:06 (5)	08:18 16:30	08:44 16:31
27	08:25 17:15	07:29 18:12	06:50 17:11 (8)	06:18 19:01	19:13 (5) 21:40	05:30 22:00	05:20 21:36	06:40 20:37	07:30 20:00	19:52 (5) 19:07 (5)	08:19 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:50 19:03	06:16 20:55	19:21 (5) 21:41	05:29 22:00	05:20 21:34	06:41 20:35	07:32 20:00	19:53 (5) 19:08 (5)	08:20 16:33	08:44 16:33
29	08:22 17:19	07:25 19:04	06:50 20:04	06:14 20:57	05:28 21:42	05:21 22:00	05:19 21:33	06:43 20:33	07:33 20:00	19:54 (5) 19:09 (5)	08:21 16:34	08:44 16:34
30	08:21 17:21	07:24 19:06	06:50 20:06	06:12 20:58	05:27 21:43	05:22 22:00	05:19 21:31	06:45 20:31	07:35 20:00	19:55 (5) 19:10	08:22 16:35	08:45 16:35
31	08:19 17:23	07:27 19:08	06:50 20:08	06:17 21:04	05:26 21:44	05:21 22:00	05:19 21:29	06:46 20:28	07:36 20:00	19:56 (5) 19:31 (5)	08:23 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case		183						393	75		189	
Sun reduction		0.21		0.35				0.30	0.28		0.24	
Oper. time red.		1.00		1.00				1.00	1.00		1.00	
Wind dir. red.		0.70		0.64				0.64	0.64		0.70	
Total reduction		0.14		0.23				0.19	0.18		0.17	
Total, real		26		104				74	14		31	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** T - H20**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	15 19:03 (5) 19:18 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	26 18:54 (5) 19:20 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	19 19:01 (5) 19:20 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	28 18:52 (5) 19:20 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	21 19:00 (5) 19:21 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	28 18:52 (5) 19:20 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	23 18:58 (5) 19:21 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	28 18:51 (5) 19:19 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	25 18:57 (5) 19:22 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	27 18:52 (5) 19:19 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	26 18:56 (5) 19:22 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	27 18:52 (5) 19:19 (5)	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	27 18:56 (5) 19:23 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:12	25 18:52 (5) 19:17 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	28 18:54 (5) 19:22 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	23 18:53 (5) 19:16 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	28 18:54 (5) 19:22 (5)	05:55 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	21 18:53 (5) 19:14 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	28 18:54 (5) 19:22 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	19 18:54 (5) 19:13 (5)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	26 18:55 (5) 19:21 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	15 18:55 (5) 19:10 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	26 18:55 (5) 19:21 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	9 18:58 (5) 19:07 (5)	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	24 18:55 (5) 19:19 (5)	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59		07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	22 18:56 (5) 19:18 (5)	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56		07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	20 18:57 (5) 19:17 (5)	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54		07:59 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	17 18:58 (5) 19:15 (5)	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52		07:52 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	13 19:00 (5) 19:13 (5)	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49		07:53 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	1 19:06 (5) 19:07 (5)	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47		07:54 18:05	07:59 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45		07:55 18:07	07:59 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42		05:38 21:30	05:18 22:00	05:41 21:45	06:29 20:52	07:19 19:42		07:56 18:09	07:59 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43		05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40		07:57 18:11	07:59 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38		07:58 18:13	07:59 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47		05:35 21:34	05:19 22:00	05:45 21:41	06:33 20:46	07:23 19:35		07:58 18:14	07:59 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33		07:57 18:16	07:59 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	19:07 (5) 19:11 (5)	07:27 19:31	07:18 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	19:03 (5) 19:16 (5)	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	19:00 (5) 19:17 (5)	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	18:58 (5) 19:18 (5)	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:19	06:21 19:04	06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	18:56 (5) 19:19 (5)	07:33 19:22	07:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 18:21	06:19 19:06	06:12 20:58		05:27 21:43	05:22 22:00	05:56 21:31	06:45 20:31	18:56 (5) 19:20 (5)	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:23	06:17 19:08	19:07 (5) 19:14 (5)		05:26 21:44	05:27 22:00	05:57 21:29	06:46 20:28	18:54 (5) 19:20 (5)		07:28 17:13	08:45 16:36	
Potential sun hours	260	278	367	416		485	498	501	453	381		332	267	244
Total, worst case			7	389					127	276				
Sun reduction			0.24	0.35					0.30	0.28				
Oper. time red.			1.00	1.00					1.00	1.00				
Wind dir. red.			0.65	0.65					0.65	0.65				
Total reduction			0.16	0.23					0.19	0.18				
Total, real			1	90					25	51				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** U - H21**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April		May	June	July	August		September		October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10	4	19:13 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28		06:48 20:26	19:00 (5) 19:23 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	12	19:09 (5) 21:02	06:08 21:47	05:24 21:59	05:23 21:26		06:50 20:24	18:58 (5) 19:22 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	17	19:06 (5) 21:03	06:06 21:48	05:23 21:59	05:24 21:24		06:51 20:22	18:58 (5) 19:22 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	19	19:04 (5) 21:05	06:04 21:49	05:23 21:58	05:24 21:23		06:53 20:19	18:57 (5) 19:22 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	21	19:03 (5) 21:07	06:03 21:50	05:22 21:58	05:25 21:21		06:54 20:17	18:58 (5) 19:21 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	23	19:02 (5) 21:08	06:01 21:51	05:21 21:57	05:26 21:19		06:56 20:15	18:58 (5) 19:21 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	23	19:02 (5) 21:10	05:59 21:52	05:21 21:57	05:27 21:17		06:58 20:12	18:58 (5) 19:19 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	24	19:00 (5) 21:12	05:57 21:53	05:20 21:56	05:28 21:16		06:59 20:10	18:59 (5) 19:19 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	24	19:00 (5) 21:13	05:55 21:53	05:20 21:56	05:29 21:14		07:01 20:08	19:00 (5) 19:16 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	24	19:00 (5) 21:15	05:54 21:54	05:19 21:55	06:13 21:12		07:02 20:06	19:01 (5) 19:14 (5)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	23	19:01 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10		07:04 20:03	19:04 (5) 19:10 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	22	19:01 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08		07:06 20:01	19:05 (5) 18:52	07:55 16:53	07:50 16:27	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	20	19:01 (5) 21:20	05:49 21:56	05:18 21:52	06:17 21:06		07:07 19:59	19:05 (5) 18:50	07:57 16:51	07:51 16:27	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	18	19:02 (5) 21:21	05:47 21:57	05:18 21:51	06:19 21:04		07:09 19:56	19:06 (5) 18:48	07:58 16:50	07:53 16:27	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	16	19:03 (5) 21:23	05:46 21:57	05:18 21:50	06:20 21:02		07:11 19:54	19:07 (5) 18:46	07:55 16:48	07:58 16:27	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	11	19:05 (5) 21:24	05:44 21:58	05:18 21:49	06:22 21:00		07:12 19:52	19:08 (5) 18:43	07:57 16:47	07:58 16:27	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37		19:16 (5) 21:26	05:43 21:58	05:18 21:48	06:24 20:58		07:14 19:49	19:09 (5) 18:41	07:58 16:45	07:58 16:27	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38		19:06 (5) 21:27	05:41 21:59	05:18 21:47	06:25 20:56		07:15 19:47	19:10 (5) 18:39	07:59 16:44	08:00 16:27	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40		19:07 (5) 21:29	05:40 21:59	05:18 21:46	06:27 20:54		07:17 19:45	19:11 (5) 18:37	08:02 16:43	08:02 16:28	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42		19:08 (5) 21:30	05:38 21:59	05:18 21:45	06:29 20:52		07:19 19:42	19:12 (5) 18:35	08:03 16:42	08:03 16:28	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43		19:09 (5) 21:32	05:37 22:00	05:18 21:44	06:30 20:50		07:20 19:40	19:13 (5) 18:33	08:05 16:40	08:05 16:28	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45		19:10 (5) 21:33	05:36 22:00	05:18 21:42	06:32 20:48		07:22 19:38	19:14 (5) 18:31	08:07 16:39	08:07 16:29	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47		19:11 (5) 21:34	05:35 22:00	05:19 21:41	06:33 20:46		07:23 19:35	19:15 (5) 18:29	08:08 16:38	08:08 16:29	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48		19:12 (5) 21:36	05:33 22:00	05:19 21:40	06:35 20:44		07:25 19:33	19:16 (5) 18:26	08:10 16:37	08:10 16:30	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50		19:13 (5) 21:37	05:32 22:00	05:19 21:38	06:37 20:41		07:27 19:31	19:17 (5) 18:27	08:12 16:36	08:12 16:31	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52		19:14 (5) 21:38	05:31 22:00	05:50 21:37	06:38 20:39	3	19:12 (5) 19:15 (5)	19:18 (5) 19:07 (5)	08:13 16:35	08:13 16:31	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53		19:15 (5) 21:40	05:30 22:00	05:51 21:36	06:40 20:37	11	19:12 (5) 19:05 (5)	19:19 (5) 19:07 (5)	08:15 16:34	08:15 16:32	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55		19:16 (5) 21:41	05:29 22:00	05:53 21:34	06:41 20:35	16	19:12 (5) 19:03 (5)	19:24 (5) 19:08 (5)	08:16 16:33	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:00	06:14 20:57		19:17 (5) 21:42	05:28 22:00	05:54 21:33	06:43 20:33	18	19:12 (5) 19:02 (5)	19:22 (5) 19:09 (5)	08:18 16:33	08:18 16:34	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58		19:18 (5) 21:43	05:27 22:00	05:55 21:31	06:45 20:31	20	19:12 (5) 19:00 (5)	19:22 (5) 19:00 (5)	08:19 16:32	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:11 19:08	06:11 20:58		19:19 (5) 21:44	05:26 22:00	05:57 21:29	06:46 20:28	22	19:12 (5) 19:00 (5)	19:22 (5) 19:00 (5)	08:28 16:36	08:28 16:36	08:45 16:36
Potential sun hours	260	278	367	416		485	498	501	453		381	332	267	244	
Total, worst case				301					90		218				
Sun reduction				0.35					0.30		0.28				
Oper. time red.				1.00					1.00		1.00				
Wind dir. red.				0.65					0.65		0.65				
Total reduction				0.23					0.19		0.18				
Total, real				69					17		40				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** V - H22**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	19:03 (5) 19:24 (5)	07:37 19:17	07:30 17:11
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	19:02 (5) 19:24 (5)	07:38 19:15	07:32 17:09
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	19:02 (5) 19:24 (5)	07:40 19:12	07:34 17:07
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	19:01 (5) 19:23 (5)	07:42 19:10	07:35 17:06
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	19:01 (5) 19:23 (5)	07:43 19:08	07:37 17:04
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	19:02 (5) 19:22 (5)	07:45 19:05	07:39 17:02
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	19:02 (5) 19:20 (5)	07:47 19:03	07:41 17:01
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	19:03 (5) 19:19 (5)	07:48 19:01	07:43 16:59
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	19:04 (5) 19:16 (5)	07:50 18:59	07:44 16:57
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	19:08 (5) 19:13 (5)	07:52 18:56	07:46 16:56
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	19:04 (5) 19:09 (5)	07:53 18:54	07:48 16:54
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	19:05 (5) 18:52	07:55 18:52	07:50 16:52
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	19:06 (5) 18:50	07:57 18:50	07:51 16:51
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	19:07 (5) 18:48	07:58 18:48	07:53 16:50
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	19:08 (5) 18:45	07:55 18:45	07:53 16:48
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	19:09 (5) 18:43	07:57 18:43	07:58 16:47
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	19:10 (5) 18:41	07:58 18:41	07:59 16:45
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	19:11 (5) 18:05	07:59 18:39	08:00 16:44
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	19:12 (5) 18:07	08:00 18:37	08:01 16:43
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	19:13 (5) 18:09	08:01 18:35	08:03 16:42
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	19:14 (5) 18:13	08:02 18:12	08:05 16:40
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	19:15 (5) 18:11	08:03 18:13	08:07 16:39
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	19:16 (5) 18:16	08:04 18:16	08:08 16:38
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	19:17 (5) 18:17	08:05 18:17	08:10 16:37
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	19:18 (5) 17:25	08:06 18:18	08:12 16:36
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28	19:19 (5) 17:23	08:07 18:15	08:13 16:35
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	19:20 (5) 19:08 (5)	08:08 18:16	08:15 16:34
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	19:21 (5) 19:06 (5)	08:09 18:17	08:16 16:33
29	08:22 17:19	07:21 18:04	06:14 19:00	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	19:22 (5) 19:07 (5)	08:10 18:19	08:18 16:32
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	19:23 (5) 19:08 (5)	08:11 18:20	08:19 16:31
31	08:19 17:23	07:17 18:08	06:11 19:08	06:11 20:58	05:26 21:44	05:22 22:00	05:57 21:29	06:46 20:28	07:36 19:24 (5)	19:24 (5) 19:09 (5)	08:12 18:21	08:20 16:30
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				260				81	180			
Sun reduction				0.35				0.30	0.28			
Oper. time red.				1.00				1.00	1.00			
Wind dir. red.				0.65				0.65	0.65			
Total reduction				0.23				0.19	0.18			
Total, real				60				16	33			

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) Shadow receptor: W - H23

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time																	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum		
																	136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760		
January			February			March			April			May			June			July			August			September			October			November			December		
1	08:45	08:18	07:25				07:14		19:02 (5)	06:10	05:25	05:22	05:58	06:48										07:37	07:30	08:21									
	16:37	17:24	18:16				20:09	19	19:21 (5)	21:00	21:46	21:59	21:28	20:26										19:17	17:11	16:31									
2	08:44	08:16	07:23				07:12		19:02 (5)	06:08	05:24	05:23	06:00	06:50											07:32	08:22									
	16:38	17:26	18:18				20:11	20	19:22 (5)	21:02	21:47	21:59	21:26	20:24					5	19:05 (5)	19:10 (5)	19:15	17:09	16:30											
3	08:44	08:15	07:20				07:10		19:01 (5)	06:06	05:23	05:24	06:02	06:51											07:40	07:34	08:24								
	16:39	17:28	18:19				20:13	21	19:22 (5)	21:03	21:48	21:59	21:24	20:22					11	19:13 (5)	19:12	17:07	16:30												
4	08:44	08:13	07:18				07:08		19:00 (5)	06:04	05:23	05:24	06:03	06:53											07:42	07:35	08:25								
	16:40	17:30	18:21				20:15	21	19:21 (5)	21:05	21:49	21:58	21:23	20:19					15	19:14 (5)	19:10	17:06	16:29												
5	08:44	08:12	07:16				07:05		19:01 (5)	06:03	05:22	05:25	06:05	06:54											07:43	07:37	08:26								
	16:41	17:32	18:23				20:16	19	19:20 (5)	21:07	21:50	21:58	21:21	20:17					17	19:15 (5)	19:08	17:04	16:29												
6	08:44	08:10	07:14				07:03		19:01 (5)	06:01	05:21	05:26	06:06	06:56											07:45	07:39	08:28								
	16:43	17:34	18:25				20:18	19	19:20 (5)	21:08	21:51	21:57	21:19	20:15					19	19:16 (5)	19:05	17:02	16:28												
7	08:43	08:08	07:12				07:01		19:02 (5)	05:59	05:21	05:27	06:08	06:58											07:47	07:41	08:29								
	16:44	17:36	18:26				20:20	17	19:19 (5)	21:10	21:52	21:57	21:17	20:12					20	19:16 (5)	19:03	17:00	16:28												
8	08:43	08:06	07:09				06:59		19:02 (5)	05:57	05:20	05:28	06:09	06:59											07:48	07:43	08:30								
	16:45	17:37	18:28				20:21	15	19:17 (5)	21:12	21:53	21:56	21:16	20:10					20	19:16 (5)	19:01	16:59	16:28												
9	08:42	08:05	07:07				06:56		19:04 (5)	05:55	05:20	05:29	06:11	07:01											07:50	07:44	08:31								
	16:47	17:39	18:30				20:23	11	19:15 (5)	21:13	21:53	21:55	21:14	20:08					20	19:15 (5)	18:59	16:57	16:27												
10	08:42	08:03	07:05				06:54		19:07 (5)	05:54	05:19	05:30	06:12	07:02											07:52	07:46	08:32								
	16:48	17:41	18:32				20:25	5	19:12 (5)	21:15	21:54	21:55	21:12	20:06					20	19:15 (5)	18:56	16:56	16:27												
11	08:41	08:01	07:03				06:52			05:52	05:19	05:31	06:14	07:04											07:53	07:48	08:33								
	16:49	17:43	18:34				20:26			21:16	21:55	21:54	21:10	20:03					19	19:13 (5)	18:54	16:54	16:27												
12	08:41	07:59	07:00				06:50			05:50	05:19	05:32	06:16	07:06											07:55	07:50	08:34								
	16:51	17:45	18:35				20:28			21:18	21:56	21:53	21:08	20:01					18	19:13 (5)	18:52	16:52	16:27												
13	08:40	07:57	06:58				06:47			05:49	05:18	05:33	06:17	07:07											07:57	07:51	08:35								
	16:52	17:47	18:37				20:30			21:20	21:56	21:52	21:06	19:59					16	19:11 (5)	18:50	16:51	16:27												
14	08:39	07:55	06:56				06:45			05:47	05:18	05:34	06:19	07:09											07:58	07:53	08:36								
	16:54	17:48	18:39				20:32			21:21	21:57	21:51	21:04	19:56					12	19:09 (5)	18:48	16:50	16:27												
15	08:38	07:54	06:54				06:43			05:46	05:18	05:35	06:20	07:11											08:00	07:55	08:37								
	16:55	17:50	18:40				20:33			21:23	21:57	21:50	21:02	19:54					4	19:05 (5)	18:45	16:48	16:27												
16	08:37	07:52	06:51				06:41			05:44	05:18	05:36	06:22	07:12											08:02	07:57	08:38								
	16:57	17:52	18:42				20:35			21:24	21:58	21:49	21:00	19:52											18:43	16:47	16:27								
17	08:37	07:50	06:49				06:39			05:43	05:18	05:38	06:24	07:14											08:04	07:58	08:39								
	16:58	17:54	18:44				20:37			21:26	21:58	21:48	20:58	19:49											18:41	16:45	16:27								
18	08:36	07:48	06:47				06:37			05:41	05:18	05:39	06:25	07:15											08:05	08:00	08:40								
	17:00	17:56	18:46				20:38			21:27	21:59	21:47	20:56	19:47											18:39	16:44	16:27								
19	08:35	07:46	06:44				06:34			05:40	05:18	05:40	06:27	07:17											08:07	08:02	08:40								
	17:02	17:58	18:47				20:40			21:29	21:59	21:46	20:54	19:45											18:37	16:43	16:28								
20	08:34	07:44	06:42				06:32			05:38	05:18	05:41	06:29	07:19											08:09	08:03	08:41								
	17:03	18:00	18:49				20:42			21:30	21:59	21:45	20:52	19:42											18:35	16:42	16:28								
21	08:33	07:42	06:40				06:30			05:37	05:18	05:43	06:30	07:20											08:11	08:05	08:42								
	17:05	18:01	18:51				20:43			21:32	22:00	21:44	20:50	19:40											18:33	16:40	16:28								
22	08:31	07:40	06:37				06:28			05:36	05:18	05:44	06:32	07:22											08:12	08:07	08:42								
	17:07	18:03	18:52				20:45			21:33	22:00	21:42	20:48	19:38											18:31	16:39	16:29								
23	08:30	07:38	06:35				06:26			05:35	05:18	05:45	06:33	07:23											08:14	08:08	08:43								
	17:08	18:05	18:54				20:47			21:34	22:00	21:41	20:46	19:35											18:29	16:38	16:29								
24	08:29	07:35	06:33				06:24			05:33	05:19	05:47	06:35	07:25											08:16	08:10	08:43								
	17:10	18:07	18:56				20:48			21:36	22:00	21:40	20:44	19:33											18:27	16:37	16:30								
25	08:28	07:33	06:31				06:22			05:32	05:19	05:48	06:37	07:27											07:18	08:12	08:43								
	17:12	18:09	18:58				20:50			21:37	22:00	21:38	20:41	19:31																					

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** X - H24**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	15 19:07 (5) 21:00	06:10 21:46	05:22 21:59	05:58 21:28	06:48 20:26	11 19:05 (5) 19:16 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	17 19:06 (5) 21:02	06:08 21:47	05:24 21:59	06:00 21:26	06:50 20:24	14 19:03 (5) 19:17 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	18 19:05 (5) 21:03	06:06 21:48	05:23 21:59	06:02 21:24	06:51 20:22	17 19:01 (5) 19:18 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	20 19:03 (5) 21:05	06:04 21:49	05:23 21:58	06:03 21:23	06:53 20:19	18 19:00 (5) 19:18 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	20 19:03 (5) 21:07	06:03 21:50	05:22 21:58	06:05 21:21	06:54 20:17	20 18:59 (5) 19:19 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	20 19:03 (5) 21:08	06:01 21:51	05:21 21:57	06:06 21:19	06:56 20:15	20 18:59 (5) 19:19 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	20 19:03 (5) 21:10	05:59 21:52	05:21 21:57	06:08 21:17	06:58 20:12	20 18:58 (5) 19:18 (5)	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	18 19:03 (5) 21:12	05:57 21:53	05:20 21:56	06:09 21:16	06:59 20:10	20 18:58 (5) 19:18 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	17 19:03 (5) 21:13	05:55 21:53	05:20 21:55	06:11 21:14	07:01 20:08	19 18:58 (5) 19:17 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	14 19:05 (5) 21:15	05:54 21:51	05:19 21:55	06:12 21:12	07:02 20:06	17 18:59 (5) 19:16 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	11 19:06 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10	07:04 20:03	15 18:59 (5) 19:14 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	3 19:10 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08	07:06 20:01	11 19:01 (5) 19:12 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	5 19:03 (5) 19:08 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	07:58 18:48	07:53 16:50	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	08:00 18:45	07:55 16:48	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	08:02 18:43	07:57 16:47	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	08:04 18:41	07:58 16:45	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	08:05 18:39	08:00 16:44	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	08:09 18:35	08:03 16:42	08:03 16:42	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:07 16:39	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:08 16:38	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	07:18 17:25	08:12 16:36	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:14	06:21 19:03	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:25 17:17	08:18 16:33	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 18:06	06:19 19:09	06:12 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:26 17:15	08:19 16:32	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:17 19:20	06:11 20:55	05:26 21:44	05:27 22:00	05:57 21:29	06:46 20:28	19:09 (5) 19:13 (5)	07:28 17:13	08:45 16:27	08:45 16:27	08:46 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			15	193				4	207				
Sun reduction			0.24	0.35				0.30	0.28				
Oper. time red.			1.00	1.00				1.00	1.00				
Wind dir. red.			0.65	0.65				0.65	0.65				
Total reduction			0.16	0.23				0.19	0.18				
Total, real			2	45				1	38				

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)

6460 Gortloughra WF 8 no. turbine wind farm Gortloughra Co.Cork

8 no. turbine wind farm Gortloughra Co.Cork

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

31/03/2026 14:17/4.2.285

Calculation: 6460 Gortloughra WF only (Worst Case)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April		May	June	July	August		September		October	November	December		
1	08:45	08:18	07:25	07:14		19:14 (5)	06:10	05:25	05:22	05:58		06:48	19:08 (5)	07:37	07:30	08:21	
	16:37	17:24	18:16	20:09	8	19:22 (5)	21:00	21:46	21:59	21:28		20:26	14	19:22 (5)	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12		19:12 (5)	06:08	05:24	05:23	06:00		06:50	19:06 (5)	07:38	07:32	08:22	
	16:38	17:26	18:18	20:11	13	19:25 (5)	21:02	21:47	21:59	21:26		20:24	16	19:22 (5)	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10		19:10 (5)	06:06	05:23	05:24	06:02		06:51	19:05 (5)	07:40	07:34	08:24	
	16:39	17:28	18:19	20:13	16	19:26 (5)	21:03	21:48	21:59	21:24		20:22	18	19:23 (5)	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08		19:08 (5)	06:04	05:23	05:24	06:03		06:53	19:04 (5)	07:42	07:35	08:25	
	16:40	17:30	18:21	20:15	18	19:26 (5)	21:05	21:49	21:58	21:23		20:19	18	19:22 (5)	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05		19:08 (5)	06:03	05:22	05:25	06:05		06:54	19:03 (5)	07:43	07:37	08:26	
	16:41	17:32	18:23	20:16	18	19:26 (5)	21:07	21:50	21:58	21:21		20:17	20	19:23 (5)	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03		19:07 (5)	06:01	05:21	05:26	06:06		06:56	19:04 (5)	07:45	07:39	08:28	
	16:43	17:34	18:25	20:18	20	19:27 (5)	21:08	21:51	21:57	21:19		20:15	19	19:23 (5)	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01		19:07 (5)	05:59	05:21	05:27	06:08		06:58	19:03 (5)	07:47	07:41	08:29	
	16:44	17:36	18:26	20:20	20	19:27 (5)	21:10	21:52	21:57	21:17		20:12	19	19:22 (5)	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59		19:06 (5)	05:57	05:20	05:28	06:09		06:59	19:03 (5)	07:48	07:43	08:30	
	16:45	17:37	18:28	20:21	19	19:25 (5)	21:12	21:53	21:56	21:16		20:10	18	19:21 (5)	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56		19:07 (5)	05:55	05:20	05:29	06:11		07:01	19:03 (5)	07:50	07:44	08:31	
	16:47	17:39	18:30	20:23	18	19:25 (5)	21:13	21:53	21:55	21:14		20:08	16	19:19 (5)	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54		19:08 (5)	05:54	05:19	05:30	06:12		07:02	19:05 (5)	07:52	07:46	08:32	
	16:48	17:41	18:32	20:25	16	19:24 (5)	21:15	21:54	21:55	21:12		20:06	13	19:18 (5)	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52		19:09 (5)	05:52	05:19	05:31	06:14		07:04	19:06 (5)	07:53	07:48	08:33	
	16:49	17:43	18:34	20:26	14	19:23 (5)	21:16	21:55	21:54	21:10		20:03	9	19:15 (5)	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50		19:10 (5)	05:50	05:19	05:32	06:16		07:06	19:07 (5)	07:55	07:50	08:34	
	16:51	17:45	18:35	20:28	11	19:21 (5)	21:18	21:56	21:53	21:08		20:01	18:52	16:52	16:27		
13	08:40	07:57	06:58	06:47		19:13 (5)	05:49	05:18	05:33	06:17		07:07	19:07 (5)	07:57	07:51	08:35	
	16:52	17:47	18:37	20:30	3	19:16 (5)	21:20	21:56	21:52	21:06		19:59	18:50	16:51	16:27		
14	08:39	07:55	06:56	06:45		05:47	05:18	05:34	06:19		07:09	19:56	18:48	16:50	16:27		
	16:54	17:48	18:39	20:32		21:21	21:57	21:51	21:04		19:56	18:48	16:50	16:27			
15	08:38	07:54	06:54	06:43		05:46	05:18	05:35	06:20		07:10	19:54	18:45	16:48	16:27		
	16:55	17:50	18:40	20:33		21:23	21:57	21:50	21:02		19:54	18:45	16:48	16:27			
16	08:37	07:52	06:51	06:41		05:44	05:18	05:36	06:22		07:12	19:52	18:43	16:47	16:27		
	16:57	17:52	18:42	20:35		21:24	21:58	21:49	21:00		19:52	18:43	16:47	16:27			
17	08:37	07:50	06:49	06:39		05:43	05:18	05:38	06:24		07:14	19:52	18:43	16:47	16:27		
	16:58	17:54	18:44	20:37		21:26	21:58	21:48	20:58		19:49	18:41	16:45	16:27			
18	08:36	07:48	06:47	06:37		05:41	05:18	05:39	06:25		07:15	19:49	18:41	16:45	16:27		
	17:00	17:56	18:46	20:38		21:27	21:59	21:47	20:56		19:47	18:39	16:44	16:27			
19	08:35	07:46	06:44	06:34		05:40	05:18	05:40	06:27		07:17	19:47	18:39	16:44	16:27		
	17:02	17:58	18:47	20:40		21:29	21:59	21:46	20:54		19:45	18:37	16:43	16:28			
20	08:34	07:44	06:42	06:32		05:38	05:18	05:41	06:29		07:19	19:45	18:37	16:43	16:28		
	17:03	18:00	18:49	20:42		21:30	21:59	21:45	20:52		19:42	18:35	16:42	16:28			
21	08:32	07:42	06:40	06:30		05:37	05:18	05:43	06:30		07:20	19:42	18:35	16:42	16:28		
	17:05	18:01	18:51	20:43		21:31	22:00	21:44	20:50		19:40	18:33	16:40	16:28			
22	08:31	07:40	06:37	06:28		05:36	05:18	05:44	06:32		07:22	19:40	18:33	16:40	16:28		
	17:07	18:03	18:52	20:45		21:33	22:00	21:42	20:48		19:38	18:31	16:39	16:29			
23	08:30	07:37	06:35	06:26		05:35	05:18	05:45	06:33		07:23	19:38	18:31	16:39	16:29		
	17:08	18:05	18:54	20:47		21:34	22:00	21:41	20:46		19:35	18:29	16:38	16:29			
24	08:29	07:35	06:33	06:24		05:33	05:19	05:47	06:35		07:25	19:35	18:27	16:37	16:30		
	17:10	18:07	18:56	20:48		21:36	22:00	21:40	20:44		19:33	18:27	16:37	16:30			
25	08:28	07:33	06:31	06:22		05:32	05:19	05:48	06:37		07:27	19:33	18:27	16:37	16:30		
	17:12	18:09	18:58	20:50		21:37	22:00	21:38	20:41		19:31	18:27	16:37	16:30			
26	08:26	07:31	06:28	06:20		05:31	05:20	05:50	06:38		07:28	19:31	18:27	16:37	16:30		
	17:14	18:10	18:59	20:52		21:38	22:00	21:37	20:39		19:28	18:27	16:37	16:30			
27	08:25	07:29	06:26	06:18		05:30	05:20	05:51	06:40		07:30	19:28	18:27	16:37	16:30		
	17:15	18:12	19:01	20:53		21:40	22:00	21:36	20:37		19:26	18:27	16:37	16:30			
28	08:24	07:27	06:24	06:16		05:29	05:20	05:53	06:41		07:32	19:26	18:27	16:37	16:30		
	17:17	18:14	19:03	20:55		21:41	22:00	21:34	20:35		19:24	18:27	16:37	16:30			
29	08:22		07:21	06:14		05:28	05:21	05:54	06:43		07:33	19:24	18:27	16:37	16:30		
	17:19		20:04	20:57		21:42	22:00	21:33	20:33		19:21	18:27	16:37	16:30			
30	08:21		07:19	06:12		05:27	05:22	05:55	06:45		07:35	19:21	18:27	16:37	16:30		
	17:21		20:06	20:58		21:43	22:00	21:31	20:31	5	19:18 (5)	19:19	18:27	16:37	16:30		
31	08:19		07:17			05:26		05:57	06:46		07:38	19:21	18:27	16:37	16:30		
	17:23		20:08			21:44		21:29	20:28	11	19:20 (5)	19:21	18:27	16:37	16:30		
Potential sun hours	260	278	367	416		485	498	501	453		381	180	332	267	244		
Total, worst case				194						16		180					
Sun reduction				0.35						0.30		0.28					
Oper. time red.				1.00						1.00		1.00					
Wind dir. red.				0.65						0.65		0.65					
Total reduction				0.23						0.19		0.18					
Total, real				45						3		33					

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)

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** Z - H26**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AA - H27

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:30	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AB - H28**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:33	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54	08:00 18:45	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:28 20:52	07:19 19:42	08:09 18:35	08:03 16:42	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	07:18 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19		07:21 20:04	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:25 17:17	08:18 16:32	08:44 16:34
30	08:21 17:21		07:19 20:06	06:12 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:26 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23		07:17 20:08		05:26 21:44		05:57 21:29	06:46 20:28		07:28 17:13		08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) Shadow receptor: AC - H29
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time
N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December			
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	18 19:19 (7)	05:25 21:46	05:22 21:59	05:59 21:28	31 19:05 (7)	06:48 20:26	15 19:16 (6)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	20 19:21 (7)	05:24 21:47	05:23 21:59	06:00 21:26	30 19:06 (7)	06:50 20:24	11 19:17 (6)	07:38 19:15	07:32 17:09	08:22 16:31
3	08:44 16:39	08:15 17:28	07:20 18:20	07:10 20:13	06:06 21:03	23 18:59 (7)	05:24 21:48	05:24 21:59	06:02 21:25	30 19:05 (7)	06:51 20:22	4 19:21 (6)	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	25 18:58 (7)	05:23 21:49	05:24 21:58	06:03 21:23	30 19:06 (7)	06:53 20:19		07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:42	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	26 18:57 (7)	05:22 21:50	05:25 21:58	06:05 21:21	29 19:06 (7)	06:54 20:17		07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	27 18:57 (7)	05:22 21:51	05:26 21:57	06:06 21:19	29 19:05 (7)	06:56 20:15		07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	29 18:56 (7)	05:21 21:52	05:27 21:57	06:08 21:18	28 19:06 (7)	06:58 20:13		07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:38	07:09 18:28	06:59 20:21	05:57 21:12	30 18:55 (7)	05:20 21:53	05:28 21:56	06:09 21:16	26 19:06 (7)	06:59 20:10		07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:23 (6) 19:27 (6)	30 18:55 (7)	05:56 21:53	05:29 21:56	06:11 21:14	24 19:08 (7)	07:01 20:08		07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:19 (6) 19:30 (6)	30 18:55 (7)	05:54 21:54	05:30 21:55	06:13 21:12	24 19:08 (7)	07:03 20:06		07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	19:17 (6) 19:32 (6)	30 18:55 (7)	05:52 21:55	05:31 21:54	06:14 21:10	22 19:10 (7)	07:04 20:03		07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:16 (6) 19:33 (6)	31 18:55 (7)	05:51 21:56	05:32 21:53	06:16 21:08	19 19:29 (7)	07:06 20:03		07:54 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	19:14 (6) 19:33 (6)	31 18:55 (7)	05:49 21:56	05:33 21:52	06:17 21:06	17 19:13 (7)	07:07 20:00		07:55 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	19:14 (6) 19:33 (6)	30 18:55 (7)	05:47 21:57	05:34 21:51	06:19 21:04		07:09 19:56		07:59 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	19:13 (6) 19:33 (6)	29 18:56 (7)	05:46 21:57	05:35 21:50	06:21 21:02	19 19:18 (7)	07:11 21:02		08:00 19:54	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	19:13 (6) 19:33 (6)	29 18:56 (7)	05:44 21:58	05:37 21:49	06:22 21:00	11 19:15 (7)	07:12 21:00		08:02 19:52	07:57 18:43	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	19:13 (6) 19:33 (6)	28 18:56 (7)	05:43 21:58	05:38 21:48	06:24 20:58	13 19:16 (7)	07:14 20:58		08:04 19:49	07:58 18:41	08:39 16:29
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:14 (6) 19:32 (6)	27 18:57 (7)	05:41 21:59	05:39 21:47	06:25 20:56		07:15 19:47		08:05 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:44 18:47	06:35 20:40	19:14 (6) 19:31 (6)	26 18:58 (7)	05:40 21:59	05:40 21:46	06:27 20:54	16 19:12 (7)	07:16 20:54		08:06 19:45	08:02 18:37	08:41 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:15 (6) 19:30 (6)	26 18:58 (7)	05:42 22:00	05:42 21:45	06:29 20:52	18 19:11 (7)	07:19 20:52		08:09 19:42	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:16 (6) 19:29 (6)	25 18:59 (7)	05:43 22:00	05:43 21:44	06:30 20:50	20 19:10 (7)	07:20 21:02		08:11 19:32	08:05 16:41	08:42 16:29
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	19:18 (6) 19:26 (6)	24 19:00 (7)	05:44 22:00	05:44 21:42	06:32 20:48	9 19:07 (7)	07:22 21:04		08:12 19:34	08:07 18:31	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	19:26 (6) 21:34	22 19:01 (7)	05:46 22:00	05:46 21:41	06:33 20:46	13 19:09 (7)	07:24 20:58		08:14 19:36	08:08 18:29	08:43 16:30
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	19:27 (6) 21:36	21 19:02 (7)	05:47 22:00	05:47 21:40	06:35 20:44	15 19:08 (7)	07:25 20:56		08:16 19:35	08:10 18:27	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:28 (6) 21:37	20 19:03 (7)	05:48 22:00	05:48 21:38	06:37 20:42	17 19:09 (7)	07:27 20:54		08:18 19:36	08:12 17:25	08:43 16:31
26	08:26 17:14	07:31 18:11	06:28 18:59	06:20 20:52	19:31 (6) 21:38	19 19:04 (7)	05:50 22:00	05:50 21:37	06:38 20:39	19 19:16 (7)	07:28 20:29		08:20 19:16	08:13 17:23	08:44 16:32
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:53	19:32 (6) 21:40	15 19:06 (7)	05:51 22:00	05:51 21:36	06:40 20:37	20 19:07 (7)	07:30 21:02		08:21 19:35	08:15 17:21	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:33 (6) 21:41	12 19:08 (7)	05:53 22:00	05:53 21:34	06:42 20:35	20 19:07 (7)	07:32 21:04		08:22 19:36	08:16 17:19	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:04	06:14 20:57	19:34 (6) 21:42	8 19:16 (7)	05:54 22:00	05:54 21:33	06:43 20:33	20 19:15 (6)	07:33 21:06		08:23 19:37	08:18 17:17	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	19:35 (6) 21:43		05:56 22:00	05:56 21:31	06:45 20:31	19 19:16 (7)	07:35 21:09		08:24 19:38	08:19 17:15	08:45 16:35
31	08:19 17:23	07:17 18:08	06:11 19:07	06:11 20:59	19:36 (6) 21:44		05:57 22:00	05:57 21:29	06:46 20:28	17 19:17 (7)	07:36 21:06		08:25 19:39	08:20 17:13	08:46 16:36
Potential sun hours	260	278	367	416	485		498	501	453	381	332	267	244		
Total, worst case				234	682		381	515	30						
Sun reduction				0.35	0.37		0.27	0.30	0.28						
Oper. time red.				1.00	1.00		1.00	1.00	1.00						
Wind dir. red.				0.63	0.62		0.62	0.62	0.63						
Total reduction				0.22	0.23		0.17	0.19	0.18						
Total, real				53	156		63	96	5						

