

Project:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 1 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (18)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:57 15:53	08:21 16:50	07:17 17:53	06:54 19:59	05:38 21:02	04:41 21:59	04:35 22:16	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:31 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:04	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:57	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:15	05:25 21:30	06:27 20:15	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:58	08:15 16:59	07:09 18:02	06:46 20:07	05:31 21:10	04:38 22:04	04:38 22:13	05:27 21:26	06:29 20:09	07:29 18:49	07:35 16:33	08:36 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	05:29 21:10	04:37 22:04	04:39 22:13	05:29 21:26	06:31 20:09	07:31 18:49	07:37 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:30	08:39 15:46
7	08:55 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:07 17:06	06:59 18:08	06:36 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:35 21:19	06:37 20:01	07:37 18:41	07:44 16:26	08:42 15:45
9	08:53 16:04	08:04 17:08	06:56 18:10	06:33 20:16	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:59	07:40 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:13	06:30 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:15	06:41 19:56	07:42 18:35	07:48 16:22	08:44 15:44
11	08:52 16:08	08:00 17:13	06:51 18:15	06:28 20:20	05:16 21:22	04:32 22:11	04:46 22:08	05:40 21:12	06:43 19:53	07:44 18:33	07:50 16:20	08:46 15:43
12	08:51 16:10	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	04:32 22:12	04:47 22:07	05:42 21:10	06:45 19:51	07:46 18:30	07:53 16:18	08:47 15:43
13	08:50 16:11	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:12	04:48 22:06	05:44 21:08	06:47 19:48	07:48 18:28	07:55 16:16	08:48 15:43
14	08:49 16:13	07:53 17:20	06:43 18:21	06:20 20:26	05:10 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 18:25	07:57 16:15	08:49 15:43
15	08:48 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	04:31 22:14	04:51 22:03	05:49 21:03	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	08:46 16:17	07:49 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:15	04:53 22:02	05:51 21:01	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:27	06:35 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:53 20:58	06:55 19:37	07:56 18:17	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:34	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:34	07:58 18:15	08:05 16:08	08:53 15:43
19	08:43 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:37	04:30 22:16	04:57 21:57	05:57 20:53	06:59 19:32	08:01 18:12	08:07 16:06	08:54 15:43
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:58 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:04	08:54 15:44
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:17	05:01 21:54	06:01 20:48	07:03 19:26	08:05 18:07	08:12 16:03	08:55 15:44
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23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:53 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:02	08:16 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:58	08:56 15:46
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26	08:32 16:37	07:24 17:47	06:10 18:46	05:50 20:51	04:49 21:50	04:32 22:17	05:10 21:46	06:11 20:36	07:13 19:13	08:15 16:55	08:21 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17	05:11 21:44	06:13 20:33	07:15 19:10	07:18 16:53	08:23 15:54	08:57 15:48
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29	08:27 16:44	07:17 19:53	06:02 19:53	05:43 20:57	04:45 21:55	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:05	07:22 16:48	08:27 15:52	08:57 15:50
30	08:25 16:46	07:15 19:55	07:00 19:55	05:40 21:00	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	07:24 16:46	08:29 15:51	08:57 15:51
31	08:23 16:48	07:13 19:57	06:57 19:57	05:37 21:58	04:42 21:58	04:32 21:36	05:19 21:36	06:21 20:23	07:23 16:44	07:26 16:44	08:31 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	216
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
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flickering\_Vestas\_V162\_Stelpe1

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Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 2 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (16)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:57 15:53	08:21 16:50	07:17 17:53	06:54 19:59	05:38 21:02	04:41 21:59	04:35 22:16	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:31 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:04	04:40 22:00	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:57	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:15	05:25 21:30	06:27 20:15	07:27 18:54	07:33 16:37	08:34 15:48
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17	08:45 16:19	07:46 17:26	06:35 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:53 20:58	06:55 19:37	07:56 18:17	08:03 16:09	08:52 15:43
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28	08:28 16:42	07:19 17:51	06:05 18:51	05:45 20:55	04:46 21:53	04:33 22:17	05:13 21:42	06:15 20:30	07:17 19:07	07:20 16:50	08:25 15:53	08:57 15:49
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31	08:23 16:48	07:13 19:57	06:57 19:57	06:42 21:58	04:42 21:58	04:32 21:36	05:19 21:36	06:21 20:23	07:23 16:44	07:26 16:44	08:31 15:52	08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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)	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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 3 - VESTAS V162-6.2 6200 162.0 !OI! hub: 166,0 m (TOT: 247,0 m) (20)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June
1	08:57 15:53	08:21 16:50	07:17 17:53	06:54 19:59	05:38 21:02	04:41 21:10
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:04	04:40 21:10
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11	08:51 16:08	08:00 17:13	06:51 18:15	06:28 20:20	05:16 21:22	04:32 21:09
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18	08:44 16:21	07:44 17:29	06:32 18:29	06:10 20:34	05:02 21:36	04:30 21:10
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	05:00 21:37	04:30 21:10
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:58 21:39	04:30 21:11
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 21:12
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29	08:26 16:44		07:02 19:53	05:42 20:57	04:45 21:54	04:33 21:13
30	08:25 16:46		07:00 19:55	05:40 20:59	04:43 21:56	04:34 21:14
31	08:23 16:48		06:57 19:57		04:42 21:58	04:34 21:14
Potential sun hours	235	266	366	426	508	529
Sum of minutes with flicker	0	317	561	2218	1471	1677