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: 6460 Gortloughra WF only (Worst Case) Shadow receptor: AD - H30
Assumptions for shadow calculations Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time
N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	19:23 (7) 21:59	05:59 21:28	19:21 (7) 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	19:24 (7) 21:59	06:00 21:26	19:22 (7) 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:24 21:48	19:24 (7) 21:59	06:02 21:25	19:22 (7) 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:24 21:49	19:24 (7) 21:59	06:03 21:23	19:23 (7) 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:42	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:25 21:50	19:24 (7) 21:59	06:05 21:21	19:24 (7) 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:22 21:51	19:24 (7) 21:59	06:06 21:19	19:24 (7) 20:15	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	19:24 (7) 21:59	06:08 21:18	19:26 (7) 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:38	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	19:24 (7) 21:59	06:09 21:16	19:27 (7) 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	05:20 21:53	19:24 (7) 21:59	06:11 21:15	19:29 (7) 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	19:24 (7) 21:59	06:13 21:12	19:31 (7) 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:16	05:19 21:55	19:24 (7) 21:59	06:14 21:10	19:31 (7) 20:03	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:51 21:18	05:19 21:56	19:24 (7) 21:59	06:16 21:08	19:29 (7) 20:01	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	19:24 (7) 21:59	06:17 21:06	19:28 (7) 20:06	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	19:24 (7) 21:59	06:19 21:04	19:27 (7) 20:04	07:59 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:57	19:24 (7) 21:59	06:21 21:02	19:26 (7) 20:02	07:11 18:54	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	19:24 (7) 21:59	06:22 21:00	19:25 (7) 20:04	07:12 18:43	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	19:24 (7) 21:59	06:24 20:58	19:26 (7) 20:04	07:14 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	19:24 (7) 21:59	06:25 20:56	19:25 (7) 20:06	07:15 18:39	08:05 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:44 18:47	06:35 20:40	05:40 21:29	05:18 21:59	19:24 (7) 21:59	06:27 20:54	19:26 (7) 20:04	07:17 18:41	08:07 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	05:18 21:59	19:24 (7) 21:59	06:29 20:52	19:27 (7) 20:02	07:19 18:35	08:09 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	19:24 (7) 21:59	06:30 20:50	19:28 (7) 20:04	07:20 18:33	08:11 16:40	08:42 16:29
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	19:24 (7) 21:59	06:32 20:48	19:27 (7) 20:06	07:22 18:31	08:12 16:39	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	19:24 (7) 21:59	06:33 20:46	19:28 (7) 20:06	07:24 18:29	08:14 16:38	08:43 16:30
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	19:24 (7) 21:59	06:35 20:44	19:29 (7) 20:06	07:25 18:27	08:16 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	19:24 (7) 21:59	06:37 20:42	19:26 (7) 20:06	07:27 17:25	08:18 16:36	08:43 16:31
26	08:26 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	19:24 (7) 21:59	06:38 20:39	19:26 (7) 20:06	07:28 17:23	08:19 16:35	08:44 16:31
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	19:24 (7) 21:59	06:40 20:37	19:26 (7) 20:06	07:30 17:21	08:21 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	19:24 (7) 21:59	06:42 20:35	19:27 (7) 20:06	07:32 17:19	08:23 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:04	06:14 20:57	05:28 21:42	05:21 22:00	19:24 (7) 21:59	06:43 20:33	19:27 (7) 20:06	07:33 17:17	08:24 16:33	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	05:27 21:43	05:22 22:00	19:24 (7) 21:59	06:45 20:31	19:28 (7) 20:06	07:35 17:15	08:25 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:11 19:07	06:11 20:58	05:26 21:44	05:22 22:00	19:24 (7) 21:59	06:46 20:28	19:29 (7) 20:06	07:36 17:13	08:26 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case				194	637	15		385				
Sun reduction				0.35	0.37	0.30		0.30				
Oper. time red.				1.00	1.00	1.00		1.00				
Wind dir. red.				0.62	0.60	0.60		0.61				
Total reduction				0.22	0.22	0.18		0.18				
Total, real				43	142	3		70				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** AE - H31**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December				
1	08:45	08:18	07:25	07:15	06:10	05:25	20:08 (8)	05:22	20:16 (8)	05:59	06:48	07:37	07:30	08:21		
	16:37	17:25	18:16	20:10	21:00	21:46	21	20:29 (8)	21:59	17	20:33 (8)	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	20:08 (8)	05:23	20:15 (8)	06:00	06:50	07:38	07:32	08:22		
	16:38	17:26	18:18	20:11	21:02	21:47	21	20:29 (8)	21:59	18	20:33 (8)	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:24	20:08 (8)	05:24	20:16 (8)	06:02	06:51	07:40	07:34	08:24		
	16:39	17:28	18:19	20:13	21:03	21:48	21	20:29 (8)	21:59	18	20:34 (8)	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	20:09 (8)	05:24	20:16 (8)	06:03	06:53	07:42	07:35	08:25		
	16:40	17:30	18:21	20:15	21:05	21:49	20	20:29 (8)	21:58	18	20:34 (8)	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	20:09 (8)	05:25	20:16 (8)	06:05	06:54	07:43	07:37	08:26		
	16:41	17:32	18:23	20:16	21:07	21:50	20	20:29 (8)	21:58	19	20:35 (8)	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	20:10 (8)	05:26	20:15 (8)	06:06	06:56	07:45	07:39	08:28		
	16:43	17:34	18:25	20:18	21:08	21:51	19	20:29 (8)	21:57	20	20:35 (8)	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	20:10 (8)	05:27	20:15 (8)	06:08	06:58	07:47	07:41	08:29		
	16:44	17:36	18:27	20:20	21:10	21:52	19	20:29 (8)	21:57	20	20:35 (8)	21:17	20:12	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	20:10 (8)	05:28	20:15 (8)	06:09	06:59	07:48	07:43	08:30		
	16:45	17:37	18:28	20:21	21:12	21:53	19	20:29 (8)	21:56	21	20:36 (8)	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	20:10 (8)	05:29	20:15 (8)	06:11	07:01	07:50	07:44	08:31		
	16:47	17:39	18:30	20:23	21:13	21:53	18	20:28 (8)	21:55	21	20:36 (8)	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	20:11 (8)	05:30	20:15 (8)	06:13	07:02	07:52	07:46	08:32		
	16:48	17:41	18:32	20:25	21:15	21:54	18	20:29 (8)	21:55	21	20:36 (8)	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	20:12 (8)	05:31	20:15 (8)	06:14	07:04	07:53	07:48	08:33		
	16:49	17:43	18:34	20:26	21:16	21:55	17	20:29 (8)	21:54	22	20:37 (8)	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:50	05:19	20:13 (8)	05:32	20:15 (8)	06:16	07:06	07:55	07:50	08:34		
	16:51	17:45	18:35	20:28	21:18	21:56	16	20:29 (8)	21:53	22	20:37 (8)	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:47	05:49	05:19	20:12 (8)	05:33	20:15 (8)	06:17	07:07	07:57	07:51	08:35		
	16:52	17:47	18:37	20:30	21:20	21:56	16	20:28 (8)	21:52	22	20:37 (8)	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	20:13 (8)	05:34	20:15 (8)	06:19	07:09	07:58	07:53	08:36		
	16:54	17:49	18:39	20:32	21:21	21:57	15	20:28 (8)	21:51	22	20:37 (8)	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	20:13 (8)	05:35	20:15 (8)	06:21	07:11	08:00	07:55	08:37		
	16:55	17:50	18:41	20:33	21:23	21:57	16	20:29 (8)	21:50	22	20:37 (8)	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	20:14 (8)	05:37	20:15 (8)	06:22	07:12	08:02	07:57	08:38		
	16:57	17:52	18:42	20:35	21:24	9 20:21 (8)	15	20:29 (8)	21:49	22	20:37 (8)	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	20:14 (8)	05:38	20:16 (8)	06:24	07:14	08:04	07:58	08:39		
	16:59	17:54	18:44	20:37	21:26	12 20:23 (8)	15	20:29 (8)	21:48	22	20:38 (8)	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	20:14 (8)	05:39	20:16 (8)	06:25	07:15	08:05	08:00	08:40		
	17:00	17:56	18:46	20:38	21:27	14 20:24 (8)	15	20:29 (8)	21:47	22	20:38 (8)	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	20:15 (8)	05:40	20:16 (8)	06:27	07:17	08:07	08:02	08:40		
	17:02	17:58	18:47	20:40	21:29	17 20:26 (8)	14	20:29 (8)	21:46	22	20:38 (8)	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	20:15 (8)	05:42	20:16 (8)	06:29	07:19	08:09	08:03	08:41		
	17:03	18:00	18:49	20:42	21:30	18 20:26 (8)	14	20:29 (8)	21:45	21	20:37 (8)	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	20:16 (8)	05:43	20:17 (8)	06:30	07:20	08:11	08:05	08:42		
	17:05	18:01	18:51	20:43	21:31	19 20:26 (8)	14	20:30 (8)	21:44	20	20:37 (8)	20:50	19:40	18:33	16:40	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	20:16 (8)	05:44	20:18 (8)	06:32	07:22	08:12	08:07	08:42		
	17:07	18:03	18:53	20:45	21:33	20 20:27 (8)	14	20:30 (8)	21:42	19	20:37 (8)	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	20:16 (8)	05:46	20:18 (8)	06:33	07:24	08:14	08:08	08:43		
	17:09	18:05	18:54	20:47	21:34	21 20:28 (8)	14	20:30 (8)	21:41	19	20:37 (8)	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	20:15 (8)	05:47	20:18 (8)	06:35	07:25	08:16	08:10	08:43		
	17:10	18:07	18:56	20:48	21:36	21 20:28 (8)	15	20:30 (8)	21:40	18	20:36 (8)	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	20:16 (8)	05:48	20:20 (8)	06:37	07:27	08:18	08:12	08:43		
	17:12	18:09	18:58	20:50	21:37	21 20:28 (8)	15	20:31 (8)	21:38	16	20:36 (8)	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	20:16 (8)	05:50	20:21 (8)	06:38	07:28	08:19	08:13	08:44		
	17:14	18:10	18:59	20:52	21:38	22 20:29 (8)	15	20:31 (8)	21:37	13	20:34 (8)	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	20:16 (8)	05:51	20:22 (8)	06:40	07:30	08:21	08:15	08:44		
	17:16	18:12	19:01	20:53	21:40	22 20:29 (8)	16	20:32 (8)	21:36	10	20:32 (8)	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	20:16 (8)	05:53	20:25 (8)	06:42	07:32	08:23	08:16	08:44		
	17:17	18:14	19:03	20:55	21:41	22 20:29 (8)	16	20:32 (8)	21:34	6	20:31 (8)	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	20:16 (8)	05:54			06:43	07:33	07:25	08:18	08:44	
	17:19		20:04	20:57	21:42	22 20:29 (8)	16	20:32 (8)	21:33		20:33	19:22	17:17	16:33	16:34	
30	08:21		07:19	06:12	05:27	05:22	20:16 (8)	05:56			06:45	07:35	07:26	08:19	08:44	
	17:21		20:06	20:58	21:43	22 20:29 (8)	16	20:32 (8)	21:31		20:31	19:19	17:15	16:32	16:35	
31	08:19		07:17		05:26	20:07 (8)		05:57			06:46		07:28		08:45	
	17:23		20:08		21:44	22 20:29 (8)		21:29			20:28		17:13		16:36	
Potential sun hours	260	278	367	416	485	498	501		453	381	332	267	244			
Total, worst case					304		500									
Sun reduction					0.37		0.30									
Oper. time red.					1.00		1.00									
Wind dir. red.					0.57		0.57									
Total reduction					0.21		0.17									
Total, real					64		85									

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AF - H32

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AG - H33

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AH - H34

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AI - H35**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	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: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AJ - H36

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	[January	[February	[March	[April	[May	[June	[July	[August	[September	[October	[November	[December			
1	08:45	08:18	07:25	07:15	06:10	07:04 (6)	05:25	05:23	05:59	06:48	07:37	07:30	08:21		
	16:37	17:25	18:16	20:10	21:00	07:22 (6)	21:46	22:00	21:28	20:26	19:17	17:11	16:31		
2	08:45	08:17	07:23	07:12	06:08	07:05 (6)	05:25	05:23	06:00	06:50	07:39	07:32	08:22		
	16:38	17:27	18:18	20:11	21:02	07:20 (6)	21:47	21:59	21:26	20:24	19:15	17:10	16:31		
3	08:45	08:15	07:21	07:10	06:07	07:06 (6)	05:24	05:24	06:02	06:51	07:40	07:34	08:24		
	16:39	17:28	18:20	20:13	21:04	07:18 (6)	21:48	21:59	21:25	20:22	19:13	17:08	16:30		
4	08:44	08:13	07:18	07:08	06:05	07:08 (6)	05:23	05:25	06:03	06:53	07:42	07:36	08:25		
	16:41	17:30	18:21	20:15	21:05	07:15 (6)	21:49	21:59	21:23	20:20	19:10	17:06	16:30		
5	08:44	08:12	07:16	07:06	06:03		05:22	05:25	06:05	06:55	07:44	07:37	08:26		
	16:42	17:32	18:23	20:17	21:07		21:50	21:58	21:21	20:17	19:08	17:04	16:29		
6	08:44	08:10	07:14	07:03	06:01		05:22	05:26	06:07	06:56	07:45	07:39	08:28		
	16:43	17:34	18:25	20:18	21:09		21:51	21:58	21:19	20:15	19:06	17:03	16:29		
7	08:43	08:08	07:12	07:01	05:59		05:21	05:27	06:08	06:58	07:47	07:41	08:29		
	16:44	17:36	18:27	20:20	21:10		21:52	21:57	21:18	20:13	19:04	17:01	16:28		
8	08:43	08:07	07:10	06:59	05:57		05:21	05:28	06:10	07:00	07:49	07:43	08:30		
	16:46	17:38	18:29	20:22	21:12		21:53	21:56	21:16	20:10	19:01	16:59	16:28		
9	08:42	08:05	07:07	06:57	05:56		05:20	05:29	06:11	9	07:17 (6)	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:13		21:54	21:56	21:14	9	07:26 (6)	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54		05:20	05:30	06:13		07:15 (6)	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15		21:54	21:55	21:12	13	07:28 (6)	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52		05:19	05:31	06:14		07:13 (6)	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17		21:55	21:54	21:10	16	07:29 (6)	20:04	18:55	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51		05:19	05:32	06:16		07:12 (6)	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18		21:56	21:53	21:08	19	07:31 (6)	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49		05:19	05:33	06:18		07:11 (6)	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20		21:56	21:52	21:06	20	07:31 (6)	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48		05:19	05:34	06:19		07:10 (6)	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21		21:57	21:52	21:04	22	07:32 (6)	19:57	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46		05:18	05:36	06:21		07:09 (6)	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23		21:58	21:51	21:02	23	07:32 (6)	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44		05:18	05:37	06:22		07:09 (6)	07:12	08:02	07:57	08:38
	16:57	17:53	18:42	20:35	21:24		21:58	21:50	21:00	23	07:32 (6)	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43		05:18	05:38	06:24		07:08 (6)	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26		21:59	21:49	20:58	24	07:32 (6)	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	07:10 (6)	05:18	05:39	06:26		07:09 (6)	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	07:20 (6)	21:59	21:47	20:56	23	07:32 (6)	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	07:08 (6)	05:18	05:40	06:27		07:08 (6)	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	07:22 (6)	21:59	21:46	20:54	23	07:31 (6)	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	07:06 (6)	05:18	05:42	06:29		07:09 (6)	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	07:23 (6)	22:00	21:45	20:52	22	07:31 (6)	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	07:05 (6)	05:18	05:43	06:30		07:09 (6)	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	07:24 (6)	22:00	21:44	20:50	20	07:29 (6)	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	07:04 (6)	05:19	05:44	06:32		07:10 (6)	07:22	08:13	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	07:25 (6)	22:00	21:43	20:48	19	07:29 (6)	19:38	18:31	16:40	16:29
23	08:30	07:38	06:35	06:26	05:35	07:03 (6)	05:19	05:46	06:34		07:10 (6)	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:35	07:25 (6)	22:00	21:41	20:46	17	07:27 (6)	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	07:02 (6)	05:19	05:47	06:35		07:12 (6)	07:25	08:16	08:10	08:43
	17:11	18:07	18:56	20:49	21:36	07:25 (6)	22:00	21:40	20:44	14	07:26 (6)	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	07:02 (6)	05:19	05:49	06:37		07:13 (6)	07:27	07:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	07:25 (6)	22:00	21:39	20:42	10	07:23 (6)	19:31	17:25	16:36	16:31
26	08:27	07:31	06:29	06:20	05:31	07:02 (6)	05:20	05:50	06:39		07:29	07:20	07:20	08:13	08:44
	17:14	18:11	19:00	20:52	21:39	07:25 (6)	22:00	21:37	20:40		19:29	17:23	16:35	16:32	
27	08:25	07:29	06:26	06:18	05:30	07:02 (6)	05:20	05:51	06:40		07:30	07:21	08:15	08:44	
	17:16	18:13	19:01	20:54	21:40	07:24 (6)	22:00	21:36	20:37		19:26	17:21	16:35	16:32	
28	08:24	07:27	06:24	06:16	05:29	07:02 (6)	05:21	05:53	06:42		07:32	07:23	08:17	08:44	
	17:18	18:14	19:03	20:55	21:41	07:24 (6)	22:00	21:34	20:35		19:24	17:19	16:34	16:33	
29	08:23		07:22	06:14	05:28	07:02 (6)	05:21	05:54	06:43		07:34	07:25	08:18	08:45	
	17:19		20:05	20:57	21:42	07:23 (6)	22:00	21:33	20:33		19:22	17:17	16:33	16:34	
30	08:21		07:19	06:12	05:27	07:02 (6)	05:22	05:56	06:45		07:35	07:27	08:20	08:45	
	17:21		20:06	20:59	21:44	07:22 (6)	22:00	21:31	20:31		19:19	17:15	16:32	16:35	
31	08:20		07:17		05:26			05:57	06:47			07:29		08:45	
	17:23		20:08		21:45			21:30	20:29			17:13		16:36	
Potential sun hours	260	278	367	416	485		498	501	453		381	332	267	244	
Total, worst case				257	52				317						
Sun reduction				0.35	0.37				0.30						
Oper. time red.				1.00	1.00				1.00						
Wind dir. red.				0.68	0.68				0.68						
Total reduction				0.24	0.25				0.20						
Total, real				62	13				64						

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

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

6460 Gortloughra WF 8 no. turbine wind farm Gortloughra Co.Cork

8 no. turbine wind farm Gortloughra Co.Cork

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:
31/03/2026 14:17/4.2.285

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AK - H37
Assumptions for shadow calculations Sunshine probability S (Avera

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** AL - H38

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Assumptions for shadow calculationsJan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	06:33 (6) 22:00	05:59 21:28	06:34 (6) 20:26	06:48 19:17	07:37 17:11	07:30 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18	07:12 20:11	06:08 21:02	05:25 21:47	06:34 (6) 21:59	06:00 21:26	06:36 (6) 20:24	06:50 19:15	07:39 17:10	07:32 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:07 21:04	05:24 21:48	06:34 (6) 21:59	06:02 21:25	06:37 (6) 20:22	06:51 19:13	07:40 17:08	07:34 16:30
4	08:44 16:41	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	05:23 21:49	06:34 (6) 21:59	06:03 21:23	06:40 (6) 20:20	06:53 19:10	07:42 17:06	07:36 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:17	06:03 21:07	05:22 21:50	06:34 (6) 21:58	06:05 21:21	06:55 20:17	07:44 19:08	07:37 17:04	07:37 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	05:22 21:51	06:34 (6) 21:58	06:07 21:19	06:56 20:15	07:45 19:06	07:39 17:03	07:39 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	06:34 (6) 21:57	06:08 21:18	06:58 20:13	07:47 19:04	07:41 17:01	07:41 16:28
8	08:43 16:46	08:07 17:38	07:10 18:29	06:59 20:22	05:58 21:12	05:21 21:53	06:34 (6) 21:56	06:10 21:16	07:00 20:10	07:49 19:01	07:43 16:59	07:43 16:28
9	08:42 16:47	08:05 17:40	07:07 18:30	06:57 20:23	05:56 21:13	05:20 21:54	06:34 (6) 21:56	06:11 21:14	07:01 20:08	07:50 18:59	07:45 16:58	07:45 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	06:34 (6) 21:55	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	07:46 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	05:19 21:55	06:34 (6) 21:54	06:14 21:10	07:04 20:04	07:54 18:55	07:48 16:54	07:48 16:27
12	08:41 16:51	07:59 17:45	07:01 18:36	06:50 20:28	05:51 21:18	05:19 21:56	06:34 (6) 21:53	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	07:50 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	06:34 (6) 21:52	06:18 21:06	06:37 (6) 20:06	07:57 19:59	07:52 16:51	07:52 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	06:46 20:32	05:48 21:21	05:19 21:57	06:34 (6) 21:52	06:19 21:04	06:36 (6) 20:04	07:59 19:57	07:53 16:50	07:53 16:27
15	08:38 16:56	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:58	06:34 (6) 21:51	06:21 21:02	06:36 (6) 20:06	07:59 19:54	07:55 16:48	07:55 16:27
16	08:38 16:57	07:52 17:53	06:52 18:42	06:41 20:35	05:44 21:24	05:18 21:58	06:34 (6) 21:50	06:22 21:00	06:35 (6) 20:06	07:59 19:52	07:57 16:44	07:57 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:59	06:34 (6) 21:49	06:24 20:58	06:34 (6) 20:06	07:59 19:50	07:59 16:46	07:59 16:28
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:39	05:42 21:27	05:18 21:59	06:34 (6) 21:47	06:26 20:56	06:34 (6) 20:06	07:59 19:47	07:59 16:44	07:59 16:28
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	05:18 21:59	06:34 (6) 21:46	06:27 20:54	06:33 (6) 20:06	07:59 19:45	07:59 16:43	07:59 16:28
20	08:34 17:04	07:44 18:00	06:42 18:49	06:33 20:42	05:39 21:30	05:18 22:00	06:34 (6) 21:45	06:29 20:52	06:33 (6) 20:06	07:59 19:43	07:59 16:42	07:59 16:28
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	05:18 22:00	06:34 (6) 21:44	06:30 20:50	06:33 (6) 20:06	07:59 19:40	07:59 16:41	07:59 16:29
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:19 22:00	06:34 (6) 21:43	06:32 20:48	06:33 (6) 20:06	07:59 19:38	07:59 16:40	07:59 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:35	05:19 22:00	06:34 (6) 21:41	06:34 20:46	06:32 (6) 20:06	07:59 19:36	07:59 16:38	07:59 16:30
24	08:29 17:11	07:36 18:07	06:33 18:56	06:24 20:49	05:34 21:36	05:19 22:00	06:34 (6) 21:40	06:35 20:44	06:32 (6) 20:06	07:59 19:33	07:59 16:37	07:59 16:30
25	08:28 17:12	07:34 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:20 22:00	06:34 (6) 21:39	06:37 20:42	06:32 (6) 20:06	07:59 19:31	07:59 16:36	07:59 16:31
26	08:27 17:14	07:31 18:11	06:29 19:00	06:20 20:52	05:31 21:39	05:20 22:00	06:34 (6) 21:37	06:39 20:40	06:32 (6) 20:06	07:59 19:29	07:59 16:35	07:59 16:32
27	08:25 17:16	07:29 18:13	06:26 19:01	06:18 20:54	05:30 21:40	05:20 22:00	06:34 (6) 21:36	06:40 20:37	06:32 (6) 20:06	07:59 19:26	07:59 16:35	07:59 16:32
28	08:24 17:18	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	06:34 (6) 21:34	06:42 20:35	06:33 (6) 20:06	07:59 19:24	07:59 16:34	07:59 16:33
29	08:23 17:19	07:22 20:05	06:14 20:57	05:28 21:42	05:28 21:42	05:21 22:00	06:34 (6) 21:33	06:43 20:33	06:33 (6) 20:06	07:59 19:22	07:59 16:33	07:59 16:34
30	08:21 17:21	07:19 20:06	06:12 20:59	05:27 21:43	05:27 21:43	05:22 22:00	06:34 (6) 21:31	06:45 20:31	06:34 (6) 20:06	07:59 19:19	07:59 16:32	07:59 16:35
31	08:20 17:23	07:17 20:08	06:11 21:45	05:26 21:45	05:26 21:45	06:30 (6) 7	06:34 (6) 21:30	06:47 20:29	06:34 (6) 20:06	07:59 17:13	07:59 16:32	07:59 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	245
Total, worst case					381	1	342	47				
Sun reduction					0.37	0.30	0.27	0.30				
Oper. time red.					1.00	1.00	1.00	1.00				
Wind dir. red.					0.69	0.69	0.69	0.69				
Total reduction					0.26	0.21	0.19	0.21				
Total, real					98	0	64	10				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AM - H39

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:57	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AN - H40

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:52	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AO - H41**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AP - H42

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AQ - H43

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:51	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AR - H44

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AS - H45

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	Sun set (hh:mm)	Minutes with flicker	First time (hh:mm) with flicker	Last time (hh:mm) with flicker	(WTG causing flicker first time)	(WTG causing flicker last time)
--------------	------------------	-----------------	----------------------	---------------------------------	--------------------------------	----------------------------------	---------------------------------

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AT - H46

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:45	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:03	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:50	17:43	18:34	20:27	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:16	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:43	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:24	08:18	08:44
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AU - H47

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:20	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:25	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:13	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:56	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:40	07:59	07:00	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:57	21:50	21:02	19:54	18:46	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:59	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:44	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:39	05:18	05:42	06:29	07:19	08:09	08:03	08:41
	17:04	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:31	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:33	07:24	08:14	08:08	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:30
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:44
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** AV - H48**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	[January	[February	[March		[April	[May	[June	[July	[August	[September		[October		[November	[December	
1	08:45 16:37	08:18 17:25	07:25 18:16		07:15 20:10	06:10 21:00	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26		07:37 19:17	9	08:30 (1) 08:39 (1)	07:30 17:11	08:21 16:31
2	08:45 16:38	08:17 17:27	07:23 18:18		07:12 20:11	06:08 21:02	05:25 21:47	05:23 21:59	06:00 21:26	06:50 20:24		07:39 19:15			07:32 17:10	08:23 16:31
3	08:45 16:39	08:15 17:28	07:21 18:20		07:10 20:13	06:06 21:04	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22		07:40 19:13			07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:19 18:21		07:08 20:15	06:05 21:05	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:20		07:42 19:10			07:36 17:06	08:25 16:30
5	08:44 16:42	08:12 17:32	07:16 18:23		07:06 20:17	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17		07:44 19:08			07:38 17:04	08:27 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	06:01 21:09	05:22 21:51	05:26 21:58	06:06 21:20	06:56 20:15		07:45 19:06			07:39 17:02	08:28 16:29
7	08:43 16:44	08:08 17:36	07:12 18:27		07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13		07:47 19:04			07:41 17:01	08:29 16:28
8	08:43 16:45	08:07 17:38	07:10 18:29		06:59 20:22	05:57 21:12	05:21 21:53	05:28 21:56	06:10 21:16	07:00 20:10		07:49 19:01			07:43 16:59	08:30 16:28
9	08:43 16:47	08:05 17:40	07:07 18:30		06:57 20:23	05:56 21:14	05:20 21:54	05:29 21:56	06:11 21:14	07:01 20:08		07:50 18:59			07:45 16:57	08:31 16:28
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25	05:54 21:15	05:20 21:54	05:30 21:55	06:13 21:12	07:03 20:06		07:52 18:57			07:46 16:56	08:33 16:27
11	08:41 16:50	08:01 17:43	07:03 18:34		06:52 20:27	05:52 21:17	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:04		07:54 18:55			07:48 16:54	08:34 16:27
12	08:41 16:51	08:00 17:45	07:01 18:36	5	07:53 (1) 07:58 (1)	06:50 20:28	05:51 21:18	05:19 21:56	05:32 21:53	06:16 21:08		07:55 18:52			07:50 16:53	08:35 16:27
13	08:40 16:53	07:58 17:47	06:58 18:37	11	07:49 (1) 08:00 (1)	06:48 20:30	05:49 21:20	05:19 21:57	05:33 21:53	06:18 21:07		07:57 18:50			07:52 16:51	08:36 16:27
14	08:39 16:54	07:56 17:49	06:56 18:39	15	07:47 (1) 08:02 (1)	06:46 20:32	05:47 21:21	05:18 21:57	05:34 21:52	06:19 21:05		07:59 19:57			07:53 16:50	08:37 16:27
15	08:39 16:56	07:54 17:51	06:54 18:41	17	07:46 (1) 08:03 (1)	06:43 20:34	05:46 21:23	05:18 21:58	05:35 21:51	06:21 21:03		07:11 19:54			08:00 18:46	07:55 16:48
16	08:38 16:57	07:52 17:52	06:52 18:42	19	07:44 (1) 08:03 (1)	06:41 20:35	05:44 21:24	05:18 21:58	05:37 21:50	06:22 21:01		07:12 19:52			08:02 18:44	07:57 16:47
17	08:37 16:59	07:50 17:54	06:49 18:44	19	07:44 (1) 08:03 (1)	06:39 20:37	05:43 21:26	05:18 21:59	05:38 21:49	06:24 20:59		07:14 19:50			08:04 18:41	07:59 16:46
18	08:36 17:00	07:48 17:56	06:47 18:46	19	07:43 (1) 08:03 (1)	06:37 20:39	05:41 21:27	05:18 21:59	05:39 21:48	06:26 20:57		07:16 19:47			08:06 18:39	08:00 16:44
19	08:35 17:02	07:46 17:58	06:45 18:48	20	07:43 (1) 08:02 (1)	06:35 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54		07:17 19:45	3	08:36 (1) 08:39 (1)	07:17 18:37	08:02 16:43
20	08:34 17:04	07:44 18:00	06:42 18:49	19	07:43 (1) 08:02 (1)	06:33 20:42	05:39 21:30	05:18 22:00	05:42 21:45	06:29 20:52		07:19 19:43	11	08:32 (1) 08:43 (1)	08:09 18:35	08:04 16:42
21	08:33 17:05	07:42 18:02	06:40 18:51	19	07:44 (1) 08:01 (1)	06:30 20:44	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50		07:21 19:40	11	08:30 (1) 08:44 (1)	08:11 18:33	08:05 16:41
22	08:32 17:07	07:40 18:03	06:38 18:53	17	07:44 (1) 07:59 (1)	06:28 20:45	05:36 21:33	05:19 22:00	05:44 21:43	06:32 20:48		07:22 19:38	17	08:28 (1) 08:45 (1)	08:13 18:31	08:07 16:40
23	08:31 17:09	07:38 18:05	06:35 18:54	12	07:45 (1) 07:57 (1)	06:26 20:47	05:35 21:35	05:19 22:00	05:46 21:41	06:34 20:46		07:24 19:36	18	08:28 (1) 08:46 (1)	08:14 18:29	08:09 16:38
24	08:29 17:10	07:36 18:07	06:33 18:56	6	07:48 (1) 07:54 (1)	06:24 20:49	05:34 21:36	05:19 22:01	05:47 21:40	06:35 20:44		07:25 19:33	20	08:26 (1) 08:46 (1)	08:16 18:27	08:10 16:37
25	08:28 17:12	07:34 18:09	06:31 18:58		06:22 20:50	05:32 21:37	05:19 22:01	05:49 21:39	06:37 20:42	07:27 19:31		07:27 19:26	20	08:26 (1) 08:46 (1)	07:18 17:25	08:12 16:36
26	08:27 17:14	07:32 18:11	06:29 19:00		06:20 20:52	05:31 21:39	05:20 22:01	05:50 21:37	06:38 20:40	07:29 19:29		07:29 19:26	20	08:26 (1) 08:46 (1)	07:20 17:23	08:14 16:35
27	08:25 17:16	07:29 18:13	06:26 19:01		06:18 20:54	05:30 21:40	05:20 22:01	05:51 21:36	06:40 20:37	07:30 19:26		07:30 19:26	19	08:26 (1) 08:45 (1)	07:21 17:21	08:15 16:34
28	08:24 17:18	07:27 18:14	06:24 19:03		06:16 20:55	05:29 21:41	05:21 22:00	05:53 21:34	06:42 20:35	07:32 19:24		07:32 19:24	18	08:26 (1) 08:44 (1)	07:23 17:19	08:17 16:34
29	08:23 17:19		07:22 20:05		06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:34 19:22		07:34 19:22	16	08:27 (1) 08:43 (1)	07:25 17:17	08:18 16:33
30	08:21 17:21		07:19 20:06		06:12 20:59	05:27 21:44	05:22 22:00	05:56 21:31	06:45 20:31	07:35 19:19		07:35 19:19	13	08:28 (1) 08:41 (1)	07:27 17:15	08:20 16:32
31	08:20 17:23		07:17 20:08			05:26 21:45		05:57 21:30	06:47 20:29			07:29 17:13			07:29 17:13	08:45 16:36
Potential sun hours	260	278	367		416	485	498	501	453	381		332			267	244
Total, worst case				194								189		9		
Sun reduction				0.24								0.28		0.24		
Oper. time red.				1.00								1.00		1.00		
Wind dir. red.				0.59								0.59		0.59		
Total reduction				0.14								0.17		0.14		
Total, real				28								32		1		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AW - H49**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:22
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:45	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:18	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:00	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	08:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AX - H50

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:13	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:23
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:41	17:30	18:22	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:46	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:11	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:19	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:01	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:42	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:04	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:11	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	08:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:20	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AY - H51**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:45	08:15	07:21	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:12	17:08	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:59	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:19	20:15	19:06	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:43	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:54	21:56	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:49	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:18	05:33	06:17	07:07	07:57	07:52	08:36
	16:52	17:47	18:37	20:30	21:20	21:57	21:53	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:04	19:56	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:55	17:50	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:58	17:54	18:44	20:37	21:26	21:59	21:49	20:58	19:50	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:45	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:29	07:19	08:09	08:04	08:41
	17:03	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:32	07:40	06:38	06:28	05:36	05:18	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:45	06:33	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:29
24	08:29	07:36	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	07:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:39	22:01	21:37	20:39	19:29	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:42	07:32	07:23	08:17	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:23		07:21	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	07:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	259	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** AZ - H52**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:23	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:13	06:08	05:25	05:23	06:00	06:50	07:39	07:32	08:23
	16:38	17:27	18:18	20:12	21:02	21:47	21:59	21:26	20:24	19:15	17:10	16:31
3	08:45	08:15	07:21	07:10	06:07	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:19	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:41	17:30	18:22	20:15	21:05	21:49	21:59	21:23	20:20	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:44	07:38	08:27
	16:42	17:32	18:23	20:17	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:07	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:58	21:20	20:15	19:06	17:03	16:29
7	08:44	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:04	17:01	16:28
8	08:43	08:07	07:10	06:59	05:58	05:21	05:28	06:10	07:00	07:49	07:43	08:30
	16:46	17:38	18:29	20:22	21:12	21:53	21:56	21:16	20:11	19:01	16:59	16:28
9	08:43	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:40	18:30	20:23	21:14	21:54	21:56	21:14	20:08	18:59	16:58	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:33
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:34
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:04	18:55	16:54	16:27
12	08:41	08:00	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:36	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:58	06:58	06:48	05:49	05:19	05:33	06:18	07:08	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:57	21:53	21:07	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:46	05:48	05:19	05:34	06:19	07:09	07:59	07:53	08:37
	16:54	17:49	18:39	20:32	21:21	21:57	21:52	21:05	19:57	18:48	16:50	16:27
15	08:39	07:54	06:54	06:43	05:46	05:18	05:36	06:21	07:11	08:01	07:55	08:38
	16:56	17:51	18:41	20:34	21:23	21:58	21:51	21:03	19:54	18:46	16:48	16:27
16	08:38	07:52	06:52	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:53	18:43	20:35	21:24	21:58	21:50	21:01	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:49	20:59	19:50	18:42	16:46	16:27
18	08:36	07:48	06:47	06:37	05:42	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:39	21:27	21:59	21:48	20:57	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:41
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:31	05:37	05:18	05:43	06:30	07:21	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:13	08:07	08:42
	17:07	18:04	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:40	16:29
23	08:31	07:38	06:36	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:55	20:47	21:35	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:11	18:07	18:56	20:49	21:36	22:01	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:34	06:31	06:22	05:32	05:19	05:49	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:01	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:32	06:29	06:20	05:31	05:20	05:50	06:39	07:29	08:20	08:14	08:44
	17:14	18:11	19:00	20:52	21:39	22:01	21:37	20:40	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:13	19:01	20:54	21:40	22:01	21:36	20:37	19:26	17:21	16:35	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:17	08:45
	17:18	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:23		07:22	06:14	05:28	05:21	05:54	06:43	07:34	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:20	08:45
	17:21		20:06	20:59	21:44	22:00	21:31	20:31	19:20	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:29		08:45
	17:23		20:08		21:45		21:30	20:29		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BA - H53

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:15	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	22:00	21:28	20:26	19:17	17:11	16:31
2	08:45	08:17	07:23	07:12	06:08	05:25	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:27	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:31
3	08:44	08:15	07:21	07:10	06:06	05:24	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:20	20:13	21:04	21:48	21:59	21:25	20:22	19:13	17:08	16:30
4	08:44	08:13	07:18	07:08	06:05	05:23	05:25	06:03	06:53	07:42	07:36	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:30
5	08:44	08:12	07:16	07:06	06:03	05:22	05:25	06:05	06:55	07:43	07:37	08:26
	16:42	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:22	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:09	21:51	21:57	21:19	20:15	19:06	17:02	16:29
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:18	20:13	19:03	17:01	16:28
8	08:43	08:07	07:10	06:59	05:57	05:21	05:28	06:10	06:59	07:48	07:43	08:30
	16:45	17:38	18:28	20:22	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:57	05:56	05:20	05:29	06:11	07:01	07:50	07:45	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:56	21:14	20:08	18:59	16:57	16:28
10	08:42	08:03	07:05	06:54	05:54	05:20	05:30	06:13	07:03	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:54	07:48	08:33
	16:50	17:43	18:34	20:27	21:17	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:01	06:50	05:51	05:19	05:32	06:16	07:06	07:55	07:50	08:35
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:53	16:27
13	08:40	07:57	06:58	06:48	05:49	05:19	05:33	06:18	07:07	07:57	07:52	08:36
	16:53	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:56	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:59	07:53	08:36
	16:54	17:49	18:39	20:32	21:21	21:57	21:51	21:04	19:57	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:21	07:11	08:00	07:55	08:37
	16:56	17:51	18:41	20:33	21:23	21:58	21:51	21:02	19:54	18:46	16:48	16:27
16	08:38	07:52	06:51	06:41	05:44	05:18	05:37	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:50	21:00	19:52	18:44	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:59	08:39
	16:59	17:54	18:44	20:37	21:26	21:59	21:48	20:58	19:50	18:41	16:46	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:26	07:16	08:06	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:28
19	08:35	07:46	06:45	06:35	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:48	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:33	05:39	05:18	05:42	06:29	07:19	08:09	08:04	08:41
	17:04	18:00	18:49	20:42	21:30	22:00	21:45	20:52	19:43	18:35	16:42	16:28
21	08:33	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:02	18:51	20:44	21:32	22:00	21:44	20:50	19:40	18:33	16:41	16:29
22	08:32	07:40	06:38	06:28	05:36	05:19	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:53	20:45	21:33	22:00	21:43	20:48	19:38	18:31	16:39	16:29
23	08:30	07:38	06:35	06:26	05:35	05:19	05:46	06:34	07:24	08:14	08:09	08:43
	17:09	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:36	18:29	16:38	16:30
24	08:29	07:36	06:33	06:24	05:34	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:49	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:44
	17:12	18:09	18:58	20:50	21:37	22:00	21:39	20:42	19:31	17:25	16:36	16:31
26	08:27	07:31	06:28	06:20	05:31	05:20	05:50	06:38	07:29	08:20	08:13	08:44
	17:14	18:11	18:59	20:52	21:38	22:00	21:37	20:39	19:29	17:23	16:35	16:32
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:16	18:12	19:01	20:54	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:21	05:53	06:42	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:34	16:33
29	08:22		07:22	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:45
	17:19		20:05	20:57	21:42	22:00	21:33	20:33	19:22	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:56	06:45	07:35	08:27	08:19	08:45
	17:21		20:06	20:59	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:20		07:17		05:26		05:57	06:47		07:28		08:45
	17:23		20:08		21:45		21:30	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	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)	First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Last time (hh:mm) with flicker	(WTG causing flicker last time)
	Minutes with flicker		

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BB - H54**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:25	07:25 18:16	07:14 20:10	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31		
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30		
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30		
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29		
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29		
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28		
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:01	08:29 16:28		
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28		
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27		
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	07:52 18:57	07:46 16:56	08:32 16:27		
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27		
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	19:29 (5) 19:32 (5)	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27	
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	9 19:21 (5) 19:30 (5)	05:49 21:20	05:18 21:56	06:17 21:06	19:25 (5) 19:36 (5)	07:07 19:59	18:40 (4) 18:47 (4)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	14 19:18 (5) 19:32 (5)	05:47 21:21	05:18 21:57	06:19 21:04	19:23 (5) 19:38 (5)	07:09 19:56	18:37 (4) 18:49 (4)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	18 19:16 (5) 19:34 (5)	05:46 21:23	05:18 21:57	06:20 21:02	19:21 (5) 19:39 (5)	07:11 19:54	18:35 (4) 18:50 (4)	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	20 19:15 (5) 19:35 (5)	05:44 21:24	05:18 21:58	06:22 21:49	19:20 (5) 19:40 (5)	07:12 19:52	18:33 (4) 18:50 (4)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	22 19:14 (5) 19:36 (5)	05:43 21:26	05:18 21:58	06:24 20:58	19:19 (5) 19:41 (5)	07:14 19:49	18:33 (4) 18:51 (4)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	23 19:13 (5) 19:36 (5)	05:41 21:27	05:18 21:59	06:25 20:56	19:18 (5) 19:41 (5)	07:15 19:47	18:32 (4) 18:50 (4)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	3 17:54 (4) 17:57 (4)	06:34 20:40	05:40 21:29	05:18 21:59	06:27 20:54	19:17 (5) 19:41 (5)	07:17 19:45	18:32 (4) 18:50 (4)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	11 17:50 (4) 18:01 (4)	06:32 20:42	05:38 21:30	05:18 21:59	06:29 20:52	19:16 (5) 19:41 (5)	07:19 19:42	18:32 (4) 18:50 (4)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	14 17:47 (4) 18:01 (4)	06:30 20:43	05:37 21:32	05:18 22:00	06:30 20:50	19:16 (5) 19:41 (5)	07:20 19:40	18:32 (4) 18:48 (4)	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	16 17:46 (4) 18:02 (4)	06:28 20:45	05:37 21:33	05:18 22:00	06:32 20:48	19:15 (5) 19:41 (5)	07:22 19:38	18:33 (4) 18:47 (4)	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	17 17:46 (4) 18:03 (4)	06:26 20:47	05:35 21:34	05:19 22:00	06:33 20:46	19:16 (5) 19:41 (5)	07:23 19:35	18:33 (4) 18:45 (4)	08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	17 17:45 (4) 18:04 (4)	06:24 20:48	05:33 21:36	05:19 22:00	06:35 20:44	19:16 (5) 19:41 (5)	07:25 19:33	18:36 (4) 18:42 (4)	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	19 17:44 (4) 18:03 (4)	06:22 20:50	05:32 21:37	05:19 22:00	06:37 20:41	19:16 (5) 19:39 (5)	07:27 19:31	18:27 18:48	08:12 18:36	08:43 16:31	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	18 17:44 (4) 18:02 (4)	06:20 20:52	05:31 21:38	05:20 22:00	06:38 20:39	19:17 (5) 19:39 (5)	07:28 19:28	18:27 18:48	08:13 18:35	08:44 16:31	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	17 17:45 (4) 18:02 (4)	06:18 20:53	05:30 21:40	05:21 22:00	06:40 20:37	19:17 (5) 19:37 (5)	07:30 19:26	18:27 18:48	08:15 18:36	08:44 16:32	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	15 17:45 (4) 18:00 (4)	06:16 20:55	05:29 21:41	05:20 22:00	06:41 20:35	19:18 (5) 19:36 (5)	07:32 19:24	18:27 18:48	08:16 18:33	08:44 16:33	08:44 16:33
29	08:22 17:19	07:21 18:19	06:24 19:04	13 17:46 (4) 18:01 (4)	06:14 20:57	05:28 21:42	05:21 22:00	06:43 20:33	19:19 (5) 19:33 (5)	07:33 19:22	18:27 18:48	08:18 18:33	08:44 16:34	08:44 16:34
30	08:21 17:21	07:19 18:18	06:24 19:06	9 17:48 (4) 18:57 (4)	06:12 20:58	05:27 21:43	05:22 22:00	06:45 20:31	19:22 (5) 19:30 (5)	07:35 19:19	18:27 18:48	08:19 18:33	08:45 16:35	08:45 16:35
31	08:19 17:23	07:17 18:08	06:24 19:08	9 17:48 (4) 18:57 (4)	06:12 20:58	05:27 21:43	05:22 22:00	06:45 20:31	19:22 (5) 19:30 (5)	07:35 19:19	18:27 18:48	08:19 18:33	08:45 16:35	08:45 16:35
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244		
Total, worst case														
Sun reduction			0.24		0.35				0.30		0.28			
Oper. time red.			1.00		1.00				1.00		1.00			
Wind dir. red.			0.67		0.63				0.63		0.67			
Total reduction			0.16		0.22				0.19		0.19			
Total, real			28		80				68		32			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BC - H55**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10	19:03 (5) 21:00	06:10 21:46	05:22 21:59	05:58 21:28	06:48 20:26	19:03 (5) 19:15 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	19:02 (5) 21:02	06:08 21:47	05:24 21:59	06:00 21:26	06:50 20:24	19:00 (5) 19:16 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	19:02 (5) 21:03	06:06 21:48	05:24 21:59	06:02 21:24	06:51 20:22	18:59 (5) 19:17 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	19:00 (5) 21:05	06:04 21:49	05:23 21:58	06:03 21:23	06:53 20:19	18:57 (5) 19:17 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	19:00 (5) 21:07	06:03 21:50	05:22 21:58	06:05 21:21	06:54 20:17	18:57 (5) 19:18 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	19:00 (5) 21:08	06:01 21:51	05:21 21:57	06:06 21:19	06:56 20:15	18:56 (5) 19:18 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	19:01 (5) 21:10	05:59 21:52	05:21 21:57	06:08 21:17	06:58 20:12	18:55 (5) 19:17 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	19:00 (5) 21:12	05:57 21:53	05:20 21:56	06:09 21:16	06:59 20:10	18:55 (5) 19:17 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	19:01 (5) 21:13	05:55 21:53	05:20 21:55	06:11 21:14	07:01 20:08	18:55 (5) 19:16 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	19:02 (5) 21:15	05:54 21:54	05:19 21:55	06:12 21:12	07:02 20:06	18:55 (5) 19:16 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	19:04 (5) 21:16	05:52 21:55	05:19 21:54	06:14 21:10	07:04 20:03	18:55 (5) 19:14 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:07 (5) 21:18	05:50 21:56	05:19 21:53	06:16 21:08	07:06 20:01	18:56 (5) 19:13 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:58 (5) 19:11 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	19:00 (5) 19:07 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	08:00 18:45	07:55 16:48	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	08:02 18:43	07:57 16:47	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	08:04 18:41	07:58 16:45	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	08:05 18:39	08:00 16:44	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	08:09 18:35	08:03 16:42	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:08 16:38	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	07:18 17:25	08:12 16:36	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	5	19:11 (5) 19:16 (5)	06:14 20:57	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 20:06	12	19:07 (5) 19:19 (5)	06:12 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	16	19:04 (5) 19:20 (5)	06:11 20:59	05:26 21:44	05:27 22:00	06:46 20:28	19:06 (5) 19:11 (5)	07:28 17:13	08:45 16:27	08:45 16:27	08:46 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			33	217				5	251				
Sun reduction			0.24	0.35				0.30	0.28				
Oper. time red.			1.00	1.00				1.00	1.00				
Wind dir. red.			0.65	0.65				0.65	0.65				
Total reduction			0.16	0.23				0.19	0.19				
Total, real			5	50				1	46				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BD - H56**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March		April		May	June	July	August	September		October	November	December
1	08:45 16:37	08:18 17:24	07:25 18:16		07:14 20:09	21	18:59 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28	06:48 20:26		07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18		07:12 20:11	21	18:59 (5) 21:02	06:08 21:47	05:24 21:59	05:23 21:26	06:50 20:24		07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19		07:10 20:13	21	18:59 (5) 21:03	06:06 21:48	05:23 21:59	06:02 21:24	06:51 20:22		07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21		07:08 20:15	19	18:59 (5) 21:05	06:04 21:49	05:23 21:58	06:03 21:23	06:53 20:19	8	19:00 (5) 19:08 (5)	07:42 19:10	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23		07:05 20:16	18	18:59 (5) 21:07	06:03 21:50	05:22 21:58	06:05 21:21	06:54 20:17	13	18:58 (5) 19:11 (5)	07:43 19:08	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25		07:03 20:18	16	19:00 (5) 21:08	06:01 21:51	05:21 21:57	06:06 21:19	06:56 20:15	16	18:56 (5) 19:12 (5)	07:45 19:05	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26		07:01 20:20	13	19:02 (5) 21:10	05:59 21:52	05:21 21:57	06:08 21:17	06:58 20:12	18	18:55 (5) 19:13 (5)	07:47 19:03	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28		06:59 20:21	8	19:03 (5) 21:12	05:57 21:53	05:20 21:56	06:09 21:16	06:59 20:10	19	18:54 (5) 19:13 (5)	07:48 19:01	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30		06:56 20:23		05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	20	18:53 (5) 19:13 (5)	07:50 18:59	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32		06:54 20:25		05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	21	18:52 (5) 19:13 (5)	07:52 18:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34		06:52 20:26		05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	20	18:51 (5) 19:12 (5)	07:53 18:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35		06:50 20:28		05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	20	18:52 (5) 19:12 (5)	07:55 18:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37		06:47 20:30		05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	19	18:51 (5) 19:10 (5)	07:57 18:50	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39		06:45 20:32		05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	17	18:52 (5) 19:09 (5)	07:58 18:48	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40		06:43 20:33		05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:11 19:54	14	18:54 (5) 19:08 (5)	08:00 18:45	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42		06:41 20:35		05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	10	18:55 (5) 19:05 (5)	08:02 18:43	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44		06:39 20:37		05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49		08:04 19:10	07:58 18:41	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46		06:37 20:38		05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47		08:05 19:09	08:00 18:39	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47		06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45		08:07 19:10	08:02 18:37	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49		06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42		08:09 19:11	08:03 18:35	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51		06:30 20:43		05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40		08:11 19:12	08:05 18:33	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52		06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38		08:12 19:13	08:07 18:31	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54		06:26 20:47		05:35 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35		08:14 19:14	08:08 18:29	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56		06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33		08:16 19:15	08:10 18:27	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58		06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31		08:17 19:16	08:12 18:28	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59		06:20 20:52		05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28		08:18 19:17	08:13 18:29	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	9	18:07 (5) 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26		08:19 19:18	08:15 18:30	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	13	18:04 (5) 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24		08:20 19:19	08:16 18:33	08:44 16:33
29	08:22 17:19		07:21 20:04	17	19:02 (5) 20:57		05:28 21:42	05:18 22:00	05:43 21:33	06:30 20:33	07:20 19:21		08:21 19:20	08:18 18:32	08:44 16:34
30	08:21 17:21		07:19 20:06	19	19:01 (5) 20:58		05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19		08:22 19:20	08:19 18:33	08:45 16:35
31	08:19 17:23		07:17 20:08	19	19:00 (5) 19:19 (5)		05:26 21:44	05:26 21:44	05:57 21:29	06:46 20:28			08:23 19:21	08:20 18:34	08:45 16:36
Potential sun hours	260	278	367		416		485	498	501	453	381		332	267	244
Total, worst case			77		137						215				
Sun reduction			0.24		0.35						0.28				
Oper. time red.			1.00		1.00						1.00				
Wind dir. red.			0.66		0.66						0.66				
Total reduction			0.16		0.23						0.19				
Total, real			12		32						40				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BE - H57**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

		January	February	March			April			May	June	July	August	September		October	November	December
1	08:45	08:18	07:25			07:14		19:00 (5)	06:10	05:25	05:22	05:58	06:48			07:37	07:30	08:21
	16:37	17:24	18:16			20:09	19	19:19 (5)	21:00	21:46	21:59	21:28	20:26			19:17	17:11	16:31
2	08:44	08:16	07:23			07:12		19:00 (5)	06:08	05:24	05:23	06:00	06:50			07:38	07:32	08:22
	16:38	17:26	18:18			20:11	19	19:19 (5)	21:02	21:47	21:59	21:26	20:24			19:15	17:09	16:30
3	08:44	08:15	07:20			07:10		19:00 (5)	06:06	05:23	05:24	06:02	06:51			07:40	07:34	08:24
	16:39	17:28	18:19			20:13	19	19:19 (5)	21:03	21:48	21:59	21:24	20:22			19:12	17:07	16:30
4	08:44	08:13	07:19			07:08		19:00 (5)	06:04	05:23	05:24	06:03	06:53			07:42	07:35	08:25
	16:40	17:30	18:21			20:15	17	19:17 (5)	21:05	21:49	21:58	21:23	20:19			19:10	17:06	16:29
5	08:44	08:12	07:16			07:05		19:01 (5)	06:03	05:22	05:25	06:05	06:54		19:02 (5)	07:43	07:37	08:26
	16:41	17:32	18:23			20:16	15	19:16 (5)	21:07	21:50	21:58	21:21	20:17	5	19:07 (5)	19:08	17:04	16:29
6	08:44	08:10	07:14			07:03		19:02 (5)	06:01	05:21	05:26	06:06	06:56		18:59 (5)	07:45	07:39	08:28
	16:43	17:34	18:25			20:18	12	19:14 (5)	21:08	21:51	21:57	21:19	20:15	11	19:10 (5)	19:05	17:02	16:28
7	08:43	08:08	07:12			07:01		19:05 (5)	05:59	05:21	05:27	06:08	06:58		18:56 (5)	07:47	07:41	08:29
	16:44	17:36	18:26			20:20	6	19:11 (5)	21:10	21:52	21:57	21:17	20:12	15	19:11 (5)	19:03	17:00	16:28
8	08:43	08:06	07:09			06:59			05:57	05:20	05:28	06:09	06:59		18:55 (5)	07:48	07:43	08:30
	16:45	17:37	18:28			20:21			21:12	21:53	21:56	21:16	20:10	17	19:12 (5)	19:01	16:59	16:28
9	08:42	08:05	07:07			06:56			05:55	05:20	05:29	06:11	07:01		18:53 (5)	07:50	07:44	08:31
	16:47	17:39	18:30			20:23			21:13	21:53	21:55	21:14	20:08	19	19:12 (5)	18:59	16:57	16:27
10	08:42	08:03	07:05			06:54			05:54	05:19	05:30	06:12	07:02		18:53 (5)	07:52	07:46	08:32
	16:48	17:41	18:32			20:25			21:15	21:54	21:55	21:12	20:06	19	19:12 (5)	18:56	16:56	16:27
11	08:41	08:01	07:03			06:52			05:52	05:19	05:31	06:14	07:04		18:52 (5)	07:53	07:48	08:33
	16:49	17:43	18:34			20:26			21:16	21:55	21:54	21:10	20:03	19	19:11 (5)	18:54	16:54	16:27
12	08:41	07:59	07:00			06:50			05:50	05:19	05:32	06:16	07:06		18:52 (5)	07:55	07:50	08:34
	16:51	17:45	18:35			20:28			21:18	21:56	21:53	21:08	20:01	19	19:11 (5)	18:52	16:52	16:27
13	08:40	07:57	06:58			06:47			05:49	05:18	05:33	06:17	07:07		18:51 (5)	07:57	07:51	08:35
	16:52	17:47	18:37			20:30			21:20	21:56	21:52	21:06	19:59	19	19:10 (5)	18:50	16:51	16:27
14	08:39	07:55	06:56			06:45			05:47	05:18	05:34	06:19	07:09		18:52 (5)	07:58	07:53	08:36
	16:54	17:48	18:39			20:32			21:21	21:57	21:51	21:04	19:56	17	19:09 (5)	18:48	16:50	16:27
15	08:38	07:54	06:54			06:43			05:46	05:18	05:35	06:20	07:10		18:53 (5)	08:00	07:55	08:37
	16:55	17:50	18:40			20:33			21:23	21:57	21:50	21:02	19:54	16	19:09 (5)	18:45	16:48	16:27
16	08:37	07:52	06:51			06:41			05:44	05:18	05:36	06:22	07:12		18:54 (5)	08:02	07:57	08:38
	16:57	17:52	18:42			20:35			21:24	21:58	21:49	21:00	19:52	12	19:06 (5)	18:43	16:47	16:27
17	08:37	07:50	06:49			06:39			05:43	05:18	05:38	06:24	07:14		18:56 (5)	08:04	07:58	08:39
	16:58	17:54	18:44			20:37			21:26	21:58	21:48	20:58	19:49	8	19:04 (5)	18:41	16:45	16:27
18	08:36	07:48	06:47			06:37			05:41	05:18	05:39	06:25	07:15			08:05	08:00	08:40
	17:00	17:56	18:46			20:38			21:27	21:59	21:47	20:56	19:47			18:39	16:44	16:27
19	08:35	07:46	06:44			06:34			05:40	05:18	05:40	06:27	07:17			08:07	08:02	08:40
	17:02	17:58	18:47			20:40			21:29	21:59	21:46	20:54	19:45			18:37	16:43	16:28
20	08:34	07:44	06:42			06:32			05:38	05:18	05:41	06:29	07:19			08:09	08:03	08:41
	17:03	18:00	18:49			20:42			21:30	21:59	21:45	20:52	19:42			18:35	16:42	16:28
21	08:32	07:42	06:40			06:30			05:37	05:18	05:43	06:30	07:20			08:11	08:05	08:42
	17:05	18:01	18:51			20:43			21:32	22:00	21:44	20:50	19:40			18:33	16:40	16:28
22	08:31	07:40	06:37			06:28			05:36	05:18	05:44	06:32	07:22			08:12	08:07	08:42
	17:07	18:03	18:52			20:45			21:33	22:00	21:42	20:48	19:38			18:31	16:39	16:29
23	08:30	07:37	06:35			06:26			05:34	05:18	05:45	06:33	07:23			08:14	08:08	08:43
	17:08	18:05	18:54			20:47			21:34	22:00	21:41	20:46	19:35			18:29	16:38	16:29
24	08:29	07:35	06:33			06:24			05:33	05:19	05:47	06:35	07:25			08:16	08:10	08:43
	17:10	18:07	18:56			20:48			21:36	22:00	21:40	20:44	19:33			18:27	16:37	16:30
25	08:28	07:33	06:31			06:22			05:32	05:19	05:48	06:37	07:27			07:18	08:12	08:43
	17:12	18:09	18:58			20:50			21:37	22:00	21:38	20:41	19:31			17:25	16:36	16:31
26	08:26	07:31	06:28		18:09 (5)	06:20			05:31	05:19	05:50	06:38	07:28			07:19	08:13	08:44
	17:14	18:10	18:59	5	18:14 (5)	20:52			21:38	22:00	21:37	20:39	19:28			17:23	16:35	16:31
27	08:25	07:29	06:26		18:06 (5)	06:18			05:30	05:20	05:51	06:40	07:30			07:21	08:15	08:44
	17:15	18:12	19:01	11	18:17 (5)	20:53			21:40	22:00	21:36	20:37	19:26			17:21	16:34	16:32
28	08:24	07:27	06:24		18:03 (5)	06:16			05:29	05:20	05:53	06:41	07:32			07:23	08:16	08:44
	17:17	18:14	19:03	15	18:18 (5)	20:55			21:41	22:00	21:34	20:35	19:24			17:19	16:33	16:33
29	08:22		07:21		19:02 (5)	06:14			05:28	05:21	05:54	06:43	07:33			07:25	08:18	08:44
	17:19		20:04	17	19:19 (5)	20:57			21:42	22:00	21:33	20:33	19:21			17:17	16:33	16:34
30	08:21		07:19		19:01 (5)	06:12			05:27	05:22	05:55	06:45	07:35			07:26	08:19	08:45
	17:21		20:06	19	19:20 (5)	20:58			21:43	22:00	21:31	20:31	19:19			17:15	16:32	16:35
31	08:19		07:17		19:00 (5)				05:26		05:57	06:46				07:28		08:45
	17:23		20:08	19	19:19 (5)				21:44		21:29	20:28				17:13		16:36
Potential sun hours	260	278	367			416			485	498	501		453	381		332	267	244
Total, worst case						86			107					196				
Sun reduction						0.24			0.35					0.28				
Oper. time red.						1.00			1.00					1.00				
Wind dir. red.						0.66			0.66					0.66				
Total reduction						0.16			0.23					0.19				
Total, real						14			25					37				

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: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BF - H58

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	18:58 (5) 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26		07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	18:58 (5) 21:02	05:24 21:47	05:23 21:59	05:24 21:26	06:50 20:24		07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	18:59 (5) 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22		07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:59 (5) 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19		07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	19:01 (5) 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17		07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	19:04 (5) 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	19:00 (5) 19:05 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20	19:09 (5) 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	18:56 (5) 19:07 (5)	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:54 (5) 19:09 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	18:52 (5) 19:09 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	18:52 (5) 19:10 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:50 (5) 19:09 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:50 (5) 19:10 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:49 (5) 19:09 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:49 (5) 19:08 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54	18:50 (5) 19:08 (5)	08:00 18:45	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:50 (5) 19:06 (5)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:52 (5) 19:04 (5)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:53 (5) 19:01 (5)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	08:07 18:37	08:02 16:43	08:00 16:28	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42	08:09 18:35	08:03 16:42	08:03 16:28	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	08:11 18:33	08:05 16:40	08:05 16:28	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47	05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:08 16:38	08:43 16:29	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	18:06 (5) 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	07:18 17:25	08:12 16:36	08:43 16:31	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	18:03 (5) 20:52	05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	18:02 (5) 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	18:00 (5) 20:55	05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	06:14 20:57	18:59 (5) 20:58	05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:25 17:17	08:18 16:33	08:44 16:34	08:44 16:34
30	08:21 17:21	07:19 20:06	06:12 20:58	18:59 (5) 20:58	05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:26 17:15	08:19 16:32	08:45 16:35	08:45 16:35
31	08:19 17:23	07:17 20:08	06:11 20:58	18:58 (5) 19:17 (5)	05:26 21:44	05:22 21:29	05:57 20:28	06:46 20:28		07:28 17:13	08:19 16:36	08:45 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244	
Total, worst case			109	86						198			
Sun reduction			0.24	0.35						0.28			
Oper. time red.			1.00	1.00						1.00			
Wind dir. red.			0.66	0.66						0.66			
Total reduction			0.16	0.23						0.19			
Total, real			18	20						37			

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		

6460 Gortloughra WF 8 no. turbine wind farm Gortloughra Co.Cork

8 no. turbine wind farm Gortloughra Co.Cork

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

31/03/2026 14:17/4.2.285

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BH - H60**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BI - H61

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	18:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	18:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	18:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	18:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	18:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	18:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
 Finisklin Business Park
 F91 RHH9 Sligo
 +353719161416
 kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BJ - H62

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
 1.30 2.04 2.89 4.92 5.79 4.99 4.32 4.35 3.60 2.54 1.64 1.06

Operational time

N NNE NE ENE E ESE SE SSE S SSW SW WSW W WNW NW NNW Sum
 136 297 373 423 216 252 408 617 382 612 1,601 1,598 456 331 428 630 8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:33	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	07:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	07:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:32	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	07:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BK - H63**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:46	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	07:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	07:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	07:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	07:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	07:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	07:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)

Shadow receptor: BL - H64

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Assumptions for shadow calculations

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	05:25 21:46	19:41 (8) 20:02 (8)	05:22 21:59	19:42 (8) 20:13 (8)	05:59 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	06:08 21:02	05:24 21:47	19:40 (8) 20:03 (8)	05:23 21:59	19:42 (8) 20:13 (8)	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	06:06 21:03	05:24 21:48	19:39 (8) 20:03 (8)	05:24 21:59	19:42 (8) 20:12 (8)	06:02 21:25	06:51 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:04 21:05	05:23 21:49	19:39 (8) 20:04 (8)	05:24 21:58	19:43 (8) 20:12 (8)	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	06:03 21:07	05:22 21:50	19:38 (8) 20:05 (8)	05:25 21:58	19:44 (8) 20:12 (8)	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:08	05:22 21:51	19:38 (8) 20:06 (8)	05:26 21:57	19:44 (8) 20:12 (8)	06:06 21:19	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	05:21 21:52	19:38 (8) 20:06 (8)	05:27 21:57	19:44 (8) 20:11 (8)	06:08 21:18	06:58 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	05:57 21:12	05:20 21:53	19:38 (8) 20:07 (8)	05:28 21:56	19:45 (8) 20:11 (8)	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	05:20 21:53	19:37 (8) 20:07 (8)	05:29 21:56	19:46 (8) 20:11 (8)	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	05:20 21:54	19:37 (8) 20:08 (8)	05:30 21:55	19:47 (8) 20:10 (8)	06:13 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	05:52 21:16	05:19 21:55	19:38 (8) 20:08 (8)	05:31 21:54	19:48 (8) 20:10 (8)	06:14 21:10	07:04 20:03	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	05:51 21:18	05:19 21:56	19:38 (8) 20:09 (8)	05:32 21:53	19:49 (8) 20:09 (8)	06:16 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	05:49 21:20	05:19 21:56	19:37 (8) 20:09 (8)	05:33 21:52	19:50 (8) 20:08 (8)	06:17 21:06	07:07 19:12	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	19:37 (8) 20:09 (8)	05:34 21:51	19:51 (8) 20:07 (8)	06:19 21:04	07:09 19:01	07:59 18:51	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	05:46 21:23	05:18 21:57	19:37 (8) 20:10 (8)	05:35 21:50	19:53 (8) 20:05 (8)	06:21 21:02	07:11 19:16	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	19:38 (8) 20:10 (8)	05:37 21:49	19:55 (8) 20:02 (8)	06:22 21:00	07:12 19:17	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	19:38 (8) 20:10 (8)	05:38 21:48	19:55 (8) 20:02 (8)	06:24 20:58	07:14 19:18	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	19:38 (8) 20:11 (8)	05:39 21:47	19:55 (8) 20:02 (8)	06:25 20:56	07:15 19:18	08:05 18:39	08:00 16:44	08:40 16:28
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	19:38 (8) 20:11 (8)	05:40 21:46	19:55 (8) 20:02 (8)	06:27 20:54	07:17 19:19	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:47 18:00	06:42 18:49	06:32 20:42	05:39 21:30	05:18 21:59	19:38 (8) 20:11 (8)	05:42 21:45	19:55 (8) 20:02 (8)	06:29 20:52	07:19 19:19	08:09 18:35	08:04 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	19:39 (8) 20:12 (8)	05:43 21:44	19:55 (8) 20:02 (8)	06:30 20:50	07:20 19:19	08:11 18:33	08:05 16:40	08:42 16:29
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	05:18 22:00	19:39 (8) 20:12 (8)	05:44 21:42	19:55 (8) 20:02 (8)	06:32 20:48	07:22 19:20	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	19:39 (8) 20:12 (8)	05:46 21:41	19:55 (8) 20:02 (8)	06:33 20:46	07:24 19:19	08:14 18:29	08:08 16:38	08:43 16:30
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	19:39 (8) 20:12 (8)	05:47 21:40	19:55 (8) 20:02 (8)	06:35 20:44	07:25 19:19	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	19:40 (8) 20:12 (8)	05:48 21:38	19:55 (8) 20:02 (8)	06:37 20:42	07:27 19:18	08:18 18:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	19:40 (8) 20:12 (8)	05:50 21:37	19:55 (8) 20:02 (8)	06:38 20:39	07:28 19:17	08:19 18:23	08:13 16:35	08:44 16:31
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	19:40 (8) 20:13 (8)	05:51 21:36	19:55 (8) 20:02 (8)	06:40 20:37	07:30 19:16	08:21 18:26	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	05:21 22:00	19:40 (8) 20:12 (8)	05:53 21:34	19:55 (8) 20:02 (8)	06:42 20:35	07:32 19:15	08:22 18:24	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 18:04	06:14 19:06	06:14 20:57	05:28 21:42	05:21 22:00	19:41 (8) 20:13 (8)	05:54 21:33	19:55 (8) 20:02 (8)	06:43 20:33	07:33 19:13	08:25 18:22	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 18:06	06:12 19:06	06:12 20:58	05:27 21:43	05:22 22:00	19:41 (8) 20:12 (8)	05:56 21:31	19:55 (8) 20:02 (8)	06:45 20:31	07:35 19:11	08:27 18:25	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 18:08	06:10 19:07	06:10 20:58	05:26 21:44	05:23 22:00	19:41 (8) 20:12 (8)	05:57 21:29	19:55 (8) 20:02 (8)	06:46 20:28	07:36 19:07	08:28 18:23	08:45 16:36	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244		
Total, worst case				367	61	911	373	375						
Sun reduction				0.35	0.37	0.30	0.27	0.30						
Oper. time red.				1.00	1.00	1.00	1.00	1.00						
Wind dir. red.				0.64	0.58	0.58	0.58	0.64						
Total reduction				0.23	0.21	0.17	0.15	0.19						
Total, real				84	13	158	57	72						

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** BM - H65**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	08:18	07:25						07:15			18:19 (8)	06:10		05:25		19:36 (4)
	16:37	17:25	18:16						20:10	29		18:48 (8)	21:00		21:46	31	20:07 (4)
2	08:45	08:16	07:23						07:12			18:19 (8)	06:08		05:24		19:36 (4)
	16:38	17:26	18:18						20:11	30		18:49 (8)	21:02		21:47	31	20:07 (4)
3	08:44	08:15	07:20						07:10			18:18 (8)	06:06		05:24		19:36 (4)
	16:39	17:28	18:19						20:13	31		18:49 (8)	21:03		21:48	31	20:07 (4)
4	08:44	08:13	07:18						07:08			18:17 (8)	06:04		05:23		19:36 (4)
	16:40	17:30	18:21						20:15	32		18:49 (8)	21:05		21:49	32	20:08 (4)
5	08:44	08:12	07:16						07:05			18:16 (8)	06:03		05:22		19:36 (4)
	16:41	17:32	18:23						20:16	33		18:49 (8)	21:07		21:50	32	20:08 (4)
6	08:44	08:10	07:14						07:03			18:16 (8)	06:01		05:22		19:36 (4)
	16:43	17:34	18:25						20:18	33		18:49 (8)	21:08		21:51	33	20:09 (4)
7	08:43	08:08	07:12						07:01			18:17 (8)	05:59		05:21		19:36 (4)
	16:44	17:36	18:27						20:20	32		18:49 (8)	21:10		21:52	33	20:09 (4)
8	08:43	08:06	07:09						06:59			18:16 (8)	05:57		05:20		19:36 (4)
	16:45	17:37	18:28						20:21	31		18:47 (8)	21:12		21:53	33	20:09 (4)
9	08:42	08:05	07:07						06:56			18:16 (8)	05:56		05:20		19:36 (4)
	16:47	17:39	18:30						20:23	31		18:47 (8)	21:13		21:53	33	20:09 (4)
10	08:42	08:03	07:05						06:54			18:17 (8)	05:54		05:19		19:36 (4)
	16:48	17:41	18:32						20:25	29		18:46 (8)	21:15		21:54	34	20:10 (4)
11	08:41	08:01	07:03					17:19 (7)	06:52			18:18 (8)	05:52		05:19		19:37 (4)
	16:49	17:43	18:34	7				20:26	28			18:46 (8)	21:16		21:55	33	20:10 (4)
12	08:41	07:59	07:00					17:15 (7)	06:50			18:19 (8)	05:50		05:19		19:37 (4)
	16:51	17:45	18:35	13				20:28	26			18:45 (8)	21:18		21:56	34	20:11 (4)
13	08:40	07:57	06:58					17:13 (7)	06:48			18:19 (8)	05:49		05:19		19:36 (4)
	16:52	17:47	18:37	17				20:30	23			18:42 (8)	21:20		21:56	34	20:10 (4)
14	08:39	07:55	06:56					17:12 (7)	06:45			18:20 (8)	05:47		05:18		19:37 (4)
	16:54	17:49	18:39	19				20:32	21			18:41 (8)	21:21		21:57	34	20:11 (4)
15	08:38	07:54	06:54					17:10 (7)	06:43			18:22 (8)	05:46		05:18		19:37 (4)
	16:55	17:50	18:41	21				20:33	17			18:39 (8)	21:23		21:57	34	20:11 (4)
16	08:37	07:52	06:51					17:10 (7)	06:41			18:25 (8)	05:44		05:18		19:37 (4)
	16:57	17:52	18:42	21				20:35	10			18:35 (8)	21:24		21:58	34	20:11 (4)
17	08:37	07:50	06:49					17:10 (7)	06:39				05:43		05:18		19:37 (4)
	16:59	17:54	18:44	22				20:37					21:26		21:58	34	20:11 (4)
18	08:36	07:48	06:47					17:09 (7)	06:37				05:41		05:18		19:38 (4)
	17:00	17:56	18:46	22				20:38					21:27		21:59	34	20:12 (4)
19	08:35	07:46	06:44					17:09 (7)	06:34				05:40		05:18		19:38 (4)
	17:02	17:58	18:47	22				20:40					21:29		21:59	34	20:12 (4)
20	08:34	07:44	06:42					17:10 (7)	06:32				05:39		05:18		19:38 (4)
	17:03	18:00	18:49	20				20:42					19:45 (4)		05:18		19:38 (4)
21	08:33	07:42	06:40					17:10 (7)	06:30				05:37		19:43 (4)		19:39 (4)
	17:05	18:01	18:51	20				20:43					21:32	14	19:57 (4)		20:13 (4)
22	08:31	07:40	06:38					17:11 (7)	06:28				05:36		19:42 (4)		19:39 (4)
	17:07	18:03	18:53	16				20:45					21:33	17	19:59 (4)		20:13 (4)
23	08:30	07:38	06:35					17:12 (7)	06:26				05:35		19:40 (4)		19:39 (4)
	17:09	18:05	18:54	14				20:47					21:34	20	20:00 (4)		20:13 (4)
24	08:29	07:35	06:33					17:15 (7)	06:24				05:33		19:40 (4)		19:39 (4)
	17:10	18:07	18:56	8				20:48					21:36	21	20:01 (4)		20:13 (4)
25	08:28	07:33	06:31					06:22					05:32		19:39 (4)		19:40 (4)
	17:12	18:09	18:58					20:50					21:37	23	20:02 (4)		20:13 (4)
26	08:26	07:31	06:28					06:20					05:31		19:38 (4)		19:39 (4)
	17:14	18:11	18:59					20:52					21:38	25	20:03 (4)		20:13 (4)
27	08:25	07:29	06:26					17:30 (8)	06:18				05:30		19:38 (4)		19:40 (4)
	17:16	18:12	19:01	11				20:53					21:40	26	20:04 (4)		20:14 (4)
28	08:24	07:27	06:24					17:26 (8)	06:16				05:29		19:37 (4)		19:40 (4)
	17:17	18:14	19:03	17				20:55					21:41	28	20:05 (4)		20:14 (4)
29	08:22		07:21					18:24 (8)	06:14				05:28		19:37 (4)		19:41 (4)
	17:19		20:04	21				20:57					21:42	28	20:05 (4)		20:14 (4)
30	08:21		07:19					18:22 (8)	06:12				05:27		19:36 (4)		19:40 (4)
	17:21		20:06	25				20:58					21:43	29	20:05 (4)		20:14 (4)
31	08:19		07:17					18:20 (8)					05:26		19:36 (4)		
	17:23		20:08	27				18:47 (8)					21:45	30	20:06 (4)		
Potential sun hours	260	278	367					416				485			498		
Total, worst case				343				436				270			1000		
Sun reduction				0.24				0.35				0.37			0.30		
Oper. time red.				1.00				1.00				1.00			1.00		
Wind dir. red.				0.68				0.67				0.58			0.58		
Total reduction				0.17				0.24				0.21			0.17		
Total, real				57				104				58			174		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BM - H65**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July			August			September			October			November			December		
1	05:22		19:41 (4)	05:59		06:48			18:17 (8)	07:37		17:54 (7)	07:30		08:21		
	21:59	33	20:14 (4)	21:28		20:26	27		18:44 (8)	19:17	14	18:08 (7)	17:11		16:31		
2	05:23		19:40 (4)	06:00		06:50			18:15 (8)	07:38		17:55 (7)	07:32		08:22		
	21:59	34	20:14 (4)	21:26		20:24	29		18:44 (8)	19:15	10	18:05 (7)	17:09		16:30		
3	05:24		19:41 (4)	06:02		06:51			18:14 (8)	07:40			07:34		08:24		
	21:59	33	20:14 (4)	21:25		20:22	31		18:45 (8)	19:12			17:08		16:30		
4	05:24		19:41 (4)	06:03		06:53			18:14 (8)	07:42			07:35		08:25		
	21:58	34	20:15 (4)	21:23		20:19	31		18:45 (8)	19:10			17:06		16:29		
5	05:25		19:42 (4)	06:05		06:54			18:13 (8)	07:43			07:37		08:26		
	21:58	33	20:15 (4)	21:21		20:17	32		18:45 (8)	19:08			17:04		16:29		
6	05:26		19:41 (4)	06:06		06:56			18:13 (8)	07:45			07:39		08:28		
	21:57	33	20:14 (4)	21:19		20:15	32		18:45 (8)	19:06			17:02		16:28		
7	05:27		19:42 (4)	06:08		06:58			18:12 (8)	07:47			07:41		08:29		
	21:57	32	20:14 (4)	21:18		20:13	32		18:44 (8)	19:03			17:01		16:28		
8	05:28		19:42 (4)	06:09		06:59			18:12 (8)	07:48			07:43		08:30		
	21:56	33	20:15 (4)	21:16		20:10	32		18:44 (8)	19:01			16:59		16:28		
9	05:29		19:43 (4)	06:11		07:01			18:11 (8)	07:50			07:44		08:31		
	21:56	32	20:15 (4)	21:14		20:08	32		18:43 (8)	18:59			16:57		16:27		
10	05:30		19:43 (4)	06:13		07:03			18:12 (8)	07:52			07:46		08:32		
	21:55	32	20:15 (4)	21:12		20:06	30		18:42 (8)	18:57			16:56		16:27		
11	05:31		19:44 (4)	06:14		07:04			18:11 (8)	07:53			07:48		08:33		
	21:54	30	20:14 (4)	21:10		20:03	29		18:40 (8)	18:54			16:54		16:27		
12	05:32		19:44 (4)	06:16		07:06			18:12 (8)	07:55			07:50		08:34		
	21:53	30	20:14 (4)	21:08		20:01	28		18:40 (8)	18:52			16:53		16:27		
13	05:33		19:44 (4)	06:17		07:07			18:13 (8)	07:57			07:51		08:35		
	21:52	30	20:14 (4)	21:06		19:59	25		18:38 (8)	18:50			16:51		16:27		
14	05:34		19:45 (4)	06:19		07:09			18:14 (8)	07:59			07:53		08:36		
	21:51	29	20:14 (4)	21:04		19:56	22		18:36 (8)	18:48			16:50		16:27		
15	05:35		19:45 (4)	06:21		07:11			18:16 (8)	08:00			07:55		08:37		
	21:50	28	20:13 (4)	21:02		19:54	18		18:34 (8)	18:46			16:48		16:27		
16	05:36		19:46 (4)	06:22		07:12			18:18 (8)	08:02			07:57		08:38		
	21:49	27	20:13 (4)	21:00		19:52	12		18:30 (8)	18:43			16:47		16:27		
17	05:38		19:47 (4)	06:24		07:14				08:04			07:58		08:39		
	21:48	26	20:13 (4)	20:58		19:49				18:41			16:45		16:27		
18	05:39		19:48 (4)	06:25		07:15				08:05			08:00		08:40		
	21:47	24	20:12 (4)	20:56		19:47				18:39			16:44		16:27		
19	05:40		19:49 (4)	06:27		07:17			18:02 (7)	08:07			08:02		08:40		
	21:46	22	20:11 (4)	20:54		19:45	7		18:09 (7)	18:37			16:43		16:28		
20	05:42		19:49 (4)	06:29		07:19			17:59 (7)	08:09			08:04		08:41		
	21:45	21	20:10 (4)	20:52		19:42	13		18:12 (7)	18:35			16:42		16:28		
21	05:43		19:50 (4)	06:30		07:20			17:57 (7)	08:11			08:05		08:42		
	21:44	19	20:09 (4)	20:50		19:40	16		18:13 (7)	18:33			16:40		16:29		
22	05:44		19:53 (4)	06:32		07:22			17:55 (7)	08:12			08:07		08:42		
	21:42	15	20:08 (4)	20:48		19:38	19		18:14 (7)	18:31			16:39		16:29		
23	05:46		19:54 (4)	06:33		07:24			17:53 (7)	08:14			08:08		08:43		
	21:41	12	20:06 (4)	20:46		19:35	21		18:14 (7)	18:29			16:38		16:30		
24	05:47		19:58 (4)	06:35		07:25			17:53 (7)	08:16			08:10		08:43		
	21:40	4	20:02 (4)	20:44		19:33	21		18:14 (7)	18:27			16:37		16:30		
25	05:48			06:37		07:27			17:53 (7)	07:18			08:12		08:43		
	21:38			20:42		19:31	21		18:14 (7)	17:25			16:36		16:31		
26	05:50			06:38		07:28			17:51 (7)	07:19			08:13		08:44		
	21:37			20:39		19:28	22		18:13 (7)	17:23			16:35		16:31		
27	05:51			06:40		18:27 (8)			17:52 (7)	07:21			08:15		08:44		
	21:36			20:37	11	18:38 (8)			18:09 (7)	17:21			16:34		16:32		
28	05:53			06:42		18:24 (8)			17:52 (7)	07:23			08:16		08:44		
	21:34			20:35	17	18:41 (8)			18:13 (7)	17:19			16:33		16:33		
29	05:54			06:43		18:21 (8)			17:52 (7)	07:25			08:18		08:44		
	21:33			20:33	21	18:42 (8)			18:11 (7)	17:17			16:33		16:34		
30	05:56			06:45		18:20 (8)			17:53 (7)	07:27			08:19		08:45		
	21:31			20:31	23	18:43 (8)			18:10 (7)	17:15			16:32		16:35		
31	05:57			06:46		18:17 (8)				07:28					08:45		
	21:29			20:28	26	18:43 (8)				17:13					16:36		
Potential sun hours	501			453		381			332			267			244		
Total, worst case		646			98		660			24							
Sun reduction		0.27			0.30		0.28			0.24							
Oper. time red.		1.00			1.00		1.00			1.00							
Wind dir. red.		0.58			0.67		0.68			0.69							
Total reduction		0.15			0.20		0.19			0.16							
Total, real		100			20		126			4							

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** BN - H66**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

January			February			March			April			May			June		
1	08:45	16:37	08:18	17:25	18:16	07:25	17:20 (8)	07:14	17:28 (8)	20:10	20	18:52 (4)	06:10	19:28 (5)	05:25		
2	08:44	16:38	08:16	17:26	18:18	07:23	17:18 (8)	07:12	17:30 (8)	20:11	20	18:52 (4)	06:08	19:28 (5)	05:24		
3	08:44	16:39	08:15	17:28	18:19	07:20	17:16 (8)	07:10	17:32 (8)	20:13	19	18:52 (4)	06:06	19:28 (5)	05:23		
4	08:44	16:40	08:13	17:30	18:21	07:18	17:16 (8)	07:08	17:32 (8)	20:15	18	18:52 (4)	06:04	19:27 (5)	05:23		
5	08:44	16:41	08:12	17:32	18:23	07:16	17:14 (8)	07:05	17:32 (8)	20:16	16	18:53 (4)	06:03	19:26 (5)	05:22		
6	08:44	16:43	08:10	17:34	18:25	07:14	17:14 (8)	07:03	17:32 (8)	20:18	14	18:54 (4)	06:01	19:27 (5)	05:21		
7	08:43	16:44	08:08	17:36	18:27	07:12	17:14 (8)	07:01	17:32 (8)	20:20	10	18:56 (4)	05:59	19:26 (5)	05:21		
8	08:43	16:45	08:06	17:37	18:28	07:09	17:13 (8)	06:59	17:33 (8)	20:21			05:57	19:26 (5)	05:20		
9	08:42	16:47	08:05	17:39	18:30	07:07	17:13 (8)	06:58	17:33 (8)	20:22			05:55	19:25 (5)	05:20		
10	08:42	16:48	08:03	17:41	18:32	07:05	17:15 (8)	06:54	17:33 (8)	20:23			05:54	19:25 (5)	05:19		
11	08:41	16:49	08:01	17:43	18:34	07:03	17:17 (8)	06:52	17:33 (8)	20:24			05:52	19:24 (5)	05:19		
12	08:41	16:51	07:59	17:45	18:35	07:00	17:19 (8)	06:50	17:33 (8)	20:25			05:50	19:23 (5)	05:19		
13	08:40	16:52	07:57	17:47	18:37	06:58	17:24 (8)	06:47	17:33 (8)	20:26			05:49	19:22 (5)	05:18		
14	08:39	16:54	07:55	17:49	18:39	06:56		06:45	17:33 (8)	20:27			05:47	19:21 (5)	05:18		
15	08:38	16:55	07:54	17:50	18:40	06:54		06:43	17:33 (8)	20:28			05:46	19:20 (5)	05:18		
16	08:37	16:57	07:52	17:52	18:42	06:51		06:41	17:33 (8)	20:29			05:44	19:19 (5)	05:18		
17	08:37	16:58	07:50	17:54	18:44	06:49		06:39	17:33 (8)	20:30			05:43	19:18 (5)	05:18		
18	08:36	17:00	07:48	17:56	18:46	06:47		06:37	17:33 (8)	20:31			05:41	19:17 (5)	05:18		
19	08:35	17:02	07:46	17:58	18:47	06:44		06:34	17:33 (8)	20:32			05:40	19:16 (5)	05:18		
20	08:34	17:03	07:44	18:00	18:49	06:42		06:32	17:33 (8)	20:33			05:38	19:15 (5)	05:18		
21	08:33	17:05	07:42	18:02	18:51	06:40		06:30	17:33 (8)	20:34			05:37	19:14 (5)	05:18		
22	08:31	17:07	07:40	18:04	18:53	06:37		06:28	17:33 (8)	20:35			05:36	19:13 (5)	05:18		
23	08:30	17:08	07:38	18:06	18:55	06:35		06:26	17:33 (8)	20:36			05:35	19:12 (5)	05:19		
24	08:29	17:10	07:35	18:08	18:56	06:33		06:24	17:33 (8)	20:37			05:34	19:11 (5)	05:19		
25	08:28	17:12	07:33	18:10	18:58	06:31		06:22	17:33 (8)	20:38			05:33	19:10 (5)	05:19		
26	08:26	17:14	07:31	18:12	19:01	06:28		06:20	17:33 (8)	20:39			05:32	19:09 (5)	05:20		
27	08:25	17:15	07:29	18:14	19:03	06:26		06:18	17:33 (8)	20:40			05:31	19:08 (5)	05:20		
28	08:24	17:17	07:27	18:16	19:05	06:24		06:16	17:33 (8)	20:41			05:30	19:07 (5)	05:20		
29	08:22	17:19	07:25	18:18	19:07	06:22		06:14	17:33 (8)	20:42			05:29	19:06 (5)	05:21		
30	08:21	17:21	07:23	18:20	19:09	06:20		06:12	17:33 (8)	20:43			05:28	19:05 (5)	05:21		
31	08:19	17:23	07:21	18:22	19:11	06:18		06:10	17:33 (8)	20:44			05:27	19:04 (5)	05:22		
Potential sun hours	260	278	367	416	485	498											
Total, worst case				252	195	441											
Sun reduction				0.24	0.35	0.37											
Oper. time red.				1.00	1.00	1.00											
Wind dir. red.				0.68	0.64	0.60											
Total reduction				0.17	0.23	0.22											
Total, real				42	44	97											

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BN - H66**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:38 (5)	06:48		07:37		07:30		08:21
	21:59		21:28	25	20:03 (5)	20:26	19:17		17:11		16:31
2	05:23		06:00		19:38 (5)	06:50	07:38		17:56 (8)	07:32	08:22
	21:59		21:26	26	20:04 (5)	20:24	19:15	9	18:05 (8)	17:09	16:30
3	05:24		06:02		19:37 (5)	06:51	07:40		17:54 (8)	07:34	08:24
	21:59		21:24	27	20:04 (5)	20:22	19:12	13	18:07 (8)	17:07	16:30
4	05:24		06:03		19:36 (5)	06:53	07:42		17:52 (8)	07:35	08:25
	21:58		21:23	27	20:03 (5)	20:19	19:10	16	18:08 (8)	17:06	16:29
5	05:25		06:05		19:37 (5)	06:54	18:52 (4)	07:43	17:51 (8)	07:37	08:26
	21:58		21:21	27	20:04 (5)	20:17	19:02 (4)	17	18:08 (8)	17:04	16:29
6	05:26		06:06		19:36 (5)	06:56	18:50 (4)	07:45	17:50 (8)	07:39	08:28
	21:57		21:19	27	20:03 (5)	20:15	19:04 (4)	18	18:08 (8)	17:02	16:28
7	05:27		06:08		19:36 (5)	06:58	18:48 (4)	07:47	17:50 (8)	07:41	08:29
	21:57		21:17	28	20:04 (5)	20:12	19:04 (4)	19	18:09 (8)	17:01	16:28
8	05:28		06:09		19:36 (5)	06:59	18:47 (4)	07:48	17:50 (8)	07:43	08:30
	21:56		21:16	27	20:03 (5)	20:10	19:05 (4)	18	18:08 (8)	16:59	16:28
9	05:29		06:11		19:37 (5)	07:01	18:46 (4)	07:50	17:49 (8)	07:44	08:31
	21:55		21:14	26	20:03 (5)	20:08	19:05 (4)	18	18:07 (8)	16:57	16:27
10	05:30		06:13		19:36 (5)	07:02	18:45 (4)	07:52	17:50 (8)	07:46	08:32
	21:55		21:12	26	20:02 (5)	20:06	19:05 (4)	16	18:06 (8)	16:56	16:27
11	05:31		06:14		19:37 (5)	07:04	18:44 (4)	07:53	17:51 (8)	07:48	08:33
	21:54		21:10	25	20:02 (5)	20:03	19:04 (4)	14	18:05 (8)	16:54	16:27
12	05:32		06:16		19:37 (5)	07:06	18:45 (4)	07:55	17:53 (8)	07:50	08:34
	21:53		21:08	24	20:01 (5)	20:01	19:04 (4)	11	18:04 (8)	16:53	16:27
13	05:33		06:17		19:38 (5)	07:07	18:45 (4)	07:57	17:55 (8)	07:51	08:35
	21:52		21:06	22	20:00 (5)	19:59	19:04 (4)	5	18:00 (8)	16:51	16:27
14	05:34		06:19		19:39 (5)	07:09	18:45 (4)	07:58		07:53	08:36
	21:51		21:04	19	19:58 (5)	19:56	19:02 (4)	18:48		16:50	16:27
15	05:35		06:20		19:41 (5)	07:11	18:46 (4)	08:00		07:55	08:37
	21:50		21:02	16	19:57 (5)	19:54	19:01 (4)	18:46		16:48	16:27
16	05:36		06:22		19:42 (5)	07:12	18:47 (4)	08:02		07:57	08:38
	21:49		21:00	12	19:54 (5)	19:52	18:58 (4)	18:43		16:47	16:27
17	05:38		06:24		19:47 (5)	07:14	18:50 (4)	08:04		07:58	08:39
	21:48		20:58	2	19:49 (5)	19:49	18:54 (4)	18:41		16:45	16:27
18	05:39		06:25			07:15		08:05		08:00	08:40
	21:47		20:56			19:47		18:39		16:44	16:27
19	05:40		06:27			07:17		08:07		08:02	08:40
	21:46		20:54			19:45		18:37		16:43	16:28
20	05:41		06:29			07:19		08:09		08:03	08:41
	21:45		20:52			19:42		18:35		16:42	16:28
21	05:43		06:30			07:20		08:11		08:05	08:42
	21:44		20:50			19:40		18:33		16:40	16:28
22	05:44		06:32			07:22		08:12		08:07	08:42
	21:42		20:48			19:38		18:31		16:39	16:29
23	05:45		06:33			07:23		08:14		08:08	08:43
	21:41		20:46			19:35		18:29		16:38	16:29
24	05:47	19:47 (5)	06:35			07:25		08:16		08:10	08:43
	21:40	7	19:54 (5)	20:44		19:33		18:27		16:37	16:30
25	05:48		19:44 (5)	06:37		07:27		07:18		08:12	08:43
	21:38	12	19:56 (5)	20:41		19:31		17:25		16:36	16:31
26	05:50		19:43 (5)	06:38		07:28		07:19		08:13	08:44
	21:37	15	19:58 (5)	20:39		19:28		17:23		16:35	16:31
27	05:51		19:42 (5)	06:40		07:30		07:21		08:15	08:44
	21:36	17	19:59 (5)	20:37		19:26		17:21		16:34	16:32
28	05:53		19:41 (5)	06:41		07:32		07:23		08:16	08:44
	21:34	20	20:01 (5)	20:35		19:24		17:19		16:33	16:33
29	05:54		19:40 (5)	06:43		07:33		07:25		08:18	08:44
	21:33	21	20:01 (5)	20:33		19:22		17:17		16:33	16:34
30	05:56		19:39 (5)	06:45		07:35		07:27		08:19	08:45
	21:31	23	20:02 (5)	20:31		19:19		17:15		16:32	16:35
31	05:57		19:39 (5)	06:46				07:28			08:45
	21:29	24	20:03 (5)	20:28				17:13			16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case		139		386		202		174			
Sun reduction		0.27		0.30		0.28		0.24			
Oper. time red.		1.00		1.00		1.00		1.00			
Wind dir. red.		0.60		0.60		0.66		0.69			
Total reduction		0.16		0.18		0.19		0.16			
Total, real		22		69		38		29			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case)**Shadow receptor:** BO - H67**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