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

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SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 3 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (20)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November	December
1	04:35 21:14-21:35/21 22:15 05:37-06:13/36	05:21 20:34-20:56/22 21:34 05:57-06:18/21	06:23 19:01-19:46/45 20:20 06:59-07:23/24	07:23 08:01-08:24/23 18:59	07:29 08:30 16:41	08:30 15:50
2	04:36 21:14-21:34/20 22:15 05:36-06:13/37	05:23 20:33-20:55/22 21:32 05:58-06:17/19	06:25 19:02-19:45/43 20:17 06:58-07:21/23	07:25 08:01-08:24/23 18:57	07:31 08:31 16:39	08:32 15:49
3	04:37 21:14-21:34/20 22:14 05:36-06:13/37	05:25 20:34-20:55/21 21:30 05:58-06:16/18	06:27 19:03-19:44/41 20:15 06:59-07:20/21	07:27 08:01-08:23/22 18:54	07:33 08:34 16:37	08:34 15:48
4	04:38 21:15-21:34/19 22:14 05:37-06:14/37	05:27 20:34-20:54/20 21:28 06:00-06:15/15	06:29 19:04-19:41/37 20:12 07:00-07:18/18	07:29 08:01-08:22/21 18:51	07:35 08:36 16:35	08:36 15:47
5	04:39 21:15-21:33/18 22:13 05:37-06:14/37	05:29 20:35-20:52/17 06:02-06:14/12 21:26 19:44-19:56/12	06:31 19:05-19:39/34 20:09 07:01-07:16/15	07:31 08:01-08:21/20 18:49	07:37 08:37 16:33	08:37 15:47
6	04:40 21:16-21:33/17 22:12 05:37-06:14/37	05:31 20:35-20:49/14 06:04-06:12/8 21:23 19:42-19:58/16	06:33 19:07-19:36/29 20:07 07:03-07:14/11	07:33 08:02-08:19/17 18:46	07:40 08:39 16:30	08:39 15:46
7	04:41 21:16-21:32/16 22:12 05:38-06:14/36	05:33 20:36-20:47/11 21:21 19:39-19:59/20	06:35 19:10-19:34/24 20:04	07:35 08:04-08:17/13 18:43	07:42 08:40 16:28	08:40 15:45
8	04:42 21:16-21:31/15 22:11 05:38-06:15/37	05:34 20:08-20:11/3 19:38-20:01/23 21:19 20:38-20:45/7	06:37 19:20-19:31/11 20:01	07:37 08:06-08:14/8 18:41	07:44 08:42 16:26	08:42 15:45
9	04:43 21:17-21:30/13 22:10 05:38-06:15/37	05:36 20:04-20:15/11 06:44-06:54/10 21:17 20:41-20:43/2 19:37-20:02/25	06:39 19:21-19:29/8 19:59	07:39 08:41 18:38	07:46 08:43 16:24	08:43 15:44
10	04:44 21:17-21:29/12 22:09 05:38-06:15/37	05:38 19:36-20:17/41 21:15 06:35-06:56/21	06:41 19:23-19:26/3 19:56	07:42 17:34-17:43/9 18:35	07:48 08:44 16:22	08:44 15:44
11	04:46 21:18-21:28/10 22:08 05:39-06:16/37	05:40 19:35-20:18/43 06:33-06:57/24 21:12 19:21-19:28/7	06:43 19:24-19:27/3 19:53	07:44 17:31-17:45/14 18:33	07:50 08:46 16:20	08:46 15:43
12	04:47 21:19-21:28/9 22:07 05:39-06:16/37	05:42 19:17-20:19/62 21:10 06:31-06:58/27	06:45 19:25-19:28/3 19:51	07:46 17:29-17:46/17 18:30	07:53 08:47 16:18	08:47 15:43
13	04:48 21:20-21:27/7 22:05 05:39-06:16/37	05:44 19:14-20:19/65 21:08 06:30-06:59/29	06:47 19:26-19:29/3 19:48	07:48 17:28-17:46/18 18:28	07:55 08:48 16:16	08:48 15:43
14	04:50 21:21-21:25/4 22:04 05:39-06:15/36	05:46 19:12-20:19/67 21:05 06:29-06:59/30	06:49 19:27-19:30/3 19:45	07:50 17:27-17:47/20 18:25	07:57 08:49 16:15	08:49 15:43
15	04:51 21:23-21:25/2 22:03 05:39-06:16/37	05:48 19:10-20:20/70 21:03 06:28-06:59/31	06:51 18:36-18:43/7 19:42	07:52 17:26-17:47/21 18:22	07:59 08:50 16:13	08:50 15:43
16	04:53 05:39-06:16/37 22:02	05:50 19:09-20:20/71 21:00 06:28-07:00/32	06:53 18:32-18:45/13 19:40	07:54 17:26-17:47/21 18:20	08:01 08:51 16:11	08:51 15:43
17	04:54 05:40-06:16/36 22:00	05:53 19:07-20:20/73 20:58 06:28-07:00/32	06:55 18:30-18:47/17 19:37	07:56 17:14-17:23/9 18:17	08:03 08:52 16:09	08:52 15:43
18	04:56 20:41-20:47/6 21:59 05:39-06:16/37	05:55 19:06-20:20/74 20:56 06:28-07:00/32	06:57 18:29-18:48/19 19:34	07:58 17:11-17:25/14 18:15	08:05 08:53 16:08	08:53 15:43
19	04:57 20:39-20:49/10 21:57 05:40-06:16/36	05:57 19:05-20:19/74 20:53 06:28-06:59/31	06:59 18:27-18:48/21 19:32	08:00 17:10-17:39/29 18:12	08:07 08:54 16:06	08:54 15:43
20	04:59 20:38-20:51/13 21:56 05:40-06:17/37	05:59 19:05-20:19/74 20:51 06:30-06:59/29	07:01 18:26-18:49/23 19:29	08:03 17:09-17:38/29 18:10	08:09 08:54 16:04	08:54 15:44
21	05:01 20:37-20:51/14 21:54 05:40-06:18/38	06:01 19:03-20:16/73 06:32-06:58/26 20:48 07:09-07:19/10	07:03 18:26-18:49/23 19:26	08:05 17:08-17:27/19 18:07	08:11 08:55 16:03	08:55 15:44
22	05:03 20:36-20:53/17 21:53 05:40-06:18/38	06:03 19:02-20:14/72 06:34-06:58/24 20:46 07:06-07:21/15	07:05 18:25-18:48/23 19:23	08:07 17:07-17:27/20 18:05	08:13 08:55 16:01	08:55 15:44
23	05:04 20:35-20:53/18 21:51 05:41-06:19/38	06:05 19:02-20:12/70 06:35-06:56/21 20:43 07:03-07:22/19	07:07 18:25-18:48/23 19:21	08:09 17:08-17:28/20 18:02	08:15 08:56 16:00	08:56 15:45
24	05:06 20:35-20:54/19 21:49 05:41-06:18/37	06:07 19:01-20:09/68 06:37-06:54/17 20:41 07:02-07:23/21	07:09 08:11-08:17/6 19:18	08:11 17:08-17:27/19 18:00	08:17 08:56 15:58	08:56 15:46
25	05:08 20:35-20:55/20 21:47 05:43-06:19/36	06:09 19:01-20:07/66 06:39-06:52/13 20:38 07:01-07:23/22	07:11 08:07-08:20/13 19:15	07:13 16:07-16:24/17 16:58	08:19 08:57 15:57	08:57 15:46
26	05:10 20:34-20:55/21 21:46 05:45-06:19/34	06:11 19:01-20:04/63 06:42-06:49/7 20:35 07:00-07:24/24	07:13 08:05-08:22/17 19:13	07:16 16:08-16:22/14 16:55	08:21 08:57 15:56	08:57 15:47
27	05:11 20:34-20:55/21 21:44 05:46-06:19/33	06:13 19:01-20:02/61 20:33 07:00-07:24/24	07:15 08:03-08:23/20 19:10	07:18 16:09-16:19/10 16:53	08:23 08:57 15:54	08:57 15:48
28	05:13 20:34-20:56/22 21:42 05:48-06:19/31	06:15 19:01-20:00/59 20:30 06:59-07:24/25	07:17 08:02-08:23/21 19:07	07:20 16:10-16:16/6 16:50	08:25 08:57 15:53	08:57 15:49
29	05:15 20:33-20:55/22 05:56-06:19/23 21:40 05:50-05:55/5	06:17 19:01-19:57/56 20:28 06:59-07:24/25	07:19 08:02-08:24/22 19:05	07:22 16:12-16:15/3 16:48	08:27 08:57 15:52	08:57 15:50
30	05:17 20:33-20:56/23 21:38 05:56-06:18/22	06:19 19:01-19:48/47 20:25 06:59-07:24/25	07:21 08:02-08:24/22 19:02	07:24 08:29 16:46	08:29 08:57 15:51	08:57 15:51
31	05:19 20:33-20:56/23 21:36 05:56-06:18/22	06:21 19:01-19:46/45 20:22 06:59-07:23/24		07:26 16:44 16:44	08:57 15:52 15:52	08:57 15:52
Potential sun hours	530	470	385	323	247	216
Sum of minutes with flicker	1544	2410	763	520	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
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Project:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 4 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (19)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June
1	08:57 15:53 08:57 15:54	08:21 16:50 08:19 16:53	07:17 17:53 07:14 17:55	06:54 19:59 06:52 20:01	05:38 20:19-20:30/11 21:02 19:52-19:53/1 05:35 20:17-20:31/14 21:04	04:41 20:36-21:20/44 21:59 05:30-05:49/19 04:40 20:37-21:20/43 22:00 05:30-05:49/19
2	08:57 15:54 08:57 15:56	08:17 16:55 08:15 16:57	07:11 17:57 07:09 18:00	06:49 07:14-07:21/7 20:03 06:46 07:12-07:24/12 20:05	05:33 20:17-20:33/16 21:06 05:31 20:17-20:35/18 21:08	04:39 20:38-21:20/42 22:02 05:31-05:50/19 04:38 20:40-21:21/41 22:03 05:32-05:50/18
3	08:56 15:58 08:56 16:00	08:13 16:59 08:11 17:02	07:06 18:02 07:04 18:04	06:44 07:09-07:25/16 20:07 06:41 07:07-07:26/19 20:09	05:29 05:57-06:02/5 21:10 20:16-20:36/20 05:26 05:55-06:05/10 21:12 20:16-20:36/20	04:37 20:40-20:51/11 05:32-05:49/17 22:04 20:52-21:22/30 04:36 20:41-20:50/9 05:32-05:49/17 22:06 20:52-21:24/32
4	08:55 16:01 08:54 16:03	08:09 17:04 08:07 17:06	07:01 18:06 06:58 18:08	06:38 07:06-07:27/21 20:11 06:36 07:05-07:27/22 20:13	05:24 05:53-06:06/13 21:14 20:16-20:36/20 05:22 05:51-06:07/16 21:16 20:17-20:36/19	04:35 20:43-20:48/5 05:33-05:49/16 22:07 20:51-21:25/34 04:34 20:52-21:27/35 22:08 05:33-05:49/16
5	08:53 16:04 08:52 16:06	08:04 17:08 08:02 17:11	06:56 17:34-17:41/7 18:10 06:53 17:33-17:44/11 18:13	06:33 07:05-07:27/22 20:16 06:30 07:04-07:27/23 20:18	05:20 20:38-20:44/6 20:17-20:35/18 21:18 05:49-06:08/19 05:18 20:36-20:46/10 20:17-20:34/17 21:20 05:48-06:09/21	04:33 20:52-21:27/35 22:09 05:34-05:49/15 04:33 20:53-21:29/36 22:10 05:34-05:48/14
6	08:51 16:08 08:51 16:10	08:00 17:13 07:58 17:15	06:51 17:31-17:46/15 18:15 06:48 17:29-17:48/19 18:17	06:28 07:03-07:26/23 20:20 06:25 07:04-07:26/22 20:22	05:16 20:35-20:47/12 20:18-20:33/15 21:22 05:48-06:09/21 05:14 20:34-20:49/15 20:19-20:32/13 21:24 05:48-06:10/22	04:32 20:53-21:29/36 22:11 05:35-05:48/13 04:32 20:54-21:30/36 22:12 05:35-05:47/12
7	08:50 16:11 08:49 16:13	07:55 17:17 07:53 17:20	06:45 17:29-17:51/22 18:19 06:43 17:28-17:53/25 18:21	06:23 07:04-07:25/21 20:24 06:20 07:05-07:24/19 20:26	05:12 20:34-20:52/18 20:21-20:32/11 21:26 05:48-06:10/22 05:10 20:33-20:53/20 20:23-20:29/6 21:28 05:47-06:10/23	04:31 20:54-21:31/37 22:12 05:36-05:48/12 04:31 20:55-21:32/37 22:13 05:37-05:48/11
8	08:47 16:15 08:46 16:19	07:51 17:22 07:49 17:24	06:40 17:27-17:54/27 18:23 06:37 17:27-17:53/26 18:25	06:17 07:05-07:22/17 20:28 19:47-19:58/11 06:15 07:07-07:21/14 20:30	05:08 20:32-20:54/22 05:38-05:42/4 21:30 05:47-06:10/23 05:06 20:31-20:54/23 05:37-05:45/8 21:32 05:48-06:10/22	04:31 20:54-21:31/37 22:14 05:38-05:48/10 04:30 20:55-21:32/37 22:14 05:38-05:47/9
9	08:45 16:19 08:44 16:21	07:46 17:26 07:44 17:29	06:35 17:28-17:53/25 18:27 17:56-17:59/3 06:32 17:27-17:52/25 18:29	06:12 07:08-07:18/10 20:32 19:44-20:02/18 06:10 19:44-20:04/20 20:34	05:04 20:32-20:55/23 05:35-05:46/11 21:34 05:48-06:10/22 20:57-20:58/1 05:02 20:31-21:00/29 05:33-05:46/13 21:36 05:47-06:09/22	04:30 20:55-21:32/37 22:15 05:38-05:47/9 04:30 20:55-21:33/38 22:15 05:39-05:47/8
10	08:42 16:23 08:41 16:25	07:41 17:31 07:39 17:33	06:29 17:28-17:50/22 18:32 17:51-18:03/12 06:27 17:29-17:49/20 18:34	06:07 19:42-20:06/24 20:36 06:05 19:42-20:06/24 20:39	05:00 20:32-21:02/30 21:37 05:32-06:10/38 04:58 20:31-21:03/32 21:39 05:30-06:09/39	04:30 20:56-21:33/37 22:16 05:39-05:46/7 04:30 20:56-21:33/37 22:16 05:40-05:47/7
11	08:40 16:27 08:38 16:29	07:37 17:35 07:34 17:38	06:24 17:31-17:45/14 18:36 17:49-18:08/19 06:21 17:33-17:41/8 18:38	06:02 19:41-20:06/25 20:41 06:00 19:41-20:06/25 20:43	04:57 20:31-21:05/34 21:41 05:29-06:09/40 04:55 20:31-21:06/35 21:43 05:28-06:08/40	04:30 20:57-21:34/37 22:17 05:40-05:47/7 04:30 20:57-21:34/37 22:17 05:40-05:47/7
12	08:37 16:31 08:35 16:33	07:32 17:40 07:29 17:42	06:18 17:47-18:11/24 18:40 06:16 17:47-18:14/27 18:42	05:57 19:42-20:06/24 20:45 05:55 19:41-20:05/24 20:47	04:53 20:32-21:08/36 05:29-05:49/20 21:45 05:51-06:07/16 04:52 20:32-21:09/37 05:28-05:49/21 21:46 05:51-06:06/15	04:31 20:57-21:34/37 22:17 05:40-05:47/7 04:31 20:57-21:34/37 22:17 05:41-05:48/7
13	08:33 16:35 08:32 16:37	07:27 17:44 07:24 17:46	06:13 17:46-18:16/30 18:44 06:10 17:46-18:17/31 18:46	05:52 19:42-20:05/23 20:49 05:50 19:42-20:04/22 20:51	04:50 20:32-21:11/39 05:28-05:49/21 21:48 05:52-06:06/14 04:49 20:33-21:13/40 05:29-05:50/21 21:50 05:54-06:05/11	04:31 20:57-21:34/37 22:17 05:40-05:49/9 04:32 20:57-21:34/37 22:17 05:41-05:50/9
14	08:30 16:39 08:28 16:42	07:22 17:49 07:19 17:51	06:08 17:47-18:18/31 18:48 06:05 17:47-18:17/30 18:50	05:47 19:42-20:02/20 20:53 05:45 19:44-20:01/17 20:55	04:47 20:33-21:13/40 05:29-05:50/21 21:51 05:56-06:03/7 04:46 20:33-21:15/42 21:53 05:29-05:50/21	04:32 20:58-21:34/36 22:17 05:40-05:50/10 04:33 20:57-21:34/37 22:17 05:40-05:51/11
15	08:26 16:44 08:25 16:46	07:02 19:53 07:00 18:50-19:14/24 19:55	07:02 18:48-19:15/27 19:53 07:00 18:50-19:14/24 19:55	05:42 20:21-20:25/4 20:57 19:45-20:00/15 05:40 20:20-20:28/8 20:59	04:44 20:34-21:16/42 21:55 05:29-05:49/20 04:43 20:35-21:18/43 21:56 05:29-05:49/20	04:33 20:58-21:34/36 22:16 05:40-05:51/11 04:34 20:58-21:34/36 22:16 05:40-05:51/11
16	08:23 16:48	07:02 19:57	06:57 18:53-18:59/6 19:03-19:11/8	05:42 20:21-20:25/4 20:57 19:45-20:00/15 05:40 20:20-20:28/8 20:59	04:42 20:36-21:19/43 21:58 05:29-05:49/20	04:32 20:57-21:34/37 22:17 05:40-05:51/11
Potential sun hours	235	266	366	426	508	529
Sum of minutes with flicker	0	0	584	604	1593	1490