		January	February	March		April		May		June	
1	08:45	08:18	07:25			07:15		06:10	19:13 (4)	05:25	
	16:37	17:25	18:16			20:10		21:00	26	19:39 (4)	21:46
2	08:45	08:16	07:23			07:12		06:08		19:13 (4)	05:24
	16:38	17:26	18:18			20:11		21:02	27	19:40 (4)	21:47
3	08:44	08:15	07:20			07:10		06:06		19:12 (4)	05:24
	16:39	17:28	18:19			20:13		21:03	28	19:40 (4)	21:48
4	08:44	08:13	07:18		17:15 (7)	07:08		06:04		19:11 (4)	05:23
	16:40	17:30	18:21	5	17:20 (7)	20:15		21:05	29	19:40 (4)	21:49
5	08:44	08:12	07:16		17:11 (7)	07:05		06:03		19:11 (4)	05:22
	16:41	17:32	18:23	12	17:23 (7)	20:16		21:07	29	19:40 (4)	21:50
6	08:44	08:10	07:14		17:09 (7)	07:03		06:01		19:11 (4)	05:22
	16:43	17:34	18:25	15	17:24 (7)	20:18		21:08	30	19:41 (4)	21:51
7	08:43	08:08	07:12		17:08 (7)	07:01		05:59		19:11 (4)	05:21
	16:44	17:36	18:27	17	17:25 (7)	20:20		21:10	30	19:41 (4)	21:52
8	08:43	08:06	07:09		17:08 (7)	06:59		05:57		19:11 (4)	05:20
	16:45	17:37	18:28	18	17:26 (7)	20:21		21:12	29	19:40 (4)	21:53
9	08:42	08:05	07:07		17:06 (7)	06:56		05:56		19:11 (4)	05:20
	16:47	17:39	18:30	20	17:26 (7)	20:23		21:13	30	19:41 (4)	21:53
10	08:42	08:03	07:05		17:06 (7)	06:54		05:54		19:11 (4)	05:19
	16:48	17:41	18:32	20	17:26 (7)	20:25		21:15	29	19:40 (4)	21:54
11	08:41	08:01	07:03		17:06 (7)	06:52		05:52		19:12 (4)	05:19
	16:49	17:43	18:34	20	17:26 (7)	20:26		21:16	28	19:40 (4)	21:55
12	08:41	07:59	07:00		17:06 (7)	06:50		05:50		19:12 (4)	05:19
	16:51	17:45	18:35	18	17:24 (7)	20:28		21:18	27	19:39 (4)	21:56
13	08:40	07:57	06:58		17:07 (7)	06:47		05:49		19:13 (4)	05:18
	16:52	17:47	18:37	17	17:24 (7)	20:30		21:20	26	19:39 (4)	21:56
14	08:39	07:55	06:56		17:08 (7)	06:45		05:47		19:13 (4)	05:18
	16:54	17:49	18:39	15	17:23 (7)	20:32		21:21	25	19:38 (4)	21:57
15	08:38	07:54	06:54		17:09 (7)	06:43		05:46		19:14 (4)	05:18
	16:55	17:50	18:41	22	17:32 (8)	20:33		21:23	24	19:38 (4)	21:57
16	08:37	07:52	06:51		17:12 (7)	06:41		05:44		19:15 (4)	05:18
	16:57	17:52	18:42	21	17:35 (8)	20:35		21:24	21	19:36 (4)	21:58
17	08:37	07:50	06:49		17:17 (8)	06:39		05:43		19:16 (4)	05:18
	16:59	17:54	18:44	20	17:37 (8)	20:37		21:26	20	19:36 (4)	21:58
18	08:36	07:48	06:47		17:15 (8)	06:37		05:41		19:18 (4)	05:18
	17:00	17:56	18:46	22	17:37 (8)	20:38		21:27	17	19:35 (4)	21:59
19	08:35	07:46	06:44		17:14 (8)	06:34		05:40		19:19 (4)	05:18
	17:02	17:58	18:47	24	17:38 (8)	20:40		21:29	15	19:34 (4)	21:59
20	08:34	07:44	06:42		17:13 (8)	06:32		05:38		19:20 (4)	05:18
	17:03	18:00	18:49	26	17:39 (8)	20:42		21:30	11	19:31 (4)	22:00
21	08:33	07:42	06:40		17:12 (8)	06:30		05:37		19:24 (4)	05:18
	17:05	18:01	18:51	27	17:39 (8)	20:43		21:32	5	19:29 (4)	22:00
22	08:31	07:40	06:38		17:11 (8)	06:28		05:36			05:18
	17:07	18:03	18:53	28	17:39 (8)	20:45		21:33			22:00
23	08:30	07:38	06:35		17:11 (8)	06:26		05:35			05:19
	17:09	18:05	18:54	28	17:39 (8)	20:47		21:34			22:00
24	08:29	07:35	06:33		17:11 (8)	06:24		05:33			05:19
	17:10	18:07	18:56	28	17:39 (8)	20:48		21:36			22:00
25	08:28	07:33	06:31		17:11 (8)	06:22		19:25 (4)		05:32	05:19
	17:12	18:09	18:58	27	17:38 (8)	20:50	4	19:29 (4)		21:37	22:00
26	08:26	07:31	06:28		17:11 (8)	06:20		19:21 (4)		05:31	05:20
	17:14	18:10	18:59	26	17:37 (8)	20:52	13	19:34 (4)		21:38	22:00
27	08:25	07:29	06:26		17:12 (8)	06:18		19:18 (4)		05:30	05:20
	17:16	18:12	19:01	25	17:37 (8)	20:53	18	19:36 (4)		21:40	22:00
28	08:24	07:27	06:24		17:12 (8)	06:16		19:16 (4)		05:29	05:21
	17:17	18:14	19:03	23	17:35 (8)	20:55	21	19:37 (4)		21:41	22:00
29	08:22		07:21		18:13 (8)	06:14		19:15 (4)		05:28	05:21
	17:19		20:04	21	18:34 (8)	20:57	23	19:38 (4)		21:42	22:00
30	08:21		07:19		18:15 (8)	06:12		19:14 (4)		05:27	05:22
	17:21		20:06	17	18:32 (8)	20:58	25	19:39 (4)		21:43	22:00
31	08:19		07:17		18:17 (8)			05:26			
	17:23		20:08	11	18:28 (8)			21:45			
Potential sun hours	260	278	367			416		485			498
Total, worst case				573		104		506			
Sun reduction				0.24		0.35		0.37			
Oper. time red.				1.00		1.00		1.00			
Wind dir. red.				0.69		0.61		0.61			
Total reduction				0.17		0.22		0.23			
Total, real				96		22		114			

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BO - H67**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

July		August		September		October		November		December	
1	05:22		05:59	19:22 (4)	06:48		07:37	17:46 (7)	07:30	08:21	
	21:59		21:28	28	19:50 (4)	20:26	19:17	18	18:04 (7)	17:11	16:31
2	05:23		06:00		19:22 (4)	06:50			17:44 (7)	07:32	08:22
	21:59		21:26	29	19:51 (4)	20:24	19:15	20	18:04 (7)	17:09	16:30
3	05:24		06:02		19:21 (4)	06:51			17:44 (7)	07:34	08:24
	21:59		21:25	29	19:50 (4)	20:22	19:12	20	18:04 (7)	17:08	16:30
4	05:24		06:03		19:21 (4)	06:53			17:44 (7)	07:35	08:25
	21:58		21:23	29	19:50 (4)	20:19	19:10	20	18:04 (7)	17:06	16:29
5	05:25		06:05		19:21 (4)	06:54			17:43 (7)	07:37	08:26
	21:58		21:21	30	19:51 (4)	20:17	19:08	19	18:02 (7)	17:04	16:29
6	05:26		06:06		19:20 (4)	06:56			17:44 (7)	07:39	08:28
	21:57		21:19	30	19:50 (4)	20:15	19:06	18	18:02 (7)	17:02	16:28
7	05:27		06:08		19:21 (4)	06:58			17:45 (7)	07:41	08:29
	21:57		21:18	29	19:50 (4)	20:13	19:03	16	18:01 (7)	17:01	16:28
8	05:28		06:09		19:20 (4)	06:59			17:46 (7)	07:43	08:30
	21:56		21:16	30	19:50 (4)	20:10	19:01	14	18:00 (7)	16:59	16:28
9	05:29		06:11		19:21 (4)	07:01			17:47 (7)	07:44	08:31
	21:56		21:14	29	19:50 (4)	20:08	18:59	9	17:56 (7)	16:57	16:27
10	05:30		06:13		19:21 (4)	07:03			07:52	07:46	08:32
	21:55		21:12	28	19:49 (4)	20:06	18:57			16:56	16:27
11	05:31		06:14		19:21 (4)	07:04			07:53	07:48	08:33
	21:54		21:10	28	19:49 (4)	20:03	18:54			16:54	16:27
12	05:32		06:16		19:21 (4)	07:06	18:09 (8)		07:55	07:50	08:34
	21:53		21:08	26	19:47 (4)	20:01	11	18:20 (8)	18:52	16:53	16:27
13	05:33		06:17		19:22 (4)	07:07			18:07 (8)	07:57	08:35
	21:52		21:06	25	19:47 (4)	19:59	16	18:23 (8)	18:50	16:51	16:27
14	05:34		06:19		19:23 (4)	07:09			18:04 (8)	07:59	08:36
	21:51		21:04	22	19:45 (4)	19:56	20	18:24 (8)	18:48	16:50	16:27
15	05:35		06:21		19:24 (4)	07:11			18:03 (8)	08:00	08:37
	21:50		21:02	20	19:44 (4)	19:54	22	18:25 (8)	18:46	16:48	16:27
16	05:36		06:22		19:25 (4)	07:12			18:01 (8)	08:02	08:38
	21:49		21:00	17	19:42 (4)	19:52	24	18:25 (8)	18:43	16:47	16:27
17	05:38		06:24		19:28 (4)	07:14			18:00 (8)	08:04	08:39
	21:48		20:58	12	19:40 (4)	19:49	26	18:26 (8)	18:41	16:45	16:27
18	05:39		06:25		07:15				17:58 (8)	08:05	08:40
	21:47		20:56		19:47	27	18:25 (8)	18:39		16:44	16:27
19	05:40		06:27		07:17				17:58 (8)	08:07	08:40
	21:46		20:54		19:45	27	18:25 (8)	18:37		16:43	16:28
20	05:41		06:29		07:19				17:58 (8)	08:09	08:41
	21:45		20:52		19:42	28	18:26 (8)	18:35		16:42	16:28
21	05:43		06:30		07:20				17:57 (8)	08:11	08:42
	21:44		20:50		19:40	27	18:24 (8)	18:33		16:40	16:29
22	05:44		06:32		07:22				17:57 (8)	08:12	08:42
	21:42		20:48		19:38	27	18:24 (8)	18:31		16:39	16:29
23	05:46		06:33		07:24				17:56 (8)	08:14	08:43
	21:41	9	19:41 (4)	20:46	19:35	27	18:23 (8)	18:29		16:38	16:30
24	05:47		06:35		07:25				17:57 (8)	08:16	08:43
	21:40	13	19:43 (4)	20:44	19:33	25	18:22 (8)	18:27		16:37	16:30
25	05:48		06:37		07:27				17:58 (8)	07:18	08:43
	21:38	16	19:45 (4)	20:42	19:31	23	18:21 (8)	17:25		16:36	16:31
26	05:50		06:38		07:28				17:58 (8)	07:19	08:44
	21:37	19	19:46 (4)	20:39	19:28	21	18:19 (8)	17:23		16:35	16:31
27	05:51		06:40		07:30				18:00 (8)	07:21	08:44
	21:36	21	19:47 (4)	20:37	19:26	17	18:17 (8)	17:21		16:34	16:32
28	05:53		06:42		07:32				17:51 (7)	07:23	08:44
	21:34	22	19:48 (4)	20:35	19:24	23	18:15 (8)	17:19		16:33	16:33
29	05:54		06:43		07:33				17:48 (7)	07:25	08:44
	21:33	24	19:48 (4)	20:33	19:22	17	18:09 (8)	17:17		16:33	16:34
30	05:56		06:45		07:35				17:47 (7)	07:27	08:45
	21:31	26	19:49 (4)	20:31	19:19	16	18:03 (7)	17:15		16:32	16:35
31	05:57		06:46						07:28		08:45
	21:29	27	19:50 (4)	20:28					17:13		16:36
Potential sun hours	501		453		381		332		267		244
Total, worst case	177		441		424		154				
Sun reduction	0.27		0.30		0.28		0.24				
Oper. time red.	1.00		1.00		1.00		1.00				
Wind dir. red.	0.61		0.61		0.68		0.69				
Total reduction	0.16		0.18		0.19		0.16				
Total, real	29		80		82		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)

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BP - H68**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:59	06:48	07:37	07:30	08:21
	16:37	17:25	18:16	20:10	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:03	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:27	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:01	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:13	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:57	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	19:22 (5)	05:50	05:19	05:32	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	7	19:29 (5)	21:18	21:56	21:08	18:52	16:53	16:27
13	08:40	07:57	06:58	06:47	19:17 (5)	05:49	05:18	05:33	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	14	19:31 (5)	21:20	21:56	21:06	19:59	18:50	16:51
14	08:39	07:55	06:56	06:45	19:16 (5)	05:47	05:18	05:34	06:19	07:09	07:58	08:36
	16:54	17:49	18:39	20:32	17	19:33 (5)	21:21	21:57	21:04	19:34 (5)	18:48	16:50
15	08:38	07:54	06:54	06:43	19:14 (5)	05:46	05:18	05:35	06:20	19:22 (5)	07:11	08:00
	16:55	17:50	18:40	20:33	20	19:34 (5)	21:23	21:57	21:50	19:37 (5)	18:46	16:48
16	08:37	07:52	06:51	06:41	19:13 (5)	05:44	05:18	05:36	06:22	19:20 (5)	07:12	08:02
	16:57	17:52	18:42	20:35	22	19:35 (5)	21:24	21:58	21:49	19:37 (5)	18:43	16:47
17	08:37	07:50	06:49	06:39	19:12 (5)	05:43	05:18	05:38	06:24	19:19 (5)	07:14	08:04
	16:58	17:54	18:44	20:37	23	19:35 (5)	21:26	21:58	21:48	19:39 (5)	18:41	16:45
18	08:36	07:48	06:47	06:37	19:12 (5)	05:41	05:18	05:39	06:25	19:17 (5)	07:15	08:05
	17:00	17:56	18:46	20:38	24	19:36 (5)	21:27	21:59	21:47	19:17 (5)	18:39	16:44
19	08:35	07:46	06:44	06:34	19:11 (5)	05:40	05:18	05:40	06:27	19:17 (5)	07:17	08:07
	17:02	17:58	18:47	20:40	25	19:36 (5)	21:29	21:59	21:46	19:40 (5)	18:37	16:43
20	08:34	07:44	06:42	06:32	19:11 (5)	05:38	05:18	05:41	06:29	19:16 (5)	07:19	08:09
	17:03	18:00	18:49	20:42	25	19:36 (5)	21:30	21:59	21:45	19:40 (5)	18:35	16:42
21	08:33	07:42	06:40	06:30	19:11 (5)	05:37	05:18	05:43	06:30	19:15 (5)	07:20	08:11
	17:05	18:01	18:51	20:43	25	19:36 (5)	21:32	22:00	21:44	19:40 (5)	18:33	16:40
22	08:31	07:40	06:37	06:28	19:11 (5)	05:36	05:18	05:44	06:32	19:14 (5)	07:22	08:12
	17:07	18:03	18:53	20:45	24	19:35 (5)	21:33	22:00	21:42	19:39 (5)	18:31	16:39
23	08:30	07:38	06:35	06:26	19:11 (5)	05:35	05:19	05:45	06:33	19:15 (5)	07:23	08:14
	17:08	18:05	18:54	20:47	24	19:35 (5)	21:34	22:00	21:41	19:40 (5)	18:29	16:38
24	08:29	07:35	06:33	06:24	19:11 (5)	05:33	05:19	05:47	06:35	19:15 (5)	07:25	08:16
	17:10	18:07	18:56	20:48	23	19:34 (5)	21:36	22:00	21:40	19:40 (5)	18:27	16:37
25	08:28	07:33	06:31	06:22	19:12 (5)	05:32	05:19	05:48	06:37	19:14 (5)	07:27	08:18
	17:12	18:09	18:58	20:50	21	19:33 (5)	21:37	22:00	21:38	19:39 (5)	18:29	16:36
26	08:26	07:31	06:28	06:20	19:13 (5)	05:31	05:20	05:50	06:38	19:15 (5)	07:28	08:19
	17:14	18:10	18:59	20:52	19	19:32 (5)	21:38	22:00	21:37	19:38 (5)	18:28	16:35
27	08:25	07:29	06:26	06:18	19:14 (5)	05:30	05:20	05:51	06:40	19:15 (5)	07:30	08:20
	17:15	18:12	19:01	20:53	16	19:30 (5)	21:40	22:00	20:37	19:37 (5)	18:26	16:34
28	08:24	07:27	06:24	06:16	19:15 (5)	05:29	05:20	05:53	06:41	19:16 (5)	07:32	08:21
	17:17	18:14	19:03	20:55	14	19:29 (5)	21:41	22:00	20:35	19:36 (5)	18:24	16:33
29	08:22		07:21	06:14	19:18 (5)	05:28	05:21	05:54	06:43	19:17 (5)	07:33	08:22
	17:19		20:04	20:57	8	19:26 (5)	21:42	22:00	20:33	19:34 (5)	18:22	16:33
30	08:21		07:19	06:12		05:27	05:22	05:56	06:45	19:18 (5)	07:35	08:23
	17:21		20:06	20:58		21:43	22:00	21:31	20:31	19:32 (5)	18:19	16:35
31	08:19		07:17			05:26		05:57	06:46	19:21 (5)	07:28	08:24
	17:23		20:08			21:44		21:29	20:28	19:28 (5)	17:13	16:36
Potential sun hours	260	278	367	416	485	498	501	453		381	332	267
Total, worst case				351				359				
Sun reduction				0.35				0.30				
Oper. time red.				1.00				1.00				
Wind dir. red.				0.63				0.63				
Total reduction				0.22				0.19				
Total, real				78				67				

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BQ - H69**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:10	18:58 (5) 19:19 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:59 21:28	06:48 20:26	18:57 (5) 19:13 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	18:57 (5) 19:20 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	18:55 (5) 19:13 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13	18:56 (5) 19:20 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:25	06:51 20:22	18:54 (5) 19:15 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:55 (5) 19:20 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18:52 (5) 19:15 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	18:55 (5) 19:20 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18:51 (5) 19:15 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	18:55 (5) 19:19 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	18:51 (5) 19:16 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	18:55 (5) 19:19 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	18:50 (5) 19:15 (5)	07:47 19:03	07:41 17:01	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21	18:55 (5) 19:17 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18:50 (5) 19:15 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	18:56 (5) 19:17 (5)	05:55 21:13	05:20 21:53	05:29 21:56	06:11 21:14	07:01 20:08	18:49 (5) 19:14 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	18:57 (5) 19:15 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:13 21:12	07:02 20:06	18:50 (5) 19:13 (5)	07:52 18:57	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26	18:58 (5) 19:14 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:50 (5) 19:12 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	19:00 (5) 19:12 (5)	05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:51 (5) 19:11 (5)	07:55 18:52	07:50 16:53	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30	05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	06:19	07:07 19:59	18:52 (5) 19:09 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:49	06:56 18:39	06:45 20:32	05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	06:19	07:09 19:56	18:53 (5) 19:07 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33	05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	06:20	07:11 19:54	18:56 (5) 19:03 (5)	08:00 18:46	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	06:22	07:12 19:52	18:57 (5) 19:13 (5)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	06:24	07:14 19:49	18:50 (5) 19:11 (5)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	06:25	07:15 19:47	18:49 (5) 19:10 (5)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	06:27	07:17 19:45	18:48 (5) 19:09 (5)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	05:38 21:30	05:18 22:00	05:41 21:45	06:29 20:52	06:29	07:19 19:42	18:47 (5) 19:08 (5)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	05:37 21:32	05:18 22:00	05:43 21:44	06:30 20:50	06:30	07:20 19:40	18:46 (5) 19:07 (5)	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:53	06:28 20:45	05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	06:32	07:22 19:38	18:45 (5) 19:06 (5)	08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	05:19 22:00	05:45 21:41	06:33 20:46	06:33	07:23 19:35	18:44 (5) 19:05 (5)	08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48	05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	06:35	07:25 19:33	18:43 (5) 19:04 (5)	08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	06:37	07:27 19:31	18:42 (5) 19:03 (5)	08:18 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52	05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	06:38	07:28 19:28	18:41 (5) 19:02 (5)	08:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53	05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	06:40	07:30 19:26	18:40 (5) 19:01 (5)	08:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03	18:07 (5) 18:12 (5)	06:16 20:55	05:29 22:00	05:53 21:34	06:41 20:35	06:41	07:32 19:24	18:39 (5) 19:00 (5)	08:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	07:21 19:16 (5)	19:03 (5) 19:16 (5)	06:14 20:57	05:28 22:00	05:54 21:33	06:43 20:33	06:43	07:33 19:22	18:38 (5) 19:00 (5)	08:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 20:06	07:19 19:18 (5)	19:01 (5) 19:18 (5)	06:12 20:58	05:27 22:00	05:55 21:31	06:45 20:31	19:05 (5) 19:07 (5)	07:35 19:19	18:37 (5) 19:00 (5)	08:27 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	07:17 19:18 (5)	18:59 (5) 19:18 (5)	06:11 21:44	05:26 22:00	05:57 21:29	06:46 20:28	18:59 (5) 19:11 (5)	07:35 19:19	18:36 (5) 19:00 (5)	08:28 17:13	08:20 16:31	08:45 16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	305	332	267	244	
Total, worst case			54	255				14		305				
Sun reduction			0.24	0.35				0.30		0.28				
Oper. time red.			1.00	1.00				1.00		1.00				
Wind dir. red.			0.66	0.66				0.66		0.66				
Total reduction			0.16	0.23				0.19		0.19				
Total, real			9	59				3		57				

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)

6460 Gortloughra WF 8 no. turbine wind farm Gortloughra Co.Cork

8 no. turbine wind farm Gortloughra Co.Cork

Jennings O'Donovan
Finisklin Business Park
F91 RHH9 Sligo
+353719161416
kfeeney / kfeeney@jodireland.com

31/03/2026 14:17/4.2.285

Calculation: 6460 Gortloughra WF only (Worst Case)
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BS - H71**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March			April			May	June	July	August	September			October	November	December	
1	08:45 16:37	08:18 17:24	07:25 18:16			07:14 20:09		13	19:11 (5) 19:24 (5)	06:10 21:00	05:25 21:46	05:22 21:59	05:58 21:28	06:48 20:26	9	19:09 (5) 19:18 (5)	07:37 19:17	07:30 17:11	08:21 16:31
2	08:44 16:38	08:16 17:26	07:23 18:18			07:12 20:11		16	19:09 (5) 19:25 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	13	19:06 (5) 19:19 (5)	07:38 19:15	07:32 17:09	08:22 16:30
3	08:44 16:39	08:15 17:28	07:20 18:19			07:10 20:13		17	19:09 (5) 19:26 (5)	06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	16	19:05 (5) 19:21 (5)	07:40 19:12	07:34 17:07	08:24 16:30
4	08:44 16:40	08:13 17:30	07:18 18:21			07:08 20:15		18	19:07 (5) 19:25 (5)	06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	18	19:03 (5) 19:21 (5)	07:42 19:10	07:35 17:06	08:25 16:29
5	08:44 16:41	08:12 17:32	07:16 18:23			07:05 20:16		19	19:07 (5) 19:26 (5)	06:03 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	18	19:03 (5) 19:21 (5)	07:43 19:08	07:37 17:04	08:26 16:29
6	08:44 16:43	08:10 17:34	07:14 18:25			07:03 20:18		18	19:07 (5) 19:25 (5)	06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	19	19:03 (5) 19:22 (5)	07:45 19:05	07:39 17:02	08:28 16:28
7	08:43 16:44	08:08 17:36	07:12 18:26			07:01 20:20		18	19:07 (5) 19:25 (5)	05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	19	19:02 (5) 19:21 (5)	07:47 19:03	07:41 17:00	08:29 16:28
8	08:43 16:45	08:06 17:37	07:09 18:28			06:59 20:21		18	19:06 (5) 19:24 (5)	05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	18	19:02 (5) 19:20 (5)	07:48 19:01	07:43 16:59	08:30 16:28
9	08:42 16:47	08:05 17:39	07:07 18:30			06:56 20:23		16	19:07 (5) 19:23 (5)	05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	17	19:02 (5) 19:19 (5)	07:50 18:59	07:44 16:57	08:31 16:27
10	08:42 16:48	08:03 17:41	07:05 18:32			06:54 20:25		13	19:08 (5) 19:21 (5)	05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	15	19:03 (5) 19:18 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34			06:52 20:26		9	19:10 (5) 19:19 (5)	05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	13	19:03 (5) 19:16 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35			06:50 20:28				05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	9	19:05 (5) 19:14 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37			06:47 20:30				05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59			07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39			06:45 20:32				05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56			07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40			06:43 20:33				05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54			08:00 18:45	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42			06:41 20:35				05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52			08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44			06:39 20:37				05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49			08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46			06:37 20:38				05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47			08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47			06:34 20:40				05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45			08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49			06:32 20:42				05:38 21:30	05:18 21:59	05:41 21:45	06:29 20:52	07:19 19:42			08:09 18:35	08:03 16:42	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51			06:30 20:43				05:37 21:31	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40			08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52			06:28 20:45				05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38			08:12 18:31	08:07 16:39	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54			06:26 20:47				05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35			08:14 18:29	08:08 16:38	08:43 16:29
24	08:29 17:10	07:35 18:07	06:33 18:56			06:24 20:48				05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33			08:16 18:27	08:10 16:37	08:43 16:30
25	08:28 17:12	07:33 18:09	06:31 18:58			06:22 20:50				05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31			07:18 17:25	08:12 16:36	08:43 16:31
26	08:26 17:14	07:31 18:10	06:28 18:59			06:20 20:52				05:31 21:38	05:20 22:00	05:50 21:37	06:38 20:39	07:28 19:28			07:19 17:23	08:13 16:35	08:44 16:31
27	08:25 17:15	07:29 18:12	06:26 19:01			06:18 20:53				05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26			07:21 17:21	08:15 16:34	08:44 16:32
28	08:24 17:17	07:27 18:14	06:24 19:03			06:16 20:55				05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24			07:23 17:19	08:16 16:33	08:44 16:33
29	08:22 17:19	07:21 20:04	06:21 19:04			06:14 20:57				05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21			07:25 17:17	08:18 16:33	08:44 16:34
30	08:21 17:21	07:19 20:06	06:20 19:06			06:12 20:58				05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19			07:26 17:15	08:19 16:32	08:45 16:35
31	08:19 17:23	07:17 20:08	06:19 19:13 (5) 19:21 (5)			06:11 20:59				05:26 21:44	05:22 21:29	05:57 20:28	06:46 20:28	07:36 17:13			07:28 17:13	08:20 16:31	08:45 16:36
Potential sun hours	260	278	367	8	19:13 (5) 19:21 (5)	416			485	498	501		453	381			332	267	244
Total, worst case				8					175					184					
Sun reduction				0.24					0.35					0.28					
Oper. time red.				1.00					1.00					1.00					
Wind dir. red.				0.65					0.65					0.65					
Total reduction				0.16					0.23					0.18					
Total, real				1					40					34					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) **Shadow receptor:** BT - H72**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:45	08:18	07:25	07:14	06:10	05:25	05:22	05:58	06:48	07:37	07:30	08:21
	16:37	17:24	18:16	20:09	21:00	21:46	21:59	21:28	20:26	19:17	17:11	16:31
2	08:44	08:16	07:23	07:12	06:08	05:24	05:23	06:00	06:50	07:38	07:32	08:22
	16:38	17:26	18:18	20:11	21:02	21:47	21:59	21:26	20:24	19:15	17:09	16:30
3	08:44	08:15	07:20	07:10	06:06	05:23	05:24	06:02	06:51	07:40	07:34	08:24
	16:39	17:28	18:19	20:13	21:03	21:48	21:59	21:24	20:22	19:12	17:07	16:30
4	08:44	08:13	07:18	07:08	06:04	05:23	05:24	06:03	06:53	07:42	07:35	08:25
	16:40	17:30	18:21	20:15	21:05	21:49	21:58	21:23	20:19	19:10	17:06	16:29
5	08:44	08:12	07:16	07:05	06:02	05:22	05:25	06:05	06:54	07:43	07:37	08:26
	16:41	17:32	18:23	20:16	21:07	21:50	21:58	21:21	20:17	19:08	17:04	16:29
6	08:44	08:10	07:14	07:03	06:01	05:21	05:26	06:06	06:56	07:45	07:39	08:28
	16:43	17:34	18:25	20:18	21:08	21:51	21:57	21:19	20:15	19:05	17:02	16:28
7	08:43	08:08	07:12	07:01	05:59	05:21	05:27	06:08	06:58	07:47	07:41	08:29
	16:44	17:36	18:26	20:20	21:10	21:52	21:57	21:17	20:12	19:03	17:00	16:28
8	08:43	08:06	07:09	06:59	05:57	05:20	05:28	06:09	06:59	07:48	07:43	08:30
	16:45	17:37	18:28	20:21	21:12	21:53	21:56	21:16	20:10	19:01	16:59	16:28
9	08:42	08:05	07:07	06:56	05:55	05:20	05:29	06:11	07:01	07:50	07:44	08:31
	16:47	17:39	18:30	20:23	21:13	21:53	21:55	21:14	20:08	18:59	16:57	16:27
10	08:42	08:03	07:05	06:54	05:54	05:19	05:30	06:12	07:02	07:52	07:46	08:32
	16:48	17:41	18:32	20:25	21:15	21:54	21:55	21:12	20:06	18:56	16:56	16:27
11	08:41	08:01	07:03	06:52	05:52	05:19	05:31	06:14	07:04	07:53	07:48	08:33
	16:49	17:43	18:34	20:26	21:16	21:55	21:54	21:10	20:03	18:54	16:54	16:27
12	08:41	07:59	07:00	06:50	05:50	05:19	05:32	06:16	07:06	07:55	07:50	08:34
	16:51	17:45	18:35	20:28	21:18	21:56	21:53	21:08	20:01	18:52	16:52	16:27
13	08:40	07:57	06:58	06:47	05:49	05:18	05:33	06:17	07:07	07:57	07:51	08:35
	16:52	17:47	18:37	20:30	21:20	21:56	21:52	21:06	19:59	18:50	16:51	16:27
14	08:39	07:55	06:56	06:45	05:47	05:18	05:34	06:19	07:09	07:58	07:53	08:36
	16:54	17:48	18:39	20:32	21:21	21:57	21:51	21:04	19:56	18:48	16:50	16:27
15	08:38	07:54	06:54	06:43	05:46	05:18	05:35	06:20	07:10	08:00	07:55	08:37
	16:55	17:50	18:40	20:33	21:23	21:57	21:50	21:02	19:54	18:45	16:48	16:27
16	08:37	07:52	06:51	06:41	05:44	05:18	05:36	06:22	07:12	08:02	07:57	08:38
	16:57	17:52	18:42	20:35	21:24	21:58	21:49	21:00	19:52	18:43	16:47	16:27
17	08:37	07:50	06:49	06:39	05:43	05:18	05:38	06:24	07:14	08:04	07:58	08:39
	16:58	17:54	18:44	20:37	21:26	21:58	21:48	20:58	19:49	18:41	16:45	16:27
18	08:36	07:48	06:47	06:37	05:41	05:18	05:39	06:25	07:15	08:05	08:00	08:40
	17:00	17:56	18:46	20:38	21:27	21:59	21:47	20:56	19:47	18:39	16:44	16:27
19	08:35	07:46	06:44	06:34	05:40	05:18	05:40	06:27	07:17	08:07	08:02	08:40
	17:02	17:58	18:47	20:40	21:29	21:59	21:46	20:54	19:45	18:37	16:43	16:28
20	08:34	07:44	06:42	06:32	05:38	05:18	05:41	06:28	07:19	08:09	08:03	08:41
	17:03	18:00	18:49	20:42	21:30	21:59	21:45	20:52	19:42	18:35	16:42	16:28
21	08:32	07:42	06:40	06:30	05:37	05:18	05:43	06:30	07:20	08:11	08:05	08:42
	17:05	18:01	18:51	20:43	21:31	22:00	21:44	20:50	19:40	18:33	16:40	16:28
22	08:31	07:40	06:37	06:28	05:36	05:18	05:44	06:32	07:22	08:12	08:07	08:42
	17:07	18:03	18:52	20:45	21:33	22:00	21:42	20:48	19:38	18:31	16:39	16:29
23	08:30	07:37	06:35	06:26	05:34	05:18	05:45	06:33	07:23	08:14	08:08	08:43
	17:08	18:05	18:54	20:47	21:34	22:00	21:41	20:46	19:35	18:29	16:38	16:29
24	08:29	07:35	06:33	06:24	05:33	05:19	05:47	06:35	07:25	08:16	08:10	08:43
	17:10	18:07	18:56	20:48	21:36	22:00	21:40	20:44	19:33	18:27	16:37	16:30
25	08:28	07:33	06:31	06:22	05:32	05:19	05:48	06:37	07:27	08:18	08:12	08:43
	17:12	18:09	18:58	20:50	21:37	22:00	21:38	20:41	19:31	17:25	16:36	16:31
26	08:26	07:31	06:28	06:20	05:31	05:19	05:50	06:38	07:28	08:19	08:13	08:44
	17:14	18:10	18:59	20:52	21:38	22:00	21:37	20:39	19:28	17:23	16:35	16:31
27	08:25	07:29	06:26	06:18	05:30	05:20	05:51	06:40	07:30	08:21	08:15	08:44
	17:15	18:12	19:01	20:53	21:40	22:00	21:36	20:37	19:26	17:21	16:34	16:32
28	08:24	07:27	06:24	06:16	05:29	05:20	05:53	06:41	07:32	08:23	08:16	08:44
	17:17	18:14	19:03	20:55	21:41	22:00	21:34	20:35	19:24	17:19	16:33	16:33
29	08:22		07:21	06:14	05:28	05:21	05:54	06:43	07:33	08:25	08:18	08:44
	17:19		20:04	20:57	21:42	22:00	21:33	20:33	19:21	17:17	16:33	16:34
30	08:21		07:19	06:12	05:27	05:22	05:55	06:45	07:35	08:26	08:19	08:45
	17:21		20:06	20:58	21:43	22:00	21:31	20:31	19:19	17:15	16:32	16:35
31	08:19		07:17		05:26		05:57	06:46		07:28		08:45
	17:23		20:08		21:44		21:29	20:28		17:13		16:36
Potential sun hours	260	278	367	416	485	498	501	453	381	332	267	244
Total, worst case												
Sun reduction												
Oper. time red.												
Wind dir. red.												
Total reduction												
Total, real												

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

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

SHADOW - Calendar

Calculation: 6460 Gortloughra WF only (Worst Case) Shadow receptor: BU - H73

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

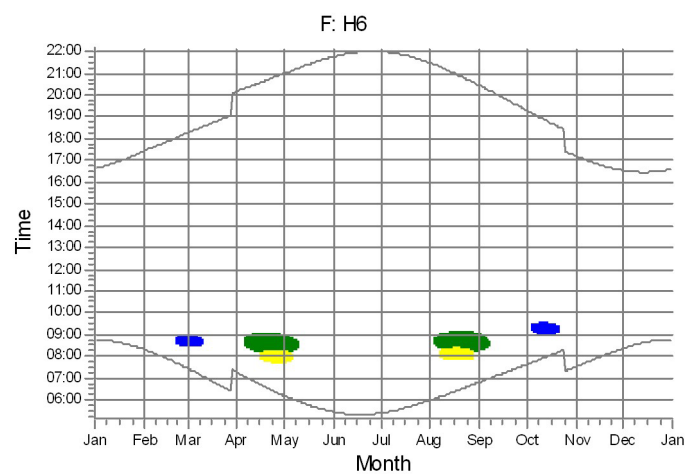
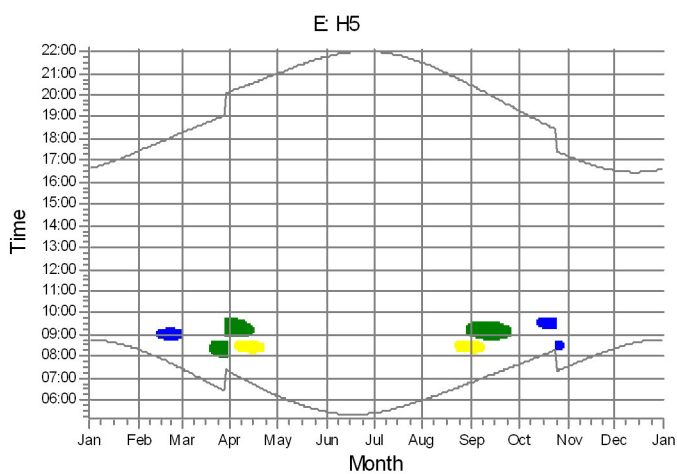
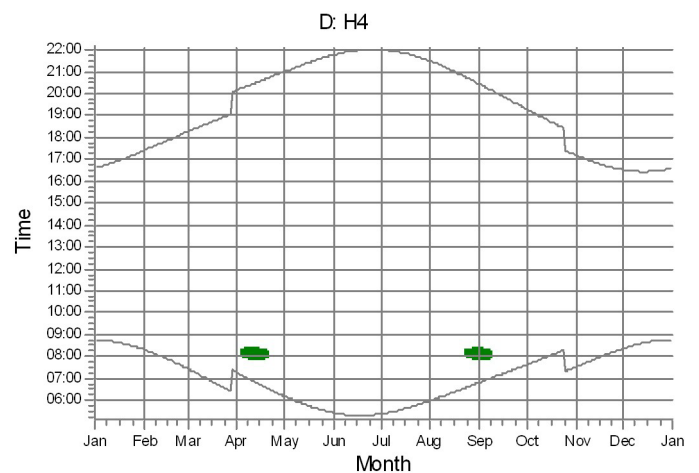
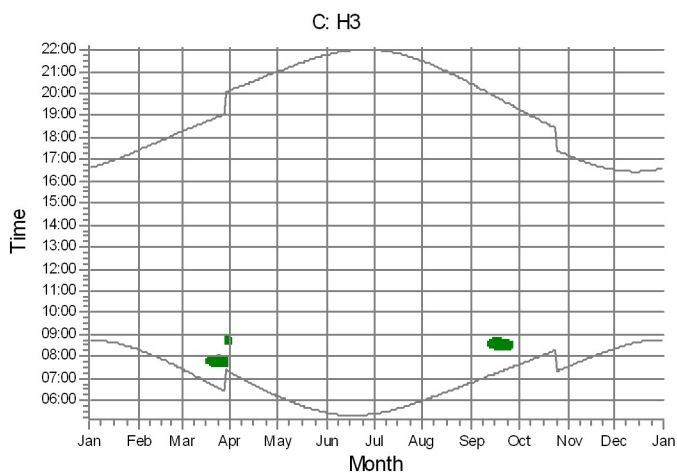
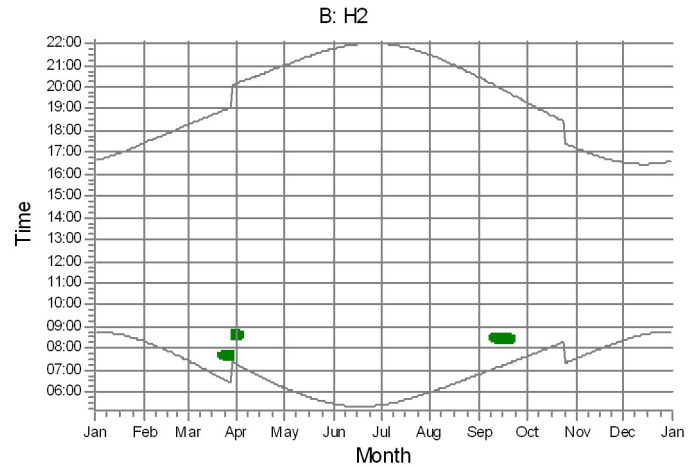
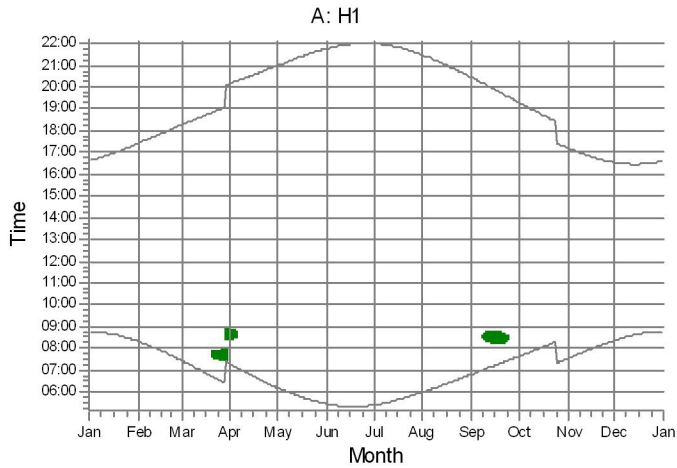
	January	February	March	April	May	June	July	August	September	October	November	December		
1	08:45 16:37	08:18 17:24	07:25 18:16	07:14 20:09	12 18:58 (5) 21:00	06:10 21:46	05:25 21:59	05:22 21:28	05:58 21:28	06:48 20:26	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:44 16:38	08:16 17:26	07:23 18:18	07:12 20:11	8 19:00 (5) 19:08 (5)	06:08 21:02	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	07:38 19:15	07:32 17:09	08:22 16:30	
3	08:44 16:39	08:15 17:28	07:20 18:19	07:10 20:13		06:06 21:03	05:23 21:48	05:24 21:59	06:02 21:24	06:51 20:22	07:40 19:12	07:34 17:07	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15		06:04 21:05	05:23 21:49	05:24 21:58	06:03 21:23	06:53 20:19	07:42 19:10	07:35 17:06	08:25 16:29	
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16		06:02 21:07	05:22 21:50	05:25 21:58	06:05 21:21	06:54 20:17	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18		06:01 21:08	05:21 21:51	05:26 21:57	06:06 21:19	06:56 20:15	07:45 19:05	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:26	07:01 20:20		05:59 21:10	05:21 21:52	05:27 21:57	06:08 21:17	06:58 20:12	07:47 19:03	07:41 17:00	08:29 16:28	
8	08:43 16:45	08:06 17:37	07:09 18:28	06:59 20:21		05:57 21:12	05:20 21:53	05:28 21:56	06:09 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:46	08:05 17:39	07:07 18:30	06:56 20:23		05:55 21:13	05:20 21:53	05:29 21:55	06:11 21:14	07:01 20:08	07:50 18:59	07:44 16:57	08:31 16:27	
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25		05:54 21:15	05:19 21:54	05:30 21:55	06:12 21:12	07:02 20:06	18:54 (5) 19:01 (5)	07:52 18:56	07:46 16:56	08:32 16:27
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:26		05:52 21:16	05:19 21:55	05:31 21:54	06:14 21:10	07:04 20:03	18:51 (5) 19:02 (5)	07:53 18:54	07:48 16:54	08:33 16:27
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28		05:50 21:18	05:19 21:56	05:32 21:53	06:16 21:08	07:06 20:01	18:49 (5) 19:04 (5)	07:55 18:52	07:50 16:52	08:34 16:27
13	08:40 16:52	07:57 17:47	06:58 18:37	06:47 20:30		05:49 21:20	05:18 21:56	05:33 21:52	06:17 21:06	07:07 19:59	18:47 (5) 19:04 (5)	07:57 18:50	07:51 16:51	08:35 16:27
14	08:39 16:54	07:55 17:48	06:56 18:39	06:45 20:32		05:47 21:21	05:18 21:57	05:34 21:51	06:19 21:04	07:09 19:56	18:47 (5) 19:04 (5)	07:58 18:48	07:53 16:50	08:36 16:27
15	08:38 16:55	07:54 17:50	06:54 18:40	06:43 20:33		05:46 21:23	05:18 21:57	05:35 21:50	06:20 21:02	07:10 19:54	18:46 (5) 19:05 (5)	08:00 18:45	07:55 16:48	08:37 16:27
16	08:37 16:57	07:52 17:52	06:51 18:42	06:41 20:35		05:44 21:24	05:18 21:58	05:36 21:49	06:22 21:00	07:12 19:52	18:45 (5) 19:04 (5)	08:02 18:43	07:57 16:47	08:38 16:27
17	08:37 16:58	07:50 17:54	06:49 18:44	06:39 20:37		05:43 21:26	05:18 21:58	05:38 21:48	06:24 20:58	07:14 19:49	18:46 (5) 19:04 (5)	08:04 18:41	07:58 16:45	08:39 16:27
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38		05:41 21:27	05:18 21:59	05:39 21:47	06:25 20:56	07:15 19:47	18:45 (5) 19:02 (5)	08:05 18:39	08:00 16:44	08:40 16:27
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40		05:40 21:29	05:18 21:59	05:40 21:46	06:27 20:54	07:17 19:45	18:46 (5) 19:01 (5)	08:07 18:37	08:02 16:43	08:40 16:28
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42		05:38 21:30	05:18 21:59	05:41 21:45	06:28 20:52	07:19 19:42	18:48 (5) 19:00 (5)	08:09 18:35	08:03 16:42	08:41 16:28
21	08:32 17:05	07:42 18:01	06:40 18:51	06:30 20:43		05:37 21:31	05:18 22:00	05:43 21:44	06:30 20:50	07:20 19:40	18:49 (5) 18:56 (5)	08:11 18:33	08:05 16:40	08:42 16:28
22	08:31 17:07	07:40 18:03	06:37 18:52	06:28 20:45		05:36 21:33	05:18 22:00	05:44 21:42	06:32 20:48	07:22 19:38	08:12 18:31	08:12 16:39	08:07 16:29	08:42 16:29
23	08:30 17:08	07:37 18:05	06:35 18:54	06:26 20:47		05:34 21:34	05:18 22:00	05:45 21:41	06:33 20:46	07:23 19:35	08:14 18:29	08:08 16:38	08:43 16:29	
24	08:29 17:10	07:35 18:07	06:33 18:56	06:24 20:48		05:33 21:36	05:19 22:00	05:47 21:40	06:35 20:44	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50		05:32 21:37	05:19 22:00	05:48 21:38	06:37 20:41	07:27 19:31	08:18 17:25	08:12 16:36	08:43 16:31	
26	08:26 17:14	07:31 18:10	06:28 18:59	06:20 20:52		05:31 21:38	05:19 22:00	05:50 21:37	06:38 20:39	07:28 19:28	07:19 17:23	08:13 16:35	08:44 16:31	
27	08:25 17:15	07:29 18:12	06:26 19:01	06:18 20:53		05:30 21:40	05:20 22:00	05:51 21:36	06:40 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55		05:29 21:41	05:20 22:00	05:53 21:34	06:41 20:35	07:32 19:24	07:23 17:19	08:16 16:33	08:44 16:33	
29	08:22 17:19	07:21 20:04	06:14 19:04	06:14 20:57		05:28 21:42	05:21 22:00	05:54 21:33	06:43 20:33	07:33 19:21	07:25 17:17	08:18 16:33	08:44 16:34	
30	08:21 17:21	07:19 20:06	06:12 19:14	06:12 20:58		05:27 21:43	05:22 22:00	05:55 21:31	06:45 20:31	07:35 19:19	07:26 17:15	08:19 16:32	08:45 16:35	
31	08:19 17:23	07:17 20:08	06:11 19:12	06:11 20:58		05:26 21:44	05:22 21:29	05:57 20:28	06:46 20:28	07:35 19:19	07:28 17:13	08:19 16:32	08:45 16:36	
Potential sun hours	260	278	367	416	20	485	498	501	453	381	332	267	244	
Total, worst case			150	20						174				
Sun reduction			0.24	0.35						0.28				
Oper. time red.			1.00	1.00						1.00				
Wind dir. red.			0.66	0.66						0.66				
Total reduction			0.16	0.24						0.19				
Total, real			24	5						33				

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

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

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

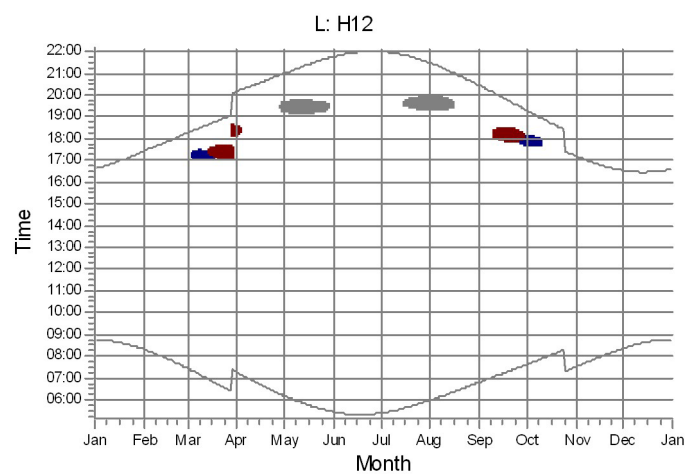
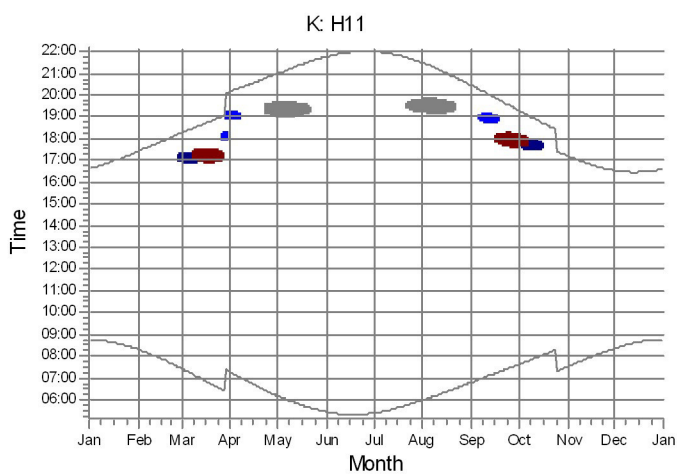
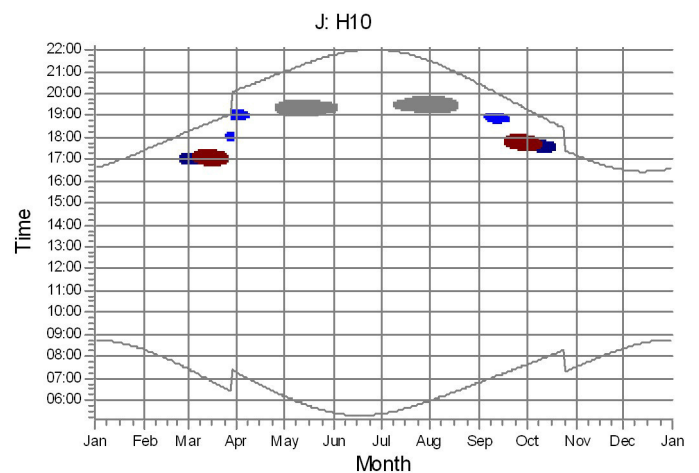
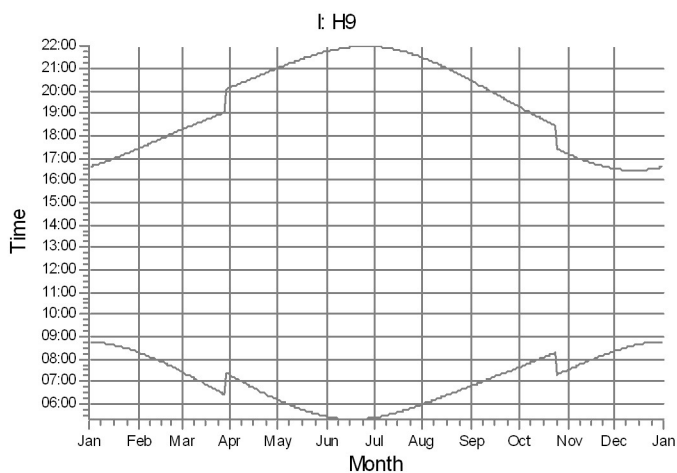
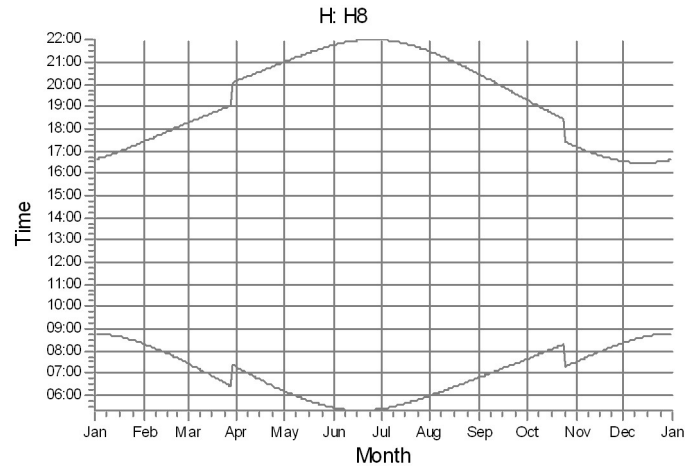
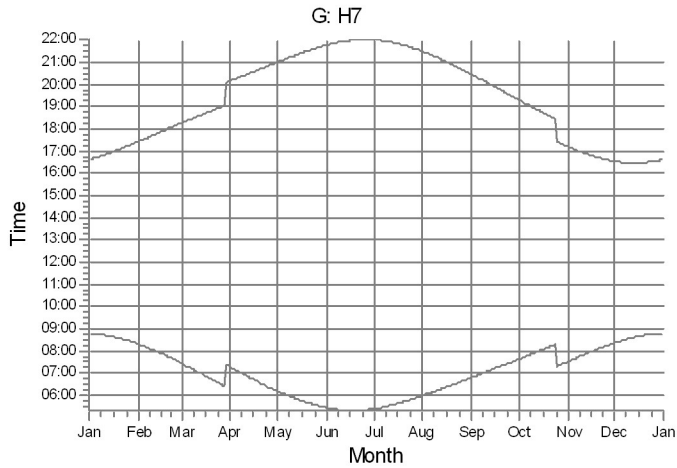


WTGs

1: T01 2: T02 3: T03

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

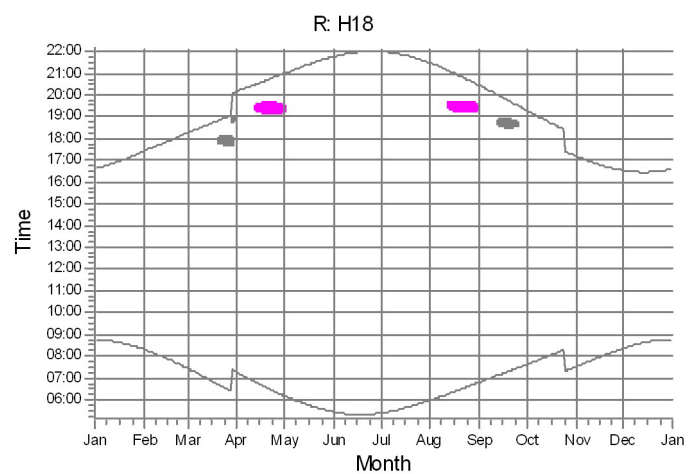
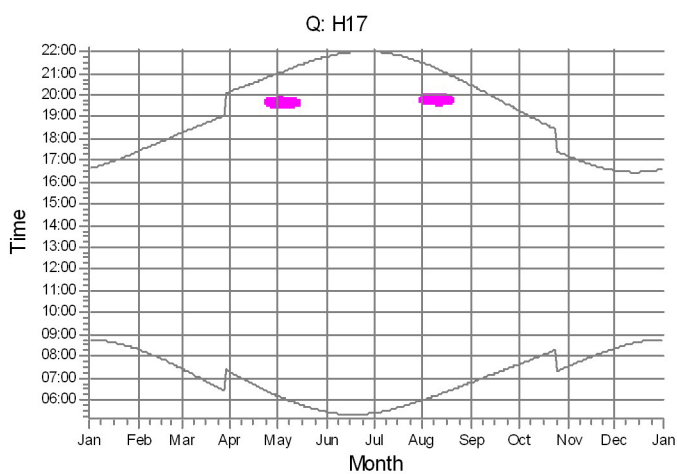
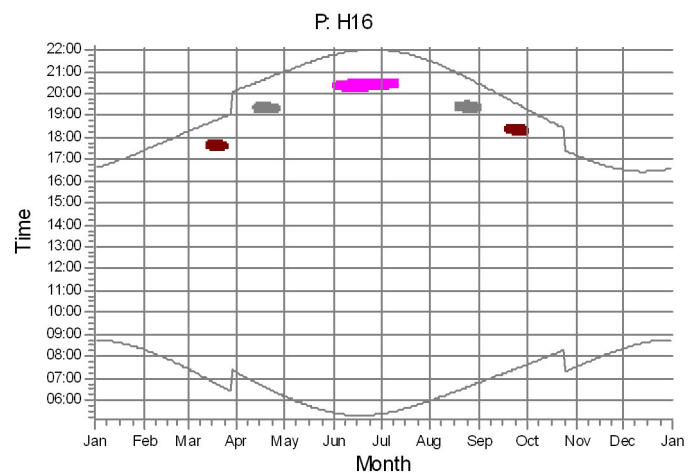
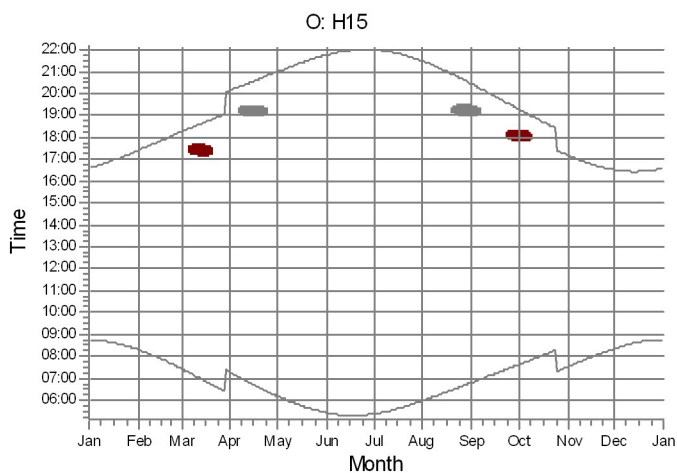
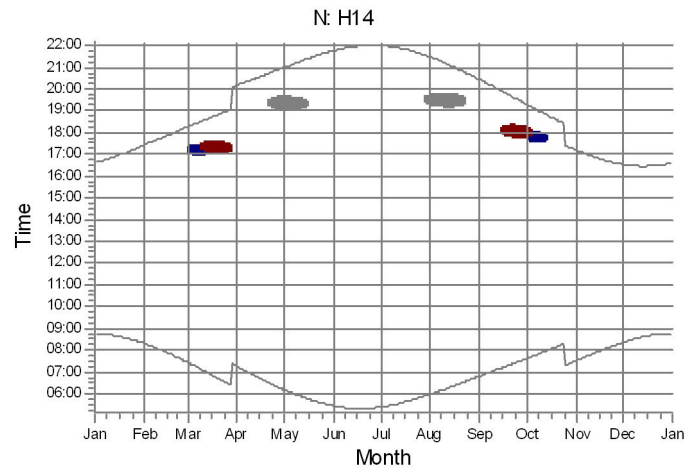
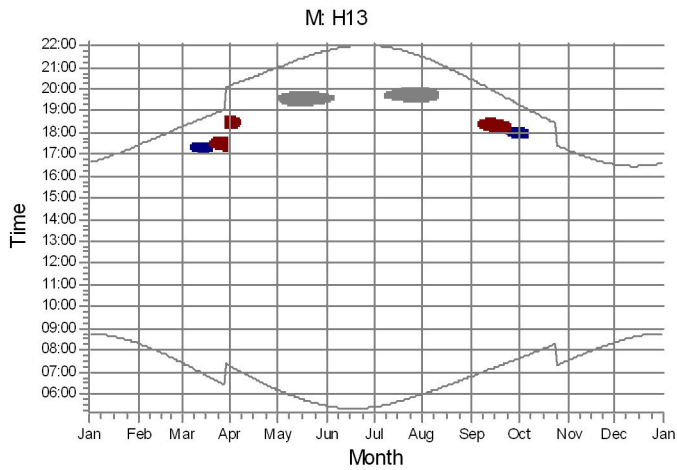


WTGs

3: T03 4: T04 7: T08 8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

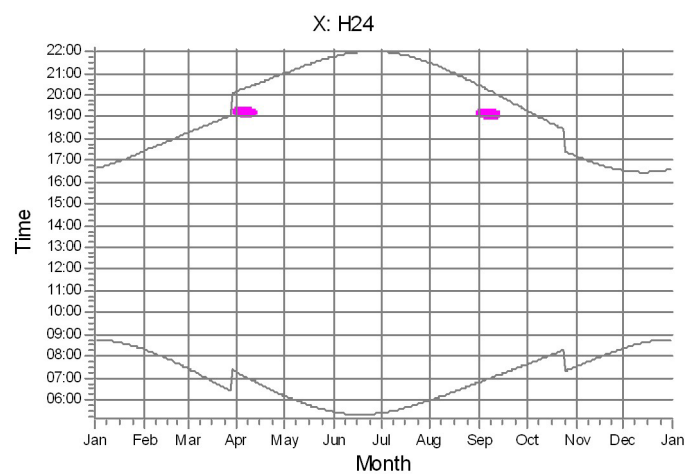
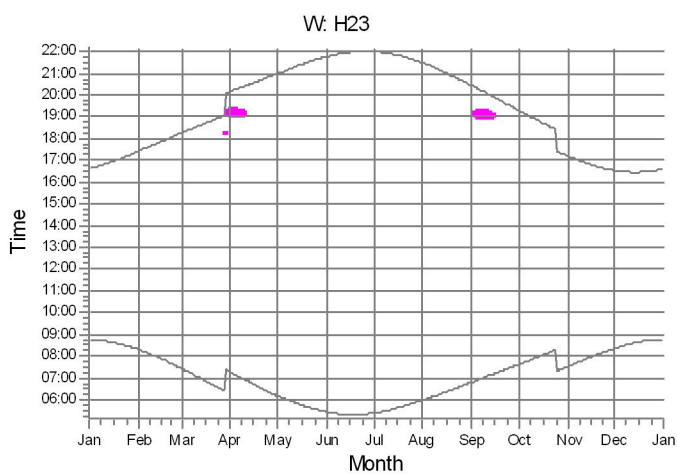
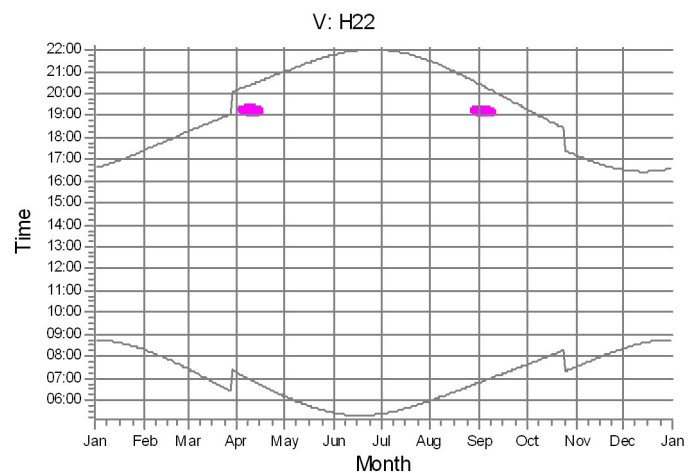
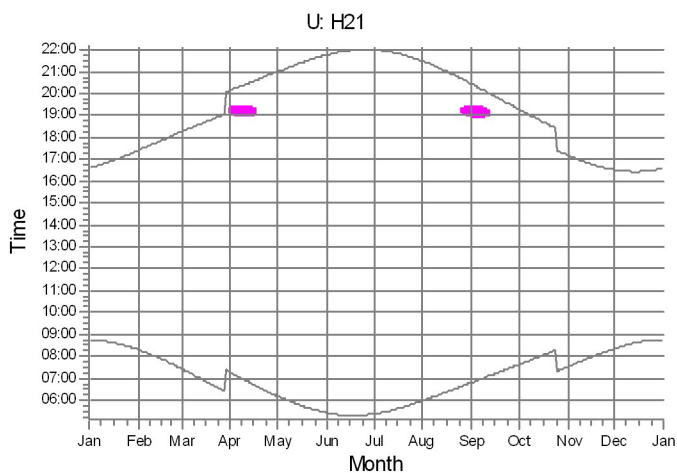
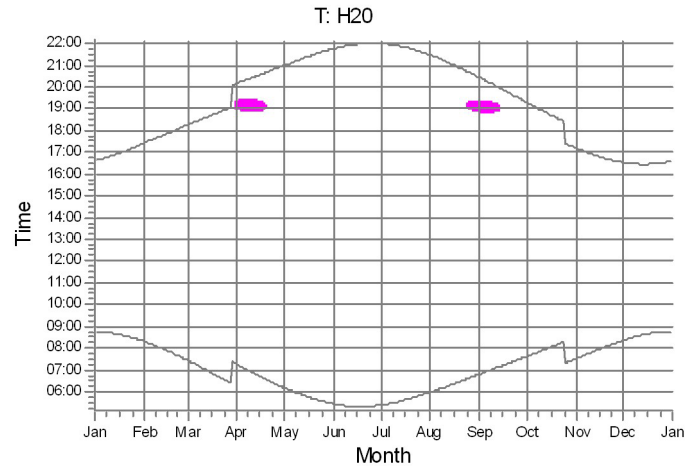
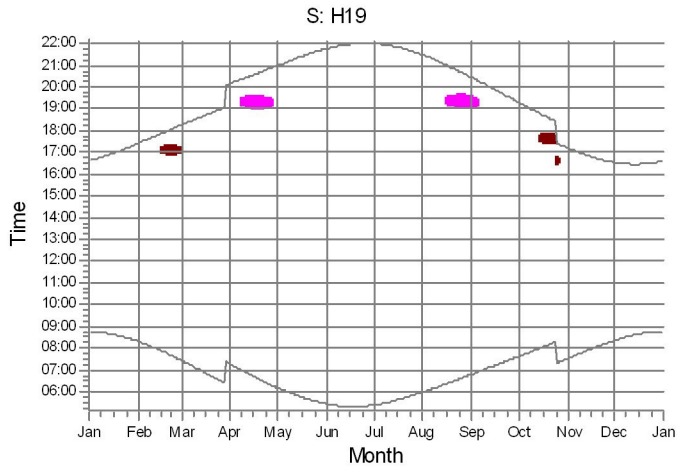


WTGs

4: T04 5: T06 7: T08 8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

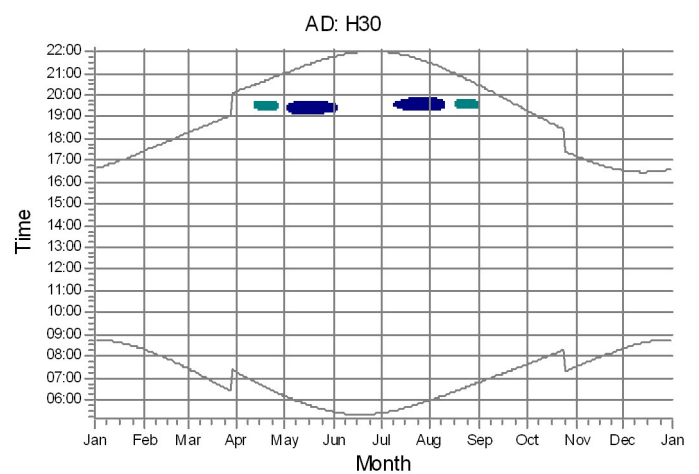
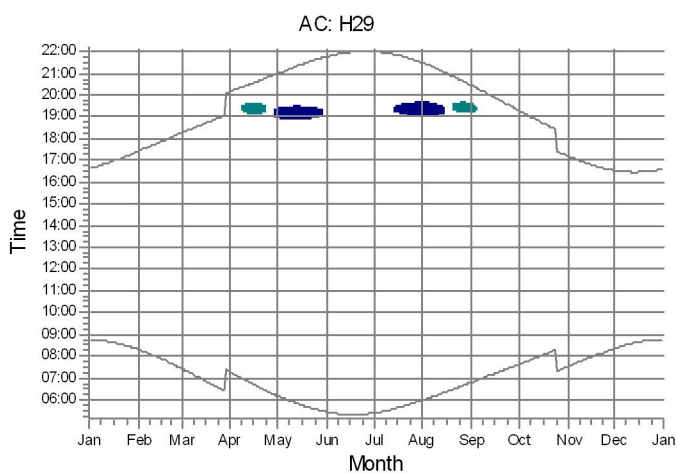
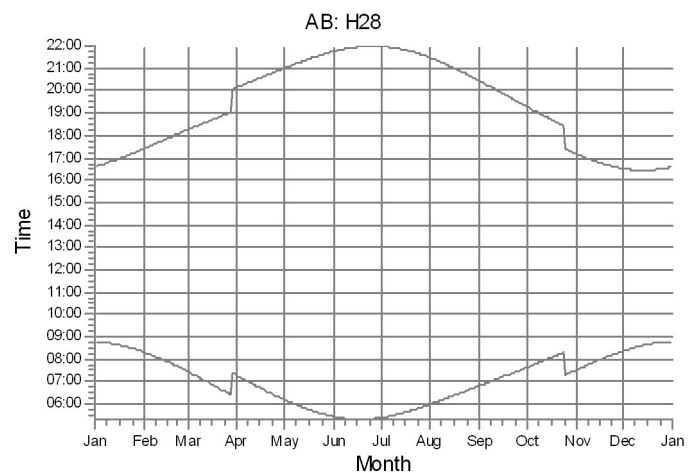
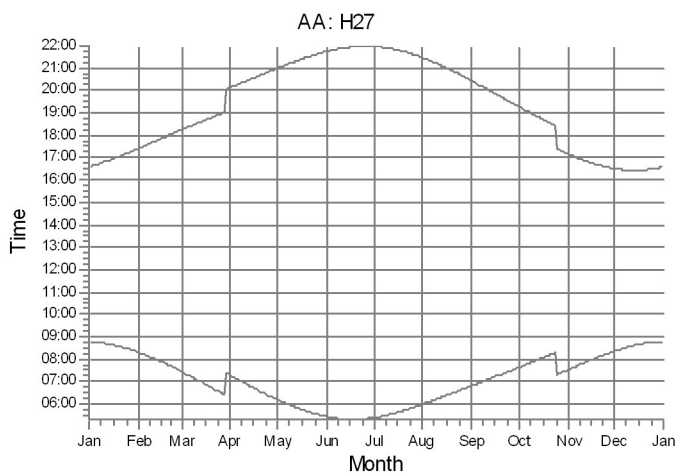
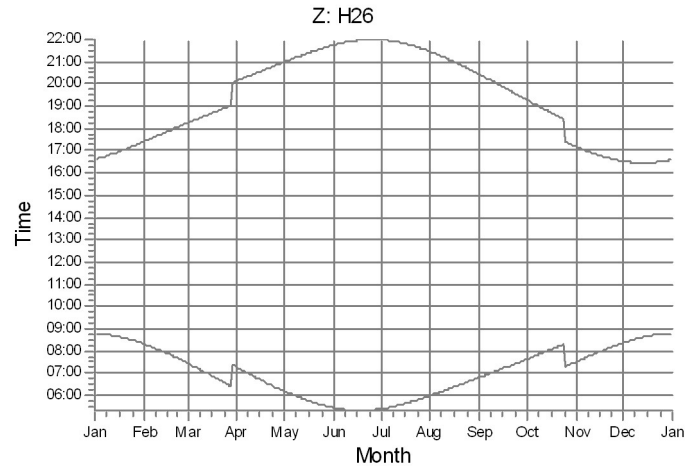
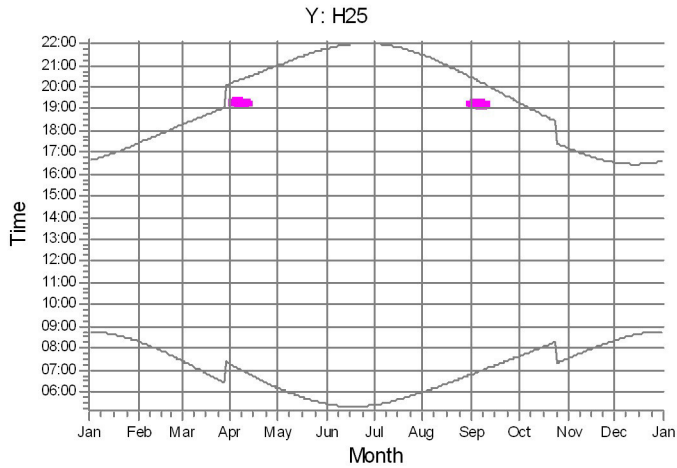


WTGs

5: T06 8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

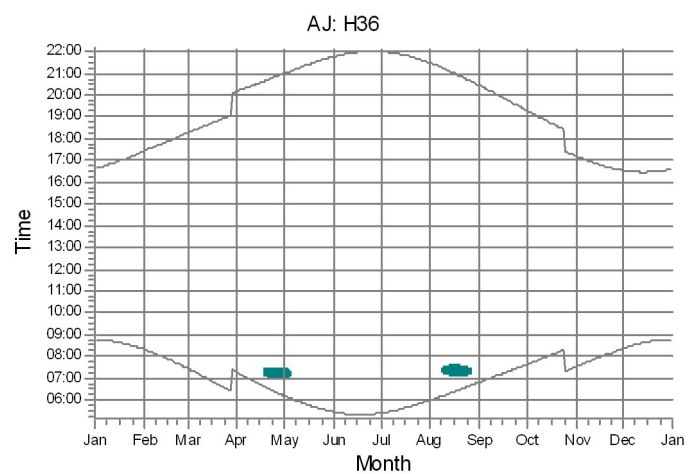
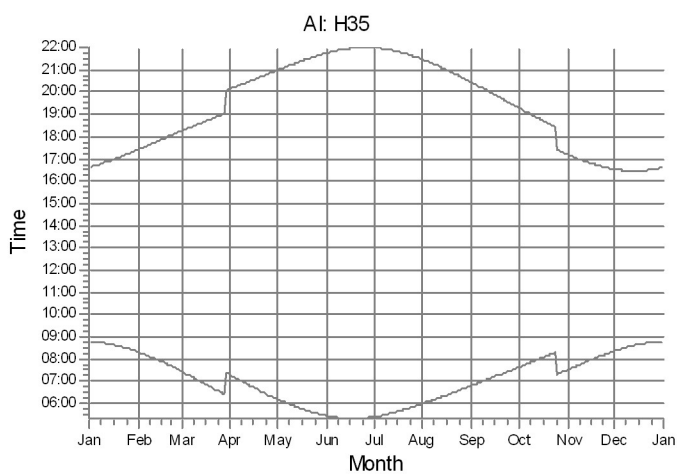
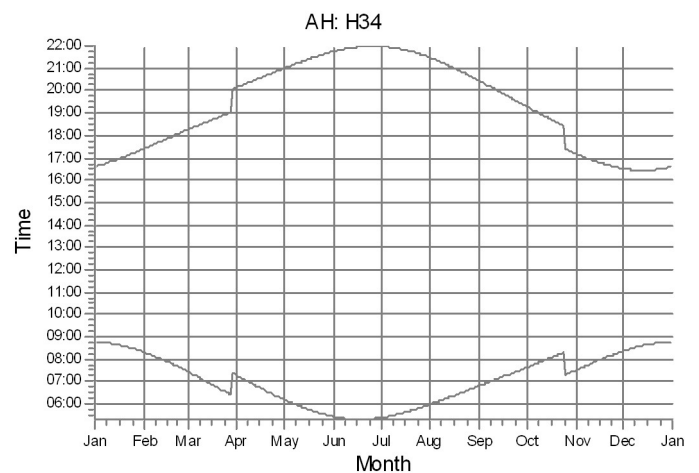
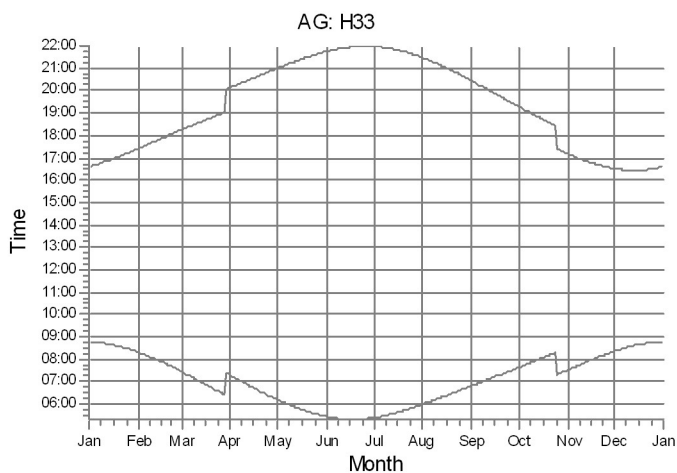
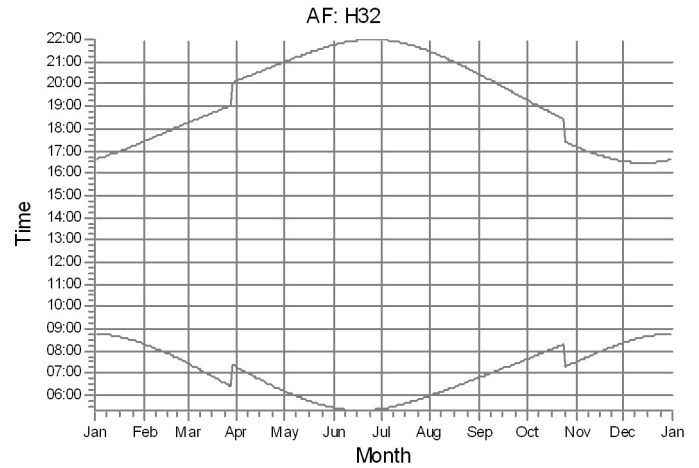
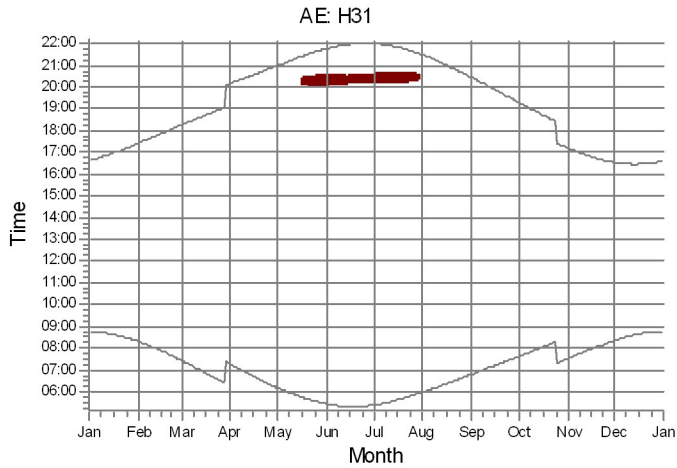


WTGs

5: T06 6: T07 7: T08

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

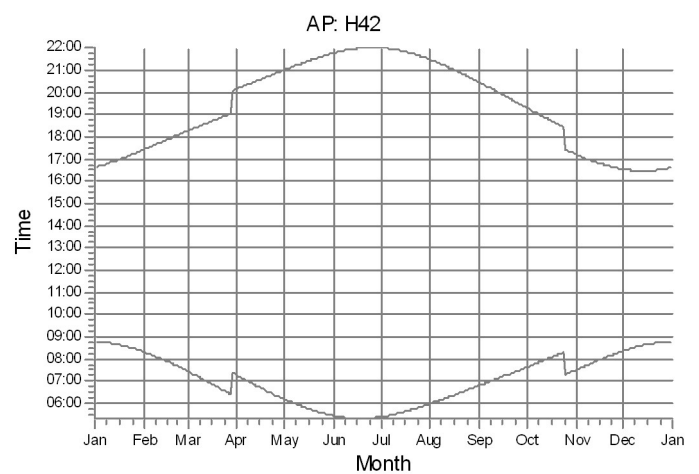
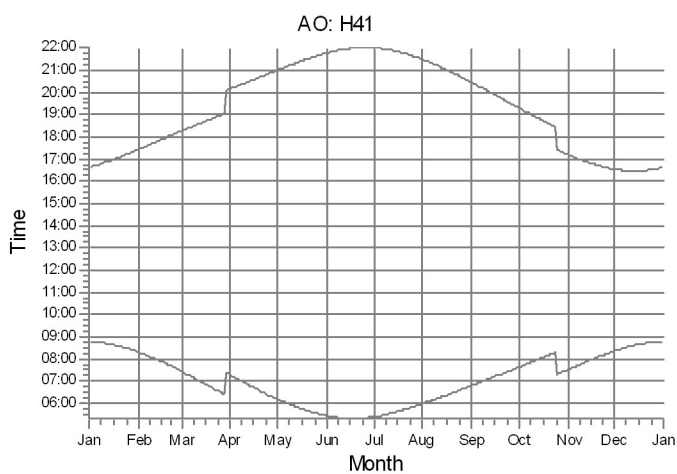
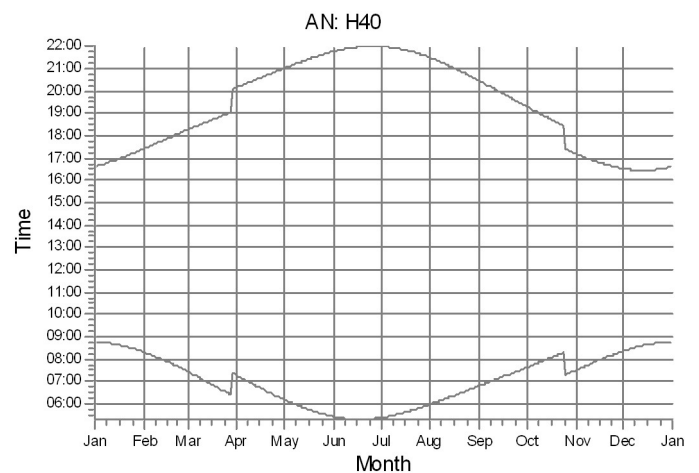
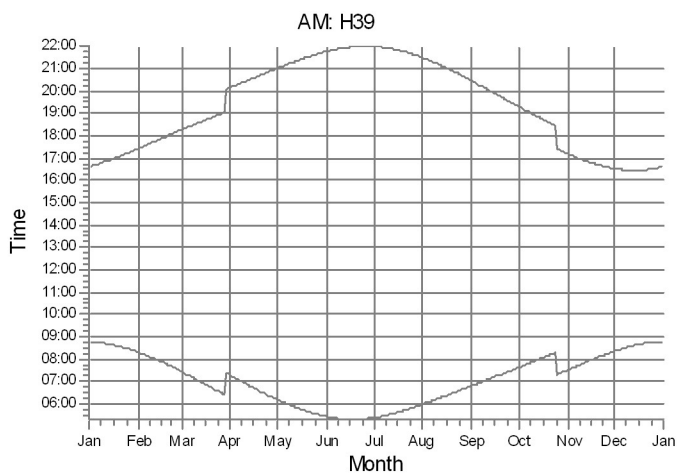
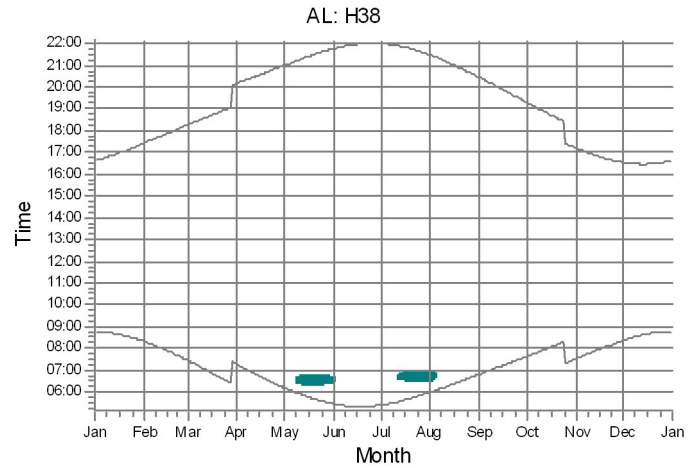
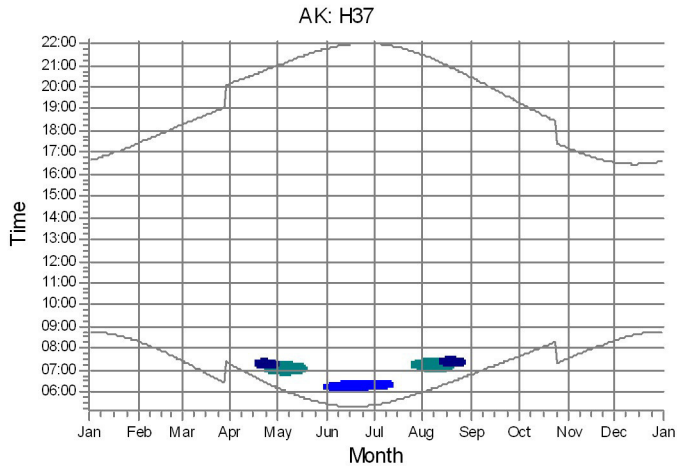