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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 4 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (19)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November	December
1	04:35 20:57-21:33/36 22:15 05:40-05:52/12	05:21 20:45-21:00/15 20:30-20:44/14 21:34 05:58-06:20/22	06:23 07:03-07:26/23 20:20	07:23 18:08-18:28/20 18:59	07:29 08:31 16:41 15:50	
2	04:36 20:57-21:33/36 22:15 05:39-05:52/13	05:23 20:46-20:57/11 20:28-20:44/16 21:32 05:59-06:20/21	06:25 07:02-07:25/23 20:17	07:25 18:09-18:26/17 18:57	07:31 08:32 16:39 15:49	
3	04:37 20:58-21:33/35 22:14 05:39-05:53/14	05:25 20:47-20:55/8 20:28-20:45/17 21:30 05:59-06:19/20	06:27 07:02-07:24/22 20:15	07:27 18:10-18:23/13 18:54	07:33 08:34 16:37 15:48	
4	04:37 20:58-21:33/35 22:14 05:39-05:54/15	05:27 20:50-20:54/4 20:27-20:46/19 21:28 06:00-06:18/18	06:29 07:02-07:24/22 20:12	07:29 18:11-18:21/10 18:51	07:35 08:36 16:35 15:47	
5	04:38 20:50-20:53/3 05:39-05:54/15 22:13 20:58-21:32/34	05:29 06:02-06:17/15 21:26 20:27-20:46/19	06:31 07:02-07:23/21 20:09	07:31 18:14-18:18/4 18:49	07:37 08:37 16:33 15:47	
6	04:40 20:48-20:55/7 05:39-05:55/16 22:12 20:58-21:31/33	05:30 06:04-06:16/12 21:24 20:26-20:45/19	06:33 07:03-07:22/19 20:07	07:33 18:46	07:40 08:39 16:30 15:46	
7	04:41 20:47-20:57/10 05:38-05:55/17 22:12 20:58-21:30/32	05:32 06:05-06:14/9 21:21 20:26-20:46/20	06:35 07:04-07:21/17 20:04	07:35 18:43	07:42 08:40 16:28 15:45	
8	04:42 20:46-21:27/41 22:11 05:38-05:56/18	05:34 06:07-06:10/3 21:19 20:26-20:45/19	06:37 07:06-07:19/13 20:01	07:37 18:41	07:44 08:42 16:26 15:45	
9	04:43 20:46-21:27/41 22:10 05:38-05:56/18	05:36 20:26-20:43/17 21:17	06:39 07:08-07:16/8 19:59	07:39 18:38	07:46 08:43 16:24 15:44	
10	04:44 20:45-21:27/42 22:09 05:38-05:56/18	05:38 20:26-20:42/16 21:15	06:41 19:56	07:42 18:35	07:48 08:44 16:22 15:44	
11	04:46 20:44-21:27/43 22:08 05:38-05:58/20	05:40 20:27-20:40/13 21:12	06:43 19:53	07:44 18:33	07:50 08:46 16:20 15:43	
12	04:47 20:44-21:28/44 22:07 05:38-05:58/20	05:42 20:27-20:37/10 21:10 19:57-20:03/6	06:45 18:47-18:50/3 19:51 18:55-19:02/7	07:46 18:30	07:53 08:47 16:18 15:43	
13	04:48 20:44-21:27/43 22:05 05:38-05:58/20	05:44 20:28-20:34/6 21:08 19:54-20:06/12	06:47 18:41-19:04/23 19:48	07:48 18:28	07:55 08:48 16:16 15:43	
14	04:50 20:43-21:26/43 22:04 05:37-05:58/21	05:46 20:29-20:32/3 21:05 19:52-20:08/16	06:49 18:39-19:05/26 19:45	07:50 18:25	07:57 08:49 16:15 15:43	
15	04:51 20:43-21:25/42 22:03 05:38-05:59/21	05:48 19:51-20:09/18 21:03	06:51 18:37-19:06/29 19:42	07:52 18:22	07:59 08:50 16:13 15:43	
16	04:53 20:43-21:24/41 05:38-05:59/21 22:02 06:05-06:11/6	05:50 19:50-20:10/20 21:00	06:53 18:36-19:06/30 19:40	07:54 18:20	08:01 08:51 16:11 15:43	
17	04:54 20:42-21:22/40 05:38-05:59/21 22:00 06:04-06:14/10	05:52 19:49-20:11/22 20:58	06:55 18:35-19:06/31 19:37	07:56 18:17	08:03 08:52 16:09 15:43	
18	04:56 20:42-21:21/39 05:38-05:59/21 21:59 06:02-06:15/13	05:55 19:48-20:11/23 20:56	06:57 18:34-19:04/30 19:34	07:58 18:15	08:05 08:53 16:08 15:43	
19	04:57 20:42-21:20/38 05:38-05:59/21 21:57 06:01-06:15/14	05:57 19:48-20:11/23 20:53	06:59 18:33-19:01/28 19:32	08:00 18:12	08:07 08:54 16:06 15:43	
20	04:59 20:42-21:19/37 05:38-05:59/21 21:56 06:01-06:17/16	05:59 19:47-20:12/25 20:51	07:01 18:33-18:58/25 19:29	08:03 18:10	08:09 08:54 16:04 15:44	
21	05:01 20:41-21:17/36 05:39-05:59/20 21:54 06:00-06:17/17	06:01 19:46-20:11/25 20:48	07:03 18:20-18:25/5 19:26 18:33-18:56/23	08:05 18:07	08:11 08:55 16:03 15:44	
22	05:02 20:42-21:16/34 21:53 05:39-06:18/39	06:03 19:46-20:10/24 20:46	07:05 18:16-18:28/12 19:23 18:33-18:53/20	08:07 18:05	08:14 08:55 16:01 15:44	
23	05:04 20:41-21:14/33 21:51 05:40-06:19/39	06:05 19:46-20:10/24 20:43	07:07 18:14-18:32/18 19:21 18:33-18:50/17	08:09 18:02	08:16 08:56 16:00 15:45	
24	05:06 20:42-21:13/31 21:49 05:41-06:19/38	06:07 19:46-20:09/23 20:41	07:09 18:12-18:33/21 19:18 18:34-18:47/13	08:11 18:00	08:17 08:56 15:58 15:45	
25	05:08 20:42-21:11/29 05:43-05:58/15 21:47 05:59-06:20/21	06:09 19:47-20:07/20 20:38	07:11 18:11-18:34/23 19:15 18:35-18:45/10	07:13 16:58	08:19 08:57 15:57 15:46	
26	05:10 20:42-21:09/27 05:45-05:57/12 21:46 05:58-06:20/22	06:11 07:11-07:21/10 20:35 19:47-20:04/17	07:13 18:09-18:35/26 19:13 18:37-18:42/5	07:16 16:55	08:21 08:57 15:56 15:47	
27	05:11 20:42-21:06/24 05:46-05:56/10 21:44 05:58-06:20/22	06:13 07:08-07:23/15 20:33 19:48-20:02/14	07:15 18:09-18:35/26 19:10	07:18 16:53	08:23 08:57 15:54 15:48	
28	05:13 20:43-21:06/23 05:48-05:54/6 21:42 05:58-06:21/23	06:15 07:07-07:24/17 20:30 19:49-20:00/11	07:17 18:08-18:35/27 19:07	07:20 16:50	08:25 08:57 15:53 15:49	
29	05:15 20:42-21:04/22 05:50-05:52/2 21:40 05:58-06:21/23	06:17 07:06-07:25/19 20:28 19:52-19:57/5	07:19 18:08-18:34/26 19:05	07:22 16:48	08:27 08:57 15:52 15:50	
30	05:17 20:43-21:03/20 20:32-20:41/9 21:38 05:58-06:20/22	06:19 07:05-07:26/21 20:25	07:21 18:08-18:31/23 19:02	07:24 16:46	08:29 08:57 15:51 15:51	
31	05:19 20:44-21:01/17 20:31-20:43/12 21:36 05:58-06:20/22	06:21 07:04-07:26/22 20:22		07:26 16:44		08:57 15:52
Potential sun hours	530	470	385	323	247	216
Sum of minutes with flicker	1887	798	695	64	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
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Project:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
 Vilandes 3-6  
 LV-1010 Riga  
 0037167242411  
 Laura Kurzemniece / laura.kurzemniece@environment.lv  
 Calculated:  
 04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 5 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (17)  
 Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
 0,80 1,82 4,75 6,63 9,63 10,06 8,16 7,72 5,94 2,93 0,63 0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June
1	08:57 15:53	08:21 15:59-16:16/17 16:50	07:17 17:53	06:54 19:59	05:38 20:04-20:25/21 21:02	04:41 05:29-05:50/21 21:59 21:00-21:20/20
2	08:57 15:54	08:19 15:58-16:17/19 16:53	07:14 17:55	06:52 20:01	05:35 20:04-20:25/21 21:04	04:40 05:29-05:50/21 22:00 21:00-21:21/21
3	08:57 15:56	08:17 15:58-16:18/20 16:55	07:11 17:57	06:49 20:03	05:33 20:05-20:24/19 21:06	04:39 05:29-05:50/21 22:02 21:00-21:21/21
4	08:56 15:57	08:15 15:59-16:18/19 16:57	07:09 18:00	06:46 20:05	05:31 20:05-20:24/19 21:08	04:37 05:30-05:51/21 22:03 21:00-21:20/20
5	08:56 15:58	08:13 15:59-16:18/19 16:59 16:23-16:26/3	07:06 18:02	06:44 20:07	05:29 20:06-20:23/17 21:10	04:37 05:30-05:51/21 22:04 21:01-21:21/20
6	08:55 16:00	08:11 16:00-16:18/18 17:02 16:20-16:27/7	07:04 18:04	06:41 20:09	05:26 20:07-20:22/15 21:12	04:36 05:30-05:50/20 22:06 21:01-21:21/20
7	08:55 16:01	08:09 16:00-16:17/17 17:04 16:20-16:30/10	07:01 18:06	06:38 20:11	05:24 20:09-20:20/11 21:14	04:35 05:31-05:51/20 22:07 21:01-21:21/20
8	08:54 16:03	08:07 16:01-16:17/16 17:06 16:19-16:33/14	06:58 18:08	06:36 20:13	05:22 20:11-20:18/7 21:16	04:34 05:31-05:50/19 22:08 21:02-21:21/19
9	08:53 16:04	08:04 16:03-16:16/13 17:08 16:18-16:35/17	06:56 18:10	06:33 20:16	05:20 21:18	04:33 05:31-05:50/19 22:09 21:02-21:21/19
10	08:52 16:06	08:02 16:04-16:13/9 17:11 16:18-16:38/20	06:53 18:13	06:30 20:18	05:18 21:20	04:33 05:32-05:50/18 22:10 21:03-21:22/19
11	08:52 16:08	08:00 16:19-16:38/19 17:13	06:51 18:15	06:28 20:20	05:16 21:22	04:32 05:33-05:51/18 22:11 21:03-21:21/18
12	08:51 16:09	07:58 16:18-16:38/20 17:15	06:48 18:17	06:25 19:48-19:53/5 20:22	05:14 21:24	04:32 05:33-05:50/17 22:12 21:03-21:21/18
13	08:50 16:11	07:56 16:19-16:38/19 17:17	06:45 18:19	06:23 19:46-19:54/8 20:24	05:12 21:26	04:31 05:34-05:50/16 22:12 21:04-21:22/18
14	08:49 16:13	07:53 16:19-16:37/18 17:20	06:43 18:21	06:20 19:45-19:57/12 20:26	05:10 21:28	04:31 05:34-05:50/16 22:13 21:04-21:22/18
15	08:47 16:15	07:51 16:20-16:37/17 17:22	06:40 18:23	06:17 19:44-19:58/14 20:28	05:08 05:38-05:40/2 21:30	04:30 05:35-05:51/16 22:14 21:04-21:21/17
16	08:46 16:17	07:49 16:20-16:35/15 17:24	06:37 18:25	06:15 19:44-20:01/17 20:30	05:06 05:37-05:44/7 21:32	04:30 05:34-05:50/16 22:15 21:04-21:22/18
17	08:45 16:19	07:46 16:22-16:34/12 17:26	06:35 18:27	06:12 19:43-20:02/19 20:32	05:04 05:35-05:45/10 21:34	04:30 05:35-05:50/15 22:15 21:05-21:22/17
18	08:44 16:21	07:44 16:25-16:31/6 17:29	06:32 18:30	06:10 19:43-20:04/21 20:34	05:02 05:33-05:46/13 21:36	04:30 05:35-05:50/15 22:16 21:05-21:22/17
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 19:43-20:06/23 20:36	05:00 05:32-05:47/15 21:37	04:30 05:35-05:50/15 22:16 21:05-21:22/17
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 19:44-20:07/23 20:39	04:58 05:30-05:48/18 21:39	04:30 05:37-05:51/14 22:16 21:05-21:22/17
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 19:44-20:07/23 20:41	04:57 05:29-05:49/20 21:41 21:03-21:04/1	04:30 05:37-05:51/14 22:17 21:06-21:23/17
22	08:38 16:29	07:34 17:38	06:21 18:38	06:00 19:45-20:07/22 20:43	04:55 05:28-05:49/21 21:43 21:03-21:06/3	04:30 05:37-05:51/14 22:17 21:06-21:23/17
23	08:37 16:31	07:32 17:40	06:18 18:40	05:57 19:46-20:07/21 20:45 20:11-20:14/3	04:53 05:28-05:50/22 21:45 21:02-21:08/6	04:30 05:37-05:51/14 22:17 21:06-21:23/17
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 19:45-20:05/20 20:47 20:08-20:15/7	04:52 05:28-05:49/21 21:46 21:01-21:09/8	04:31 05:37-05:52/15 22:17 21:06-21:23/17
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 19:46-20:05/19 20:49 20:07-20:18/11	04:50 05:28-05:50/22 21:48 21:01-21:11/10	04:31 05:37-05:52/15 22:17 21:07-21:24/17
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 19:47-20:04/17 20:51 20:07-20:13/3	04:49 05:28-05:50/22 21:50 21:01-21:13/12	04:32 05:37-05:52/15 22:17 21:06-21:24/18
27	08:30 16:02-16:03/1 16:39	07:22 17:49	06:08 18:48	05:47 19:48-20:02/14 20:53 20:05-20:21/16	04:47 05:28-05:51/23 21:51 21:00-21:13/13	04:32 05:37-05:53/16 22:17 21:07-21:24/17
28	08:28 16:01-16:05/4 16:42	07:19 17:51	06:05 18:50	05:45 19:49-20:00/11 20:55 20:05-20:23/18	04:46 05:28-05:50/22 21:53 21:00-21:15/15	04:33 05:38-05:54/16 22:17 21:07-21:24/17
29	08:27 16:00-16:08/8 16:44		07:02 19:53	05:42 19:53-19:57/4 20:57 20:05-20:26/21	04:44 05:28-05:50/22 21:55 21:00-21:16/16	04:33 05:37-05:53/16 22:16 21:07-21:25/18
30	08:25 15:59-16:10/11 16:46		07:00 19:55	05:40 20:05-20:26/21 20:59	04:43 05:28-05:50/22 21:56 21:00-21:18/18	04:34 05:37-05:54/17 22:16 21:07-21:26/19
31	08:23 15:59-16:13/14 16:48		06:57 19:57		04:42 05:28-05:51/23 21:58 21:00-21:19/19	
Potential sun hours	235	266	366	426	508	529
Sum of minutes with flicker	38	364	0	404	556	1059