WTGs

6: T07 8: T09

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

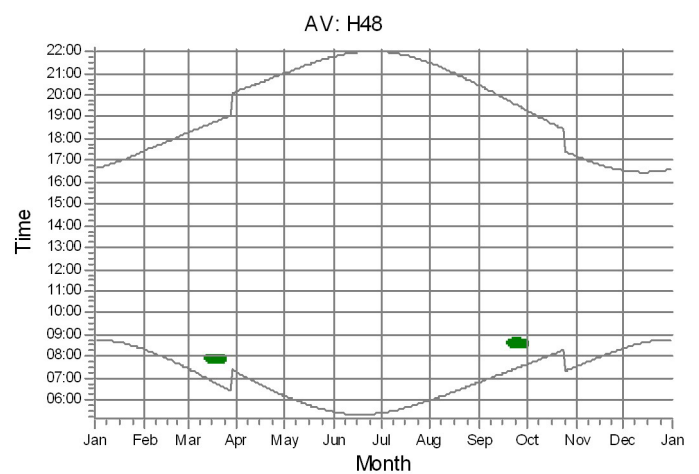
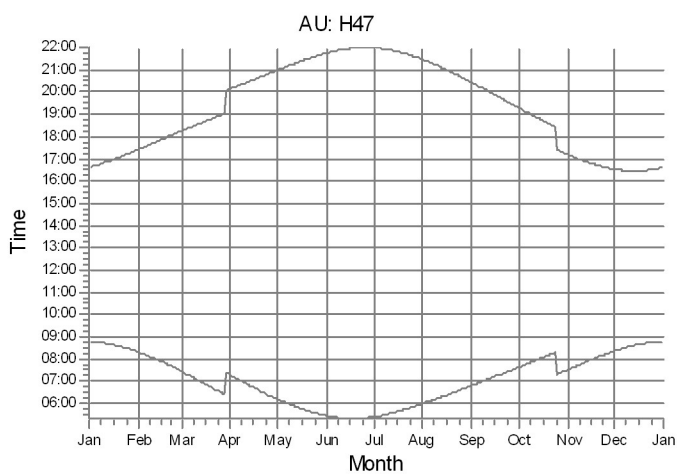
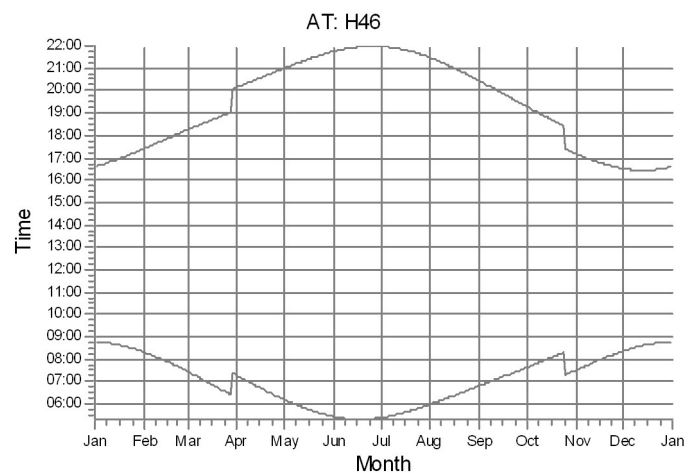
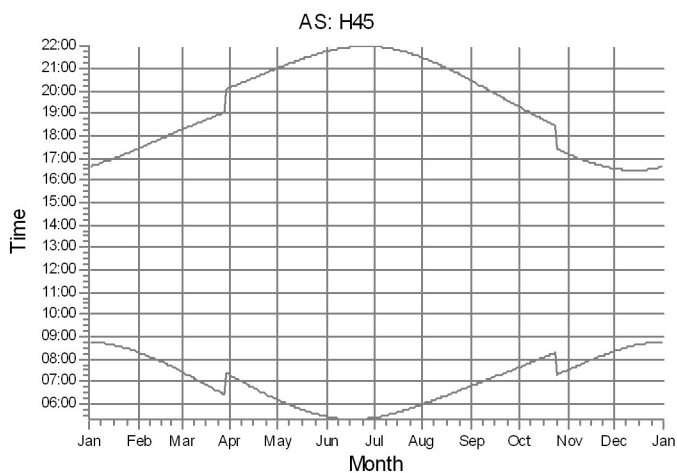
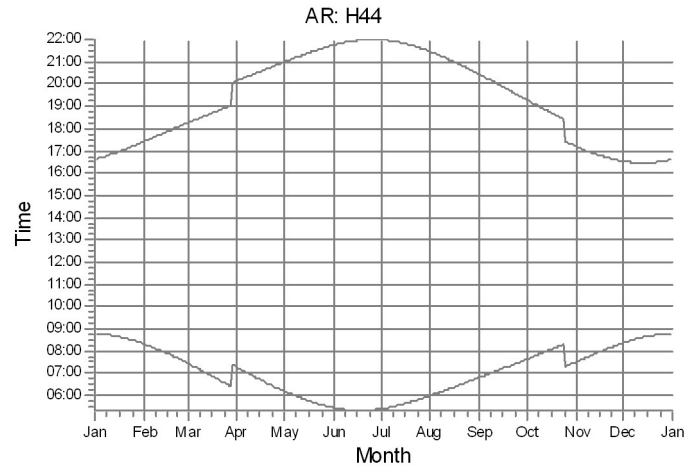
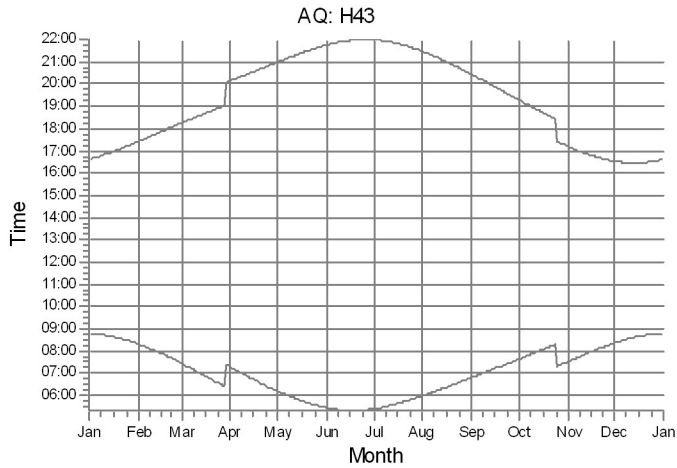


WTGs

3: T03 6: T07 7: T08

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

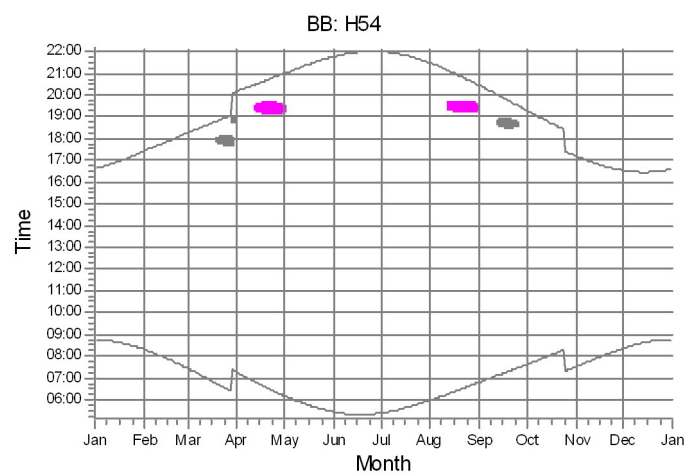
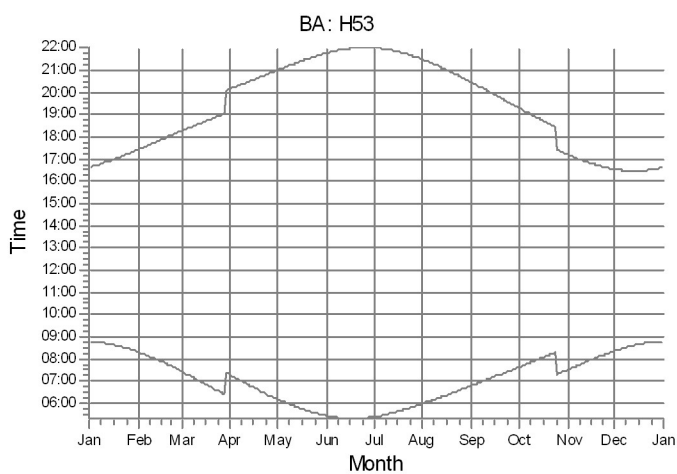
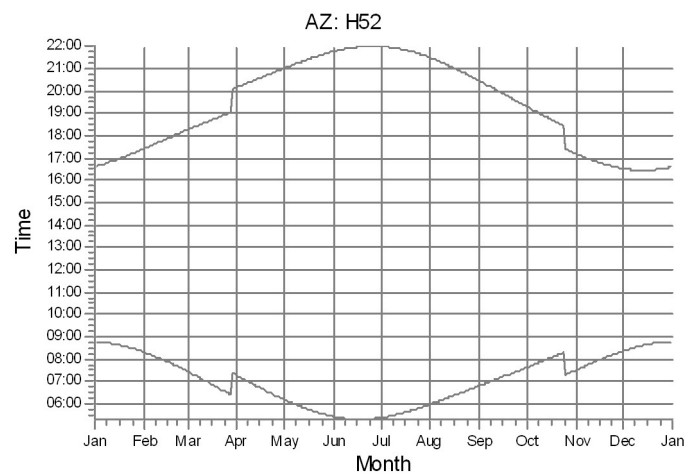
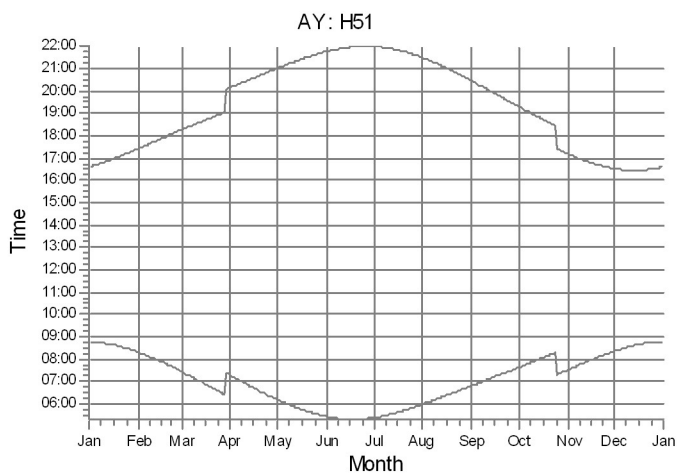
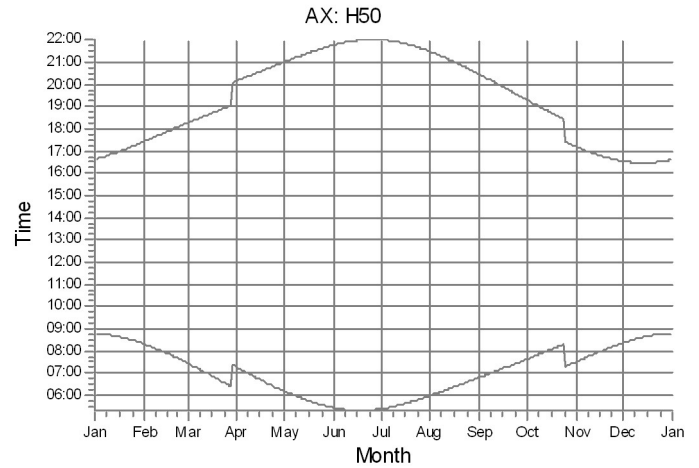
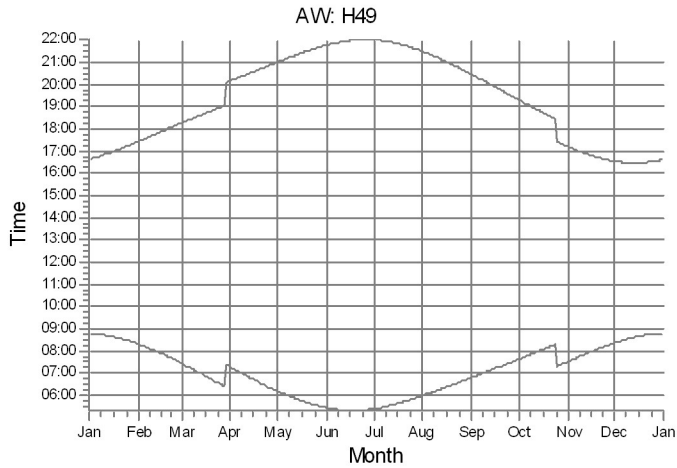


WTGs

1: T01

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

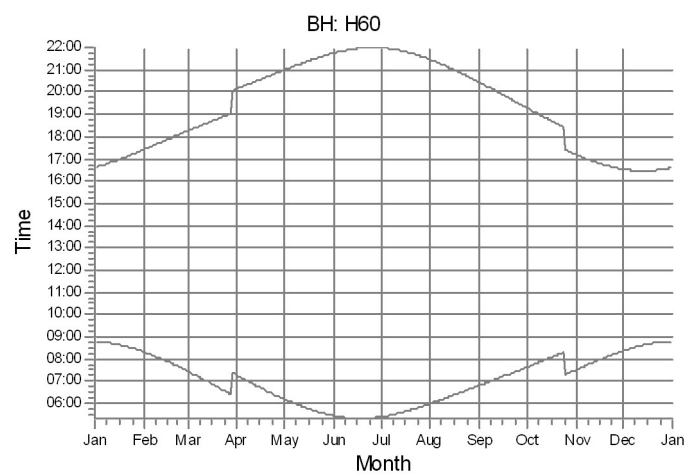
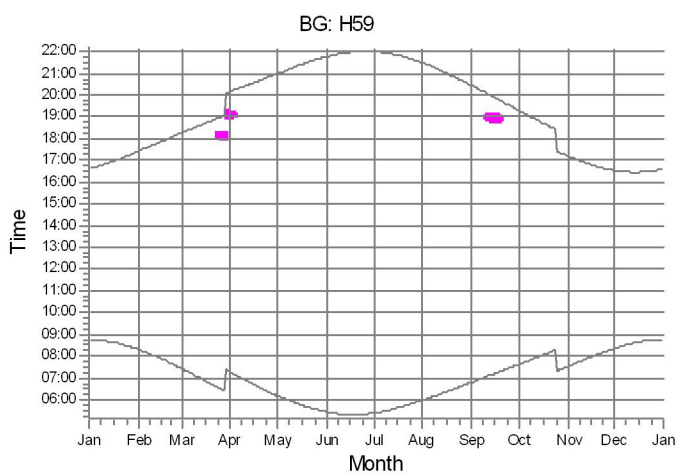
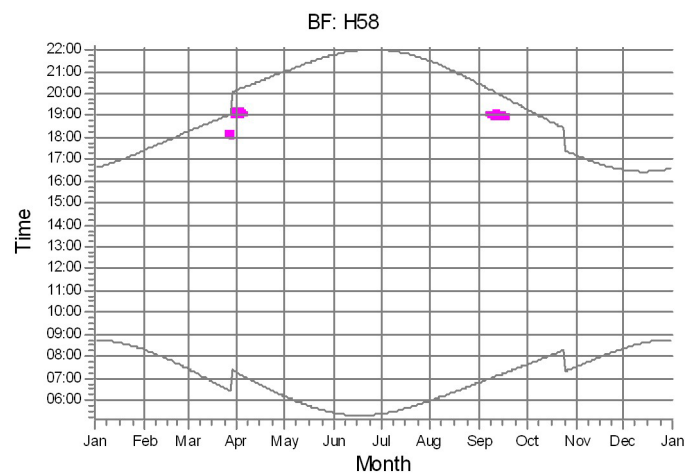
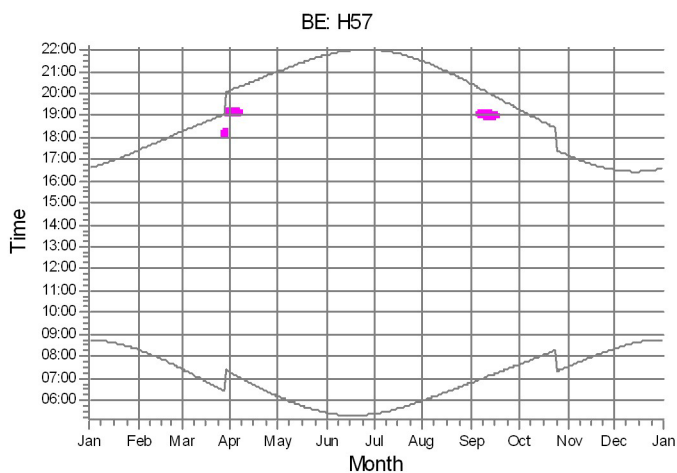
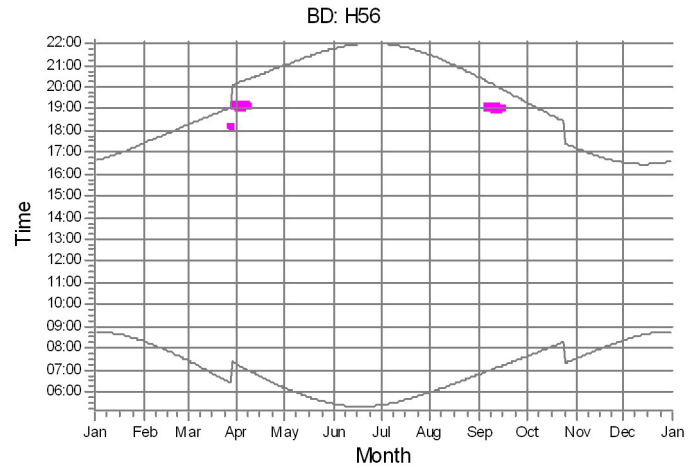
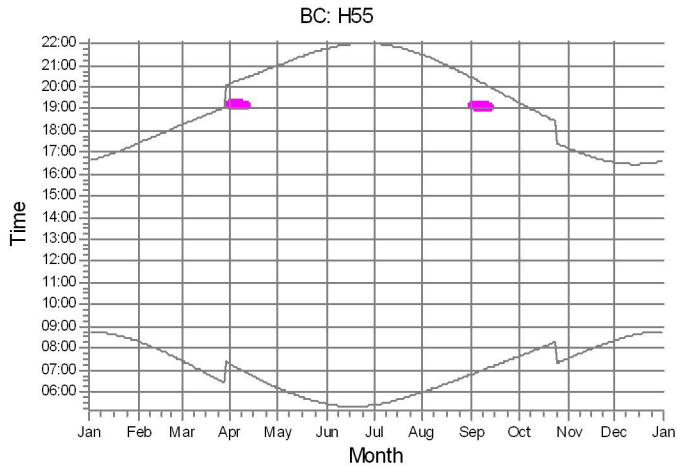


WTGs

4: T04 5: T06

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

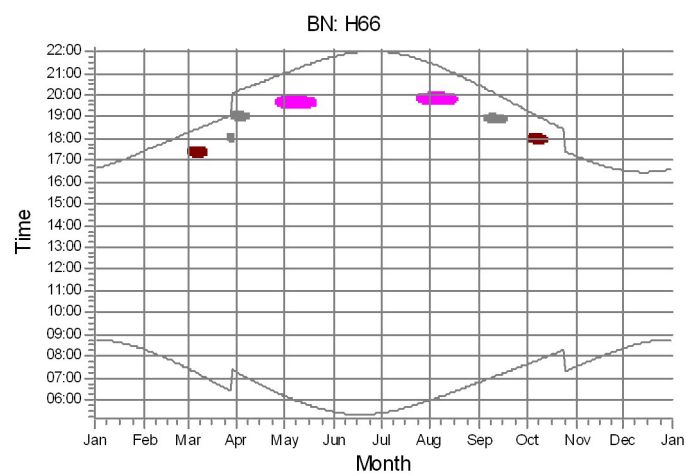
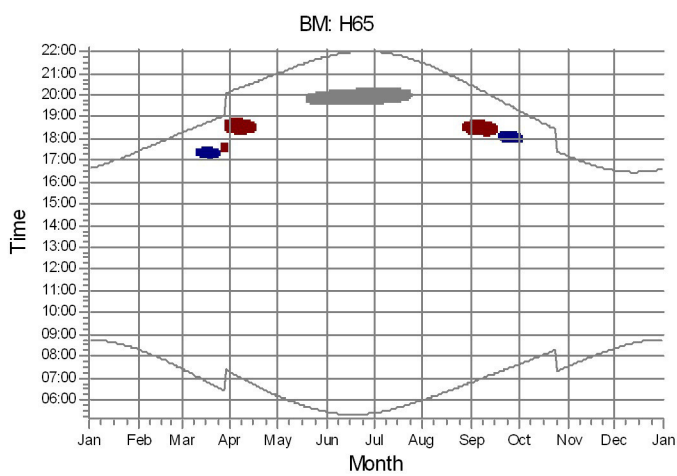
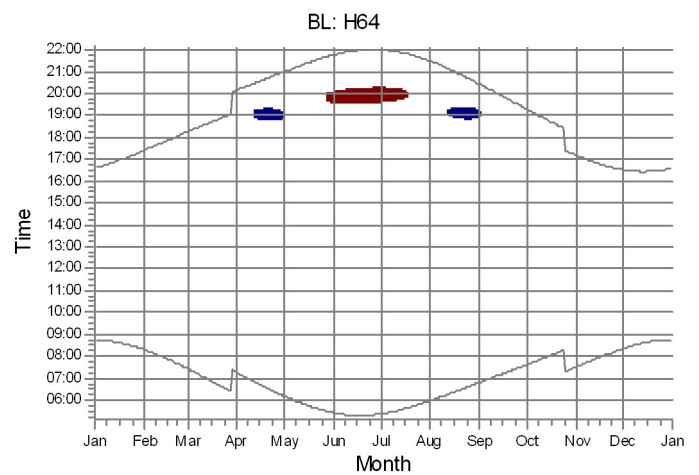
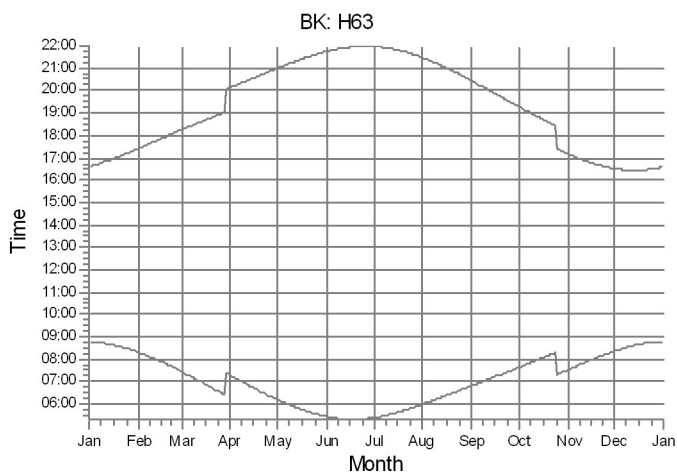
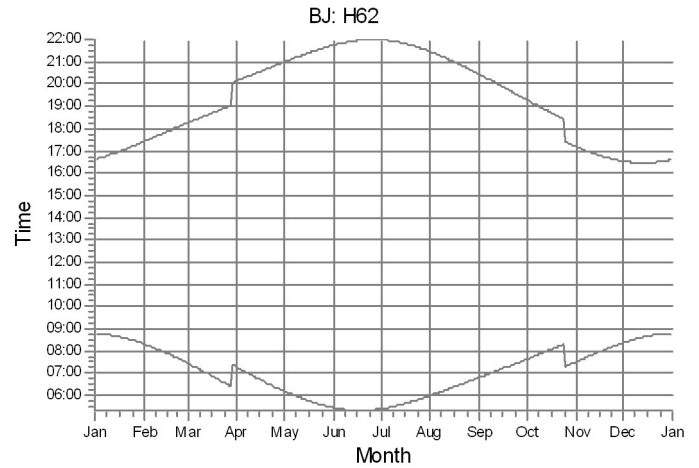
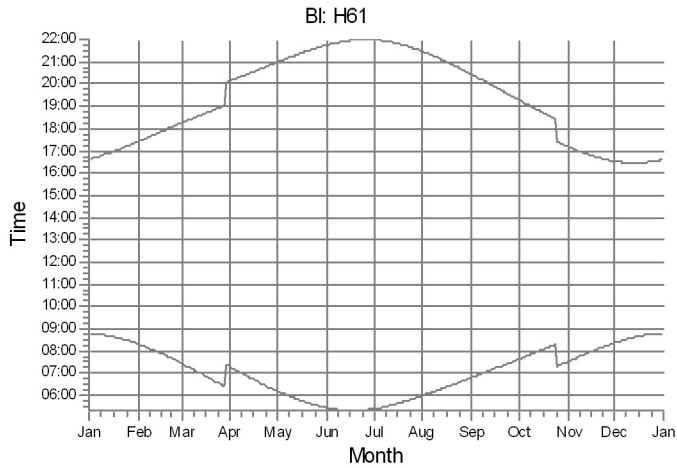


WTGs

5: T06

SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

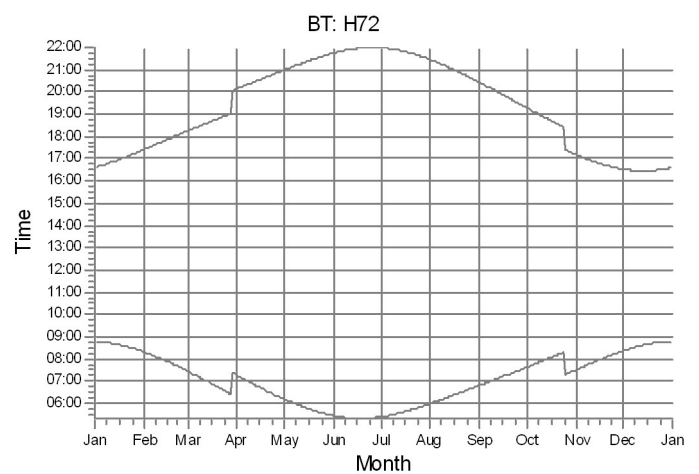
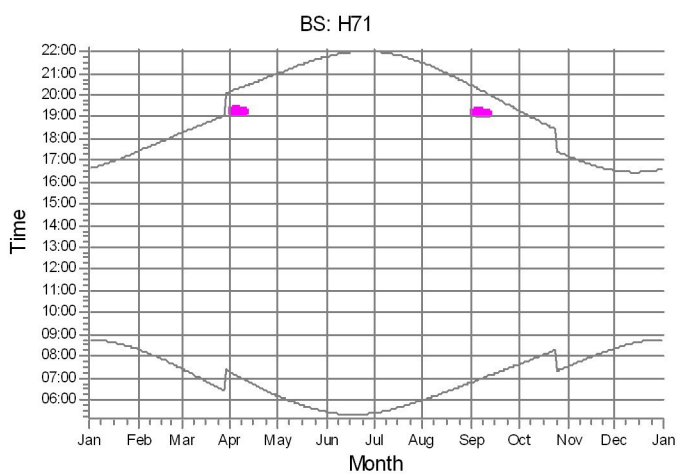
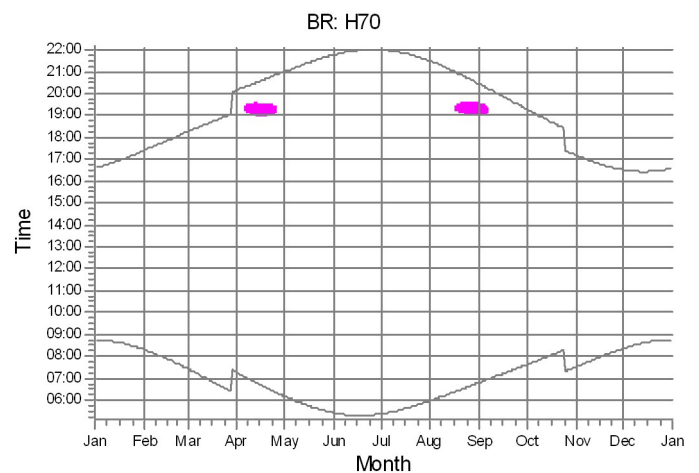
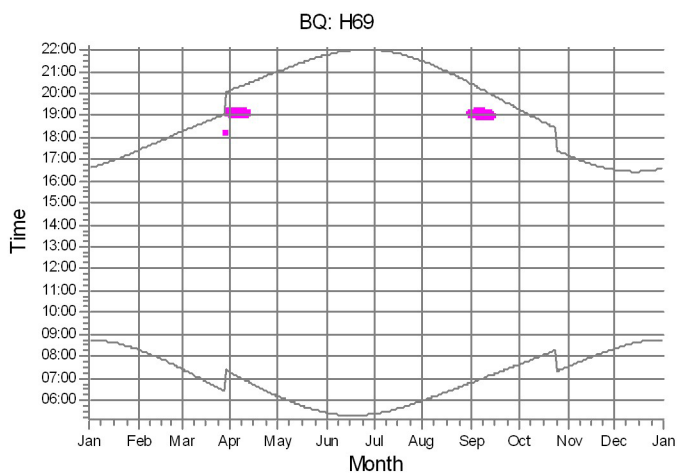
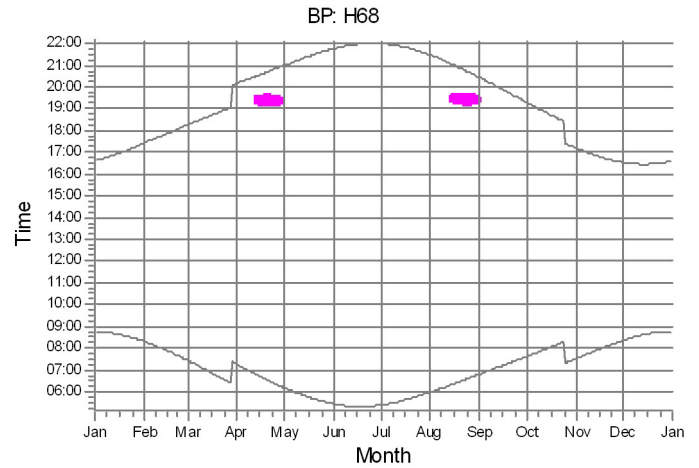
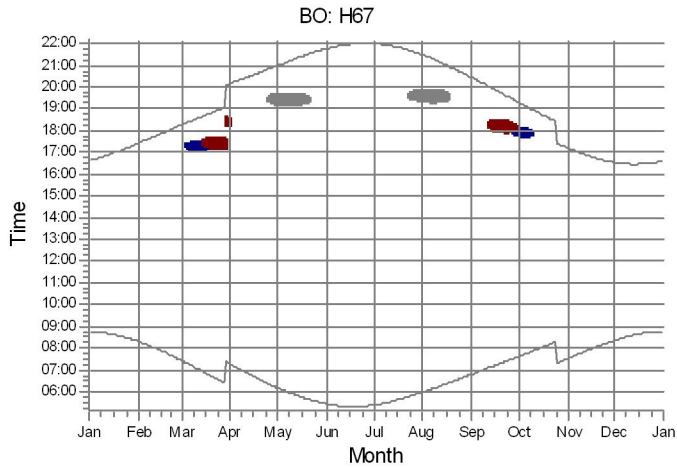


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

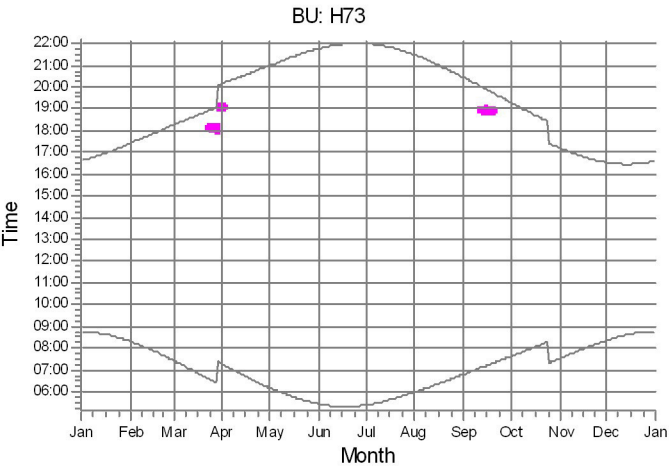


WTGs



SHADOW - Calendar, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)



WTGs

5: T06

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case)**WTG:** 1 - T01**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January			February			March			April			May			June		
1	08:45	16:37		08:18	17:25		07:25	18:16		07:15	08:57-09:39/42		06:10	08:15-08:52/37		05:25	21:46	
2	08:45	16:38		08:17	17:27		07:23	18:18		07:12	08:57-09:38/41		06:08	08:16-08:51/35		05:24	21:47	
3	08:45	16:39		08:15	17:28		07:21	18:20		07:10	08:57-09:38/41		06:06	08:16-08:49/33		05:24	21:48	
4	08:44	16:40		08:13	17:30		07:18	18:21		07:08	08:58-09:37/39	08:32-08:40/8	06:05	08:17-08:47/30		05:23	21:49	
5	08:44	16:42		08:12	17:32		07:16	18:23		07:06	08:57-09:36/39		06:03	08:19-08:46/27		05:22	21:50	
6	08:44	16:43		08:10	17:34		07:14	18:25		07:03	08:38-08:43/5	08:01-08:20/19	06:01	08:20-08:44/24		05:22	21:51	
7	08:43	16:44		08:08	17:36		07:12	18:27		07:01	08:32-08:49/17	08:00-08:21/21	05:59	08:21-08:42/21		05:21	21:52	
8	08:43	16:45		08:07	17:38		07:10	18:28		06:59	08:29-08:52/23	07:59-08:22/23	05:57	08:24-08:40/16		05:21	21:53	
9	08:42	16:47		08:05	17:39		07:07	18:30		06:57	08:26-08:53/27	07:57-08:21/24	05:56	08:28-08:35/7		05:20	21:54	
10	08:42	16:48		08:03	17:41		07:05	18:32		06:54	08:24-08:55/31	07:57-08:21/24	05:54			05:20	21:54	
11	08:41	16:50		08:01	17:43		07:03	18:34		06:52	08:22-08:56/34	07:57-08:21/24	05:52			05:19	21:55	
12	08:41	16:51		07:59	17:45		07:01	07:53-07:58/5		06:50	07:57-08:57/60		05:51			05:19	21:56	
13	08:40	16:52		07:58	17:47		06:58	07:49-08:00/11		06:48	07:57-08:58/61		05:49			05:19	21:56	
14	08:39	16:54		07:56	17:49		06:56	07:47-08:02/15		06:45	07:56-08:58/62		05:47			05:18	21:57	
15	08:38	16:55		07:54	17:51		06:54	07:46-08:03/17		06:43	07:56-08:58/62		05:46			05:18	21:58	
16	08:38	16:57		07:52	17:52		06:51	07:44-08:03/19		06:41	07:57-08:59/62		05:44			05:18	21:58	
17	08:37	16:59		07:50	17:54		06:49	07:44-08:03/19		06:39	07:58-08:59/61		05:43			05:18	21:59	
18	08:36	17:00		07:48	17:56		06:47	07:43-08:03/20		06:37	08:15-08:59/44		05:41			05:18	21:59	
19	08:35	17:02		07:46	17:58		06:45	07:40-08:02/22		06:35	08:14-08:59/45		05:40			05:18	21:59	
20	08:34	17:04		07:44	18:00		06:42	07:38-08:02/24		06:32	08:14-08:59/45		05:39			05:18	22:00	
21	08:33	17:05		07:42	18:02		06:40	07:37-08:01/24		06:30	08:13-08:59/46		05:37			05:18	22:00	
22	08:32	17:07		07:40	18:03		06:38	07:34-07:59/25		06:28	08:13-08:59/46		05:36			05:18	22:00	
23	08:30	17:09		07:38	18:05		06:35	07:32-07:58/26		06:26	08:13-08:58/45		05:35			05:19	22:00	
24	08:29	17:10		07:36	18:07		06:33	07:30-07:59/29		06:24	08:13-08:58/45		05:33			05:19	22:00	
25	08:28	17:12		07:34	18:09		06:31	08:02-08:39/37		06:22	08:13-08:57/44		05:32			05:19	22:00	
26	08:27	17:14		07:31	18:11		06:28	08:01-08:39/38		06:20	08:13-08:56/43		05:31			05:20	22:00	
27	08:25	17:16		07:29	18:12		06:26	08:01-08:40/39		06:18	08:13-08:55/42		05:30			05:20	22:00	
28	08:24	17:17		07:27	18:14		06:24	07:59-08:39/40		06:16	08:13-08:55/42		05:29			05:21	22:00	
29	08:23	17:19					07:22	08:59-09:40/41		06:14	08:13-08:53/40		05:28			05:21	22:00	
30	08:21	17:21					20:05	08:26-08:54/28		20:57			21:42			22:00	05:22	
31	08:20	17:23					07:19	08:58-09:40/42		06:12	08:14-08:52/38		05:27			22:00	05:26	
							20:06	08:27-08:52/25		20:59			21:43					
							07:17	08:58-09:40/42					05:26					
							20:08	08:27-08:50/23					21:45					
Potential sun hours	260			278			367			416			485			498		
Sum of minutes with flicker	0			0			879			1753			230			0		

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG:** 1 - T01**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 21:28	06:48 20:26	08:21-08:55/34 07:56-08:20/24	07:37 19:17	08:30-08:39/9 17:11
2	05:23 21:59	06:00 21:26	06:50 20:24	08:23-08:54/31 07:56-08:20/24	07:38 19:15	07:32 17:09
3	05:24 21:59	06:02 21:25	06:51 20:22	08:24-08:51/27 07:55-08:19/24	07:40 19:13	07:34 17:08
4	05:25 21:59	06:03 21:23	06:53 20:20	08:26-08:49/23 07:56-08:19/23	07:42 19:10	07:36 17:06
5	05:25 21:58	06:05 21:21	06:55 20:17	08:28-08:45/17 07:56-08:17/21	07:43 19:08	07:37 17:04
6	05:26 21:58	06:06 21:19	06:56 20:15	08:34-08:40/6 07:57-08:16/19	07:45 19:06	07:39 17:02
7	05:27 21:57	06:08 21:18	06:58 20:13	08:52-09:31/39 07:58-08:14/16	07:47 19:03	07:41 17:01
8	05:28 21:56	06:10 21:16	06:59 20:10	08:52-09:32/40 08:27-08:34/7	07:48 19:01	07:43 16:59
9	05:29 21:56	06:11 21:14	07:01 20:08	08:50-09:31/41 08:24-08:38/14	07:50 18:59	07:45 16:57
10	05:30 21:55	06:13 21:12	07:03 20:06	08:50-09:32/42 08:21-08:40/19	07:52 18:57	07:46 16:56
11	05:31 21:54	06:14 21:10	07:04 20:03	08:50-09:32/42 08:20-08:41/21	07:54 18:54	07:48 16:54
12	05:32 21:53	06:16 21:08	07:06 20:01	08:49-09:31/42 08:19-08:41/22	07:55 18:52	07:50 16:53
13	05:33 21:52	06:17 21:06	07:07 19:59	08:50-09:31/41 08:18-08:43/25	07:57 18:50	07:52 16:51
14	05:34 21:52	06:19 21:04	07:09 19:57	08:49-09:30/41 08:17-08:44/27	07:59 18:48	07:53 16:50
15	05:35 21:51	06:21 21:02	07:11 19:54	08:49-09:30/41 08:17-08:45/28	08:00 18:46	07:55 16:48
16	05:37 21:50	06:22 21:00	07:12 19:52	08:49-09:28/39 08:17-08:46/29	08:02 18:44	07:57 16:47
17	05:38 21:49	06:24 20:58	07:14 19:50	08:50-09:28/38 08:16-08:45/29	08:04 18:41	07:59 16:46
18	05:39 21:47	06:25 20:56	07:16 19:47	08:51-09:27/36 08:17-08:46/29	08:06 18:39	08:00 16:44
19	05:40 21:46	06:27 20:54	07:17 19:45	08:17-08:45/28 08:51-09:25/34	08:07 18:37	08:02 16:43
20	05:42 21:45	06:29 20:52	07:19 19:43	08:18-08:45/27 08:52-09:24/32	08:09 18:35	08:04 16:42
21	05:43 21:44	06:30 20:50	07:20 19:40	08:19-08:44/25 08:52-09:22/30	08:11 18:33	08:05 16:41
22	05:44 21:43	06:32 20:48	07:22 19:38	08:21-08:45/24 08:54-09:20/26	08:13 18:31	08:07 16:39
23	05:46 21:41	06:34 20:46	07:24 19:36	08:23-08:46/23 08:56-09:18/22	08:14 18:29	08:09 16:38
24	05:47 21:40	06:35 20:44	07:25 19:33	08:23-08:46/23 08:58-09:14/16	08:16 18:27	08:10 16:37
25	05:48 21:39	06:37 20:42	07:27 19:31	08:25-08:46/21 08:26-08:46/20	07:18 17:25	08:12 16:36
26	05:50 21:37	06:38 20:39	07:29 19:29	08:26-08:46/20 08:26-08:45/19	07:20 17:23	08:13 16:35
27	05:51 21:36	06:40 20:37	07:30 19:26	08:26-08:45/19 08:26-08:44/18	07:21 17:21	08:15 16:34
28	05:53 21:34	06:42 20:35	07:32 19:24	08:26-08:44/18 08:27-08:43/16	07:23 17:19	08:17 16:34
29	05:54 21:33	06:43 20:33	07:33 19:22	08:27-08:43/16 09:11-09:15/4	07:25 17:17	08:18 16:33
30	05:56 21:31	06:45 20:31	07:35 19:19	08:28-08:41/13 09:06-09:21/15	07:27 17:15	08:20 16:32
31	05:57 21:30	06:47 20:28	07:57-08:57/60 09:03-09:24/21		07:28 17:13	08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	0	1239	1642	9	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) WTG: 2 - T02

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	[January	February	March	April	May	June	July	August	September	October	November	December			
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	06:10 21:00	07:48-08:09/21	05:25 21:46	05:22 22:00	05:59 21:28	06:48 20:26	08:13-08:38/25	07:37 19:17	07:30 17:11	08:21 16:31	
2	08:45 16:38	08:17 17:26	07:23 18:18	07:12 20:11	06:08 21:02	07:49-08:08/19	05:24 21:47	05:23 21:59	06:00 21:26	06:50 20:24	08:14-08:38/24	07:38 19:15	07:32 17:09	08:22 16:31	
3	08:44 16:39	08:15 17:28	07:21 18:20	07:10 20:13	06:06 21:04	07:49-08:06/17	05:24 21:48	05:24 21:59	06:02 21:25	06:51 20:22	08:13-08:37/24	07:40 19:12	07:34 17:08	08:24 16:30	
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	06:05 21:05	07:51-08:04/13	05:23 21:49	05:25 21:59	06:03 21:23	06:53 20:19	08:14-08:36/22	07:42 19:10	07:36 17:06	08:25 16:29	
5	08:44 16:42	08:12 17:32	07:16 18:23	07:06 20:16	06:03 21:07	07:54-08:02/8	05:22 21:50	05:25 21:58	06:05 21:21	06:55 20:17	08:14-08:34/20	07:43 19:08	07:37 17:04	08:26 16:29	
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	06:01 21:09	08:20-08:37/17	05:22 21:51	05:26 21:58	06:06 21:19	06:56 20:15	08:16-08:33/17	07:45 19:06	07:39 17:02	08:28 16:28	
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	05:59 21:10	08:18-08:38/20	05:21 21:52	05:27 21:57	06:08 21:18	06:58 20:13	08:17-08:30/13	07:47 19:03	07:41 17:01	08:29 16:28	
8	08:43 16:45	08:07 17:38	07:10 18:28	06:59 20:22	05:57 21:12	08:17-08:39/22	05:20 21:53	05:28 21:56	06:09 21:16	08:02-08:13/11	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28	
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	05:56 21:13	08:15-08:39/24	05:20 21:54	05:29 21:56	06:11 21:14	08:00-08:14/14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:27	
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	05:54 21:15	08:15-08:39/24	05:20 21:54	05:30 21:55	06:13 21:12	07:58-08:15/17	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27	
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	05:52 21:17	08:14-08:39/25	05:19 21:55	05:31 21:54	06:14 21:10	07:57-08:17/20	07:04 20:03	07:54 18:54	07:48 16:54	08:34 16:27	
12	08:41 16:51	07:59 17:45	07:01 18:35	06:50 20:28	05:51 21:18	08:14-08:39/25	05:19 21:56	05:32 21:53	06:16 21:08	07:55-08:17/22	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27	
13	08:40 16:52	07:58 17:47	06:58 18:37	06:48 20:30	05:49 21:20	08:14-08:39/25	05:19 21:56	05:33 21:52	06:17 21:06	07:55-08:18/23	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27	
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	05:47 21:21	08:13-08:38/25	05:18 21:57	05:34 21:52	06:19 21:04	07:55-08:19/24	07:09 19:56	07:59 18:48	07:53 16:50	08:37 16:27	
15	08:38 16:55	07:54 17:51	06:54 18:41	06:43 20:33	05:46 21:23	08:13-08:37/24	05:18 21:58	05:35 21:51	06:21 21:02	07:54-08:19/25	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27	
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	05:44 21:24	07:58-08:05/7	05:18 21:58	05:37 21:50	06:22 21:00	07:54-08:20/26	07:12 19:52	08:02 18:43	07:57 16:47	08:38 16:27	
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	05:43 21:26	07:55-08:08/13	05:18 21:59	05:38 21:49	06:24 20:58	07:53-08:19/26	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27	
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	05:41 21:27	07:53-08:10/17	05:18 21:59	05:39 21:47	06:25 20:56	07:53-08:20/27	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28	
19	08:35 17:02	07:46 17:58	06:45 18:48	06:35 20:40	05:40 21:29	07:51-08:11/20	05:18 21:59	05:40 21:46	06:27 20:54	07:53-08:19/26	07:17 19:45	08:07 18:37	08:02 16:43	08:41 16:28	
20	08:34 17:04	07:44 18:00	06:42 18:49	06:32 20:42	05:39 21:30	07:50-08:12/22	05:18 22:00	05:42 21:45	06:29 20:52	07:53-08:19/26	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28	
21	08:33 17:05	07:42 18:02	06:40 18:51	06:30 20:44	05:37 21:32	08:18-08:30/12	05:18 22:00	05:43 21:44	06:30 20:50	07:53-08:18/25	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29	
22	08:32 17:07	07:40 18:03	06:38 18:53	06:28 20:45	05:36 21:33	07:48-08:13/25	05:18 22:00	05:44 21:43	06:32 20:48	07:54-08:17/23	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29	
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	05:35 21:34	07:47-08:13/26	05:19 22:00	05:46 21:41	06:34 20:46	07:54-08:16/22	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30	
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:49	05:33 21:36	07:47-08:13/26	05:19 22:00	05:47 21:40	06:35 20:44	07:55-08:15/20	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30	
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	05:32 21:37	07:46-08:13/27	05:19 22:00	05:48 21:39	06:37 20:42	07:56-08:13/17	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31	
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	05:31 21:38	07:46-08:13/27	05:20 22:00	05:50 21:37	06:38 20:39	07:58-08:11/13	07:29 19:29	07:20 17:23	08:13 16:35	08:44 16:32	
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	05:30 21:40	07:46-08:12/26	05:20 22:00	05:51 21:36	06:40 20:37	08:01-08:06/5	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32	
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	05:29 21:41	07:46-08:11/25	05:21 22:00	05:53 21:34	06:42 20:35	08:15-08:39/24	07:32 19:24	07:23 17:19	08:16 16:34	08:44 16:33	
29	08:23 17:19	07:22 18:11	06:22 19:05	06:14 20:57	05:28 21:42	07:46-08:11/25	05:21 22:00	05:54 21:33	06:43 20:33	08:14-08:39/25	07:33 19:22	07:25 17:17	08:18 16:33	08:45 16:34	
30	08:21 17:21	07:19 18:06	06:12 20:06	06:12 20:59	05:27 21:43	07:47-08:10/23	05:22 22:00	05:56 21:31	06:45 20:31	08:14-08:39/25	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35	
31	08:20 17:23	07:17 18:08	06:11 20:08	06:11 20:58	05:26 21:45	07:47-08:10/23	05:26 22:00	05:57 21:30	06:46 20:28	08:14-08:39/25	07:35 19:19	07:28 17:13	08:19 16:32	08:45 16:36	
Potential sun hours	260	278	367	416	485		498	501	453		381	332	267	244	0
Sum of minutes with flicker	0	0	0	677	78		0	0	612		149	0	0	0	0

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG: 3 - T03****Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	07:25	08:30-08:54/24	07:15	18:51-19:13/22	06:10	05:25	06:09-06:17/8			
	16:37	17:25	18:16		20:10		21:00	21:46				
2	08:45	08:17	07:23	08:30-08:54/24	07:12	18:51-19:12/21	06:08	05:24	06:08-06:18/10			
	16:38	17:27	18:18		20:11		21:02	21:47				
3	08:44	08:15	07:21	08:30-08:54/24	07:10	18:52-19:12/20	06:06	05:24	06:08-06:20/12			
	16:39	17:28	18:20		20:13		21:04	21:48				
4	08:44	08:13	07:18	08:30-08:53/23	07:08	18:52-19:10/18	06:05	05:23	06:07-06:20/13			
	16:40	17:30	18:21		20:15		21:05	21:49				
5	08:44	08:12	07:16	08:31-08:53/22	07:06	18:53-19:09/16	06:03	05:22	06:06-06:20/14			
	16:42	17:32	18:23		20:16		21:07	21:50				
6	08:44	08:10	07:14	08:31-08:51/20	07:03	18:55-19:06/11	06:01	05:22	06:06-06:22/16			
	16:43	17:34	18:25		20:18		21:09	21:51				
7	08:43	08:08	07:12	08:32-08:49/17	07:01	18:59-19:01/2	05:59	05:21	06:05-06:22/17			
	16:44	17:36	18:27		20:20		21:10	21:52				
8	08:43	08:07	07:10	08:34-08:47/13	06:59		05:57	05:21	06:05-06:23/18			
	16:45	17:38	18:28		20:22		21:12	21:53				
9	08:42	08:05	07:07	08:37-08:43/6	06:57		05:56	05:20	06:06-06:23/17			
	16:47	17:39	18:30		20:23		21:13	21:54				
10	08:42	08:03	07:05		06:54		05:54	05:20	06:05-06:23/18			
	16:48	17:41	18:32		20:25		21:15	21:54				
11	08:41	08:01	07:03		06:52		05:52	05:19	06:05-06:24/19			
	16:50	17:43	18:34		20:27		21:17	21:55				
12	08:41	07:59	07:01		06:50		05:51	05:19	06:05-06:24/19			
	16:51	17:45	18:35		20:28		21:18	21:56				
13	08:40	07:57	06:58		06:48		05:49	05:19	06:06-06:25/19			
	16:52	17:47	18:37		20:30		21:20	21:56				
14	08:39	07:56	08:56-09:06/10	06:56	06:45		05:47	05:18	06:05-06:25/20			
	16:54	17:49	18:39		20:32		21:21	21:57				
15	08:38	07:54	08:53-09:08/15	06:54	06:43		05:46	05:18	06:05-06:25/20			
	16:55	17:51	18:41		20:33		21:23	21:58				
16	08:38	07:52	08:52-09:09/17	06:51	06:41		05:44	05:18	06:05-06:25/20			
	16:57	17:52	18:42		20:35		21:24	21:58				
17	08:37	07:50	08:51-09:10/19	06:49	06:39		05:43	05:18	06:05-06:26/21			
	16:59	17:54	18:44		20:37		21:26	21:59				
18	08:36	07:48	08:50-09:11/21	06:47	06:37		05:41	05:18	06:06-06:26/20			
	17:00	17:56	18:46		20:38		21:27	21:59				
19	08:35	07:46	08:50-09:12/22	06:45	06:35		05:40	05:18	06:06-06:26/20			
	17:02	17:58	18:48		20:40		21:29	21:59				
20	08:34	07:44	08:49-09:12/23	06:42	06:32		05:39	05:18	06:07-06:27/20			
	17:04	18:00	18:49		20:42		21:30	22:00				
21	08:33	07:42	08:49-09:12/23	06:40	06:30		05:37	05:18	06:07-06:27/20			
	17:05	18:02	18:51		20:43		21:32	22:00				
22	08:32	07:40	08:39-08:48/9	06:38	06:28		05:36	05:18	06:07-06:27/20			
	17:07	18:03	08:49-09:12/23	18:53	20:45		21:33	22:00				
23	08:30	07:38	08:37-09:12/35	06:35	06:26		05:35	05:19	06:07-06:27/20			
	17:09	18:05	18:54		20:47		21:34	22:00				
24	08:29	07:36	08:34-09:10/36	06:33	06:24		05:33	05:19	06:08-06:28/20			
	17:10	18:07	18:56		20:49		21:36	22:00				
25	08:28	07:33	08:33-09:09/36	06:31	18:02-18:04/2	06:22	05:32	05:19	06:07-06:28/21			
	17:12	18:09	18:58		20:50		21:37	22:00				
26	08:27	07:31	08:32-09:08/36	06:28	17:58-18:09/11	06:20	05:31	05:20	06:07-06:27/20			
	17:14	18:11	18:59		20:52		21:38	22:00				
27	08:25	07:29	08:31-09:07/36	06:26	17:56-18:11/15	06:18	05:30	05:20	06:08-06:28/20			
	17:16	18:12	19:01		20:54		21:40	22:00				
28	08:24	07:27	08:31-09:04/33	06:24	17:54-18:12/18	06:16	05:29	05:21	06:08-06:28/20			
	17:17	18:14	19:03		20:55		21:41	22:00				
29	08:22		07:22	18:53-19:13/20	06:14		05:28	05:21	06:09-06:28/19			
	17:19		20:05		20:57		21:42	22:00				
30	08:21		07:19	18:52-19:13/21	06:12		05:27	05:22	06:09-06:28/19			
	17:21		20:06		20:59		21:43	22:00				
31	08:20		07:17	18:51-19:13/22			05:26	06:12-06:14/2				
	17:23		20:08				21:45					
Potential sun hours	260	278	367		416		485	498	540			
Sum of minutes with flicker	0	394	282		110		2					

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG: 3 - T03****Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	06:09-06:28/19	05:59	06:48			07:37		07:30	08:21		
	22:00		21:28	20:26			19:17		17:11	16:31		
2	05:23	06:10-06:28/18	06:00	06:50			07:38		07:32	08:22		
	21:59		21:26	20:24			19:15		17:09	16:31		
3	05:24	06:10-06:28/18	06:02	06:51			07:40		07:34	08:24		
	21:59		21:25	20:22			19:12		17:08	16:30		
4	05:25	06:11-06:28/17	06:03	06:53			07:42		07:36	08:25		
	21:58		21:23	20:19			19:10		17:06	16:29		
5	05:25	06:11-06:28/17	06:05	06:55	18:56-18:57/1		07:43	09:12-09:23/11	07:37	08:26		
	21:58		21:21	20:17			19:08		17:04	16:29		
6	05:26	06:12-06:28/16	06:06	06:56	18:51-19:02/11		07:45	09:09-09:24/15	07:39	08:28		
	21:58		21:19	20:15			19:06		17:02	16:28		
7	05:27	06:13-06:28/15	06:08	06:58	18:48-19:04/16		07:47	09:08-09:26/18	07:41	08:29		
	21:57		21:18	20:13			19:03		17:01	16:28		
8	05:28	06:13-06:27/14	06:10	06:59	18:47-19:05/18		07:48	09:07-09:27/20	07:43	08:30		
	21:56		21:16	20:10			19:01		16:59	16:28		
9	05:29	06:14-06:26/12	06:11	07:01	18:45-19:05/20		07:50	09:05-09:27/22	07:45	08:31		
	21:56		21:14	20:08			18:59		16:57	16:27		
10	05:30	06:15-06:26/11	06:13	07:03	18:44-19:06/22		07:52	09:04-09:28/24	07:46	08:32		
	21:55		21:12	20:06			18:57		16:56	16:27		
11	05:31	06:16-06:25/9	06:14	07:04	18:43-19:05/22		07:54	09:04-09:28/24	07:48	08:34		
	21:54		21:10	20:03			18:54		16:54	16:27		
12	05:32	06:18-06:23/5	06:16	07:06	18:43-19:05/22		07:55	09:04-09:28/24	07:50	08:35		
	21:53		21:08	20:01			18:52		16:53	16:27		
13	05:33		06:17	07:07	18:43-19:05/22		07:57	09:04-09:28/24	07:52	08:36		
	21:52		21:06	19:59			18:50	09:31-09:34/3	16:51	16:27		
14	05:34		06:19	07:09	18:43-19:03/20		07:59	09:03-09:38/35	07:53	08:36		
	21:52		21:04	19:56			18:48		16:50	16:27		
15	05:35		06:21	07:11	18:44-19:02/18		08:00	09:04-09:40/36	07:55	08:37		
	21:51		21:02	19:54			18:46		16:48	16:27		
16	05:37		06:22	07:12	18:44-19:00/16		08:02	09:04-09:41/37	07:57	08:38		
	21:50		21:00	19:52			18:44		16:47	16:27		
17	05:38		06:24	07:14	18:46-18:58/12		08:04	09:05-09:42/37	07:59	08:39		
	21:48		20:58	19:50			18:41		16:46	16:27		
18	05:39		06:25	07:16	18:48-18:53/5		08:06	09:07-09:43/36	08:00	08:40		
	21:47		20:56	19:47			18:39		16:44	16:28		
19	05:40		06:27	07:17			08:07	09:08-09:42/34	08:02	08:41		
	21:46		20:54	19:45			18:37		16:43	16:28		
20	05:42		06:29	07:19			08:09	09:11-09:17/6	08:04	08:41		
	21:45		20:52	19:43			18:35	09:20-09:42/22	16:42	16:28		
21	05:43		06:30	07:20			08:11	09:20-09:42/22	08:05	08:42		
	21:44		20:50	19:40			18:33		16:41	16:29		
22	05:44		06:32	07:22			08:12	09:20-09:42/22	08:07	08:42		
	21:43		20:48	19:38			18:31		16:39	16:29		
23	05:46		06:34	07:24			08:14	09:20-09:42/22	08:09	08:43		
	21:41		20:46	19:36			18:29		16:38	16:30		
24	05:47		06:35	07:25			08:16	09:21-09:41/20	08:10	08:43		
	21:40		20:44	19:33			18:27		16:37	16:30		
25	05:48		06:37	07:27			07:18	08:22-08:40/18	08:12	08:44		
	21:39		20:42	19:31			17:25		16:36	16:31		
26	05:50		06:38	07:29			07:20	08:22-08:38/16	08:13	08:44		
	21:37		20:39	19:29			17:23		16:35	16:32		
27	05:51		06:40	07:30			07:21	08:23-08:37/14	08:15	08:44		
	21:36		20:37	19:26			17:21		16:34	16:32		
28	05:53		06:42	07:32			07:23	08:26-08:34/8	08:16	08:44		
	21:34		20:35	19:24			17:19		16:34	16:33		
29	05:54		06:43	07:33			07:25		08:18	08:45		
	21:33		20:33	19:22			17:17		16:33	16:34		
30	05:56		06:45	07:35			07:27		08:19	08:45		
	21:31		20:31	19:19			17:15		16:32	16:35		
31	05:57		06:46				07:28			08:45		
	21:30		20:28				17:13			16:36		
Potential sun hours	501		453	381			332		267	244		
Sum of minutes with flicker		171		0	225		570		0	0		

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case)

WTG: 4 - T04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	07:25		07:15	18:52-19:12/20	06:10	19:04-19:39/35	05:25	19:29-20:07/38		
	16:37	17:25	18:16		20:10		21:00		21:46	19:17-19:28/11		
2	08:45	08:16	07:23		07:12	18:52-19:12/20	06:08	19:04-19:40/36	05:24	19:30-20:07/37		
	16:38	17:26	18:18		20:11		21:02		21:47	19:19-19:26/7		
3	08:44	08:15	07:21		07:10	18:52-19:11/19	06:06	19:03-19:41/38	05:24	19:31-20:07/36		
	16:39	17:28	18:20		20:13		21:04		21:48			
4	08:44	08:13	07:18		07:08	18:52-19:10/18	06:04	19:02-19:42/40	05:23	19:35-20:08/33		
	16:40	17:30	18:21		20:15		21:05		21:49			
5	08:44	08:12	07:16		07:05	18:53-19:09/16	06:03	19:02-19:43/41	05:22	19:36-20:08/32		
	16:42	17:32	18:23		20:16		21:07		21:50			
6	08:44	08:10	07:14		07:03	18:54-19:08/14	06:01	19:02-19:45/43	05:22	19:36-20:09/33		
	16:43	17:34	18:25		20:18		21:08		21:51			
7	08:43	08:08	07:12		07:01	18:56-19:06/10	05:59	19:01-19:46/45	05:21	19:36-20:09/33		
	16:44	17:36	18:27		20:20	19:12-19:19/7	21:10		21:52			
8	08:43	08:07	07:09		06:59	19:07-19:21/14	05:57	19:00-19:46/46	05:20	19:36-20:09/33		
	16:45	17:38	18:28		20:21		21:12		21:53			
9	08:42	08:05	07:07		06:56	19:06-19:23/17	05:56	19:01-19:47/46	05:20	19:36-20:09/33		
	16:47	17:39	18:30		20:23		21:13		21:53			
10	08:42	08:03	07:05		06:54	19:04-19:24/20	05:54	19:00-19:47/47	05:20	19:36-20:10/34		
	16:48	17:41	18:32		20:25		21:15		21:54			
11	08:41	08:01	07:03		06:52	19:03-19:25/22	05:52	19:01-19:48/47	05:19	19:37-20:10/33		
	16:49	17:43	18:34		20:27		21:17		21:55			
12	08:41	07:59	07:00		06:50	19:02-19:29/27	05:51	19:01-19:48/47	05:19	19:37-20:11/34		
	16:51	17:45	18:35		20:28		21:18		21:56			
13	08:40	07:57	06:58		06:48	19:01-19:29/28	05:49	19:01-19:49/48	05:19	19:36-20:10/34		
	16:52	17:47	18:37		20:30		21:20		21:56			
14	08:39	07:56	06:56		06:45	19:01-19:31/30	05:47	19:01-19:48/47	05:18	19:37-20:11/34		
	16:54	17:49	18:39		20:32		21:21		21:57			
15	08:38	07:54	06:54		06:43	19:00-19:31/31	05:46	19:02-19:49/47	05:18	19:37-20:11/34		
	16:55	17:50	18:41		20:33		21:23		21:58			
16	08:38	07:52	06:51		06:41	19:00-19:32/32	05:44	19:01-19:48/47	05:18	19:37-20:11/34		
	16:57	17:52	18:42		20:35		21:24		21:58			
17	08:37	07:50	06:49		06:39	19:01-19:32/31	05:43	19:02-19:49/47	05:18	19:37-20:11/34		
	16:59	17:54	18:44		20:37		21:26		21:59			
18	08:36	07:48	06:47		06:37	19:01-19:32/31	05:41	19:03-19:49/46	05:18	19:38-20:12/34		
	17:00	17:56	18:46		20:38		21:27		21:59			
19	08:35	07:46	06:44	17:54-17:57/3	06:35	19:02-19:32/30	05:40	19:04-19:49/45	05:18	19:38-20:12/34		
	17:02	17:58	18:47		20:40		21:29		21:59			
20	08:34	07:44	06:42	17:50-18:01/11	06:32	19:02-19:31/29	05:39	19:03-19:54/51	05:18	19:38-20:12/34		
	17:03	18:00	18:49		20:42		21:30		22:00			
21	08:33	07:42	06:40	17:47-18:01/14	06:30	19:04-19:31/27	05:37	19:04-19:57/53	05:18	19:39-20:13/34		
	17:05	18:01	18:51		20:43		21:32		22:00			
22	08:31	07:40	06:38	17:46-18:02/16	06:28	19:05-19:30/25	05:36	19:05-19:59/54	05:18	19:39-20:13/34		
	17:07	18:03	18:53		20:45		21:33		22:00			
23	08:30	07:38	06:35	17:46-18:03/17	06:26	19:08-19:32/24	05:35	19:06-20:00/54	05:19	19:39-20:13/34		
	17:09	18:05	18:54		20:47		21:34		22:00			
24	08:29	07:36	06:33	17:45-18:04/19	06:24	19:11-19:33/22	05:33	19:07-20:01/54	05:19	19:39-20:13/34		
	17:10	18:07	18:56		20:49		21:36		22:00			
25	08:28	07:33	06:31	17:44-18:03/19	06:22	19:10-19:34/24	05:32	19:08-20:02/54	05:19	19:40-20:13/33		
	17:12	18:09	18:58		20:50		21:37		22:00			
26	08:27	07:31	06:28	17:44-18:02/18	06:20	19:09-19:35/26	05:31	19:09-20:03/54	05:20	19:39-20:13/34		
	17:14	18:11	18:59		20:52		21:38		22:00			
27	08:25	07:29	06:26	17:45-18:09/24	06:18	19:08-19:36/28	05:30	19:10-20:04/54	05:20	19:40-20:14/34		
	17:16	18:12	19:01		20:54		21:40		22:00			
28	08:24	07:27	06:24	17:45-18:10/25	06:16	19:07-19:37/30	05:29	19:11-20:05/54	05:21	19:40-20:14/34		
	17:17	18:14	19:03		20:55		21:41		22:00			
29	08:22		07:21	18:46-19:11/25	06:14	19:06-19:38/32	05:28	19:12-20:05/53	05:21	19:41-20:14/33		
	17:19		20:05		20:57		21:42		22:00			
30	08:21		07:19	18:48-19:12/24	06:12	19:05-19:39/34	05:27	19:13-20:05/52	05:22	19:40-20:14/34		
	17:21		20:06		20:59		21:43		22:00			
31	08:20		07:17	18:52-19:12/20			05:26	19:14-20:06/52				
	17:23		20:08				21:45					
Potential sun hours	260	278	367		416	738	485		498			
Sum of minutes with flicker	0	0	235		738	1477		1037				

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) WTG: 4 - T04

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October	November	December
1	05:22	19:41-20:14/33	05:59	19:11-19:58/47	06:48	19:02-19:24/22	07:37	07:30	08:21
	22:00		21:28		20:26		19:17	17:11	16:31
2	05:23	19:40-20:14/34	06:00	19:11-19:59/48	06:50	19:02-19:22/20	07:38	07:32	08:22
	21:59		21:26		20:24		19:15	17:09	16:31
3	05:24	19:41-20:14/33	06:02	19:11-19:58/47	06:51	19:04-19:21/17	07:40	07:34	08:24
	21:59		21:25		20:22		19:12	17:08	16:30
4	05:24	19:41-20:15/34	06:03	19:10-19:57/47	06:53	19:05-19:19/14	07:42	07:36	08:25
	21:58		21:23		20:19		19:10	17:06	16:29
5	05:25	19:42-20:15/33	06:05	19:11-19:56/45	06:55	18:52-19:02/10	07:43	07:37	08:26
	21:58		21:21		20:17	19:07-19:15/8	19:08	17:04	16:29
6	05:26	19:41-20:14/33	06:06	19:11-19:55/44	06:56	18:50-19:04/14	07:45	07:39	08:28
	21:57		21:19		20:15		19:06	17:02	16:28
7	05:27	19:42-20:14/32	06:08	19:11-19:54/43	06:58	18:48-19:04/16	07:47	07:41	08:29
	21:57		21:18		20:13		19:03	17:01	16:28
8	05:28	19:42-20:15/33	06:09	19:11-19:52/41	06:59	18:47-19:05/18	07:48	07:43	08:30
	21:56		21:16		20:10		19:01	16:59	16:28
9	05:29	19:40-20:15/35	06:11	19:12-19:51/39	07:01	18:46-19:05/19	07:50	07:44	08:31
	21:56		21:14		20:08		18:59	16:57	16:27
10	05:30	19:38-20:15/37	06:13	19:12-19:49/37	07:03	18:45-19:05/20	07:52	07:46	08:32
	21:55	19:28-19:31/3	21:12		20:06		18:57	16:56	16:27
11	05:31	19:37-20:14/37	06:14	19:13-19:49/36	07:04	18:44-19:04/20	07:53	07:48	08:33
	21:54	19:25-19:35/10	21:10		20:03		18:54	16:54	16:27
12	05:32	19:23-20:14/51	06:16	19:13-19:47/34	07:06	18:45-19:04/19	07:55	07:50	08:35
	21:53		21:08		20:01		18:52	16:53	16:27
13	05:33	19:22-20:14/52	06:17	19:14-19:47/33	07:07	18:40-19:04/24	07:57	07:52	08:36
	21:52		21:06		19:59		18:50	16:51	16:27
14	05:34	19:21-20:14/53	06:19	19:14-19:45/31	07:09	18:37-19:02/25	07:59	07:53	08:36
	21:51		21:04		19:56		18:48	16:50	16:27
15	05:35	19:20-20:13/53	06:21	19:15-19:44/29	07:11	18:35-19:01/26	08:00	07:55	08:37
	21:51		21:02		19:54		18:46	16:48	16:27
16	05:37	19:19-20:13/54	06:22	19:15-19:42/27	07:12	18:33-18:58/25	08:02	07:57	08:38
	21:50		21:00		19:52		18:43	16:47	16:27
17	05:38	19:19-20:13/54	06:24	19:16-19:42/26	07:14	18:33-18:54/21	08:04	07:58	08:39
	21:48		20:58		19:49		18:41	16:45	16:27
18	05:39	19:18-20:12/54	06:25	19:16-19:40/24	07:15	18:32-18:50/18	08:05	08:00	08:40
	21:47		20:56		19:47		18:39	16:44	16:28
19	05:40	19:17-20:11/54	06:27	19:17-19:39/22	07:17	18:32-18:50/18	08:07	08:02	08:40
	21:46		20:54		19:45		18:37	16:43	16:28
20	05:42	19:16-20:10/54	06:29	19:12-19:37/25	07:19	18:32-18:50/18	08:09	08:04	08:41
	21:45		20:52		19:43		18:35	16:42	16:28
21	05:43	19:15-20:09/54	06:30	19:10-19:35/25	07:20	18:32-18:48/16	08:11	08:05	08:42
	21:44		20:50		19:40		18:33	16:41	16:29
22	05:44	19:15-20:08/53	06:32	19:07-19:35/28	07:22	18:33-18:47/14	08:12	08:07	08:42
	21:43		20:48		19:38		18:31	16:39	16:29
23	05:46	19:14-20:06/52	06:33	19:06-19:35/29	07:24	18:33-18:45/12	08:14	08:09	08:43
	21:41		20:46		19:36		18:29	16:38	16:30
24	05:47	19:14-20:02/48	06:35	19:05-19:36/31	07:25	18:36-18:42/6	08:16	08:10	08:43
	21:40		20:44		19:33		18:27	16:37	16:30
25	05:48	19:14-19:59/45	06:37	19:04-19:35/31	07:27		07:18	08:12	08:44
	21:39		20:42		19:31		17:25	16:36	16:31
26	05:50	19:13-19:59/46	06:38	19:03-19:35/32	07:28		07:19	08:13	08:44
	21:37		20:39		19:29		17:23	16:35	16:31
27	05:51	19:12-19:59/47	06:40	19:02-19:34/32	07:30		07:21	08:15	08:44
	21:36		20:37		19:26		17:21	16:34	16:32
28	05:53	19:13-20:00/47	06:42	19:02-19:33/31	07:32		07:23	08:16	08:44
	21:34		20:35		19:24		17:19	16:33	16:33
29	05:54	19:12-19:59/47	06:43	19:01-19:31/30	07:33		07:25	08:18	08:45
	21:33		20:33		19:22		17:17	16:33	16:34
30	05:56	19:11-19:59/48	06:45	19:02-19:30/28	07:35		07:27	08:19	08:45
	21:31		20:31		19:19		17:15	16:32	16:35
31	05:57	19:12-19:59/47	06:46	19:01-19:27/26			07:28		08:45
	21:30		20:28				17:13		16:36
Potential sun hours	501		453		381		332	267	244
Sum of minutes with flicker	1400		1048		440		0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) WTG: 5 - T06

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:25	07:25 18:16	07:15 20:10	18:58-19:24/26 21:00	06:10 21:46
2	08:45 16:38	08:16 17:26	07:23 18:18	07:12 20:11	18:57-19:25/28 21:02	06:08 21:47
3	08:44 16:39	08:15 17:28	07:21 18:19	07:10 20:13	18:56-19:26/30 21:04	06:06 21:48
4	08:44 16:40	08:13 17:30	07:18 18:21	07:08 20:15	18:55-19:26/31 21:05	06:04 21:49
5	08:44 16:41	08:12 17:32	07:16 18:23	07:05 20:16	18:55-19:26/31 21:07	06:03 21:50
6	08:44 16:43	08:10 17:34	07:14 18:25	07:03 20:18	18:55-19:27/32 21:08	06:01 21:51
7	08:43 16:44	08:08 17:36	07:12 18:27	07:01 20:20	18:55-19:27/32 21:10	05:59 21:52
8	08:43 16:45	08:07 17:37	07:09 18:28	06:59 20:21	18:54-19:26/32 21:12	05:57 21:53
9	08:42 16:47	08:05 17:39	07:07 18:30	06:56 20:23	18:54-19:29/35 21:13	05:56 21:53
10	08:42 16:48	08:03 17:41	07:05 18:32	06:54 20:25	18:54-19:30/36 21:15	05:54 21:54
11	08:41 16:49	08:01 17:43	07:03 18:34	06:52 20:27	18:55-19:32/37 21:17	05:52 21:55
12	08:41 16:51	07:59 17:45	07:00 18:35	06:50 20:28	18:55-19:33/38 21:18	05:50 21:56
13	08:40 16:52	07:57 17:47	06:58 18:37	06:48 20:30	18:55-19:32/37 21:20	05:49 21:56
14	08:39 16:54	07:56 17:49	06:56 18:39	06:45 20:32	18:56-19:33/37 21:21	05:47 21:57
15	08:38 16:55	07:54 17:50	06:54 18:41	06:43 20:33	18:57-19:34/37 21:23	05:46 21:58
16	08:38 16:57	07:52 17:52	06:51 18:42	06:41 20:35	18:58-19:35/37 21:24	05:44 21:58
17	08:37 16:59	07:50 17:54	06:49 18:44	06:39 20:37	19:00-19:36/36 21:26	05:43 21:59
18	08:36 17:00	07:48 17:56	06:47 18:46	06:37 20:38	19:04-19:36/32 21:27	05:41 21:59
19	08:35 17:02	07:46 17:58	06:44 18:47	06:34 20:40	19:04-19:37/33 21:29	05:40 21:59
20	08:34 17:03	07:44 18:00	06:42 18:49	06:32 20:42	19:04-19:37/33 21:30	05:39 22:00
21	08:33 17:05	07:42 18:01	06:40 18:51	06:30 20:43	19:05-19:37/32 21:32	05:37 22:00
22	08:31 17:07	07:40 18:03	06:38 18:53	06:28 20:45	19:05-19:37/32 21:33	05:36 22:00
23	08:30 17:09	07:38 18:05	06:35 18:54	06:26 20:47	19:06-19:36/30 21:34	05:35 22:00
24	08:29 17:10	07:36 18:07	06:33 18:56	06:24 20:48	19:07-19:45/38 21:36	05:33 22:00
25	08:28 17:12	07:33 18:09	06:31 18:58	06:22 20:50	19:08-19:47/39 21:37	05:32 22:00
26	08:27 17:14	07:31 18:11	06:28 18:59	06:20 20:52	19:10-19:48/38 21:38	05:31 22:00
27	08:25 17:16	07:29 18:12	06:26 19:01	06:18 20:54	19:13-19:49/36 21:40	05:30 22:00
28	08:24 17:17	07:27 18:14	06:24 19:03	06:16 20:55	19:14-19:50/36 21:41	05:29 22:00
29	08:22 17:19		07:21 20:05	06:14 20:57	19:16-19:51/35 21:42	05:28 22:00
30	08:21 17:21		07:19 20:06	06:12 20:59	19:18-19:52/34 21:43	05:27 22:00
31	08:20 17:23		07:17 20:08			05:26 21:45
Potential sun hours	260	278	367	416	485	498
Sum of minutes with flicker	0	0	179	1020	446	627

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG:** 5 - T06**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July		August		September		October		November		December	
1	05:22	20:16-20:38/22	05:59	19:38-20:03/25	06:48	18:54-19:31/37	07:37	07:30	08:21			
	22:00		21:28		20:26		19:17	17:11	16:31			
2	05:23	20:16-20:37/21	06:00	19:38-20:04/26	06:50	18:52-19:28/36	07:38	07:32	08:22			
	21:59		21:26		20:24		19:15	17:09	16:30			
3	05:24	20:17-20:37/20	06:02	19:37-20:04/27	06:51	18:52-19:27/35	07:40	07:34	08:24			
	21:59		21:25		20:22		19:12	17:08	16:30			
4	05:24	20:17-20:37/20	06:03	19:36-20:03/27	06:53	18:51-19:25/34	07:42	07:36	08:25			
	21:58		21:23		20:19		19:10	17:06	16:29			
5	05:25	20:18-20:37/19	06:05	19:37-20:04/27	06:54	18:51-19:23/32	07:43	07:37	08:26			
	21:58		21:21		20:17		19:08	17:04	16:29			
6	05:26	20:18-20:36/18	06:06	19:36-20:03/27	06:56	18:51-19:23/32	07:45	07:39	08:28			
	21:57		21:19		20:15		19:06	17:02	16:28			
7	05:27	20:19-20:36/17	06:08	19:36-20:04/28	06:58	18:50-19:22/32	07:47	07:41	08:29			
	21:57		21:18		20:13		19:03	17:01	16:28			
8	05:28	20:20-20:35/15	06:09	19:36-20:03/27	06:59	18:50-19:21/31	07:48	07:43	08:30			
	21:56		21:16		20:10		19:01	16:59	16:28			
9	05:29	20:21-20:35/14	06:11	19:36-20:03/27	07:01	18:49-19:19/30	07:50	07:44	08:31			
	21:56		21:14		20:08		18:59	16:57	16:27			
10	05:30	20:23-20:34/11	06:13	19:35-20:02/27	07:03	18:50-19:18/28	07:52	07:46	08:32			
	21:55		21:12		20:06		18:57	16:56	16:27			
11	05:31	20:25-20:32/7	06:14	19:35-20:02/27	07:04	18:50-19:16/26	07:53	07:48	08:33			
	21:54		21:10		20:03		18:54	16:54	16:27			
12	05:32		06:16	19:35-20:01/26	07:06	18:49-19:14/25	07:55	07:50	08:35			
	21:53		21:08	19:29-19:32/3	20:01		18:52	16:53	16:27			
13	05:33		06:17	19:25-20:00/35	07:07	18:47-19:11/24	07:57	07:52	08:36			
	21:52		21:06		19:59		18:50	16:51	16:27			
14	05:34		06:19	19:23-19:58/35	07:09	18:47-19:09/22	07:59	07:53	08:36			
	21:51		21:04		19:56		18:48	16:50	16:27			
15	05:35		06:21	19:21-19:57/36	07:11	18:46-19:09/23	08:00	07:55	08:37			
	21:51		21:02		19:54		18:46	16:48	16:27			
16	05:36		06:22	19:18-19:56/38	07:12	18:45-19:06/21	08:02	07:57	08:38			
	21:50		21:00		19:52		18:43	16:47	16:27			
17	05:38		06:24	19:16-19:55/39	07:14	18:46-19:05/19	08:04	07:58	08:39			
	21:48		20:58		19:49		18:41	16:45	16:27			
18	05:39		06:25	19:13-19:52/39	07:15	18:45-19:03/18	08:05	08:00	08:40			
	21:47		20:56		19:47		18:39	16:44	16:27			
19	05:40		06:27	19:12-19:41/29	07:17	18:46-19:01/15	08:07	08:02	08:40			
	21:46		20:54	19:42-19:50/8	19:45		18:37	16:43	16:28			
20	05:42		06:29	19:10-19:41/31	07:19	18:48-19:00/12	08:09	08:04	08:41			
	21:45		20:52		19:42		18:35	16:42	16:28			
21	05:43		06:30	19:10-19:41/31	07:20	18:49-18:56/7	08:11	08:05	08:42			
	21:44		20:50		19:40		18:33	16:40	16:29			
22	05:44		06:32	19:08-19:41/33	07:22		08:12	08:07	08:42			
	21:43		20:48		19:38		18:31	16:39	16:29			
23	05:46		06:33	19:08-19:41/33	07:24		08:14	08:09	08:43			
	21:41		20:46		19:35		18:29	16:38	16:30			
24	05:47	19:47-19:54/7	06:35	19:08-19:41/33	07:25		08:16	08:10	08:43			
	21:40		20:44		19:33		18:27	16:37	16:30			
25	05:48	19:44-19:56/12	06:37	19:07-19:39/32	07:27		07:18	08:12	08:44			
	21:39		20:42		19:31		17:25	16:36	16:31			
26	05:50	19:43-19:58/15	06:38	19:03-19:39/36	07:28		07:19	08:13	08:44			
	21:37		20:39		19:29		17:23	16:35	16:31			
27	05:51	19:42-19:59/17	06:40	19:00-19:37/37	07:30		07:21	08:15	08:44			
	21:36		20:37		19:26		17:21	16:34	16:32			
28	05:53	19:41-20:01/20	06:42	18:58-19:36/38	07:32		07:23	08:16	08:44			
	21:34		20:35		19:24		17:19	16:33	16:33			
29	05:54	19:40-20:01/21	06:43	18:56-19:34/38	07:33		07:25	08:18	08:45			
	21:33		20:33		19:22		17:17	16:33	16:34			
30	05:56	19:39-20:02/23	06:45	18:56-19:33/37	07:35		07:27	08:19	08:45			
	21:31		20:31		19:19		17:15	16:32	16:35			
31	05:57	19:39-20:03/24	06:46	18:54-19:31/37			07:28		08:45			
	21:30		20:28				17:13		16:36			
Potential sun hours		501	453		381		332	267	244			
Sum of minutes with flicker		323	999		539		0	0	0			

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG:** 6 - T07

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January		February		March		April		May		June	
1	08:45	08:18	07:25	07:15					06:10	06:51-07:22/31	05:25	06:33-06:34/1
	16:37	17:25	18:16	20:10					21:00		21:46	
2	08:45	08:17	07:23	07:12					06:08	06:50-07:20/30	05:24	
	16:38	17:27	18:18	20:11					21:02		21:47	
3	08:44	08:15	07:21	07:10					06:06	06:49-07:19/30	05:24	
	16:39	17:28	18:20	20:13					21:04		21:48	
4	08:44	08:13	07:18	07:08					06:05	06:49-07:18/29	05:23	
	16:40	17:30	18:21	20:15					21:05		21:49	
5	08:44	08:12	07:16	07:06					06:03	06:50-07:19/29	05:22	
	16:42	17:32	18:23	20:16					21:07		21:50	
6	08:44	08:10	07:14	07:03					06:01	06:49-07:18/29	05:22	
	16:43	17:34	18:25	20:18					21:09		21:51	
7	08:43	08:08	07:12	07:01					05:59	06:49-07:18/29	05:21	
	16:44	17:36	18:27	20:20					21:10		21:52	
8	08:43	08:07	07:10	06:59					05:57	06:50-07:18/28	05:21	
	16:45	17:38	18:28	20:22					21:12		21:53	
9	08:42	08:05	07:07	06:57	19:23-19:27/4				05:56	06:28-06:36/8	05:20	
	16:47	17:39	18:30	20:23					21:13	06:50-07:17/27	21:54	
10	08:42	08:03	07:05	06:54	19:19-19:30/11				05:54	06:26-06:38/12	05:20	
	16:48	17:41	18:32	20:25					21:15	06:50-07:16/26	21:54	
11	08:41	08:01	07:03	06:52	19:17-19:32/15				05:52	06:25-06:40/15	05:19	
	16:50	17:43	18:34	20:27					21:17	06:51-07:16/25	21:55	
12	08:41	07:59	07:01	06:50	19:16-19:33/17				05:51	06:24-06:40/16	05:19	
	16:51	17:45	18:35	20:28					21:18	06:51-07:15/24	21:56	
13	08:40	07:57	06:58	06:48	19:14-19:37/23				05:49	06:23-06:41/18	05:19	
	16:52	17:47	18:37	20:30					21:20	06:52-07:14/22	21:56	
14	08:39	07:56	06:56	06:45	19:14-19:39/25				05:47	06:22-06:41/19	05:18	
	16:54	17:49	18:39	20:32					21:21	06:53-07:13/20	21:57	
15	08:38	07:54	06:54	06:43	19:13-19:40/27				05:46	06:22-06:42/20	05:18	
	16:56	17:51	18:41	20:33					21:23	06:54-07:12/18	21:58	
16	08:38	07:52	06:51	06:41	19:13-19:41/28				05:44	06:22-06:43/21	05:18	
	16:57	17:52	18:42	20:35					21:24	06:56-07:11/15	21:58	
17	08:37	07:50	06:49	06:39	19:13-19:41/28				05:43	06:22-06:42/20	05:18	
	16:59	17:54	18:44	20:37					21:26	06:57-07:08/11	21:59	
18	08:36	07:48	06:47	06:37	07:10-07:20/10				05:41	06:22-06:43/21	05:18	
	17:00	17:56	18:46	20:38	19:14-19:41/27				21:27	07:01-07:05/4	21:59	
19	08:35	07:46	06:45	06:35	07:08-07:22/14				05:40	06:22-06:43/21	05:18	
	17:02	17:58	18:48	20:40	19:14-19:41/27				21:29		21:59	
20	08:34	07:44	06:42	06:32	07:06-07:23/17				05:39	06:22-06:43/21	05:18	
	17:04	18:00	18:49	20:42	19:15-19:41/26				21:30		22:00	
21	08:33	07:42	06:40	06:30	07:05-07:24/19				05:37	06:22-06:42/20	05:18	
	17:05	18:02	18:51	20:44	19:16-19:40/24				21:32		22:00	
22	08:32	07:40	06:38	06:28	07:04-07:25/21				05:36	06:22-06:42/20	05:18	
	17:07	18:03	18:53	20:45	19:18-19:40/22				21:33		22:00	
23	08:30	07:38	06:35	06:26	07:03-07:25/22				05:35	06:23-06:42/19	05:19	
	17:09	18:05	18:54	20:47	19:24-19:38/14				21:34		22:00	
24	08:29	07:36	06:33	06:24	07:00-07:25/25				05:34	06:23-06:42/19	05:19	
	17:10	18:07	18:56	20:49	19:25-19:37/12				21:36		22:00	
25	08:28	07:33	06:31	06:22	06:57-07:25/28				05:32	06:24-06:41/17	05:19	
	17:12	18:09	18:58	20:50	19:27-19:35/8				21:37		22:00	
26	08:27	07:31	06:28	06:20	06:55-07:25/30				05:31	06:25-06:41/16	05:20	
	17:14	18:11	18:59	20:52					21:38		22:00	
27	08:25	07:29	06:26	06:18	06:54-07:24/30				05:30	06:25-06:40/15	05:20	
	17:16	18:12	19:01	20:54					21:40		22:00	
28	08:24	07:27	06:24	06:16	06:52-07:24/32				05:29	06:26-06:40/14	05:21	
	17:17	18:14	19:03	20:55					21:41		22:00	
29	08:22		07:22	06:14	06:51-07:23/32				05:28	06:27-06:39/12	05:21	
	17:19		20:05	20:57					21:42		22:00	
30	08:21		07:19	06:12	06:50-07:22/32				05:27	06:28-06:38/10	05:22	
	17:21		20:06	20:59					21:43		22:00	
31	08:20		07:17						05:26	06:30-06:37/7		
	17:23		20:08						21:45			
Potential sun hours	260	278	367	416					485		498	
Sum of minutes with flicker	0	0	0	650					808		1	