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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 5 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (17)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July		August		September		October		November		December	
1	04:35	05:38-05:55/17	05:21		06:23	19:48-19:49/1	07:23		07:29	15:33-15:43/10	08:31	
	22:16	21:07-21:25/18	21:34			20:20	18:59		16:41	15:48-16:07/19	15:50	
2	04:36	05:37-05:54/17	05:23			06:25	07:25		07:31	15:31-15:45/14	08:32	
	22:15	21:07-21:26/19	21:32			20:17	18:57		16:39	15:48-16:04/16	15:49	
3	04:36	05:37-05:55/18	05:25			06:27	07:27		07:33	15:31-15:46/15	08:34	
	22:15	21:07-21:26/19	21:30			20:15	18:54		16:37	15:49-16:02/13	15:48	
4	04:37	05:37-05:56/19	05:27			06:29	07:29		07:35	15:29-15:47/18	08:36	
	22:14	21:08-21:27/19	21:28			20:12	18:51		16:35	15:49-16:00/11	15:47	
5	04:38	05:37-05:56/19	05:29	20:20-20:29/9		06:31	07:31		07:37	15:29-15:48/19	08:37	
	22:13	21:08-21:27/19	21:26			20:09	18:49		16:32	15:51-15:58/7	15:47	
6	04:39	05:37-05:57/20	05:30	20:18-20:30/12		06:33	07:33		07:40	15:29-15:48/19	08:39	
	22:12	21:08-21:27/19	21:24			20:07	18:46		16:30	15:53-15:55/2	15:46	
7	04:41	05:37-05:57/20	05:32	20:16-20:31/15		06:35	07:35		07:42	15:29-15:49/20	08:40	
	22:12	21:08-21:28/20	21:21			20:04	18:43		16:28		15:45	
8	04:42	05:37-05:57/20	05:34	20:15-20:32/17		06:37	07:37		07:44	15:29-15:48/19	08:42	
	22:11	21:08-21:28/20	21:19			20:01	18:41		16:26		15:45	
9	04:43	05:37-05:58/21	05:36	20:15-20:33/18		06:39	07:39		07:46	15:29-15:48/19	08:43	
	22:10	21:08-21:28/20	21:17			19:59	18:38		16:24		15:44	
10	04:44	05:36-05:58/22	05:38	20:14-20:34/20		06:41	07:42		07:48	15:30-15:46/16	08:44	
	22:09	21:08-21:28/20	21:15			19:56	18:35		16:22		15:44	
11	04:46	05:37-05:59/22	05:40	20:14-20:34/20		06:43	07:44		07:50	15:30-15:44/14	08:46	
	22:08	21:08-21:28/20	21:12			19:53	18:33		16:20		15:43	
12	04:47	05:37-05:59/22	05:42	20:12-20:33/21		06:45	07:46		07:53	15:31-15:42/11	08:47	
	22:07	21:09-21:28/19	21:10			19:51	18:30		16:18		15:43	
13	04:48	05:37-05:59/22	05:44	20:12-20:33/21		06:47	07:48		07:55	15:32-15:40/8	08:48	
	22:06	21:09-21:27/18	21:08			19:48	18:28		16:16		15:43	
14	04:50	05:36-05:59/23	05:46	19:59-20:06/7		06:49	07:50		07:57	15:33-15:37/4	08:49	
	22:04	21:09-21:26/17	21:05	20:12-20:32/20		19:45	18:25		16:15		15:43	
15	04:51	05:37-06:00/23	05:48	19:57-20:08/11		06:51	07:52		07:59	15:35-15:36/1	08:50	
	22:03	21:09-21:25/16	21:03	20:13-20:30/17		19:42	18:22		16:13		15:43	
16	04:53	05:37-05:59/22	05:50	19:55-20:10/15		06:53	07:54		08:01		08:51	
	22:02	21:09-21:24/15	21:00	20:13-20:28/15		19:40	18:20		16:11		15:43	
17	04:54	05:38-06:00/22	05:52	19:54-20:11/17		06:55	07:56		08:03		08:52	
	22:00	21:09-21:22/13	20:58	20:13-20:26/13		19:37	18:17		16:09		15:43	
18	04:56	05:37-06:00/23	05:54	19:53-20:12/19		06:57	07:58		08:05		08:53	
	21:59	21:10-21:21/11	20:56	20:14-20:24/10		19:34	18:15		16:08		15:43	
19	04:57	05:37-05:59/22	05:57	19:52-20:12/20		06:59	08:00		08:07		08:54	
	21:57	21:10-21:20/10	20:53	20:15-20:22/7		19:32	18:12		16:06		15:43	
20	04:59	05:38-05:59/21	05:59	19:50-20:11/21		07:01	08:03		08:09		08:54	
	21:56	21:12-21:19/7	20:51	20:16-20:18/2		19:29	18:10		16:04		15:43	
21	05:01	05:38-05:59/21	06:01	19:50-20:11/21		07:03	08:05		08:12		08:55	
	21:54	21:12-21:17/5	20:48			19:26	18:07		16:03		15:44	
22	05:02	05:39-05:59/20	06:03	19:49-20:11/22		07:05	08:07		08:14		08:56	
	21:53	21:13-21:16/3	20:46			19:23	18:05		16:01		15:44	
23	05:04	05:40-05:59/19	06:05	19:48-20:11/23		07:07	08:09		08:16		08:56	
	21:51		20:43			19:21	18:02		16:00		15:45	
24	05:06	05:41-05:58/17	06:07	19:47-20:09/22		07:09	08:11	16:54-17:02/8	08:18		08:56	
	21:49		20:41			19:18	18:00		15:58		15:45	
25	05:08	05:43-05:57/14	06:09	19:46-20:07/21		07:11	07:13	15:51-16:04/13	08:19		08:57	
	21:47		20:38			19:15	16:58		15:57		15:46	
26	05:10	05:44-05:56/12	06:11	19:46-20:05/19		07:13	07:16	15:50-16:06/16	08:21		08:57	
	21:46		20:36			19:13	16:55		15:56		15:47	
27	05:11	05:46-05:55/9	06:13	19:46-20:02/16		07:15	07:18	15:49-16:06/17	08:23		08:57	
	21:44		20:33			19:10	16:53		15:54		15:48	
28	05:13	05:48-05:53/5	06:15	19:46-20:00/14		07:17	07:20	15:48-16:07/19	08:25		08:57	
	21:42		20:30			19:07	16:50		15:53		15:49	
29	05:15		06:17	19:46-19:57/11		07:19	07:22	15:48-16:07/19	08:27		08:57	
	21:40		20:28			19:05	16:48		15:52		15:49	
30	05:17		06:19	19:46-19:54/8		07:21	07:24	15:47-16:07/20	08:29		08:57	
	21:38		20:25			19:02	16:46		15:51		15:50	
31	05:19		06:21	19:47-19:51/4			07:26	15:37-15:40/3			08:57	
	21:36		20:23				16:44	15:48-16:08/20			15:52	
Potential sun hours	530		470		385		323		247		215	
Sum of minutes with flicker	879		528		1		135		275		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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 6 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (14)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June
1	08:57 15:53	08:21 16:51	07:17 17:53	06:54 19:59	07:39-08:04/25 21:02	05:38 19:54-20:23/29 21:59
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	07:36-08:05/29 21:04	05:35 19:55-20:22/27 22:00
3	08:57 15:56	08:17 16:55	07:12 17:57	06:49 20:03	07:34-08:06/32 21:06	05:33 19:56-20:21/25 22:02
4	08:56 15:57	08:15 16:57	07:09 18:00	06:46 20:05	07:33-08:08/35 21:08	05:31 20:01-20:02/1 22:03
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	07:31-08:08/37 21:10	05:29 20:06-20:19/13 22:04
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	07:30-08:08/38 21:12	05:26 20:07-20:18/11 22:06
7	08:55 16:01	08:09 17:04	07:01 18:06	06:38 20:11	07:29-08:09/40 21:14	05:24 20:10-20:14/4 22:07
8	08:54 16:03	08:07 17:06	06:59 18:08	06:36 20:13	07:28-08:09/41 21:16	05:22 22:08
9	08:53 16:05	08:04 17:08	06:56 18:10	06:33 20:16	07:28-08:10/42 21:18	05:20 22:09
10	08:52 16:06	08:02 17:11	06:53 18:13	06:30 20:18	07:27-08:10/43 21:20	05:18 22:10
11	08:52 16:08	08:00 17:13	06:51 18:15	06:28 20:20	07:26-08:09/43 21:22	05:16 22:11
12	08:51 16:10	07:58 17:15	06:48 18:17	06:25 20:22	07:26-08:10/44 21:24	05:14 22:12
13	08:50 16:11	07:56 17:18	06:45 18:19	06:23 20:24	07:25-08:09/44 21:26	05:12 22:12
14	08:49 16:13	07:53 17:20	06:43 18:21	06:20 20:26	07:25-08:09/44 21:28	05:10 22:13
15	08:47 16:15	07:51 17:22	06:40 18:23	06:17 20:28	07:25-08:08/43 21:30	05:08 22:14
16	08:46 16:17	07:49 17:24	06:37 18:25	06:15 20:30	07:25-08:08/43 21:32	05:06 22:14
17	08:45 16:19	07:46 17:27	06:35 18:27	06:12 20:32	07:25-08:07/42 21:34	05:04 22:15
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:34	20:01-20:04/3 21:36	05:02 22:16
19	08:42 16:23	07:41 17:31	06:29 18:32	06:07 20:36	19:57-20:06/9 21:37	05:00 22:16
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	19:56-20:08/12 21:39	04:58 22:16
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	19:54-20:09/15 21:41	04:57 22:17
22	08:38 16:29	07:34 17:38	06:21 18:38	06:00 20:43	19:54-20:12/18 21:43	04:55 22:17
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	19:53-20:14/21 21:45	04:53 22:17
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 20:47	19:52-20:15/23 21:46	04:52 22:17
25	08:33 16:35	07:27 17:44	06:13 18:44	05:52 20:49	19:52-20:18/26 21:48	04:50 22:17
26	08:32 16:37	07:24 17:47	06:10 18:46	05:50 20:51	19:52-20:20/28 21:50	04:49 22:17
27	08:30 16:40	07:22 17:49	06:08 18:48	05:47 20:53	19:51-20:21/30 21:51	04:47 22:17
28	08:28 16:42	07:19 17:51	06:05 18:50	05:45 20:55	19:52-20:23/31 21:53	04:46 22:17
29	08:27 16:44		07:02 19:53	05:43 20:57	19:52-20:23/31 21:55	04:45 22:16
30	08:25 16:46		07:00 19:55	05:40 20:59	19:53-20:23/30 21:56	04:43 22:16
31	08:23 16:48		06:57 19:57		07:41-08:01/20 21:58	04:42 22:16
Potential sun hours	235	266	366	426	508	529
Sum of minutes with flicker	0	0	31	1275	125	126

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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 6 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (14)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	July	August	September	October	November	December
1	04:35 22:16	05:21 21:34	06:23 07:26-08:09/43 20:20	07:23 18:59	07:29 16:41	08:31 15:50
2	04:36 22:15	05:23 21:32	06:25 07:25-08:08/43 20:17	07:25 18:57	07:31 16:39	08:32 15:49
3	04:37 22:15	05:25 21:30	06:27 07:25-08:07/42 20:15	07:27 18:54	07:33 16:37	08:34 15:48
4	04:38 22:14	05:27 21:28	06:29 07:25-08:06/41 20:12	07:29 18:51	07:35 16:35	08:36 15:47
5	04:39 22:13	05:29 21:26	06:31 07:25-08:06/41 20:09	07:31 18:49	07:37 16:33	08:37 15:47
6	04:40 22:12	05:31 20:19-20:26/7 21:24	06:33 07:26-08:05/39 20:07	07:33 18:46	07:40 16:30	08:39 15:46
7	04:41 22:12	05:33 20:16-20:27/11 21:21	06:35 07:26-08:03/37 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	04:42 22:11	05:35 20:15-20:29/14 21:19	06:37 07:27-08:02/35 20:01	07:37 18:41	07:44 16:26	08:42 15:45
9	04:43 22:10	05:36 20:08-20:30/22 21:17	06:39 07:28-08:00/32 19:59	07:39 18:38	07:46 16:24	08:43 15:44
10	04:44 22:09	05:38 20:05-20:31/26 21:15	06:41 07:29-07:59/30 19:56	07:42 18:35	07:48 16:22	08:44 15:44
11	04:46 22:08	05:40 20:04-20:31/27 21:12	06:43 07:31-07:56/25 19:53	07:44 18:33	07:50 16:20	08:46 15:43
12	04:47 22:07	05:42 20:02-20:32/30 21:10	06:45 07:33-07:54/21 19:51	07:46 18:30	07:53 16:18	08:47 15:43
13	04:48 22:06	05:44 20:00-20:31/31 21:08	06:47 07:36-07:50/14 19:48	07:48 18:28	07:55 16:16	08:48 15:43
14	04:50 22:04	05:47 20:00-20:31/31 21:05	06:49 19:45	07:50 18:25	07:57 16:15	08:49 15:43
15	04:51 22:03	05:49 19:59-20:30/31 21:03 07:44-07:57/13	06:51 19:42	07:52 18:22	07:59 16:13	08:50 15:43
16	04:53 22:02	05:51 19:59-20:28/29 21:00 07:40-08:00/20	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	04:54 22:00	05:53 19:59-20:26/27 20:58 07:38-08:02/24	06:55 19:37	07:56 18:17	08:03 16:09	08:52 15:43
18	04:56 21:59	05:55 19:59-20:24/25 20:56 07:36-08:04/28	06:57 19:34	07:58 18:15	08:05 16:08	08:53 15:43
19	04:58 21:57	05:57 19:59-20:22/23 20:53 07:35-08:05/30	06:59 19:32	08:01 18:12	08:07 16:06	08:54 15:43
20	04:59 21:56	05:59 19:59-20:19/20 20:51 07:34-08:07/33	07:01 19:29	08:03 18:10	08:09 16:04	08:54 15:44
21	05:01 21:54	06:01 19:58-20:16/18 20:48 07:32-08:08/36	07:03 19:26	08:05 18:07	08:12 16:03	08:55 15:44
22	05:03 21:53	06:03 19:59-20:14/15 20:46 07:30-08:08/38	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:44
23	05:04 21:51	06:05 20:00-20:12/12 20:43 07:29-08:08/39	07:07 19:21	08:09 18:02	08:16 16:00	08:56 15:45
24	05:06 21:49	06:07 20:01-20:09/8 20:41 07:29-08:09/40	07:09 19:18	08:11 18:00	08:18 15:58	08:56 15:46
25	05:08 21:47	06:09 20:04-20:07/3 20:38 07:28-08:09/41	07:11 19:15	07:13 16:58	08:19 15:57	08:57 15:46
26	05:10 21:46	06:11 07:27-08:10/43 20:36	07:13 19:13	07:16 16:55	08:21 15:56	08:57 15:47
27	05:11 21:44	06:13 07:27-08:10/43 20:33	07:15 19:10	07:18 16:53	08:23 15:55	08:57 15:48
28	05:13 21:42	06:15 07:26-08:10/44 20:30	07:17 19:07	07:20 16:51	08:25 15:53	08:57 15:49
29	05:15 21:40	06:17 07:26-08:10/44 20:28	07:19 19:05	07:22 16:48	08:27 15:52	08:57 15:50
30	05:17 21:38	06:19 07:26-08:10/44 20:25	07:21 19:02	07:24 16:46	08:29 15:51	08:57 15:51
31	05:19 21:36	06:21 07:26-08:09/43 20:23		07:26 16:44		08:57 15:52
Potential sun hours	530	470	385	323	247	216
Sum of minutes with flicker	0	1013	443	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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 7 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (15)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:57 15:53	08:21 16:51	07:17 17:53	06:54 19:59	05:38 21:02	04:41 21:59	04:35 22:16	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:31 15:50
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 20:01	05:35 21:04	04:40 22:01	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:57	07:31 16:39	08:32 15:49
3	08:57 15:56	08:17 16:55	07:12 17:57	06:49 20:03	05:33 21:06	04:39 22:02	04:37 22:15	05:25 21:30	06:27 20:15	07:27 18:54	07:33 16:37	08:34 15:48
4	08:56 15:58	08:15 16:59	07:09 18:02	06:46 20:07	05:31 21:10	04:38 22:04	04:38 22:13	05:27 21:26	06:29 20:09	07:29 18:49	07:35 16:33	08:36 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	05:29 21:10	04:37 22:04	04:39 22:13	05:29 21:26	06:31 20:09	07:31 18:49	07:37 16:33	08:37 15:47
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:06	04:40 22:13	05:31 21:24	06:33 20:07	07:33 18:46	07:40 16:30	08:39 15:46
7	08:55 16:01	08:09 17:04	07:01 18:06	06:38 20:11	05:24 21:14	04:35 22:07	04:41 22:12	05:33 21:21	06:35 20:04	07:35 18:43	07:42 16:28	08:40 15:45
8	08:54 16:03	08:07 17:06	06:59 18:08	06:36 20:14	05:22 21:16	04:34 22:08	04:42 22:11	05:35 21:19	06:37 20:01	07:37 18:41	07:44 16:26	08:42 15:45
9	08:53 16:04	08:05 17:08	06:56 18:10	06:33 20:16	05:20 21:18	04:33 22:09	04:43 22:10	05:37 21:17	06:39 19:59	07:40 18:38	07:46 16:24	08:43 15:44
10	08:52 16:06	08:02 17:11	06:53 18:13	06:30 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:15	06:41 19:56	07:42 18:35	07:48 16:22	08:44 15:44
11	08:52 16:08	08:00 17:13	06:51 18:15	06:28 20:20	05:16 21:22	04:32 22:11	04:46 22:08	05:40 21:12	06:43 19:53	07:44 18:33	07:51 16:20	08:46 15:43
12	08:51 16:10	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	04:32 22:12	04:47 22:07	05:43 21:10	06:45 19:51	07:46 18:30	07:53 16:18	08:47 15:43
13	08:50 16:11	07:56 17:18	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:13	04:48 22:06	05:45 21:08	06:47 19:48	07:48 18:28	07:55 16:16	08:48 15:43
14	08:49 16:13	07:53 17:20	06:43 18:21	06:20 20:26	05:10 21:28	04:31 22:13	04:50 22:04	05:47 21:05	06:49 19:45	07:50 18:25	07:57 16:15	08:49 15:43
15	08:48 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	04:31 22:14	04:51 22:03	05:49 21:03	06:51 19:43	07:52 18:23	07:59 16:13	08:50 15:43
16	08:46 16:17	07:49 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:15	04:53 22:02	05:51 21:01	06:53 19:40	07:54 18:20	08:01 16:11	08:51 15:43
17	08:45 16:19	07:46 17:27	06:35 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:53 20:58	06:55 19:37	07:56 18:17	08:03 16:09	08:52 15:43
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:34	05:02 21:36	04:30 22:16	04:56 21:59	05:55 20:56	06:57 19:34	07:58 18:15	08:05 16:08	08:53 15:43
19	08:43 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:38	04:30 22:16	04:57 21:57	05:57 20:53	06:59 19:32	08:01 18:12	08:08 16:06	08:54 15:43
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:58 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 19:29	08:03 18:10	08:10 16:04	08:54 15:44
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:17	05:01 21:54	06:01 20:48	07:03 19:26	08:05 18:07	08:12 16:03	08:55 15:44
22	08:38 16:29	07:34 17:38	06:21 18:38	06:00 20:43	04:55 21:43	04:30 22:17	05:03 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:44
23	08:37 16:31	07:32 17:40	06:19 18:40	05:57 20:45	04:53 21:45	04:31 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:02	08:16 16:00	08:56 15:45
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:58	08:57 15:46
25	08:34 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:48	06:09 20:38	07:11 19:15	07:13 16:58	08:20 15:57	08:57 15:46
26	08:32 16:37	07:24 17:47	06:10 18:46	05:50 20:51	04:49 21:50	04:32 22:17	05:10 21:46	06:11 20:36	07:13 19:13	07:16 16:55	08:22 15:56	08:57 15:47
27	08:30 16:40	07:22 17:49	06:08 18:48	05:47 20:53	04:47 21:51	04:32 22:17	05:11 21:44	06:13 20:33	07:15 19:10	07:18 16:53	08:23 15:55	08:57 15:48
28	08:28 16:42	07:19 17:51	06:05 18:51	05:45 20:55	04:46 21:53	04:33 22:17	05:13 21:42	06:15 20:30	07:17 19:07	07:20 16:51	08:25 15:53	08:57 15:49
29	08:27 16:44		07:02 19:53	05:43 20:57	04:45 21:55	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:05	07:22 16:48	08:27 15:52	08:58 15:50
30	08:25 16:46		07:00 19:55	05:40 21:00	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	07:24 16:46	08:29 15:51	08:58 15:51
31	08:23 16:48		06:57 19:57		04:42 21:58		05:19 21:36	06:21 20:23		07:27 16:44		08:57 15:52
Potential sun hours	235	266	366	426	508	529	530	470	385	323	247	215
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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 8 - VESTAS V162-6.2 6200 162.0 !OI hub: 166,0 m (TOT: 247,0 m) (21)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January		February	March	April	May	June	July	August	September	October	November	December	
1	08:57	11:51-12:36/45	08:21	07:17	06:54	05:38	04:41	04:35	05:21	06:23	07:23	07:29	08:31	11:39-12:22/43
	15:53		16:50	17:53	19:59	21:02	21:59	22:16	21:34	20:20	18:59	16:41	15:50	
2	08:57	11:52-12:37/45	08:19	07:14	06:52	05:35	04:40	04:36	05:23	06:25	07:25	07:31	08:32	11:39-12:23/44
	15:54		16:53	17:55	20:01	21:04	22:01	22:15	21:32	20:17	18:57	16:39	15:49	
3	08:57	11:52-12:37/45	08:17	07:12	06:49	05:33	04:38	04:36	05:25	06:27	07:27	07:33	08:34	11:38-12:22/44
	15:56		16:55	17:57	20:03	21:06	22:02	22:15	21:30	20:15	18:54	16:37	15:48	
4	08:56	11:52-12:37/45	08:15	07:09	06:46	05:31	04:37	04:37	05:27	06:29	07:29	07:35	08:36	11:39-12:23/44
	15:57		16:57	18:00	20:05	21:08	22:03	22:14	21:28	20:12	18:51	16:35	15:47	
5	08:56	11:53-12:38/45	08:13	07:06	06:44	05:29	04:36	04:38	05:28	06:31	07:31	07:38	08:37	11:39-12:24/45
	15:58		16:59	18:02	20:07	21:10	22:05	22:13	21:26	20:09	18:49	16:32	15:47	
6	08:55	11:54-12:38/44	08:11	07:04	06:41	05:26	04:36	04:39	05:30	06:33	07:33	07:40	08:39	11:40-12:24/44
	16:00		17:02	18:04	20:09	21:12	22:06	22:13	21:24	20:07	18:46	16:30	15:46	
7	08:55	11:54-12:39/45	08:09	07:01	06:38	05:24	04:35	04:41	05:32	06:35	07:35	07:42	08:40	11:40-12:24/44
	16:01		17:04	18:06	20:11	21:14	22:07	22:12	21:22	20:04	18:43	16:28	15:45	
8	08:54	11:55-12:39/44	08:07	06:59	06:36	05:22	04:34	04:42	05:34	06:37	07:37	07:44	08:42	11:40-12:25/45
	16:03		17:06	18:08	20:14	21:16	22:08	22:11	21:19	20:01	18:41	16:26	15:45	
9	08:53	11:55-12:39/44	08:05	06:56	06:33	05:20	04:33	04:43	05:36	06:39	07:40	07:46	08:43	11:40-12:25/45
	16:04		17:08	18:10	20:16	21:18	22:09	22:10	21:17	19:59	18:38	16:24	15:44	
10	08:53	11:56-12:40/44	08:02	06:53	06:30	05:18	04:33	04:44	05:38	06:41	07:42	07:48	08:45	11:41-12:26/45
	16:06		17:11	18:13	20:18	21:20	22:10	22:09	21:15	19:56	18:35	16:22	15:44	
11	08:52	11:57-12:40/43	08:00	06:51	06:28	05:16	04:32	04:45	05:40	06:43	07:44	07:51	08:46	11:41-12:26/45
	16:08		17:13	18:15	20:20	21:22	22:11	22:08	21:12	19:53	18:33	16:20	15:43	
12	08:51	11:56-12:39/43	07:58	06:48	06:25	05:14	04:32	04:47	05:42	06:45	07:46	07:53	08:47	11:42-12:27/45
	16:09		17:15	18:17	20:22	21:24	22:12	22:07	21:10	19:51	18:30	16:18	15:43	
13	08:50	11:57-12:40/43	07:56	06:45	06:23	05:12	04:31	04:48	05:44	06:47	07:48	07:55	08:48	11:43-12:27/44
	16:11		17:17	18:19	20:24	21:26	22:13	22:06	21:08	19:48	18:28	16:16	15:43	
14	08:49	11:58-12:40/42	07:53	06:43	06:20	05:10	04:31	04:50	05:46	06:49	07:50	07:57	08:49	11:43-12:28/45
	16:13		17:20	18:21	20:26	21:28	22:13	22:05	21:05	19:45	18:25	16:15	15:43	
15	08:48	11:58-12:40/42	07:51	06:40	06:17	05:08	04:30	04:51	05:48	06:51	07:52	07:59	08:50	11:43-12:28/45
	16:15		17:22	18:23	20:28	21:30	22:14	22:03	21:03	19:43	18:22	16:13	15:43	
16	08:46	12:00-12:40/40	07:49	06:37	06:15	05:06	04:30	04:53	05:50	06:53	07:54	08:01	08:51	11:44-12:29/45
	16:17		17:24	18:25	20:30	21:32	22:15	22:02	21:01	19:40	18:20	16:11	15:43	
17	08:45	12:00-12:40/40	07:46	06:35	06:12	05:04	04:30	04:54	05:52	06:55	07:56	08:03	08:52	11:44-12:29/45
	16:19		17:26	18:27	20:32	21:34	22:15	22:01	20:58	19:37	18:17	16:09	15:43	
18	08:44	12:01-12:40/39	07:44	06:32	06:10	05:02	04:30	04:56	05:54	06:57	07:58	08:06	08:53	11:45-12:30/45
	16:21		17:29	18:30	20:35	21:36	22:16	21:59	20:56	19:34	18:15	16:07	15:43	
19	08:43	12:02-12:40/38	07:42	06:29	06:07	05:00	04:30	04:57	05:57	06:59	08:01	08:08	08:54	11:46-12:30/44
	16:23		17:31	18:32	20:37	21:38	22:16	21:58	20:53	19:32	18:12	16:06	15:43	
20	08:41	12:02-12:39/37	07:39	06:27	06:05	04:58	04:30	04:59	05:59	07:01	08:03	08:10	08:55	11:45-12:30/45
	16:25		17:33	18:34	20:39	21:39	22:17	21:56	20:51	19:29	18:10	16:04	15:43	
21	08:40	12:04-12:39/35	07:37	06:24	06:02	04:57	04:30	05:01	06:01	07:03	08:05	08:12	08:55	11:46-12:31/45
	16:27		17:35	18:36	20:41	21:41	22:17	21:54	20:48	19:26	18:07	16:03	15:44	
22	08:38	12:05-12:38/33	07:34	06:21	06:00	04:55	04:30	05:02	06:03	07:05	08:07	08:14	08:56	11:46-12:31/45
	16:29		17:38	18:38	20:43	21:43	22:17	21:53	20:46	19:24	18:05	16:01	15:44	
23	08:37	12:06-12:38/32	07:32	06:19	05:57	04:53	04:30	05:04	06:05	07:07	08:09	08:16	08:56	11:47-12:32/45
	16:31		17:40	18:40	20:45	21:45	22:17	21:51	20:43	19:21	18:02	16:00	15:45	
24	08:35	12:07-12:37/30	07:29	06:16	05:55	04:52	04:31	05:06	06:07	07:09	08:11	08:18	08:57	11:47-12:32/45
	16:33		17:42	18:42	20:47	21:47	22:17	21:49	20:41	19:18	18:00	15:58	15:45	
25	08:34	12:09-12:35/26	07:27	06:13	05:52	04:50	04:31	05:08	06:09	07:11	07:13	08:20	08:57	11:48-12:33/45
	16:35		17:44	18:44	20:49	21:48	22:17	21:48	20:38	19:15	16:58	15:57	15:46	
26	08:32	12:11-12:34/23	07:24	06:10	05:50	04:49	04:32	05:09	06:11	07:13	07:16	08:22	08:57	11:48-12:33/45
	16:37		17:46	18:46	20:51	21:50	22:17	21:46	20:36	19:13	16:55	15:56	15:47	
27	08:30	12:13-12:32/19	07:22	06:08	05:47	04:47	04:32	05:11	06:13	07:15	07:18	08:23	08:57	11:48-12:33/45
	16:39		17:49	18:48	20:53	21:52	22:17	21:44	20:33	19:10	16:53	15:54	15:48	
28	08:28	12:17-12:29/12	07:19	06:05	05:45	04:46	04:33	05:13	06:15	07:17	07:20	08:25	08:58	11:49-12:34/45
	16:42		17:51	18:51	20:55	21:53	22:17	21:42	20:30	19:07	16:50	15:53	15:48	
29	08:27			07:02	05:42	04:44	04:33	05:15	06:17	07:19	07:22	08:27	08:58	11:50-12:34/44
	16:44			19:53	20:58	21:55	22:17	21:40	20:28	19:05	16:48	15:52	15:49	
30	08:25			07:00	05:40	04:43	04:34	05:17	06:19	07:21	07:24	08:29	08:58	11:50-12:35/45
	16:46			19:55	21:00	21:56	22:16	21:38	20:25	19:02	16:46	15:51	15:50	
31	08:23				04:42			05:19	06:21		07:27		08:58	11:51-12:36/45
	16:48				19:57	21:58		21:36	20:23		16:44		15:52	
Potential sun hours	235		266	366	426	508	530	530	470	385	323	247	215	1385
Sum of minutes with flicker	1063		0	0	0	0	0	0	0	0	0	574		