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

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

Project:

6460 Gortloughra WF

Description:

8 no. turbine wind farm Gortloughra Co.Cork

Licensed user:

Jennings O'Donovan

Finisklin Business Park

F91 RHH9 Sligo

+353719161416

kfeeney / kfeeney@jodireland.com

Calculated:

31/03/2026 14:17/4.2.285

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG:** 6 - T07**Assumptions for shadow calculations**

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 06:34-06:50/16 21:28 07:01-07:26/25	06:48 19:16-19:31/15 20:26	07:37 19:17	07:30 17:11	08:21 16:31
2	05:23 21:59	06:00 06:36-06:50/14 21:26 07:01-07:27/26	06:50 19:17-19:28/11 20:24	07:38 19:15	07:32 17:09	08:22 16:31
3	05:24 21:59	06:02 06:37-06:48/11 21:25 07:00-07:27/27	06:51 19:21-19:25/4 20:22	07:40 19:12	07:34 17:08	08:24 16:30
4	05:25 21:58	06:03 06:40-06:46/6 21:23 07:00-07:28/28	06:53 20:19	07:42 19:10	07:36 17:06	08:25 16:29
5	05:25 21:58	06:05 06:59-07:28/29 21:21	06:55 20:17	07:43 19:08	07:37 17:04	08:26 16:29
6	05:26 21:57	06:06 06:59-07:28/29 21:19	06:56 20:15	07:45 19:06	07:39 17:02	08:28 16:29
7	05:27 21:57	06:08 06:59-07:28/29 21:18	06:58 20:13	07:47 19:03	07:41 17:01	08:29 16:28
8	05:28 21:56	06:10 06:59-07:28/29 21:16	06:59 20:10	07:48 19:01	07:43 16:59	08:30 16:28
9	05:29 21:56	06:11 06:59-07:28/29 21:14	07:01 20:08	07:50 18:59	07:45 16:57	08:31 16:28
10	05:30 21:55	06:13 06:59-07:28/29 21:12	07:03 20:06	07:52 18:57	07:46 16:56	08:32 16:27
11	05:31 21:54	06:14 06:59-07:29/30 21:10	07:04 20:03	07:54 18:54	07:48 16:54	08:34 16:27
12	05:32 06:38-06:44/6 21:53	06:16 06:59-07:31/32 21:08	07:06 20:01	07:55 18:52	07:50 16:53	08:35 16:27
13	05:33 06:37-06:46/9 21:52	06:17 06:59-07:31/32 21:06	07:07 19:59	07:57 18:50	07:52 16:51	08:36 16:27
14	05:34 06:36-06:47/11 21:52	06:19 07:00-07:32/32 21:04	07:09 19:57	07:59 18:48	07:53 16:50	08:36 16:27
15	05:35 06:36-06:49/13 21:51	06:21 07:00-07:32/32 21:02	07:11 19:54	08:00 18:46	07:55 16:48	08:37 16:27
16	05:37 06:35-06:50/15 21:50	06:22 07:02-07:32/30 21:00	07:12 19:52	08:02 18:44	07:57 16:47	08:38 16:27
17	05:38 06:34-06:50/16 21:48	06:24 07:02-07:32/30 20:58	07:14 19:50	08:04 18:41	07:59 16:46	08:39 16:27
18	05:39 06:34-06:51/17 21:47	06:26 07:04-07:32/28 20:56 19:32-19:41/9	07:16 19:47	08:06 18:39	08:00 16:44	08:40 16:28
19	05:40 06:33-06:51/18 21:46	06:27 07:06-07:31/25 20:54 19:30-19:43/13	07:17 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	05:42 06:33-06:51/18 21:45	06:29 07:09-07:31/22 20:52 19:28-19:43/15	07:19 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	05:43 06:33-06:53/20 21:44	06:30 07:09-07:29/20 20:50 19:23-19:44/21	07:20 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	05:44 06:33-06:53/20 21:43	06:32 07:10-07:29/19 20:48 19:21-19:45/24	07:22 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	05:46 06:32-06:53/21 21:41	06:34 07:10-07:27/17 20:46 19:19-19:45/26	07:24 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	05:47 06:32-06:53/21 21:40	06:35 07:12-07:26/14 20:44 19:18-19:45/27	07:25 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	05:48 06:32-06:53/21 21:39	06:37 07:13-07:23/10 20:42 19:16-19:44/28	07:27 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	05:50 06:32-06:53/21 21:37 07:10-07:18/8	06:38 19:16-19:44/28 20:39	07:29 19:29	07:20 17:23	08:13 16:35	08:44 16:32
27	05:51 06:32-06:53/21 21:36 07:07-07:20/13	06:40 19:15-19:43/28 20:37	07:30 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	05:53 06:33-06:53/20 21:34 07:06-07:22/16	06:42 19:15-19:42/27 20:35	07:32 19:24	07:23 17:19	08:16 16:34	08:44 16:33
29	05:54 06:33-06:52/19 21:33 07:04-07:23/19	06:43 19:15-19:40/25 20:33	07:33 19:22	07:25 17:17	08:18 16:33	08:45 16:34
30	05:56 06:34-06:52/18 21:31 07:04-07:25/21	06:45 19:15-19:38/23 20:31	07:35 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	05:57 06:34-06:51/17 21:30 07:02-07:25/23	06:47 19:15-19:32/17 20:28		07:28 17:13		08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	442	1011	30	0	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG:** 7 - T08

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:25	07:25 16:49-17:17/28 18:16	07:15 20:10	06:10 19:01-19:19/18 21:00	05:25 19:23-19:32/9 21:46
2	08:45 16:38	08:16 17:27	07:23 16:49-17:20/31 18:18	07:12 20:11	06:08 19:01-19:21/20 21:02	05:24 19:24-19:30/6 21:47
3	08:44 16:39	08:15 17:28	07:21 16:49-17:21/32 18:20	07:10 20:13	06:06 19:24-19:26/2 21:04 18:59-19:22/23	05:24 21:48
4	08:44 16:40	08:13 17:30	07:18 16:49-17:22/33 18:21	07:08 20:15	06:05 18:58-19:31/33 21:05	05:23 21:49
5	08:44 16:42	08:12 17:32	07:16 16:49-17:23/34 18:23	07:06 20:16	06:03 18:57-19:32/35 21:07	05:22 21:50
6	08:44 16:43	08:10 17:34	07:14 16:50-17:24/34 18:25	07:03 20:18	06:01 18:57-19:35/38 21:08	05:22 21:51
7	08:43 16:44	08:08 17:36	07:12 16:51-17:25/34 18:27	07:01 20:20	05:59 18:56-19:35/39 21:10	05:21 21:52
8	08:43 16:45	08:07 17:38	07:10 16:52-17:26/34 18:28	06:59 20:21	05:57 18:55-19:36/41 21:12	05:21 21:53
9	08:42 16:47	08:05 17:39	07:07 16:53-17:27/34 18:30	06:56 20:23	05:56 18:55-19:37/42 21:13	05:20 21:53
10	08:42 16:48	08:03 17:41	07:05 16:58-17:28/30 18:32	06:54 20:25	05:54 18:55-19:37/42 21:15	05:20 21:54
11	08:41 16:50	08:01 17:43	07:03 17:02-17:29/27 18:34	06:52 20:27	05:52 18:55-19:38/43 21:17	05:19 21:55
12	08:41 16:51	07:59 17:45	07:01 17:04-17:29/25 18:35	06:50 19:00-19:08/8 20:28	05:51 18:55-19:38/43 21:18	05:19 21:56
13	08:40 16:52	07:57 17:47	06:58 17:04-17:30/26 18:37	06:48 18:56-19:10/14 20:30	05:49 18:55-19:39/44 21:20	05:19 21:56
14	08:39 16:54	07:56 17:49	06:56 17:05-17:31/26 18:39	06:45 18:54-19:12/18 20:32	05:47 18:55-19:38/43 21:21	05:18 21:57
15	08:38 16:55	07:54 17:51	06:54 17:06-17:31/25 18:41	06:43 18:53-19:13/20 20:33	05:46 18:56-19:39/43 21:23	05:18 21:58
16	08:38 16:57	07:52 17:52	06:51 17:08-17:31/23 18:42	06:41 18:52-19:14/22 20:35	05:44 18:56-19:38/42 21:24	05:18 21:58
17	08:37 16:59	07:50 17:54	06:49 17:10-17:32/22 18:44	06:39 18:51-19:14/23 20:37 07:13-07:23/10	05:43 18:56-19:39/43 21:26	05:18 21:58
18	08:36 17:00	07:48 17:56	06:47 17:09-17:31/22 18:46	06:37 18:50-19:15/25 20:38 07:11-07:25/14	05:41 18:57-19:39/42 21:27	05:18 21:59
19	08:35 17:02	07:46 17:58	06:45 17:09-17:31/22 18:48	06:35 18:50-19:15/25 20:40 07:10-07:26/16	05:40 18:58-19:39/41 21:29	05:18 21:59
20	08:34 17:04	07:44 18:00	06:42 17:10-17:30/20 18:49	06:32 18:49-19:15/26 20:42 07:09-07:26/17	05:39 18:58-19:38/40 21:30	05:18 22:00
21	08:33 17:05	07:42 18:02	06:40 17:10-17:30/20 18:51	06:30 18:49-19:15/26 20:43 07:08-07:27/19	05:37 18:59-19:38/39 21:32	05:18 22:00
22	08:31 17:07	07:40 18:03	06:38 17:11-17:27/16 18:53	06:28 18:49-19:15/26 20:45 07:08-07:27/19	05:36 19:00-19:38/38 21:33	05:18 22:00
23	08:30 17:09	07:38 18:05	06:35 17:12-17:26/14 18:54	06:26 18:50-19:14/24 20:47 07:07-07:27/20	05:35 19:01-19:38/37 21:34	05:19 22:00
24	08:29 17:10	07:36 16:57-17:05/8 18:07	06:33 17:15-17:23/8 18:56	06:24 18:50-19:13/23 20:49 07:07-07:26/19	05:33 19:02-19:37/35 21:36	05:19 22:00
25	08:28 17:12	07:33 16:54-17:08/14 18:09	06:31 18:58	06:22 18:50-19:13/23 20:50 07:07-07:26/19	05:32 19:03-19:37/34 21:37	05:19 22:00
26	08:27 17:14	07:31 16:53-17:10/17 18:11	06:28 18:59	06:20 18:51-19:11/20 20:52 07:08-07:25/17	05:31 19:04-19:37/33 21:38	05:20 22:00
27	08:25 17:16	07:29 16:52-17:14/22 18:12	06:26 19:01	06:18 18:52-19:10/18 20:54 07:08-07:24/16	05:30 19:06-19:36/30 21:40	05:20 22:00
28	08:24 17:17	07:27 16:51-17:16/25 18:14	06:24 19:03	06:16 18:53-19:08/15 20:55 07:09-07:23/14	05:29 19:17-19:35/18 21:41 19:08-19:16/8	05:21 22:00
29	08:22 17:19		07:22 20:05	06:14 18:55-19:06/11 19:08-19:13/5 20:57 07:10-07:21/11	05:28 19:18-19:34/16 21:42	05:21 22:00
30	08:21 17:21		07:19 20:06	06:12 07:13-07:18/5 20:59 19:04-19:17/13	05:27 19:19-19:33/14 21:43	05:22 22:00
31	08:20 17:23		07:17 20:08		05:26 19:20-19:32/12 21:45	
Potential sun hours	260	278	367	416	485	498
Sum of minutes with flicker	0	86	620	601	1071	15

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG: 7 - T08**

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	July	August	September	October	November	December
1	05:22 22:00	05:59 19:05-19:48/43 21:28	06:48 20:26	07:37 17:44-18:09/25 19:17	07:30 17:11	08:21 16:31
2	05:23 21:59	06:00 19:06-19:49/43 21:26	06:50 20:24	07:38 17:41-18:07/26 19:15	07:32 17:09	08:22 16:31
3	05:24 21:59	06:02 19:05-19:47/42 21:25	06:51 20:22	07:40 17:38-18:07/29 19:12	07:34 17:08	08:24 16:30
4	05:25 21:58	06:03 19:06-19:47/41 21:23	06:53 20:19	07:42 17:33-18:06/33 19:10	07:36 17:06	08:25 16:29
5	05:25 21:58	06:05 19:06-19:46/40 21:21	06:55 20:17	07:43 17:29-18:03/34 19:08	07:37 17:04	08:26 16:29
6	05:26 21:57	06:06 19:05-19:44/39 21:19	06:56 20:15	07:45 17:27-18:02/35 19:06	07:39 17:02	08:28 16:28
7	05:27 21:57	06:08 19:06-19:44/38 21:18	06:58 20:13	07:47 17:26-18:01/35 19:03	07:41 17:01	08:29 16:28
8	05:28 21:56	06:10 19:06-19:41/35 21:16	06:59 20:10	07:48 17:25-18:00/35 19:01	07:43 16:59	08:30 16:28
9	05:29 21:56	06:11 19:08-19:39/31 21:14	07:01 20:08	07:50 17:24-17:56/32 18:59	07:44 16:57	08:31 16:27
10	05:30 19:34-19:35/1 21:55	06:13 19:08-19:30/22 21:12	07:03 20:06	07:52 17:23-17:56/33 18:57	07:46 16:56	08:32 16:27
11	05:31 19:31-19:38/7 21:54	06:14 19:10-19:29/19 21:10	07:04 20:03	07:53 17:23-17:55/32 18:54	07:48 16:54	08:33 16:27
12	05:32 19:29-19:40/11 21:53	06:16 19:10-19:27/17 21:08	07:06 20:01	07:55 17:23-17:53/30 18:52	07:50 16:53	08:35 16:27
13	05:33 19:28-19:41/13 21:52	06:17 19:06-19:12/6 19:13-19:25/12 21:06 07:20-07:27/7	07:07 19:59	07:57 17:23-17:49/26 18:50	07:52 16:51	08:36 16:27
14	05:34 19:27-19:43/16 21:51	06:19 19:02-19:14/12 21:04 07:18-07:30/12	07:09 19:56	07:59 17:23-17:47/24 18:48	07:53 16:50	08:36 16:27
15	05:35 19:26-19:43/17 21:51 19:18-19:23/5	06:21 19:01-19:16/15 21:02 07:16-07:31/15	07:11 19:54	08:00 17:24-17:45/21 18:46	07:55 16:48	08:37 16:27
16	05:37 19:15-19:44/29 21:50	06:22 18:58-19:17/19 21:00 07:16-07:32/16	07:12 19:52	08:02 17:25-17:41/16 18:43	07:57 16:47	08:38 16:27
17	05:38 19:15-19:46/31 21:48	06:24 18:57-19:18/21 20:58 07:14-07:32/18	07:14 19:50	08:04 17:27-17:40/13 18:41	07:58 16:46	08:39 16:27
18	05:39 19:13-19:46/33 21:47	06:25 18:56-19:18/22 20:56 07:14-07:33/19	07:16 19:47	08:05 17:29-17:35/6 18:39	08:00 16:44	08:40 16:28
19	05:40 19:12-19:47/35 21:46	06:27 18:55-19:19/24 20:54 07:13-07:32/19	07:17 18:02-18:09/7 19:45	08:07 18:37	08:02 16:43	08:40 16:28
20	05:42 19:11-19:47/36 21:45	06:29 18:54-19:19/25 20:52 07:13-07:32/19	07:19 17:59-18:12/13 19:43	08:09 18:35	08:04 16:42	08:41 16:28
21	05:43 19:10-19:47/37 21:44	06:30 18:54-19:19/25 20:50 07:12-07:32/20	07:20 17:57-18:13/16 19:40	08:11 18:33	08:05 16:41	08:42 16:29
22	05:44 19:10-19:49/39 21:43	06:32 18:54-19:20/26 20:48 07:13-07:31/18	07:22 17:55-18:14/19 19:38	08:12 18:31	08:07 16:39	08:42 16:29
23	05:46 19:09-19:49/40 21:41	06:34 18:53-19:19/26 20:46 07:13-07:30/17	07:24 17:53-18:14/21 19:36	08:14 18:29	08:09 16:38	08:43 16:30
24	05:47 19:08-19:49/41 21:40	06:35 18:54-19:19/25 20:44 07:14-07:29/15	07:25 17:53-18:14/21 19:33	08:16 18:27	08:10 16:37	08:43 16:30
25	05:48 19:08-19:50/42 21:39	06:37 18:53-19:18/25 20:42 07:14-07:27/13	07:27 17:53-18:14/21 19:31	07:18 17:25	08:12 16:36	08:44 16:31
26	05:50 19:07-19:49/42 21:37	06:38 18:54-19:17/23 20:39 07:17-07:26/9	07:29 17:51-18:13/22 19:29	07:20 17:23	08:13 16:35	08:44 16:32
27	05:51 19:06-19:49/43 21:36	06:40 18:54-19:16/22 20:37	07:30 17:51-18:13/22 19:26	07:21 17:21	08:15 16:34	08:44 16:32
28	05:53 19:07-19:50/43 21:34	06:42 18:55-19:15/20 20:35	07:32 17:48-18:13/25 19:24	07:23 17:19	08:16 16:34	08:44 16:33
29	05:54 19:06-19:49/43 21:33	06:43 18:55-19:13/18 20:33	07:33 17:46-18:11/25 19:22	07:25 17:17	08:18 16:33	08:45 16:34
30	05:56 19:05-19:49/44 21:31	06:45 18:57-19:11/14 20:31	07:35 17:44-18:10/26 19:19	07:27 17:15	08:19 16:32	08:45 16:35
31	05:57 19:06-19:49/43 21:30	06:46 19:00-19:07/7 20:28		07:28 17:13		08:45 16:36
Potential sun hours	501	453	381	332	267	244
Sum of minutes with flicker	691	1014	238	485	0	0

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) WTG: 8 - T09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

	January	February	March	April	May	June
1	08:45 16:37	08:18 17:25	07:25 17:20-17:28/8 18:16	07:15 18:14-18:48/34 20:10	06:10 21:00	05:25 19:41-20:02/21 21:46 20:08-20:29/21
2	08:45 16:38	08:16 17:26	07:23 17:18-17:30/12 18:18	07:12 18:16-18:49/33 20:11	06:08 21:02	05:24 19:40-20:03/23 21:47 20:08-20:29/21
3	08:44 16:39	08:15 17:28	07:21 17:16-17:32/16 18:20	07:10 18:17-18:49/32 20:13	06:06 21:04	05:24 19:39-20:03/24 21:48 20:08-20:29/21
4	08:44 16:40	08:13 17:30	07:18 17:16-17:33/17 18:21	07:08 18:17-18:49/32 20:15	06:04 21:05	05:23 19:39-20:04/25 21:49 20:09-20:29/20
5	08:44 16:42	08:12 17:32	07:16 17:14-17:32/18 18:23	07:05 18:16-18:49/33 20:16	06:03 21:07	05:22 19:38-20:05/27 21:50 20:09-20:29/20
6	08:44 16:43	08:10 17:34	07:14 16:57-17:32/35 18:25	07:03 18:16-18:49/33 20:18	06:01 21:08	05:22 19:38-20:06/28 21:51 20:10-20:29/19
7	08:43 16:44	08:08 17:36	07:12 16:55-17:34/39 18:27	07:01 18:17-18:49/32 20:20	05:59 21:10	05:21 19:38-20:06/28 21:52 20:10-20:29/19
8	08:43 16:45	08:07 17:38	07:09 16:54-17:34/40 18:28	06:59 18:16-18:47/31 20:21	05:57 21:12	05:20 19:38-20:07/29 21:53 20:10-20:29/19
9	08:42 16:47	08:05 17:39	07:07 16:52-17:36/44 18:30	06:56 18:16-18:47/31 20:23	05:56 21:13	05:20 19:37-20:07/30 21:53 20:10-20:28/18
10	08:42 16:48	08:03 17:41	07:05 16:51-17:36/45 18:32	06:54 18:17-18:46/29 20:25	05:54 21:15	05:20 19:37-20:08/31 21:54 20:11-20:29/18
11	08:41 16:49	08:01 17:43	07:03 16:50-17:37/47 18:34	06:52 18:18-18:46/28 20:27	05:52 21:17	05:19 19:38-20:08/30 21:55 20:12-20:29/17
12	08:41 16:51	07:59 17:45	07:00 16:48-17:36/48 18:35	06:50 18:19-18:45/26 20:28	05:51 21:18	05:19 19:38-20:09/31 21:56 20:13-20:29/16
13	08:40 16:52	07:57 17:47	06:58 16:48-17:43/55 18:37	06:48 18:19-18:42/23 20:30	05:49 21:20	05:19 19:37-20:09/32 21:56 20:12-20:28/16
14	08:39 16:54	07:56 17:49	06:56 16:48-17:46/58 18:39	06:45 18:20-18:41/21 20:32	05:47 21:21	05:18 19:37-20:09/32 21:57 20:13-20:28/15
15	08:38 16:55	07:54 17:50	06:54 16:47-17:46/59 18:41	06:43 18:22-18:39/17 20:33	05:46 21:23	05:18 19:37-20:10/33 21:58 20:13-20:29/16
16	08:38 16:57	07:52 17:02-17:12/10 17:52	06:51 16:47-17:47/60 18:42	06:41 18:25-18:35/10 20:35	05:44 20:12-20:21/9 21:24	05:18 19:38-20:10/32 21:58 20:14-20:29/15
17	08:37 16:59	07:50 17:01-17:14/13 17:54	06:49 16:47-17:48/61 18:44	06:39 20:37	05:43 20:11-20:23/12 21:26	05:18 19:38-20:10/32 21:58 20:14-20:29/15
18	08:36 17:00	07:48 16:59-17:15/16 17:56	06:47 16:47-17:47/60 18:46	06:37 20:38	05:41 20:10-20:24/14 21:27	05:18 19:38-20:11/33 21:59 20:14-20:29/15
19	08:35 17:02	07:46 16:59-17:16/17 17:58	06:44 16:47-17:47/60 18:47	06:35 20:40	05:40 20:09-20:26/17 21:29	05:18 19:38-20:11/33 21:59 20:15-20:29/14
20	08:34 17:04	07:44 16:58-17:16/18 18:00	06:42 16:48-17:47/59 18:49	06:32 20:42	05:39 20:08-20:26/18 21:30	05:18 19:38-20:11/33 22:00 20:15-20:29/14
21	08:33 17:05	07:42 16:58-17:16/18 18:02	06:40 16:49-17:46/57 18:51	06:30 20:43	05:37 20:07-20:26/19 21:32	05:18 19:39-20:12/33 22:00 20:16-20:30/14
22	08:31 17:07	07:40 16:58-17:17/19 18:03	06:38 16:49-17:45/56 18:53	06:28 20:45	05:36 20:07-20:27/20 21:33	05:18 19:39-20:12/33 22:00 20:16-20:30/14
23	08:30 17:09	07:38 16:57-17:15/18 18:05	06:35 16:51-17:44/53 18:54	06:26 20:47	05:35 20:07-20:28/21 21:34	05:19 19:39-20:12/33 22:00 20:16-20:30/14
24	08:29 17:10	07:36 16:58-17:15/17 18:07	06:33 16:53-17:43/50 18:56	06:24 20:48	05:33 20:07-20:28/21 21:36	05:19 19:39-20:12/33 22:00 20:15-20:30/15
25	08:28 17:12	07:33 16:59-17:14/15 18:09	06:31 16:55-17:43/48 18:58	06:22 20:50	05:32 20:07-20:28/21 21:37	05:19 19:40-20:12/32 22:00 20:16-20:31/15
26	08:27 17:14	07:31 17:00-17:13/13 18:11	06:28 17:06-17:44/38 18:59	06:20 20:52	05:31 20:07-20:29/22 21:38	05:20 19:40-20:12/32 22:00 20:16-20:31/15
27	08:25 17:16	07:29 17:02-17:11/9 18:12	06:26 17:09-17:44/35 19:01	06:18 20:54	05:30 20:07-20:29/22 21:40	05:20 19:40-20:13/33 22:00 20:16-20:32/16
28	08:24 17:17	07:27 18:14	06:24 17:08-17:43/35 19:03	06:16 20:55	05:29 19:45-19:55/10 21:41	05:21 19:40-20:12/32 22:00 20:16-20:32/16
29	08:22 17:19		07:21 18:09-18:45/36 20:05	06:14 20:57	05:28 19:43-19:58/15 21:42	05:21 19:41-20:13/32 22:00 20:16-20:32/16
30	08:21 17:21		07:19 18:11-18:47/36 20:06	06:12 20:59	05:27 19:42-19:59/17 21:43	05:22 19:41-20:12/31 22:00 20:16-20:32/16
31	08:20 17:23		07:17 18:11-18:47/36 20:08		05:26 19:41-20:00/19 21:45	
Potential sun hours	260	278	367	416	485	498
Sum of minutes with flicker	0	183	1332	445	365	1411

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

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

SHADOW - Calendar per WTG

Calculation: 6460 Gortloughra WF only (Worst Case) **WTG:** 8 - T09

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) [VALENTIA OBS.]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.30	2.04	2.89	4.92	5.79	4.99	4.32	4.35	3.60	2.54	1.64	1.06

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
136	297	373	423	216	252	408	617	382	612	1,601	1,598	456	331	428	630	8,760

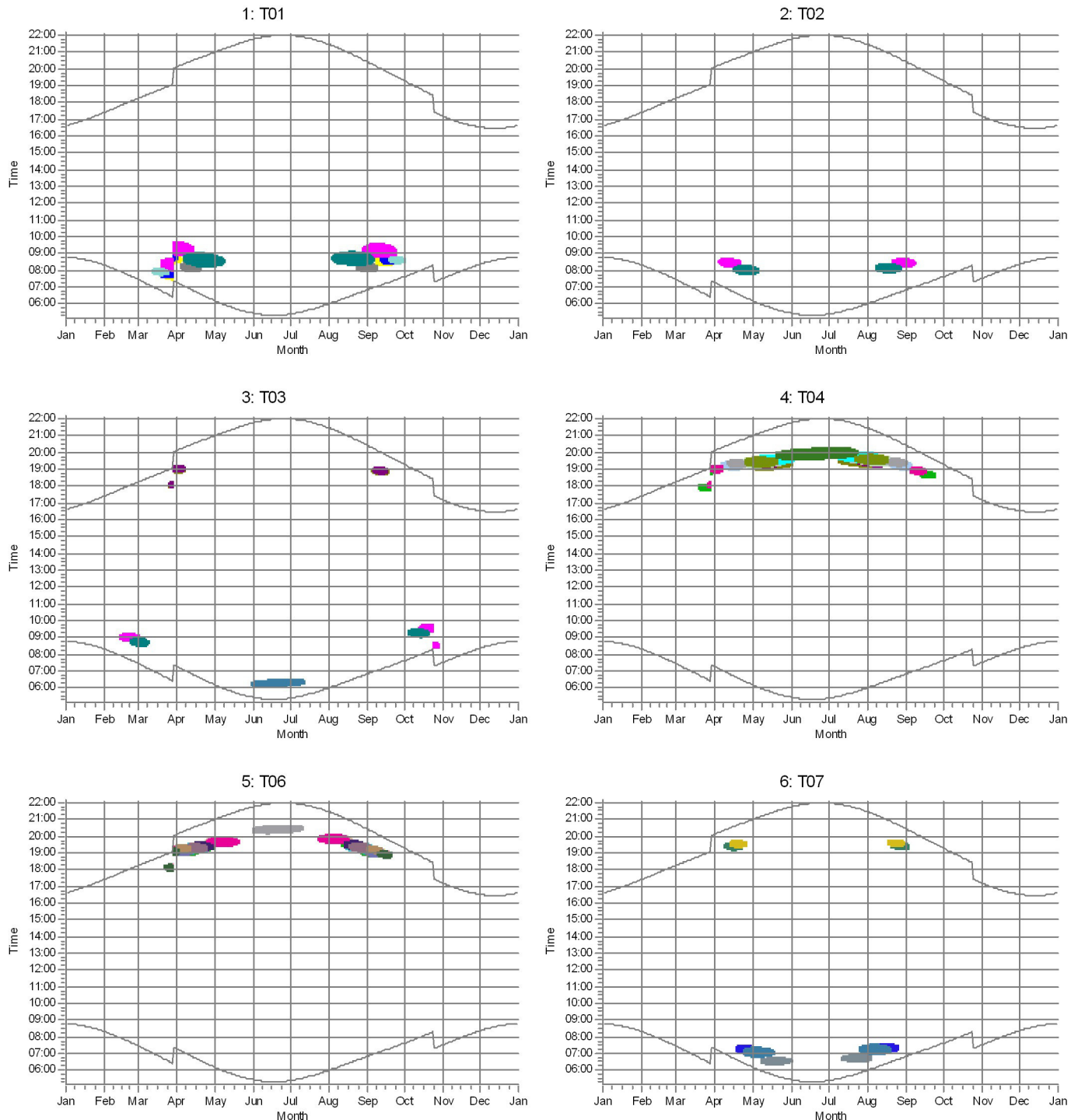
	July		August		September		October		November		December	
1	05:22	19:42-20:13/31	05:59		06:48	18:17-18:44/27	07:37	18:17-18:20/3	07:30		08:21	
	22:00	20:16-20:33/17	21:28		20:26		19:17	17:28-18:16/48	17:11		16:31	
2	05:23	19:42-20:13/31	06:00		06:50	18:15-18:44/29	07:38	17:28-18:15/47	07:32		08:22	
	21:59	20:15-20:33/18	21:26		20:24		19:15		17:09		16:31	
3	05:24	19:42-20:12/30	06:02		06:51	18:14-18:45/31	07:40	17:28-18:15/47	07:34		08:24	
	21:59	20:16-20:34/18	21:25		20:22		19:12		17:08		16:30	
4	05:25	19:43-20:12/29	06:03		06:53	18:14-18:45/31	07:42	17:29-18:14/45	07:36		08:25	
	21:58	20:16-20:34/18	21:23		20:19		19:10		17:06		16:29	
5	05:25	19:44-20:12/28	06:05		06:55	18:13-18:45/32	07:43	17:29-18:12/43	07:37		08:26	
	21:58	20:16-20:35/19	21:21		20:17		19:08		17:04		16:29	
6	05:26	19:44-20:12/28	06:06		06:56	18:13-18:45/32	07:45	17:30-18:11/41	07:39		08:28	
	21:57	20:15-20:35/20	21:19		20:15		19:06		17:02		16:28	
7	05:27	19:44-20:11/27	06:08		06:58	18:12-18:44/32	07:47	17:32-18:09/37	07:41		08:29	
	21:57	20:15-20:35/20	21:18		20:13		19:03		17:01		16:28	
8	05:28	19:45-20:11/26	06:09		06:59	18:12-18:44/32	07:48	17:35-18:08/33	07:43		08:30	
	21:56	20:15-20:36/21	21:16		20:10		19:01		16:59		16:28	
9	05:29	19:46-20:11/25	06:11		07:01	18:11-18:43/32	07:50	17:49-18:07/18	07:44		08:31	
	21:56	20:15-20:36/21	21:14		20:08		18:59	17:38-17:44/6	16:57		16:27	
10	05:30	19:47-20:10/23	06:13		07:03	18:09-18:42/33	07:52	17:50-18:06/16	07:46		08:32	
	21:55	20:15-20:36/21	21:12		20:06		18:57		16:56		16:27	
11	05:31	19:48-20:10/22	06:14		07:04	18:06-18:40/34	07:53	17:51-18:05/14	07:48		08:33	
	21:54	20:15-20:37/22	21:10		20:03		18:54		16:54		16:27	
12	05:32	19:49-20:09/20	06:16		07:06	18:04-18:40/36	07:55	17:53-18:04/11	07:50		08:34	
	21:53	20:15-20:37/22	21:08		20:01		18:52		16:53		16:27	
13	05:33	19:50-20:08/18	06:17		07:07	18:02-18:38/36	07:57	17:55-18:00/5	07:52		08:35	
	21:52	20:15-20:37/22	21:06		19:59		18:50		16:51		16:27	
14	05:34	19:51-20:07/16	06:19		07:09	18:00-18:36/36	07:59	17:37-17:41/4	07:53		08:36	
	21:51	20:15-20:37/22	21:04		19:56		18:48		16:50		16:27	
15	05:35	19:53-20:05/12	06:21		07:11	17:59-18:34/35	08:00	17:33-17:44/11	07:55		08:37	
	21:51	20:15-20:37/22	21:02		19:54		18:46		16:48		16:27	
16	05:37	19:55-20:02/7	06:22		07:12	17:57-18:32/35	08:02	17:32-17:46/14	07:57		08:38	
	21:49	20:15-20:37/22	21:00		19:52		18:43		16:47		16:27	
17	05:38	20:16-20:38/22	06:24		07:14	17:55-18:32/37	08:04	17:29-17:46/17	07:58		08:39	
	21:48		20:58		19:49		18:41		16:46		16:27	
18	05:39	20:16-20:38/22	06:25		07:15	17:44-18:31/47	08:05	17:29-17:46/17	08:00		08:40	
	21:47		20:56		19:47		18:39		16:44		16:28	
19	05:40	20:16-20:38/22	06:27		07:17	17:40-18:30/50	08:07	17:28-17:47/19	08:02		08:40	
	21:46		20:54		19:45		18:37		16:43		16:28	
20	05:42	20:16-20:37/21	06:29		07:19	17:38-18:30/52	08:09	17:28-17:47/19	08:04		08:41	
	21:45		20:52		19:42		18:35		16:42		16:28	
21	05:43	20:17-20:37/20	06:30		07:20	17:35-18:31/56	08:11	17:28-17:47/19	08:05		08:42	
	21:44		20:50		19:40		18:33		16:41		16:29	
22	05:44	20:18-20:37/19	06:32		07:22	17:34-18:31/57	08:12	17:29-17:46/17	08:07		08:42	
	21:43		20:48		19:38		18:31		16:39		16:29	
23	05:46	20:18-20:37/19	06:34		07:24	17:32-18:31/59	08:14	17:29-17:46/17	08:09		08:43	
	21:41		20:46		19:36		18:29		16:38		16:30	
24	05:47	20:18-20:36/18	06:35		07:25	17:31-18:31/60	08:16	17:29-17:44/15	08:10		08:43	
	21:40		20:44		19:33		18:27		16:37		16:30	
25	05:48	20:20-20:36/16	06:37		07:27	17:31-18:31/60	07:18	16:30-16:43/13	08:12		08:44	
	21:39		20:42		19:31		17:25		16:36		16:31	
26	05:50	20:21-20:34/13	06:38		07:28	17:29-18:30/61	07:19	16:33-16:40/7	08:13		08:44	
	21:37		20:39		19:29		17:23		16:35		16:32	
27	05:51	20:22-20:32/10	06:40	18:27-18:38/11	07:30	17:29-18:29/60	07:21		08:15		08:44	
	21:36		20:37		19:26		17:21		16:34		16:32	
28	05:53	20:25-20:31/6	06:42	18:24-18:41/17	07:32	17:29-18:28/59	07:23		08:16		08:44	
	21:34		20:35		19:24		17:19		16:33		16:33	
29	05:54		06:43	18:21-18:42/21	07:33	17:28-18:26/58	07:25		08:18		08:44	
	21:33		20:33		19:22		17:17		16:33		16:34	
30	05:56		06:45	18:20-18:43/23	07:35	17:28-18:24/56	07:27		08:19		08:45	
	21:31		20:31		19:19		17:15		16:32		16:35	
31	05:57		06:46	18:17-18:43/26			07:28				08:45	
	21:30		20:28				17:13				16:36	
Potential sun hours	501		453		381		332		267		244	
Sum of minutes with flicker	906		98		1295		603		0		0	

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

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

SHADOW - Calendar per WTG, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

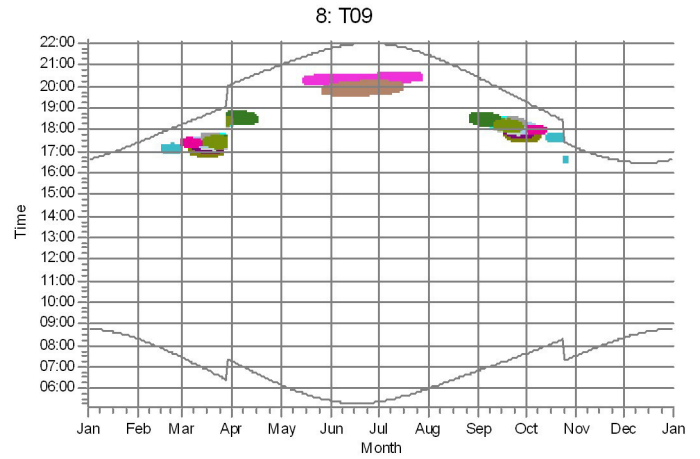
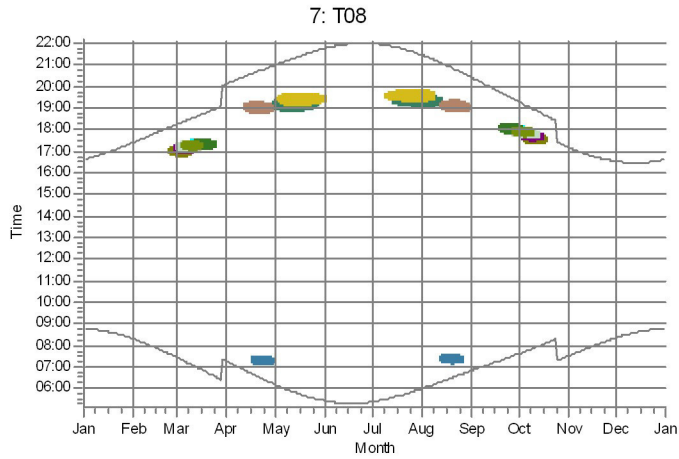


Shadow receptors

A: H1	J: H10	P: H16	V: H22	AJ: H36	BD: H56	BO: H67
B: H2	K: H11	Q: H17	W: H23	AK: H37	BE: H57	BP: H68
C: H3	L: H12	R: H18	X: H24	AL: H38	BF: H58	BQ: H69
D: H4	M: H13	S: H19	Y: H25	AV: H48	BG: H59	BR: H70
E: H5	N: H14	T: H20	AC: H29	BB: H54	BM: H65	BS: H71
F: H6	O: H15	U: H21	AD: H30	BC: H55	BN: H66	BU: H73

SHADOW - Calendar per WTG, graphical

Calculation: 6460 Gortloughra WF only (Worst Case)

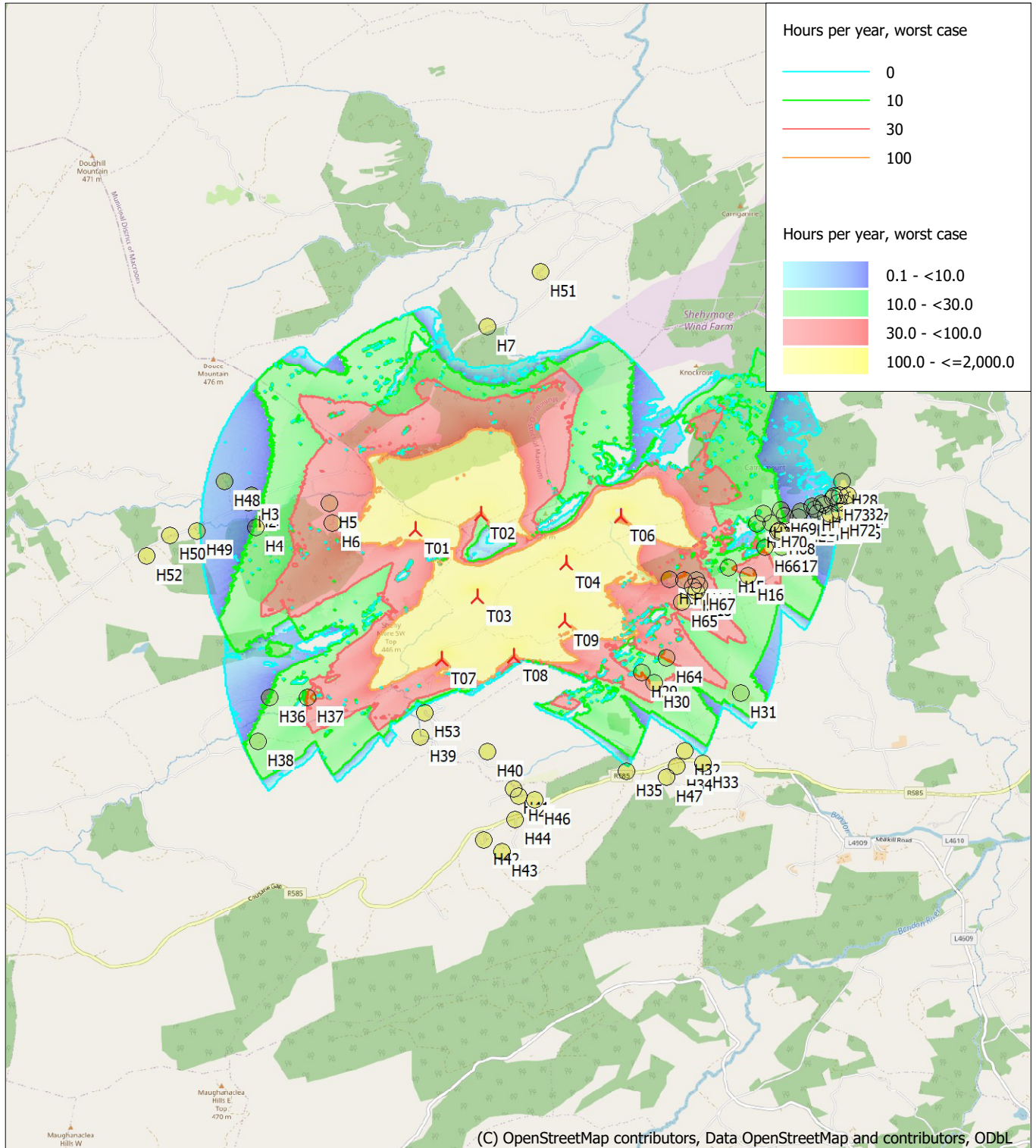


Shadow receptors

J: H10	L: H12	N: H14	P: H16	AC: H29	AE: H31	BL: H64	BN: H66
K: H11	M: H13	O: H15	S: H19	AD: H30	AK: H37	BM: H65	BO: H67

SHADOW - Map

Calculation: 6460 Gortloughra WF only (Worst Case)



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap, Print scale 1:50,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 514,900 North: 559,570
 New WTG Shadow receptor
 Flicker map level: Height Contours: CONTOURLINE_6460 Gortloughra WF_1.wpo (1)
 Time step: 2 minutes, Day step: 3 days, Map resolution: 10 m, Visibility resolution: 5 m, Eye height: 1.5 m