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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian &amp; Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 9 - VESTAS V162-6.2 6200 162.0 !OI! hub: 166,0 m (TOT: 247,0 m) (22)

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,80	1,82	4,75	6,63	9,63	10,06	8,16	7,72	5,94	2,93	0,63	0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:57 09:48-10:12/24 15:53	08:21 07:17 16:50	07:17 17:53 19:59	06:54 19:59 21:02	05:38 21:02 21:59	04:41 22:16 22:16	04:35 21:34 21:34	05:21 21:34 21:34	06:23 20:20 18:59	07:23 18:59 16:41	07:29 16:41 15:50	08:31 09:33-10:01/28 15:50
2	08:57 09:49-10:13/24 15:54	08:19 07:14 16:53	07:14 17:55 20:01	06:52 20:01 21:04	05:35 21:04 22:01	04:39 22:15 22:15	04:36 21:32 21:32	05:23 21:32 21:32	06:25 20:17 18:57	07:25 16:39 16:39	07:31 16:39 15:49	08:32 09:33-10:01/28 15:49
3	08:57 09:49-10:13/24 15:55	08:17 07:12 16:55	07:12 17:57 20:03	06:49 20:03 21:06	05:33 21:06 22:02	04:38 22:15 21:30	04:36 21:30 21:30	05:25 21:30 21:30	06:27 20:15 18:54	07:27 16:37 16:37	07:33 16:37 15:48	08:34 09:33-10:00/27 15:48
4	08:56 09:48-10:14/26 15:57	08:15 07:09 16:57	07:09 18:00 20:05	06:46 20:05 21:08	05:31 21:08 22:03	04:37 22:14 21:28	04:37 21:28 21:28	05:26 21:28 21:28	06:29 20:12 18:51	07:29 16:35 16:35	07:35 16:35 15:47	08:36 09:34-10:01/27 15:47
5	08:56 09:49-10:15/26 15:58	08:13 07:06 16:59	07:06 18:02 20:07	06:44 20:07 21:10	05:29 21:10 22:05	04:36 22:13 21:26	04:38 21:26 21:26	05:28 21:26 21:26	06:31 20:09 18:49	07:31 16:32 16:32	07:37 16:32 15:46	08:37 09:35-10:01/26 15:46
6	08:55 09:49-10:15/26 16:00	08:11 07:04 17:02	07:04 18:04 20:09	06:41 20:09 21:12	05:26 21:12 22:06	04:36 22:13 21:24	04:39 21:24 21:24	05:30 21:24 21:24	06:33 20:07 18:46	07:33 16:30 16:30	07:40 16:30 15:46	08:39 09:35-10:02/27 15:46
7	08:55 09:49-10:16/27 16:01	08:09 07:01 17:04	07:01 18:06 20:11	06:38 20:11 21:14	05:24 21:14 22:07	04:35 22:12 21:21	04:40 21:21 21:21	05:32 21:21 21:21	06:35 20:04 18:43	07:35 16:28 16:28	07:42 16:28 15:45	08:40 09:35-10:01/26 15:45
8	08:54 09:50-10:17/27 16:03	08:07 06:59 17:06	06:59 18:08 20:14	06:36 20:14 21:16	05:22 21:16 22:08	04:34 22:11 21:19	04:42 21:19 21:19	05:34 21:19 21:19	06:37 20:01 18:41	07:37 16:26 16:26	07:44 16:26 15:45	08:42 09:36-10:02/26 15:45
9	08:53 09:50-10:17/27 16:04	08:05 06:56 17:08	06:56 18:10 20:16	06:33 20:16 21:18	05:20 21:18 22:09	04:33 22:10 21:17	04:43 21:17 21:17	05:36 21:17 21:17	06:39 20:01 18:38	07:40 16:24 16:24	07:46 16:24 15:44	08:43 09:37-10:01/24 15:44
10	08:53 09:50-10:18/28 16:06	08:02 06:53 17:11	06:53 18:13 20:18	06:30 20:18 21:20	05:18 21:20 22:10	04:33 22:09 21:15	04:44 21:15 21:15	05:38 21:15 21:15	06:41 20:01 18:35	07:42 16:22 16:22	07:48 16:22 15:44	08:44 09:38-10:02/24 15:44
11	08:52 09:51-10:19/28 16:08	08:00 06:51 17:13	06:51 18:15 20:20	06:28 20:20 21:22	05:16 21:22 22:11	04:32 22:08 21:12	04:45 21:12 21:12	05:40 21:12 21:12	06:43 20:01 18:33	07:44 16:20 16:20	07:51 16:20 15:43	08:46 09:38-10:02/24 15:43
12	08:51 09:50-10:18/28 16:09	07:58 06:48 17:15	06:48 18:17 20:22	06:25 20:22 21:24	05:14 21:24 22:12	04:31 22:07 21:10	04:47 21:10 21:10	05:42 21:10 21:10	06:45 20:01 18:30	07:46 16:18 16:18	07:53 16:18 15:43	08:47 09:39-10:03/24 15:43
13	08:50 09:51-10:19/28 16:11	07:56 06:45 17:17	06:45 18:19 20:24	06:22 20:24 21:26	05:11 21:26 22:13	04:31 22:06 21:08	04:48 21:08 21:08	05:44 21:08 21:08	06:47 20:01 18:28	07:48 16:16 16:16	07:55 09:37-09:45/8 16:16	08:48 09:40-10:03/23 16:16
14	08:49 09:51-10:20/29 16:13	07:53 06:43 17:20	06:43 18:21 20:26	06:20 20:26 21:28	05:09 21:28 22:13	04:31 22:04 21:05	04:50 21:05 21:05	05:46 20:04-20:11/7 21:05	06:49 20:01 18:25	07:50 16:14 16:14	07:57 09:35-09:49/14 16:14	08:49 09:40-10:03/23 16:14
15	08:48 09:51-10:20/29 16:15	07:51 06:40 17:22	06:40 18:23 20:28	06:17 20:28 21:30	05:08 21:30 22:14	04:30 22:03 21:03	04:51 21:03 21:03	05:48 20:01-20:13/12 21:03	06:51 20:01 18:22	07:52 16:13 16:13	07:59 09:33-09:50/17 16:13	08:50 09:41-10:03/22 16:13
16	08:46 09:52-10:20/28 16:17	07:49 06:37 17:24	06:37 18:15 20:30	06:15 20:30 21:32	05:06 21:32 22:15	04:30 22:02 21:01	04:53 21:01 21:01	05:50 20:00-20:14/14 21:01	06:53 20:01 18:20	07:54 16:11 16:11	08:01 09:32-09:51/19 16:11	08:51 09:42-10:03/21 16:11
17	08:45 09:52-10:20/28 16:19	07:46 06:35 17:26	06:35 18:12 20:32	06:12 20:32 21:34	05:04 21:34 22:15	04:30 22:00 20:58	04:54 20:58 20:58	05:52 19:59-20:15/16 20:58	06:55 20:01 18:17	07:56 16:09 16:09	08:03 09:32-09:53/21 16:09	08:52 09:42-10:04/22 16:09
18	08:44 09:53-10:21/28 16:21	07:44 06:32 17:29	06:32 18:10 20:34	06:10 20:34 21:36	05:02 21:36 22:16	04:30 21:59 20:56	04:56 20:56 20:56	05:54 19:58-20:16/18 20:56	06:57 20:01 18:15	07:58 16:07 16:07	08:05 09:31-09:54/23 16:07	08:53 09:43-10:04/21 16:07
19	08:43 09:53-10:21/28 16:23	07:42 06:29 17:31	06:29 18:10 20:37	06:07 20:37 21:38	05:00 21:38 22:16	04:30 21:58 20:53	04:57 20:53 20:53	05:56 19:57-20:16/19 20:53	06:59 20:01 18:12	08:01 16:06 16:06	08:08 09:31-09:55/24 16:06	08:54 09:44-10:05/21 16:06
20	08:41 09:53-10:21/28 16:25	07:39 06:27 17:33	06:27 18:10 20:39	06:05 20:39 21:39	05:00 21:39 22:16	04:30 21:56 20:51	04:59 20:51 20:51	05:58 19:56-20:15/19 20:51	07:01 20:01 18:10	08:10 16:04 16:04	08:17 09:30-09:56/26 16:04	08:54 09:44-10:04/20 16:04
21	08:40 09:55-10:21/26 16:27	07:37 06:24 17:35	06:24 18:10 20:41	06:02 20:41 21:41	04:57 21:41 22:17	04:30 21:54 20:48	05:01 20:48 20:48	06:01 19:56-20:15/19 20:48	07:03 20:01 18:07	08:12 16:03 16:03	08:19 09:30-09:56/26 16:03	08:55 09:45-10:05/20 16:03
22	08:38 09:55-10:21/26 16:29	07:34 06:21 17:38	06:21 18:10 20:43	05:59 20:43 21:43	04:55 21:43 22:17	04:30 21:53 20:46	05:02 20:46 20:46	06:03 19:56-20:14/18 20:46	07:05 20:01 18:05	08:14 16:01 16:01	08:21 09:29-09:57/28 16:01	08:56 09:45-10:05/20 16:01
23	08:37 09:56-10:20/24 16:31	07:32 06:18 17:40	06:18 18:10 20:45	05:57 20:45 21:45	04:53 21:45 22:17	04:30 21:51 20:43	05:04 20:43 20:43	06:05 19:56-20:12/16 20:43	07:07 20:01 18:02	08:09 16:00 16:00	08:16 09:30-09:58/28 16:00	08:56 09:46-10:06/20 16:00
24	08:35 09:57-10:20/23 16:33	07:29 06:16 17:42	06:16 18:10 20:47	05:55 20:47 21:47	04:52 21:47 22:17	04:31 21:49 20:41	05:06 20:41 20:41	06:07 19:56-20:09/13 20:41	07:09 20:01 18:18	08:11 16:00 16:00	08:18 09:30-09:58/28 16:00	08:57 09:46-10:07/21 16:00
25	08:34 09:58-10:19/21 16:35	07:27 06:13 17:44	06:13 18:10 20:49	05:52 20:49 21:48	04:50 21:48 22:17	04:31 21:48 20:38	05:08 20:38 20:38	06:09 19:57-20:07/10 20:38	07:11 20:01 18:15	07:13 16:00 16:00	08:20 09:30-09:58/28 16:00	08:57 09:46-10:07/21 16:00
26	08:32 09:59-10:18/19 16:37	07:24 06:10 17:46	06:10 18:10 20:51	05:50 20:51 21:50	04:49 21:50 22:17	04:31 21:46 20:36	05:09 20:36 20:36	06:11 19:58-20:05/7 20:36	07:13 20:01 18:13	07:16 16:00 16:00	08:22 09:30-09:59/29 16:00	08:57 09:46-10:07/21 16:00
27	08:30 10:00-10:17/17 16:39	07:22 06:08 17:49	06:08 18:10 20:53	05:47 20:53 21:52	04:47 21:52 22:17	04:32 21:44 20:33	05:11 20:33 20:33	06:13 20:00-20:02/2 20:33	07:15 20:01 18:15	07:18 16:00 16:00	08:23 09:30-09:59/29 16:00	08:57 09:47-10:08/21 16:00
28	08:28 10:02-10:16/14 16:42	07:19 06:05 17:51	06:05 18:10 20:55	05:45 20:55 21:53	04:46 21:53 22:17	04:33 21:42 20:30	05:13 20:30 20:30	06:15 20:30 20:30	07:17 20:01 18:20	07:20 16:00 16:00	08:25 09:31-10:00/29 16:00	08:58 09:47-10:09/22 16:00
29	08:27 10:05-10:13/8 16:44	07:19 06:05 17:53	06:05 18:10 20:57	05:45 20:57 21:55	04:44 21:55 22:16	04:33 21:40 20:28	05:15 20:28 20:28	06:17 20:28 20:28	07:19 20:01 18:20	07:22 16:00 16:00	08:27 09:32-10:00/28 16:00	08:58 09:47-10:09/22 16:00
30	08:25 16:46 16:46	07:00 05:40 19:55	05:40 21:00 21:00	05:40 21:00 21:00	04:43 21:00 21:56	04:34 21:38 20:25	05:17 20:25 20:25	06:19 20:25 20:25	07:21 20:01 18:20	07:24 16:00 16:00	08:29 09:32-10:00/28 16:00	08:58 09:48-10:10/22 16:00
31	08:23 16:48 16:48	06:57 19:57 19:57	19:57 21:00 21:00	21:00 21:00 21:00	04:42 21:00 21:58	04:34 21:36 20:23	05:19 20:23 20:23	06:21 20:23 20:23	07:27 20:01 18:20	07:27 16:00 16:00	08:29 09:32-10:00/28 16:00	08:57 09:48-10:11/23 16:00
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Sum of minutes with flicker	719	0	0	187	0	0	0	190	0	0	433	717

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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian & Lithuanian environment  
Vilandes 3-6  
LV-1010 Riga  
0037167242411  
Laura Kurzemniece / laura.kurzemniece@environment.lv  
Calculated:  
04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 10 - VESTAS V162-6.2 6200 162.0 !OI! hub: 166,0 m (TOT: 247,0 m) (23)  
Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []  
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
0,80 1,82 4,75 6,63 9,63 10,06 8,16 7,72 5,94 2,93 0,63 0,52

No operational time reduction. It is assumed the WTGs are always running  
with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December
1	08:57 15:53	08:21 16:50	07:17 08:58-09:27/29 17:53	06:54 19:59	05:38 21:02	04:41 21:59	04:35 22:16	05:21 21:34	06:23 20:20	07:23 18:59	07:29 08:26-09:01/35 16:41	08:31 15:50
2	08:57 15:54	08:19 16:53	07:14 09:00-09:25/25 17:55	06:52 20:01	05:35 21:04	04:39 22:01	04:35 22:15	05:23 21:32	06:25 20:17	07:25 18:57	07:31 08:28-09:01/33 16:39	08:32 15:49
3	08:57 15:55	08:17 16:55	07:12 09:02-09:22/20 17:57	06:49 20:03	05:33 21:06	04:38 22:02	04:36 22:15	05:25 21:30	06:27 20:15	07:27 18:54	07:33 08:29-08:59/30 16:37	08:34 15:48
4	08:56 15:57	08:15 16:57	07:09 09:06-09:18/12 18:00	06:46 20:05	05:31 21:08	04:37 22:03	04:37 22:14	05:26 21:28	06:29 20:12	07:29 18:51	07:35 08:30-08:57/27 16:35	08:36 15:47
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 20:07	05:29 21:10	04:36 22:05	04:38 22:13	05:28 21:26	06:31 20:09	07:31 18:49	07:37 08:32-08:56/24 16:32	08:37 15:46
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 20:09	05:26 21:12	04:36 22:06	04:39 22:13	05:30 21:24	06:33 20:07	07:33 18:46	07:40 08:34-08:54/20 16:30	08:39 15:46
7	08:55 16:01	08:09 17:04	09:00-09:28/28 18:06	07:01 20:11	05:24 21:14	04:35 22:07	04:40 22:12	05:32 21:21	06:35 20:04	07:35 18:43	07:42 08:38-08:51/13 16:28	08:40 15:45
8	08:54 16:03	08:07 17:06	08:59-09:29/30 18:08	06:59 20:14	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 20:01	07:37 18:41	07:44 09:45-09:49/4 16:26	08:42 15:45
9	08:53 16:04	08:05 17:08	08:58-09:31/33 18:10	06:56 20:16	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:59	07:40 09:45-09:49/4 18:38	07:46 09:38-09:55/17 16:24	08:43 15:44
10	08:53 16:06	08:02 17:11	08:57-09:32/35 18:13	06:53 20:18	05:18 21:20	04:33 22:09	04:44 22:15	05:38 21:15	06:41 19:56	07:42 09:38-09:55/17 18:35	07:48 09:28-10:03/35 16:22	08:45 15:44
11	08:52 16:08	08:00 17:13	08:56-09:33/37 18:15	06:51 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 19:53	07:44 09:35-09:58/23 18:33	07:51 09:33-09:59/26 16:20	08:46 15:43
12	08:51 16:09	07:58 17:15	08:56-09:34/38 18:17	06:48 20:22	05:13 21:24	04:31 22:12	04:47 22:07	05:42 21:10	06:45 19:51	07:46 09:33-09:59/26 18:30	07:53 09:31-10:01/30 16:18	08:47 15:43
13	08:50 16:11	07:56 17:17	08:55-09:34/39 18:19	06:45 20:24	05:11 21:26	04:31 22:13	04:48 22:06	05:44 21:08	06:47 19:48	07:48 09:31-10:01/30 18:28	07:55 09:30-10:03/33 16:16	08:48 15:43
14	08:49 16:13	07:53 17:20	08:55-09:35/40 18:21	06:43 20:26	05:09 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 19:45	07:50 09:30-10:03/33 18:25	07:57 09:28-10:03/35 16:14	08:49 15:43
15	08:48 16:15	07:51 17:22	08:54-09:35/41 18:23	06:40 20:28	05:08 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 19:42	07:52 09:28-10:03/35 18:22	07:59 09:27-10:04/37 16:13	08:50 10:44-10:47/3 15:43
16	08:46 16:17	07:49 17:24	08:54-09:36/42 18:25	06:37 20:30	05:06 21:32	04:30 22:15	04:53 22:02	05:50 21:01	06:53 19:40	07:54 09:27-10:04/37 18:20	08:01 09:26-10:04/38 16:11	08:51 10:44-10:49/5 15:43
17	08:45 16:19	07:46 17:26	08:53-09:35/42 18:27	06:35 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 20:58	06:55 19:37	07:56 09:26-10:04/38 18:17	08:03 09:25-10:05/40 16:09	08:52 10:43-10:50/7 15:43
18	08:44 16:21	07:44 17:29	08:53-09:36/43 18:30	06:32 20:34	05:02 21:36	04:30 22:16	04:56 21:59	05:54 20:56	06:57 19:34	07:58 09:25-10:05/40 18:15	08:05 09:25-10:06/41 16:07	08:53 10:44-10:51/7 15:43
19	08:43 16:23	07:42 17:31	08:53-09:36/43 18:32	06:29 20:37	05:00 21:38	04:30 22:16	04:57 21:58	05:56 20:53	06:59 19:32	08:01 09:25-10:06/41 18:12	08:08 09:24-10:06/42 16:06	08:54 10:44-10:52/8 15:43
20	08:41 16:25	07:39 17:33	08:53-09:36/43 18:34	06:27 20:39	04:58 21:39	04:30 22:16	04:59 21:56	05:58 20:51	07:01 19:29	08:03 09:24-10:06/42 18:10	08:10 09:23-10:06/43 16:04	08:55 10:44-10:52/8 15:43
21	08:40 16:27	07:37 17:35	08:53-09:35/42 18:36	06:24 20:41	04:57 21:41	04:30 22:17	05:01 21:54	06:01 20:48	07:03 19:26	08:05 09:23-10:06/43 18:07	08:12 09:24-10:06/42 16:03	08:55 10:44-10:53/9 15:44
22	08:38 16:29	07:34 17:38	08:53-09:34/41 18:38	06:21 20:43	04:55 21:43	04:30 22:17	05:02 21:53	06:03 20:46	07:05 19:24	08:07 09:24-10:06/42 18:05	08:14 09:23-10:06/43 16:01	08:56 10:44-10:53/9 15:44
23	08:37 16:31	07:32 17:40	08:54-09:34/40 18:40	06:18 20:45	04:53 21:45	04:30 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 09:23-10:06/43 18:02	08:16 09:23-10:05/42 16:00	08:56 10:46-10:54/8 15:45
24	08:35 16:33	07:29 17:42	08:54-09:33/39 18:42	06:16 20:47	04:52 21:47	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 09:23-10:05/42 18:00	08:18 08:24-09:06/42 16:58	08:57 10:46-10:54/8 15:45
25	08:34 16:35	07:27 17:44	08:55-09:33/38 18:44	06:13 20:49	04:50 21:48	04:31 22:17	05:08 21:48	06:09 20:38	07:11 19:15	07:13 08:24-09:06/42 18:57	08:20 09:23-10:05/42 16:56	08:57 10:46-10:54/8 15:46
26	08:32 16:37	07:24 17:46	08:55-09:32/37 18:46	06:10 20:51	04:49 21:50	04:31 22:17	05:09 21:46	06:11 20:36	07:13 19:13	07:16 08:23-09:05/42 18:55	08:22 09:23-10:05/42 16:55	08:57 10:47-10:54/7 15:47
27	08:30 16:39	07:22 17:49	08:56-09:30/34 18:48	06:08 20:53	04:47 21:52	04:32 22:17	05:11 21:44	06:13 20:33	07:15 19:10	07:18 08:23-09:04/41 18:53	08:23 08:24-09:04/40 16:53	08:57 10:48-10:54/6 15:48
28	08:28 16:42	07:19 17:51	08:57-09:29/32 18:51	06:05 20:55	04:46 21:53	04:33 22:17	05:13 21:42	06:15 20:30	07:17 19:07	07:20 08:24-09:04/40 18:50	08:25 08:25-09:02/37 16:50	08:58 10:50-10:54/4 15:48
29	08:27 16:44			07:02 19:53	04:44 21:55	04:33 22:17	05:15 21:40	06:17 20:28	07:19 19:05	07:22 08:24-09:03/39 18:48	08:27 08:25-09:02/37 16:48	08:58 10:50-10:54/4 15:49
30	08:25 16:46			07:00 19:55	04:43 21:56	04:34 22:16	05:17 21:38	06:19 20:25	07:21 19:02	07:24 08:25-09:02/37 18:46	08:29 08:26-09:02/36 16:43	08:58 10:50-10:54/4 15:50
31	08:23 16:48			06:57 19:57		04:42 21:58	05:19 21:36	06:21 20:23		07:27 08:26-09:02/36 16:43		08:58 10:50-10:54/4 15:51
Potential sun hours	235	266	366	426	508	530	530	470	385	323	247	215
Sum of minutes with flicker	0	900	86	0	0	0	0	0	0	813	182	97

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:

flickering\_Vestas\_V162\_Stelpe1

Licensed user:

SIA Estonian, Latvian & Lithuanian environment

Vilandes 3-6

LV-1010 Riga

0037167242411

Laura Kurzemniece / laura.kurzemniece@environment.lv

Calculated:

04.04.2025 08:55/4.1.254

## SHADOW - Calendar per WTG

Calculation: Flickering\_Vestas\_V162 WTG: 13 - VESTAS V162-6.2 6200 162.0 !O! hub: 166,0 m (TOT: 247,0 m) (24

Assumptions for shadow calculations

Sunshine probability S (Average daily sunshine hours) []

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec  
0,80 1,82 4,75 6,63 9,63 10,06 8,16 7,72 5,94 2,93 0,63 0,52

No operational time reduction. It is assumed the WTGs are always running with worst case wind direction.

	January	February	March	April	May	June	July	August	September	October	November	December	
1	08:57 15:53	08:21 16:50	07:17 17:53	06:54 19:01-19:13/12 19:59 19:17-19:30/13	05:38 21:02	04:41 21:59	04:35 22:16	05:21 21:34	06:23 20:20	07:23 18:59	07:29 16:41	08:31 15:50	
2	08:57 15:54	08:19 16:53	07:14 17:55	06:52 19:04-19:11/7 20:01 19:17-19:33/16	05:35 21:04	04:40 22:01	04:36 22:15	05:23 21:32	06:25 20:17	07:25 18:57	07:31 16:39	08:32 15:49	
3	08:57 15:56	08:17 16:55	07:12 17:57	06:49 19:16-19:34/18 20:03	05:33 21:06	04:38 22:02	04:36 22:15	05:25 21:30	06:27 19:18-19:24/6 20:15	07:27 18:54	07:33 16:37	08:34 15:48	
4	08:56 15:57	08:15 16:57	07:09 18:00	06:46 19:15-19:33/18 20:05	05:31 21:08	04:37 22:03	04:37 22:14	05:27 21:28	06:29 19:15-19:26/11 20:12	07:29 18:51	07:35 16:35	08:36 15:47	
5	08:56 15:58	08:13 16:59	07:06 18:02	06:44 19:16-19:33/17 20:07	05:29 21:10	04:36 22:04	04:38 22:13	05:28 21:26	06:31 19:13-19:28/15 20:09	07:31 18:49	07:37 16:32	08:37 15:47	
6	08:55 16:00	08:11 17:02	07:04 18:04	06:41 19:16-19:32/16 20:09	05:26 21:12	04:36 22:06	04:39 22:13	05:30 21:24	06:33 19:12-19:28/16 20:07	07:33 18:46	07:40 16:30	08:39 15:46	
7	08:55 16:01	08:09 17:04	07:01 18:06	06:38 19:17-19:32/15 20:11	05:24 21:14	04:35 22:07	04:41 22:12	05:32 21:21	06:35 19:11-19:29/18 20:04	07:35 18:43	07:42 16:28	08:40 15:45	
8	08:54 16:03	08:07 17:06	06:59 18:08	06:36 19:18-19:29/11 20:13	05:22 21:16	04:34 22:08	04:42 22:11	05:34 21:19	06:37 19:10-19:29/19 20:01	07:37 18:41	07:44 16:26	08:42 15:45	
9	08:53 16:04	08:05 17:08	06:56 18:10	06:33 19:20-19:26/6 20:16	05:20 21:18	04:33 22:09	04:43 22:10	05:36 21:17	06:39 19:10-19:28/18 19:59	07:39 18:38	07:46 16:24	08:43 15:44	
10	08:52 16:06	08:02 17:11	06:53 18:13	06:30 20:18	05:18 21:20	04:33 22:10	04:44 22:09	05:38 21:15	06:41 18:58-19:04/6 19:56 19:10-19:26/16	07:42 18:35	07:48 16:22	08:44 15:44	
11	08:52 16:08	08:00 17:13	06:51 18:15	06:28 20:20	05:16 21:22	04:32 22:11	04:45 22:08	05:40 21:12	06:43 18:55-19:07/12 19:53 19:10-19:23/13	07:44 18:33	07:51 16:20	08:46 15:43	
12	08:51 16:09	07:58 17:15	06:48 18:17	06:25 20:22	05:14 21:24	04:32 22:12	04:47 22:07	05:42 21:10	06:45 18:53-19:08/15 19:51 19:10-19:21/11	07:46 18:30	07:53 16:18	08:47 15:43	
13	08:50 16:11	07:56 17:17	06:45 18:19	06:23 20:24	05:12 21:26	04:31 22:13	04:48 22:06	05:44 21:08	06:47 18:51-19:07/16 19:48 19:10-19:17/7	07:48 18:28	07:55 16:16	08:48 15:43	
14	08:49 16:13	07:53 17:20	06:43 18:21	06:20 20:26	05:10 21:28	04:31 22:13	04:50 22:04	05:46 21:05	06:49 18:50-19:08/18 19:45 19:12-19:14/2	07:50 18:25	07:57 16:15	08:49 15:43	
15	08:48 16:15	07:51 17:22	06:40 18:23	06:17 20:28	05:08 21:30	04:30 22:14	04:51 22:03	05:48 21:03	06:51 18:49-19:08/19 19:42	07:52 18:22	07:59 16:13	08:50 15:43	
16	08:46 16:17	07:49 17:24	06:37 18:25	06:15 20:30	05:06 21:32	04:30 22:15	04:53 22:02	05:50 21:01	06:53 18:48-19:08/20 19:40	07:54 18:20	08:01 16:11	08:51 15:43	
17	08:45 16:19	07:46 17:26	06:35 18:27	06:12 20:32	05:04 21:34	04:30 22:15	04:54 22:00	05:52 20:58	06:55 18:48-19:06/18 19:37	07:56 18:17	08:03 16:09	08:52 15:43	
18	08:44 16:21	07:44 17:29	06:32 18:30	06:10 20:34	05:02 21:36	04:30 22:16	04:56 21:59	05:54 20:56	06:57 18:48-19:04/16 19:34	07:58 18:15	08:05 16:07	08:53 15:43	
19	08:43 16:23	07:42 17:31	06:29 18:32	06:07 20:37	05:00 21:38	04:30 22:16	04:57 21:57	05:56 20:53	06:59 18:49-19:01/12 19:32	08:01 18:12	08:08 16:06	08:54 15:43	
20	08:41 16:25	07:39 17:33	06:27 18:34	06:05 20:39	04:58 21:39	04:30 22:16	04:59 21:56	05:59 20:51	07:01 18:50-18:58/8 19:29	08:03 18:10	08:10 16:04	08:54 15:43	
21	08:40 16:27	07:37 17:35	06:24 18:36	06:02 20:41	04:57 21:41	04:30 22:17	05:01 21:54	06:01 20:48	07:03 18:51-18:56/5 19:26	08:05 18:07	08:12 16:03	08:55 15:44	
22	08:38 16:29	07:34 17:38	06:21 18:38	06:00 20:43	04:55 21:43	04:30 22:17	05:02 21:53	06:03 20:46	07:05 19:24	08:07 18:05	08:14 16:01	08:56 15:44	
23	08:37 16:31	07:32 17:40	06:18 18:40	05:57 20:45	04:53 21:45	04:30 22:17	05:04 21:51	06:05 20:43	07:07 19:21	08:09 18:02	08:16 16:00	08:56 15:45	
24	08:35 16:33	07:29 17:42	06:16 18:42	05:55 20:47	04:52 21:46	04:31 22:17	05:06 21:49	06:07 20:41	07:09 19:18	08:11 18:00	08:18 15:58	08:57 15:45	
25	08:34 16:35	07:27 17:44	06:13 18:44	05:52 20:49	04:50 21:48	04:31 22:17	05:08 21:48	06:09 20:38	07:11 19:15	07:13 16:58	08:20 15:57	08:57 15:46	
26	08:32 16:37	07:24 17:46	06:10 18:46	05:50 20:51	04:49 21:50	04:32 22:17	05:09 21:46	06:11 20:36	07:13 19:13	07:16 16:55	08:22 15:56	08:57 15:47	
27	08:30 16:39	07:22 17:49	06:08 18:48	05:47 20:53	04:47 21:52	04:32 22:17	05:11 21:44	06:13 20:33	07:15 19:10	07:18 16:53	08:23 15:54	08:57 15:48	
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29	08:27 16:44	07:17 17:53	06:04 18:52	05:42 20:57	04:44 21:55	04:33 22:16	05:15 21:40	06:17 20:28	07:19 19:05	07:22 16:48	08:27 15:52	08:58 15:49	
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31	08:23 16:48	07:13 17:49	06:57 18:50	05:38 19:57	04:42 21:58	04:34 22:16	05:19 21:36	06:21 20:23	07:23 19:02	07:27 16:44	08:31 15:52	08:57 15:52	
Potential sun hours	235	266	366	426	508	530	530	470	385	317	323	247	215
Sum of minutes with flicker	0	0	162	149	0	0	0	0	0	317	0	0	8

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

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